



Project Acronym and Title:
**M4ShaleGas - Measuring, monitoring, mitigating and managing the
environmental impact of shale gas**

**Public perceptions of shale gas in various EU Member States, public attitudes
and communication strategies developed around shale gas investments (update
2015-2017)**

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Public introduction

M4ShaleGas stands for *Measuring, monitoring, mitigating and managing the environmental impact of shale gas* and is funded by the *European Union's Horizon 2020 Research and Innovation Program*. The main goal of the M4ShaleGas project is to study and evaluate potential risks and impacts of shale gas exploration and exploitation. The focus lies on the four main areas of potential impact: the subsurface, the surface, the atmosphere & climate, and public perceptions.

The European Commission's Energy Roadmap 2050 identifies gas as a critical fuel for the transformation of the energy system in the direction of lower CO₂ emissions and more renewable energy. Shale gas may contribute to this transformation.

Shale gas is – by definition – a natural gas found trapped in shale, a fine grained sedimentary rock composed of mud. There are several concerns related to shale gas exploration and production, many of them being associated with hydraulic fracturing operations that are performed to stimulate gas flow in the shales. Potential risks and concerns include for example the fate of chemical compounds in the used hydraulic fracturing and drilling fluids and their potential impact on shallow ground water. The fracturing process may also induce small magnitude earthquakes which may raise public concern if felt at the surface. There is also an ongoing debate on greenhouse gas emissions of shale gas (CO₂ and methane) and its energy efficiency compared to other energy sources.

There is a strong need of a better European knowledge base on shale gas operations and their environmental impact particularly, if shale gas shall play a role in Europe's energy mix in the coming decennia. M4ShaleGas' main goal is to build such a knowledge base, including an inventory of best practices that minimize risks and impacts of shale gas exploration and production in Europe.

The M4ShaleGas project is carried out by 18 European research institutions and is coordinated by TNO-Netherlands Organisation for Applied Scientific Research.

Executive Report Summary

This report is a continuation of the M4ShaleGas report from 2015, titled "Existing European Data on Public Perceptions of Shale Gas" (Deliverable 17.1.). Here, we present a review of the data on the public perception of shale gas in the four European countries Poland, the UK, Germany and the Netherlands after November 2015 until August 2017. The report follows a similar structure to its preceding paper. The first part offers an overview of the current literature available on public perceptions of shale gas and on social aspects of shale gas development in the four selected countries. The following section focuses on opinion polls and survey studies on public attitudes. The third part deals with positions on shale gas extraction of main stakeholders (industry, environmental NGO's and citizens' associations, experts, governments and political parties). It also provides a review of communication activities on shale gas that have taken place in Poland, the UK, Germany and the Netherlands since November 2015. In the last sections we give an overview of the EU-level data on public attitudes, such as the consultation of the European Commission on shale gas and results of the Eurobarometer study on shale gas. In the Conclusions, we provide a summary of the main findings and discuss whether any changes could be observed after November 2015 in the studied areas.



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1 INTRODUCTION

1.1 Aims and study objectives of this report

This report is a continuation of the M4ShaleGas report from 2015, titled "Existing European Data on Public Perceptions of Shale Gas" (Deliverable 17.1). Here, we present a review of the research on the public perception of shale gas in the four European countries Poland, the UK, Germany and the Netherlands after November 2015 up until August 2017. The report follows a similar structure to the preceding paper. The first part offers an overview of the current literature available on public perceptions of shale gas and on social aspects of shale gas development in the four selected countries. The following section focuses on opinion polls and survey studies on public attitudes. The third part deals with positions on shale gas extraction of main stakeholders (industry, environmental NGO's and citizens' associations, experts, governments and political parties). It also provides a review of communication activities on shale gas that have taken place in Poland, the UK, Germany and the Netherlands since November 2015. In the last section, we provide an overview of the EU-level data on public attitudes gas. In the Conclusions, we provide a summary of the main findings and discuss whether any changes could be observed after November 2015 in the studied areas.



2 LITERATURE REVIEW ON PUBLIC PERCEPTIONS OF SHALE GAS

2.1 Introduction

Here we review academic publications on social aspects of shale gas development in the four case study countries: Poland, the United Kingdom, Germany and the Netherlands. Some studies are of a comparative nature. The issues addressed in these articles concern public perceptions, local responses, framing and policy as well as political processes at various levels of governance. Interestingly, despite very limited activities on the ground, the years since 2015 have seen a sizeable amount of publications on unconventional hydrocarbons extraction in Europe.

2.2 Poland

In the period from November 2015 until August 2017, several important studies were published about political and social issues related to shale gas development in Poland. In 2016, Andreas Goldthaus and Benjamin Sovacool published a comparative analysis, titled "Energy Technology, Politics, and Interpretative Frames: Insights from Shale Gas Fracking in Eastern Europe", where they examine how various interpretative frames were used in policy narratives in three Eastern European countries: Poland, Bulgaria and Romania. Based on sixty-six semi-structured interviews, the authors point to differing and competing frames. In their study, they show how different sets of institutions share these frames, such as the economic opportunity frame, the national security frame and the environmental bane frame. They conclude that enhancing energy security is not a simple function of resource endowment and technological progress, but rather the result of complex interactions among different stakeholders and related discursive processes. The interviews analysed in this study covered all relevant policy levels (national, regional, and local) and actor groups (government, public and private companies, regulators, and civil society). The interesting finding of the study is that some institutions were referring to several frames simultaneously, even if some of them were conflicting. Shale gas is thus polysemiotic and shows a considerable level of interpretative flexibility.

Another article examining Polish debates on shale gas, entitled "Can the Polish shale gas dog still bark? Politics and policy of unconventional hydrocarbons in Poland", was published by Jakub Godzimirski in 2016. Based on interviews with key experts and policy makers, this paper reconstructs development of shale gas in Poland and maps how various factors and actors have interacted in this process. The article sheds light on how four factors – national energy governance, social acceptance and geological conditions, combined with the Polish approach to energy security – and argues that they contributed to the process of shaping of the Polish policy on development of shale gas in a period between 2005 and 2015. The study focuses on four main issues: perceptions of risk and the socially constructed debate on unconventional gas; developments in individual countries (Poland) and in the EU; national concerns about externalities; the adequacy of current EU regulation and its reception in member states. In the conclusions, the author discusses factors that might have influenced the failure of the



Polish shale gas project: difficult geological conditions, falling oil and gas prices, uncertainty about the place of fossil fuels in energy mix in Europe in general. He suggests that shale gas could help Poland to reduce the use of coal.

Similarly, Aleksandra Lis and Piotr Stankiewicz (2017) examine how the shale gas issue was framed by political elites and in the mainstream media discourse between 2011 and 2014 and what kind of regulations were proposed by the Civic Platform government. The authors also inquire into the reasons why, at the level of national government, the shale gas issue was not framed in terms of environmental risk. They draw attention to the fact that this kind of framing appeared mostly in NGOs' and local communities' discourses, but it was countered by experts with their "no-risk" framing. Additionally, NGOs and community representatives were framed as "emotional" and "irrational" by experts who adopted a knowledge deficit model to communication on techno-scientific issues related to shale gas development. Framing local actors as "emotional and irrational non-experts" contributed to the exclusion of the frames that they proposed.

An important contribution to the studies of media discourse on shale gas, titled "Gaz łupkowy w polskim dyskursie medialnym", was published by Aleksandra Wagner in a Polish language edited volume *Widoczne i niewidoczne. Atom, łupki, wiatr w dyskursach medialnych wokół energetyki (Visible and Invisible. Nuclear Energy, Shale Gas and Wind Power in the Polish Media Discourse*, Wagner, 2016). In the media analysis, Wagner concludes that shale gas was mainly discussed in terms of a valuable resource rather than the extraction technology. The main participants of the discourse were politicians and economic experts who referred to the macro-level issues, such as the geopolitics and the state economy. Legal regulations figure in the discourse more in relation to specific state and corporations' interests, rather than in relation to problems of justice or fairness. The whole volume was translated into English and published in English in 2017 under the title *Visible and Invisible. Nuclear Energy, Shale Gas, and Wind Power in Media Discourses on Energy*. General conclusions about the organization of deliberation and the role of media in deliberative democracy in relation to the shale gas issue, were published by Aleksandra Wagner in an online journal *e-Znaczenia* in 2016. In all her analysis, Wagner underlines the role of non-knowledge (lack of knowledge) on various aspects of shale gas development. She concludes that in this case, the traditional expert model of gaining authority by the media failed because the expert knowledge which could or should have been used to strengthen the authority of media reporting was simply not there.

A similar conclusion, about a failure and inadequacy of an expert model of communication in case of uncertainty about the volume of shale gas resource itself and about the impacts of shale gas development, was drawn by Aleksandra Lis and Agata Stasik in their article "Hybrid forums, knowledge deficits and the multiple uncertainties of resource extraction: Negotiating the local governance of shale gas in Poland" (2017). By drawing on discourse analysis of three local meetings that were organized to introduce the issue of shale gas development, the authors point out that the type of information demanded by local actors was not in the hands of the experts and company



representatives at that moment. This was due to the nature of the exploration process which is loaded with uncertainties about the volume of the resource, organization of shale gas projects in space and time, as well as its environmental and social impacts. The demanded information needed to be processed by experts and companies based on their activities on the ground. This shift in time between information demand and information supply contributes to strained relations between local communities and companies.

Another analysis, by Agata Stasik (2017), examines the impact of the use of the Internet on the dynamics of risk communication by shale gas projects. This article advances the debate on this phenomenon by focusing on an aspect of siting controversies that has become a game changer in recent years but has received remarkably little attention: the role of Web 2.0 in siting conflicts. To explore the impact of Web 2.0, the paper uses a case study approach, examining the influence of access to the Internet in two siting conflicts associated with shale gas prospecting in Poland in the period from 2012 to 2014. The possibilities that Web 2.0 offers to residents and other local actors in siting conflicts included: access to knowledge, the ability to reframe the local debate using international resources, and mobilization of a network of support by sharing their version of the story. This influences the dynamics of risk communication during siting controversies.

Roberto Cantoni, in contrast, presented a paper titled “Second Galicia? Poland’s shale gas affair through historical lenses” at CERI – Sciences Po, Paris in 2017. He sets out with an observation that among the staunchest supporters of the development of national shale gas resources were Polish administrations, which grounded their activism in this domain in the language of energy security, autonomy vis-à-vis Russian gas, and in Poland’s old oil history. The history of hydrocarbon exploration in the country dates back to the mid-XIX century, and is connected to the oil boom that occurred in the region of Galicia. He grounds shale gas exploration in a historical perspective and points out that while the boom was over by World War I, promising estimations made in recent years by several agencies about Poland’s shale gas reserves have stirred hopes of a ‘second Galicia.’ From 2007, the Polish government started assigning permits to both national and foreign gas companies. However, factors linked to legislation, geology and macroeconomics caused a premature end to hopes of Polish energy independence. After a reconstruction of the history of oil in Galicia and the constitution of the Polish oil and gas sector, this paper narrates the rise and fall of Poland’s affair with shale gas.

2.3 The United Kingdom

The social science literature on shale gas development in the UK grew considerably in the years between 2015 and 2017 and some novel approaches researching shale gas development emerged, such as the human rights and social (energy) justice perspective. In addition, many social science researchers engaged with the question of public attitudes, politics and regulation.



The human rights perspective brought the concept of 'extreme energy' into the shale gas debate (Short et al. 2015). In their analysis, Short et al. (2015) explore potential human rights impacts of 'extreme energy' processes, specifically focussing on the production of shale gas, coalbed methane (CBM) and 'tight oil', known colloquially as 'fracking'. The article locates the discussion within a broader context of resource depletion, the 'limits to growth' and the process of extreme energy itself. Utilising recent secondary data from the United States and Australia, combined with the preliminary findings of their ethnographic fieldwork in the United Kingdom, the article outlines a case for investigating 'fracking' development through a human rights lens. Based on considerable emerging evidence the authors argue that 'fracking' development poses a significant risk to a range of key human rights and should thus form the subject of comprehensive, interdisciplinary human rights impact assessments (HRIAs) which is currently not a legal requirement. Finally, given the close relationships between government and extractive industries, the authors argue that these impact assessments must do more than bolster corporate social responsibility (CSR) statements and should be truly independent of either government or industry influence.

A thorough social impact assessment (SIA) study was carried out in Lancashire by Anna Szolucha (2016). The author argues that understanding of social and psychological factors as well as public understanding of risk is central to taking informed decisions about shale gas exploration and extraction. On the basis of existing evidence and the research conducted for this report, she finds it evident that the failure to consider these aspects of shale gas development significantly understates its actual and potential impacts. Such issues are not part of the planning process in the UK and this, according to the author, often alters the planning balance in favour of development. From a social point of view, according to Szolucha, assessing shale gas exploration and extraction as a low-impact activity is unsupported by the evidence. To support this conclusion, she brings examples of local conflicts, stress and psychological trauma caused by the prospects of shale gas industry in the neighbourhood. Szolucha suggests that a social impact assessment should be fundamental in all political and local decision-making about shale gas development that prioritises public health and social well-being.

A similar perspective on shale gas and human rights was offered by Damien Short and Anna Szolucha (2017) who published together their analysis of a case study of the Lancashire anti-fracking protest. The authors investigate the alleged crimes, harms and human rights violations associated with the process of 'extreme energy', whereby energy extraction methods grow more 'unconventional' and intense over time as the easier to extract resources are depleted. While there is a significant difference between the impact of oil sands and the impact of shale gas exploration in the UK, the authors contribute to the fields of rural sociology and political science that have produced important perception studies, but few social impact studies. - . According to the authors, it is vital that more social and environmental impact studies become part of the local, national and international public policy debate. To this end, they seek to move beyond perception studies to highlight the potential harms that can occur at the planning and approval stage. Indeed, while the UK is yet to see unconventional gas and oil extraction



reach the production stage, as this article shows, local communities can suffer significant harms even at the exploration stage when national governments with a determination to explore for shale gas are set on developing unconventional resources in the face of considerable opposition and a wealth of evidence of potential environmental and social harms – both of which are still an object of contestation of many different actors. This paper takes a broad interdisciplinary approach, inspired by green criminological insights, that shows how a form of ‘collective trauma’ has been experienced at the exploration stage by the affected communities in the Northwest of England.

The human rights perspective can be complemented with the environmental justice perspective. A good example of this type of study is provided in the paper by Matthew Cotton (2017) where he argues that the exploitation of shale gas resources is a significant issue of environmental justice and uneven distributions of risks and social impacts to local site communities must be balanced against the economic benefits to gas users and developers. According to the author, the unequal decision-making powers must be negotiated between local and central governments, communities and fracking site developers. These distributive and procedural elements are addressed in relation to UK policy, planning, regulatory and industry development. Cotton adopts an explicitly normative framework of policy evaluation, addressing a research gap on the ethics of shale gas by operationalising Shrader-Frechette’s Principle of Prima Facie Political Equality. He concludes that UK fracking policy reveals inherent contradictions of environmental justice in relation to the Conservative Government’s localism and planning reform agendas. According to the author, early fracking policy protected communities from harm in the wake of seismic risk events, but these were quickly replaced with pro-industry economic stimulation and planning legislation that “curtailed community empowerment in fracking decision-making, increased environmental risks to communities, transferred powers from local to central government and created the conditions of distributive injustices in the management of community benefit provisions” (Cotton 2017, p. 185). He argues that only by “re-localising” the scale of fracking governance can political equality be ensured and the distributive and procedural environmental injustices be ameliorated. Cotton’s argument comes in the situation when the government is seeking to centralize decisions over shale gas.

In a similar vein, Whitton et al. (2017) argue that questions abound about the appropriate governance systems to manage the risks of unconventional oil and gas development, and the ability for citizens to engage and participate in those systems. In their paper, they map the development of shale gas governance in the US and UK by highlighting the contrasting systems of land ownership and mineral rights, comparing the opportunities that these systems of governance present the general public to participate and become involved in shale gas decisions and consider the implications on issues of social justice. The authors conclude that in both countries, that despite government and industry engagement rhetoric and associated processes, the publics’ influence on shale gas decisions is perceived to be minimal or not at all. They argue that the implications of the observed institutional governance systems, with few



opportunities for citizen influence, are developments which inherently lack social justice, procedural fairness, and ultimately, a social license to operate.

The risk and benefits framework was adopted by Thomas et al. (2017) who notice that shale gas and oil production in the US has increased rapidly in the past decade, while interest in prospective development has also arisen in the UK. In both countries, shale resources and the method of their extraction (hydraulic fracturing, or ‘fracking’) have been met with opposition amid concerns about impacts on water, greenhouse gas emissions, and health effects. The authors report the findings of a qualitative, cross-national deliberation study of public perceptions of shale development in UK and US locations not yet subject to extensive shale development. When presented with a carefully calibrated range of risks and benefits, participants’ discourse focused on risks or doubts about benefits, and potential impacts were viewed as inequitably distributed. Participants drew on direct, place-based experiences as well as national contexts in deliberating shale development. These findings suggest that shale gas development already evokes a similar ‘signature’ of risk across the US and UK.

There has also been a number of contributions to the literature on public perceptions and deliberation. Partridge et al. (2017) point out that shale development – extraction of oil and gas from shale rock formations using hydraulic fracturing or ‘fracking’ – has become a critical focus for energy debates in the US and UK. In both countries, potential industry expansion into new areas for shale extraction is expected to produce a wide range of environmental and social impacts and to change the configuration of future energy systems. To engage with emergent views on these complex, multi-scale issues, the authors held a series of day-long deliberation workshops (two in the US and two in the UK) designed and facilitated for diverse groups of people to discuss a range of possible consequences and meanings of shale development. Amid nuanced differences between and within national contexts, notable similarities in views were tracked across all four workshops. Concerns in common were not limited to specific risks such as water contamination. Participants also questioned whether shale development was compatible with their visions for and concerns about the longer-term future – including views on impacts and causes of climate change, societal dependency on fossil fuels, development of alternative energy technologies, the perceived short-term objectives of government and industry agencies, and obligations to act responsibly toward future generations. Extending prior qualitative research on shale development and on energy systems change, this research brings open-ended and cross-national public deliberation inquiry to bear on broader issues of climate change, responsibility, and ideas about how shale development might undermine or reinforce the energy systems that people consider important for the future.

Andersson-Hudson et al. (2016) argue that even though the development of shale gas in the United Kingdom (UK) using hydraulic fracturing, more commonly known as ‘fracking’, remains in its infancy, understanding public attitudes for this fledgling industry is important for future policy considerations, decision-making and for industry stakeholders. This study uses data collected by YouGov for the University of Nottingham, using a UK nationwide online survey (n=3823) conducted in September



2014, to consider ten hypotheses about the UK public's attitudes towards shale gas. From the survey data, the authors can see that 43.11% of respondents support shale gas extraction in the UK. Furthermore, the results show that women, class DE respondents, non-Conservative party supporters, and respondents who positively associate shale gas with water contamination or earthquakes are less likely to support the extraction of shale gas in the UK. The authors also discuss potential policy implications for the UK government arising from these findings.

The study by McQueen (2017) presents 'fracking' as a controversial issue to study how has the proposed introduction of fracking in the UK fared in light of these concerns. What role has science played in the battle for public opinion fought by the shale industry and its opponents? This chapter examines efforts by the shale industry to 'win hearts and minds', including the use of intensive public relations as well as academic funding and lobbying activities, and assesses their impact on media coverage of the controversy.

Some studies examined the relation between knowledge and attitudes. For example, Stedman et al. (2016) examine the relationship between knowledge/familiarity with shale gas development in a comparative context. The United States (US) and United Kingdom (UK) represent very different cases of shale gas development, with development relatively mature in the US whilst, no extraction of shale gas has yet commenced in the UK. Comparing results from two national level survey efforts in 2014, they find higher levels of knowledge about the shale gas industry in the UK than in the US, as well as higher levels of support in the US (opposition levels were similar, but US respondents were much less likely than UK respondents to say that they did not know whether they supported or opposed development). With respect to the relationship between knowledge and support, increased knowledge in the UK is associated with increased support, while knowledge was unrelated to support in the US. They anchor these results within the information deficit model of science, suggesting that concentrated media and governance in the UK have played an important role in producing the demonstrated effects.

The relation between knowledge and regulation has also be addressed in the study by Beebejaun (2016). In this paper, she draws on extensive qualitative research in Texas and Lancashire, undertaken between 2012 and 2015, to explore how differing regulatory frameworks are shaped through highly localized discourses that include communities opposed to fracking. Whilst there are significant differences between these two examples, including the extent of environmental monitoring, the local context remains a pivotal arena within which the regulatory and technical dimensions to fracking are being contested and scrutinized. The two cases illustrate how community opposition has catalysed important processes that have enhanced understanding of the environmental and social impacts of shale gas extraction.

Shale gas politics as such, have also occupied several scholars. Whitmarsh and Corner (2017) examine shale gas in relation to attitudes to climate change. They observe that political orientation and ideology are seen as being amongst the most significant



influences on climate change attitudes and responses. Specifically, those with right-of-centre political views are typically less concerned and more sceptical about climate change. A significant challenge remains to move beyond this ideological impasse and achieve a more open and constructive debate across the political spectrum. This paper reports on novel mixed-methods research in the UK to develop and test a series of ‘narratives’ to better engage citizens with centre-right political views. Qualitative work in Study 1 revealed two particularly promising narratives. The first focused on the idea that saving energy is predicated on the ‘conservative’ principle of avoiding waste; the second focused on the advantages of ‘Great British Energy’ (based on patriotic support for domestic low-carbon technologies). An online experiment in Study 2 with a representative UK sample compared these narratives with a more typically left-of-centre narrative focused on the concept of ‘climate justice’ with a representative sample of the UK public. Results indicate that the first two narratives elicited broad agreement and reduced scepticism amongst centre-right participants, while the ‘climate justice’ narrative (which reflects a common environmental message framing) polarised audiences along political lines. This research offers clear implications for how climate change communicators can move beyond preaching to the converted and initiate constructive dialogue about climate change with traditionally disengaged audiences.

Keeler (2016) studies politics of shale gas in relation to social movements. France and the U.K. are similar in having substantial reserves of shale gas and legal regimes in which mineral rights are controlled by the state. Companies and government officials in both cases have understandably expressed interest in exploiting those reserves as a means of stimulating economic growth and enhancing energy security. However, the debates over the development of shale gas have unfolded in very different trajectories on the two sides of the English Channel. In the French case, President Sarkozy’s government moved before the U.K. to authorize exploration for shale gas—but did so through an administrative blunder that would trigger a wave of resistance that led in 2011 to the first ban in the world on utilization of the fracking technique. In sharp contrast, the Conservative-led coalition government of David Cameron announced its intention in 2012 to put the U.K. “at the heart of the shale gas revolution.” As of August 2015, however, not a single drilling site was in operation. According to Keeler (2016), this has resulted from the development of a British anti-fracking movement raising the same objections that halted development in France, fractures within the governing coalition, and mobilization of opposition to shale gas development within the local planning process. To be more precise, first, there was the moratorium after the seismic events at Preese Hall and then the negative planning decision against Cuadrilla, but IGas and Third Energy have been proceeding with their plans, as have Cuadrilla at one sight following a successful appeal against local planning decision.

Stephan (2017) examines discursive politics around shale gas in Scotland. With a long history of oil and gas production and potentially significant reserves of unconventional gas, Scotland represents a notable case amid the growing international controversy over unconventional gas development (UGD). This article applies argumentative discourse analysis to the Scottish debate over UGD and identifies several important storylines which have mobilised different discourse coalitions and shaped public opinion as well



as policy-making. For now, anti-UGD storylines appear more encompassing and have achieved greater resonance. Of particular interest, however, is the role of the Scottish government as a third discourse coalition. Through a moratorium on all forms of UGD and a cautious ‘evidence-based approach’, the government has established a form of discursive dominance and has successfully minimised electoral risks. But its anti-Westminster storyline – created in the run-up to the Scottish independence referendum in 2014 – has undermined the government's pragmatic strategy by invoking Scottish resistance to the UK’s pursuit of shale gas. While the evidence-based approach persists as the preeminent storyline, its interpretation has ‘drifted’ from (1) a modestly reformed planning policy to (2) an exercise in scientific fact-finding combined with a public consultation and, arguably, (3) to a precautionary approach that might lay the foundation for an extended moratorium.

Bomberg (2017) studies shale gas politics in a transatlantic perspective. Both the US and European Union (EU) have ample shale beds; both are high consumption democracies thirsty for plentiful, stable, cheaper sources of energy. Yet exploitation of shale in the US has proceeded at fever pitch, while in the EU development has been hesitant, if not stagnant. Structural explanations – geological, geographic, economic, technological – are key to understanding this difference, but so too is the role of agency – who are the actors shaping policy and how do they seek to influence public debate and government agendas? This study, while mindful of structural conditions, applies insights from network and framing analysis to highlight the set of actors, interests and frames that shape shale’s variable development in the US and Europe. Drawing on an in-depth, systematic analysis of news reports, websites and interviews from 2013 to 2015, it demonstrates how differences in shale policy are explained not just by geology, economic or other structural factors, but also by the role of competing pro- and anti-shale networks, and the framing strategies they enjoy. In short, it argues that the interaction of structure and agency best explains transatlantic differences.

Another important contribution to shale gas politics in the UK was made by Bradshaw and Waite (2017). The authors are using the concept of social licence to operate (SLO) to examine the case of anti-fracking protests in Lancashire. They propose to integrate SLO with the SAP—Social, Actuarial and Political Licences—model. The authors describe the Lancashire case as “ground truth” for academic research and opinion polls on differing opinions and concerns as they became evident throughout the Cuadrilla planning inquiry. While the company assured communities about its ability to safeguard potential risks by relying on the existing regulatory frameworks, the community showed limited trust to the regulatory systems in place. The community members also raised doubts about compatibility of shale gas industry with the UK’s climate change policy. Additionally, since Lancashire activists maintain that shale gas should not be explored irrespective of the selected locality, there was no discussion under what terms shale gas development could be granted a social licence to operate. The authors also argue for the benefits of using SAP as an analytical framework as it put different stakeholders into play and shows that in Lancashire case not all licenses were needed to allow the company to operate. Cuadrilla proceeds with the actuarial licence granted by the national government, as well as with a national political licence. However, it lacks a



local political licence and an SLO. The authors also point to the weaknesses of the SAP model in the way it handles the complexity of scale: “The literature suggests that a SLO is a local, project specific, construct; yet the SAP model links it to national political support” (Bradshaw and Waite 2017). They notice a spatial miss-match between the distribution of benefits and costs of shale gas industry. While “the supposed benefits are at the national scale—energy security, balance of payments etc.—while the costs are both local and global” (Bradshaw and Waite 2017).

Another important contribution by Michael Bradshaw came in 2017, in the edited volume by R. Quentin Grafton and Ian G. Cronshaw, published by Cambridge University Press. In the study, Bradshaw gives an overview of the UK’s unconventional gas potential, provides some historical background and explores the contours of the shale gas debate in the UK, describes the current regulatory regime and its recent evolution and concludes by considering the challenges that must be overcome if the UK shale gas industry is to gain social licence to frack. In the conclusions he points out that the operators have become more inclined to speak of the need to obtain a social licence to operate. This indicates, according to Bradshaw, that the industry is aware of the fact that without public acceptance there is not going to be shale gas industry in the UK. And the SLO for shale gas industry is still to be negotiated in the UK. Concerns expressed by the public regard various issues of energy justice. Additionally, the ‘north-south divide’ and threats to rural communities exacerbate existing divisions in the UK society and evoke new feelings of injustice. This, among other things, puts local governments in a difficult position as they “now find themselves caught between on the one hand a concerned and vocal local electorate urging caution and a more precautionary approach and on the other hand a national government that favours shale gas exploration and that wishes to speed up decision-making” (Bradshaw 2017, p. 190).

2.4 Germany

According to our last report, public perceptions of and public engagement with the topic of unconventional gas drilling in Germany had yet to be thoroughly addressed by academic literature as only three publications could be identified dealing with these topics. The last two years have seen a slight increase in academic literature concerning the German public and its relation to unconventional gas production.

In the M4ShaleGas report from 2015, we briefly discussed a communication activity initiated by oil and gas producer ExxonMobil - the so-called “InfoDialog Fracking” (see Lis et al. 2015, p. 54). The dialogue process can be seen as an attempt from ExxonMobil to engage with the public on the controversial topic of unconventional gas production in Germany.¹ It also garnered attention in the academic sphere. Saretzki/Bornemann

¹ ExxonMobil has been active in Germany for several years and is conducting unconventional drilling activities for tight gas in the federal state of Lower Saxony since the 1990s (ExxonMobil 2012, p. 7). While tight gas makes up only three percent of the overall production volume of natural gas in Germany (Ibid., p. 7) it is regarded by ExxonMobil as an important reserve of natural gas (ExxonMobil Production, n.d., p. 6). The company is also interested in German shale gas reserves, estimated to around 2.3 trillion cubic metres (ExxonMobil 2012, p. 7).



(2014) critically discuss the dialogue with a special focus on the proclaimed neutrality of the process and the impartiality of the scientific expert panel that was part of the dialogue. They conclude that this “participatory ‘company dialogue’” should not be seen as “a model for an open societal discourse on fracking due to its private economic embedding and its limited conceptual approach” (Ibid., p. 70). In a 2016 paper, Basil Bornemann expands on this discussion about ExxonMobil’s “InfoDialog Fracking”, focusing on the way the dialogue was designed and how its design impacted the framing of the debate about unconventional gas drilling via hydraulic fracturing. Bornemann also sheds light on the way ExxonMobil’s dialogue was embedded in the general societal discourse about hydraulic fracturing in Germany. Following his analysis of the dialogue process and its effects, the author concludes that the “InfoDialog Fracking” did not achieve what it was aiming for: to mitigate the controversial public debate about hydraulic fracturing by way of “scientization”. ExxonMobil’s “InfoDialog Fracking” also features as a brief example in an article by Daniel März and Johannes Pütz (2015) on lobbying and public affairs management. The authors propose that methods like arena analyses (a further development of stakeholder analyses) and the game theory based arena model are central for managing public affairs. They describe ExxonMobil’s “InfoDialog Fracking” as an example of how a proactive approach using the arena analyses might have been a better strategy instead of trying to control the public debate and legislative process reactively with an information and dialogue process (p. 36).

Joséphine Süptitz and Christian Schlereth (2017) raise the question whether the public perception of unconventional hydrocarbon extraction is actually as low in Germany as it seems to be or if this is caused by vocal opinion leaders ‘ideologising’ the debate. According to the results of their research, a majority of the German public does reject hydraulic fracturing (p. 22). Another feature of their study details their use of “discrete choice experiments” following the SADR (Separate Adaptive Dual Response) method to investigate potential measures that might increase the level of acceptance of hydraulic fracturing in the general public. They conclude that acceptance can be somewhat increased if suitable arrangements can be offered, but that it won’t be enough to gain widespread public acceptance (p.22).

The media coverage of hydraulic fracturing in Germany and its possible impact on the framing of the public debate surrounding “fracking” is the subject matter in Benjamin Bigl’s article from 2016. A core element of the study is a discussion of the findings of a quantitative empirical study on two years of media coverage (2013 and 2014) on unconventional gas drilling and hydraulic fracturing in three selected German newspapers and political magazines. These media sources seemed to focus more strongly on the economic impact, especially regarding future energy supply, and less on potential risks associated with hydraulic fracturing.

Another article focuses more closely on the political situation of unconventional hydrocarbon extraction in Germany: Tosun/Lang (2016) trace the ban on hydraulic



fracturing as a result of the so-called “fracking law” from 2016/2017² back to two characteristics of the political debate on hydraulic fracturing and unconventional gas in Germany: The first concerns the high uncertainty of the potential consequences of hydraulic fracturing coupled with a tendency in the political discourse to invoke the precautionary principle. The second concerns the differences between competition and cooperation of political parties on either a federal level or on a federal state level that “leads to highly volatile advocacy coalitions.”

Hentschel/Centner (2016) take a closer look at the differences between the USA and Germany regarding property rights and their impact on unconventional gas production in the respective countries. The authors conclude that for the case of Germany, even if unconventional gas extraction would be allowed, widespread use would likely still be inhibited. Reason for this is that the legal framework surrounding property rights both incentivizes private landowners to become “advocates of environmental protection and public health” (Ibid., p.155) while at the same time offering no personal (economic) benefits for allowing unconventional gas production to private landowners (ibid., 155).

In addition to these journal articles, a book by Hoeft et al. (2017) was published on the civil opposition in the context of the German “Energiewende” (the transition from fossil and nuclear energy supply to renewable energy). The book details local conflicts surrounding wind energy, electrical power lines and hydraulic fracturing. The latter is for example addressed in the book’s fourth chapter. Here Klaudia Hanisch, Christoph Hoeft and Hannes Keune examine the forms of public protest against hydraulic fracturing in Germany. Of special interest is the case study of the project “DüsteZ10” by gas producer Wintershall which aims to produce tight gas via hydraulic fracturing. The authors offer a detailed description of the chronology of conflict surrounding this project as well as the involved actors from the industry, citizen’s initiatives and policy actors.

2.5 The Netherlands

In the time between November 2015 and August 2017, additional academic literature can be identified dealing with public perceptions of unconventional hydrocarbon production and the use of hydraulic fracturing in the Netherlands. Two of these new publications come from Tamara Metze, whose 2014 article on shale gas as a boundary-object featured in the M4ShaleGas report from 2015. In 2016, Tamara Metze and Jennifer Dodge published an article on the differences and similarities between the case of hydraulic fracturing in New York and in the Netherlands using the “Dynamic Discourse Coalition (DDC) approach”. The authors shed light on the dynamics that arise in the conflicts about hydraulic fracturing and seek to find out more about how different actors or “coalitions” use discursive boundary work to deal with either their own or with opposing discourse coalitions. In 2017, Tamara Metze discusses the (environmental) controversy surrounding hydraulic fracturing in the Netherlands again,

² For more information on the German “fracking law” see the discussion in section 4.4. in the present report.



this time with a special focus on how the future of energy supply and debates about degrowth feature in the framing of these controversies. According to her analysis, both advocates in favour of and against hydraulic fracturing use “pessimistic energy futures either to promote or devalue fracking technology” (p. 1). Furthermore, controversies like those about hydraulic fracturing can serve as an opening “for new futurity framings - such as the degrowth paradigm” (p. 7).

In 2016, Eefje Cuppen et al. share details about the results of interviews and a media analysis on the public controversy about shale gas production in the Netherlands between 2010 and 2013. The aim of the study is to learn more about the normative conflicts within the debate that seem to revolve mostly about shale gas and its impact on the energy transition as well as public interest in general - as expressed in the question about how to adjust national and local interests. The topic of energy transition is addressed in other papers as well. In 2016, Elisabet Dueholm Rasch and Michiel Köhne published a paper concentrating on the way negotiation takes place between citizens and the government where the inclusion of citizens in decision-making processes in relation to energy transition is concerned. The article uses the controversy about hydraulic fracturing in Noordoostpolder (the Netherlands) as a case study. On the basis of ethnographic field studies, the different ways these negotiations take place are illustrated. In a more recent paper from 2017, the same authors discuss the concept of energy justice and the different normative ascriptions made towards energy derived from fossil fuels and their counterpart: renewable energy technologies. This study, too, centres on ethnographic studies conducted in Noordoostpolder, detailing the way in which different actors engaged with both the prospect of shale gas production and renewable energy practices in the region. The topic of citizen’s inclusion in decision-making processes is also discussed in a short article by Paul Benneworth and Willem-Jan Velderman from 2016, here the authors focus on the situation in Twente, in the Netherlands, and the protests by its local residents against the Dutch national Oil Company (NAM) following a community meeting to inform them about waste water disposal in 2014. For Dignum et al. (2016) the focus lies on normative matters in the debate about hydraulic fracturing in the Netherlands. The authors apply the value sensitive approach (VSD) to the case, while shifting the focus from how to incorporate values in the design of the technology itself towards the design of institutions and stakeholder participation relevant in the case of unconventional hydrocarbon production. According to the authors, both substantive as well as procedural sets of values play a role in the conflict between advocates for and against hydraulic fracturing. Since both sides share the same values, the authors conclude that in the case of shale gas production in the Netherlands the debate is driven by intra-value, instead of inter-value conflicts. In their 2016 paper, Perlaviciute et al. examine the question if and if so, how, the presentation of the production of natural gas as sustainable influences how people with “strong biospheric values” (Ibid., p. 55) assess natural gas in the Netherlands. The authors conducted a scenario study in which natural gas was depicted as either a better because cleaner alternative to other fossil fuels or as a “transition fuel” (Ibid., p. 55) in combination with increasing energy supply from renewable sources. While gas innovations in general (e. g. green gas) were positively evaluated by people with strong biospheric values, the findings suggest that the same cannot be said in the case of



natural gas in either of the two scenarios. This indicates that presenting natural gas as a sustainable way of energy production (an argument often found in the discussion about shale gas production) is not enough to cancel out reservations towards natural gas. Another study from Nick van der Voort and Frank Vanclay from 2015 discusses the social impact of (conventional) gas production in Groningen (the Netherlands), especially in regards to earthquakes caused by drilling activities, its negative social and emotional consequences for the local population and the growing distrust towards both gas companies and the Dutch government. The authors argue in favour of designing both a Social Impact Management Plan (SIMP) and an Impacts and Benefits Agreement (IBA) in order for the gas production activities to “regain its legitimacy and social licence to operate”. According to the authors, the paper is also relevant for unconventional gas production as well. Lastly, Rinie van Est and Arnoud van Waes published a report on behalf of the Rathenau Institute in 2016, compiling a list of lessons learned regarding successful dialogues on energy issues. One case study featured in the text examines the so-called “DialoogTafel Groningen” - a communication activity we mentioned in our last report (Lis et al. 2015, p.58/59). In this section, the authors detail the social and political context of the dialogue, the organisers of the activity as well as the participatory design and offer a critique of the dialogue process in question.



3 REVIEW OF SURVEYS AND OPINION POLLS ON SHALE GAS IN MEMBER STATES

3.1 Introduction

In this part of the report, we present results from surveys and opinion polls carried out in three of the four studied countries: the United Kingdom, Germany and the Netherlands. After 2015, no survey or opinion poll study has been carried out in Poland as the shale gas development project came to an end in mid-2016.

3.2 Poland

After 2015, no new surveys or opinion polls on shale gas have been carried out in Poland.

3.3 The United Kingdom

The latest three surveys were conducted by the Department of Energy and Climate Change (now the Department of Business, Energy and Industrial Strategy or BEIS), a quarterly survey (known as the Wave Survey). Questions about shale gas have been included in the survey since June 2012 (for the results of the previous wave, see Deliverable 17.1). The Wave 20 of data was collected between 14 and 18 December 2016 using face- to-face in-home interviews with a representative sample of 2,138 households in the UK.³ Three quarters (75%) were aware of fracking at Wave 20, a slight decrease in awareness after an increase between Waves 18, conducted between 29 June 2016 and 3 July 2016, (78%) and 19 (79%). Despite many people being aware of fracking, only a small proportion claimed to have detailed knowledge. At Wave 20, 12% claimed to know a lot about fracking, whilst 42% said they knew a little, and 21% were aware of it but did not really know what it was. Awareness of fracking was higher for those in social grade AB (87%), aged over 45 (86%), with incomes over £35,000 (86%), and home owners (85%). When asked whether they support or oppose extracting shale gas, half of respondents selected either the neutral option (49%) or said they did not know (3%). This is likely to partly reflect a lack of detailed knowledge about fracking. Of those who did offer an opinion, more people were opposed (31%) to fracking than supported it (18%).

The most common reasons for supporting fracking were reducing dependency from other countries for UK's energy supply (33%), a need to use all available energy sources (27%), and reducing dependency on fossil fuels (27%). For those who support fracking, there was a decrease from Wave 19, conducted between 28 September 2016 and 2 October 2016, in the percentage who believe there is a need to use all available energy sources and the percentage who think that fracking will be good for local jobs and investment. In this same group, there was an increase in the percentage who support

³ BEIS 2017a,

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/602451/Summary_of_key_findings_BEIS_Public_Attitudes_Tracker_-_wave_20_2_.pdf (accessed 14 September 2017)



fracking because they think it will reduce dependence from other countries for the UK's energy supply as well as those who think that it will have a positive impact on the UK economy.

The most common reason for opposing fracking was the loss or destruction of natural environment (58%). Other commonly cited reasons for opposition to fracking were that there is a risk of contamination to water supply (27%) and that there is too much risk and uncertainty to support at present (23%). Changes from the previous wave in this group include an increase in those who believe there is a risk of contamination to water supply and a decrease in the percentage who believe that there is too much risk or uncertainty to support fracking at present. In this group, there was also a decrease in those who stated they opposed fracking because of negative reports in the media and also in the percentage who believe that fracking is not a safe process.

The most common reasons for supporting fracking were the need to use all available energy sources (35%), reducing dependence on other countries for UK's energy supply (31%), fracking being good for local jobs and investment (30%), reducing dependency on other fossil fuels (28%), and that it may result in cheaper energy bills (27%). The most common reason for opposing fracking was the loss or destruction of natural environment (56%). Other commonly cited reasons for opposition to fracking were that there is a risk of contamination to water supply (32%), that it's generally not a safe process (32%), that there is a risk of earthquakes (29%), and that there is too much risk or uncertainty to support it at present (29%).

The Wave 21 was collected from a representative sample of 2,180 UK households between 29 March and 2 April 2017.⁴ The results show that there has been an increase in awareness over the period 2012, with 76% of respondents in Wave 21 indicating that they are aware of hydraulic fracturing for shale gas, up from approximately 40% in June 2012. In Wave 21, only 19% of respondents supported shale gas development; while 30% opposed it, slightly down from the highest level of opposition (33%) in Wave 19 in autumn 2016. Interestingly, the share of those who 'neither support nor oppose' has been quite stable over time, at 49%, with only 2% now replying that they 'did not know'. In Wave 21, of the 49% that 'neither support nor oppose' hydraulic fracturing for shale gas. However, 74% state that they do 'not know enough about it'. The survey provides insight into people's justifications for support or opposition.

The most recent data for Wave 22 was collected between 30 June – 4 July 2017. The results show that three quarters of the public were aware of fracking (78%). Awareness of fracking has remained very stable over the last three years of the tracker. However, despite many people being aware of fracking, only a small proportion claimed to have detailed knowledge. At Wave 22, 13% claimed to know a lot about fracking, whilst 47% said they knew a little, and 18% were aware of it but didn't really know what it

⁴ BEIS 2017b,

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/611985/Summary_of_key_findings_BEIS_Public_Attitudes_Tracker_-_wave_21.pdf (accessed 14 September 2017)



was. These findings have remained fairly consistent over the course of the tracker. Awareness of fracking was higher for those in social grade AB (90%), aged over 65 (90%), with incomes over £50,000 (91%), and home owners (88%).

When asked whether they support or oppose extracting shale gas, half of the public (48%) neither supported nor opposed it, with a further 3% saying they did not know whether they supported or opposed. This is likely to partly reflect a lack of knowledge about fracking. Of those who did offer an opinion, more people were opposed (33%) to fracking than supported it (16%). Support for fracking has decreased over the last year, from 21% at Wave 18 (summer 2016) to 16% at Wave 22.

Follow-up questions were also asked at Wave 22 to identify the most common reasons why people support, oppose, or are neutral towards fracking. The most common reason for supporting fracking was the need to use all available energy sources (42%). This category has seen an increase since Wave 21 (spring 2017, when the level was 35%) and an overall increase since the question was included at Wave 16 (winter 2015). Other reasons for supporting fracking remained consistent, which include reducing dependency on other fossil fuels (31%), reducing dependency on other countries for UK’s energy supply (28%), that it may result in cheaper energy bills (28%) and fracking being good for local jobs and investment (26%).

The most common reason for opposing fracking was the loss or destruction of natural environment (68%). Again, this was an increase from Wave 21 (spring 2017, 56%) and an overall increase since this question was included at Wave 16 (winter 2015). Other commonly cited reasons included the risk of contamination to water supply (25%), that it’s generally not a safe process (25%), that there is too much risk or uncertainty to support at present (23%) and that there is a risk of earthquakes (20%). The proportion of respondents selecting each of these reasons dropped since the last wave, perhaps indicating an increased focus on the destruction of the natural environment as a reason for opposing fracking. Of those who were neutral or did not know whether they support or oppose fracking, the majority put this down to not knowing enough about it (73%).

Table 1. Summary results from Waves 20 (winter 2016), 21 (spring 2017) and 22 (summer 2017).

	Aware	For	Against	Reasons for	Reasons against
Wave 20	75%	18%	31%	<ul style="list-style-type: none"> reducing dependency from other countries for UK’s energy supply (33%) a need to use all available energy sources (27%) reducing dependency on fossil fuels (27%) 	<ul style="list-style-type: none"> the loss or destruction of natural environment (58%) a risk of contamination to water supply (27%) too much risk and uncertainty



	Aware	For	Against	Reasons for	Reasons against
Wave 21	76%	19%	30%	<ul style="list-style-type: none"> the need to use all available energy sources (35%) reducing dependence on other countries for UK's energy supply (31%) fracking being good for local jobs and investment (30%) reducing dependency on other fossil fuels (28%) may result in cheaper energy bills (27%) 	<p>to support at present (23%)</p> <ul style="list-style-type: none"> the loss or destruction of natural environment (56%) a risk of contamination to water supply (32%) generally not a safe process (32%) a risk of earthquakes (29%) too much risk or uncertainty to support it at present (29%)
Wave 22	78%	16%	33%	<ul style="list-style-type: none"> the need to use all available energy sources (42%) reducing dependency on other fossil fuels (31%) reducing dependency on other countries for UK's energy supply (28%) cheaper energy bills (28%) good for local jobs and investment (26%) 	<ul style="list-style-type: none"> the loss or destruction of natural environment (68%) the risk of contamination to water supply (25%) generally not a safe process (25%) too much risk or uncertainty to support at present (23%) a risk of earthquakes (20%)

Surveys commissioned by the University of Nottingham (Andersson-Hudson, *et al.* 2016) show similar public attitudes in the UK. And the latest survey (O'Hara *et al.* 2016), conducted by YouGov from 29 September to 3 October 2016, showed 37.3% of respondents in favour and 41% against shale gas development. For the first time, the share opposing was greater than those who supported development. As Bradshaw and Waite (2017) notice, the even though two surveys are not directly comparable as neither is longitudinal, they both suggest that the level of awareness is increasing. However, a



significant opposition to shale gas at the national level is growing simultaneously. The Nottingham survey examines the relationship between knowledge and support and concludes about a positive relationship between the two, those who knew what shale was were twice as likely to support its development (Stedman et al. 2016, 146). Interestingly, the Nottingham researchers suggested using the Social Licence to Operate framework to test approval at the local level (Andersson-Hudson et al. 2016, 588).

Business Green reported on 15 August 2016 that a YouGov poll published by Friends of the Earth found that one third of people would either ‘strongly’ or ‘tend to’ support fracking in their local area if households were given direct payments of up to £10,000. The poll of 1,704 people found that 43% would oppose fracking despite a potential cash payment.⁵ In June 2017, Friends of the Earth reported “that 66% of respondents are opposed to the Conservative manifesto proposal to allow non-fracking drilling without planning permission, with almost half (46%) strongly opposed.”⁶

3.4 Germany

For the investigation period between November 2015 and August 2017, only one survey could be identified dealing with the subject of hydraulic fracturing and shale or tight gas production. It is a representative survey conducted by the TNS Emnid opinion research institute on behalf of NGO campact in April 2016.⁷ Three questions were asked concerning the Paris Climate Change Agreement. One of these questions asked if Germany should ban fracking in order to implement the Paris Climate Agreement. 80% of the respondents voted yes, Germany should forbid the fracking technique, 14% voted against it and 6% made no statement.⁸ It is particularly interesting that even after the breakdown by political party affiliation no significant differences could be found (ibid., p. 12). Independently of party affiliation, the majority of the respondents were in favour of a ban on the use of hydraulic fracturing in Germany. Only respondents with an affiliation to the political party “Alliance 90 / the Greens” voted, as expected, proportionally higher in favour of a ban of hydraulic fracturing (91%).

⁵ Survey: Only a third of public would support local fracking projects, despite offer of ‘bribes’, Business Green, 15 August 2016

⁶ <https://www.foe.co.uk/fracking-lancashire/two-out-three-lancashire-residents-oppose-nonfracking-drilling-without-planning> (accessed 14 September 2017), FoE report that: “The Conservative manifesto contained controversial proposals on fracking. It laid out an ambition to let fracking firms with exploration licences carry out drilling for shale gas without any need for planning permission. This would mean that companies could drill and sample a well, often the first step towards full-scale fracking, without planning permission.”

⁷ Press release by campact, online available at: <http://www.presseportal.de/pm/64126/3306936> (accessed 14 September 2017)

⁸ PDF of the TNS Emnid survey, available online at: https://blog.campact.de/wp-content/uploads/2016/04/Emnid-Umfrage_Paris-Abkommen-.pdf, p. 9 (accessed 14 September 2017). The second question concerned the topic of coal, which gained traction in Germany in the course of the energy transition that will phase out nuclear power in Germany. Here respondents were asked if Germany should gradually phase out coal in order to implement the Paris Climate Change Agreement. Answers ranged from 72% stating yes, 21% answering with no and 7% making no statement (Ibid., p. 5). These numbers are not significantly different from those to the question of banning unconventional gas production, though the latter seems to be more controversial than coal as an energy source.



A second representative opinion survey was conducted in March 2017 by the Institute for Social Research and Statistical Analysis (Forsa) and was commissioned by oil and gas producer Wintershall. In this survey, only the general attitude to natural gas was enquired, without making either a distinction between natural gas from conventional and unconventional sources and respectively differentiating between gas production with and without the use of hydraulic fracturing. According to the survey, around 48% of the respondents believe that the demand on natural gas for energy supply will increase in Germany (22% think that the demand will stay the same, 21% expect demand to decrease). Some 62% of the respondents were in favour of domestic natural gas production, while 29% were against it. Further, 58% of respondents consider natural gas to be the best addition to renewable energies, unlike wood (24%), oil (21%), nuclear energy (19%) or coal (17%) (Wintershall 2017).

3.5 The Netherlands

A lot of the debate surrounding natural gas production in the Netherlands centres around the case of Groningen. This became visible in our last report especially in relation activities by to NGOs and citizen's associations (Lis et al 2015, p. 45) and the large scale dialogue process "Dialoogtafel Groningen" (Ibid., pp. 56, section 5.4). The latter was also subject of several academic publications (see section 2.5, pp. 20 of the present report, as well as Lis et al. 2015, p. 8). The issues frequently discussed concern mainly concerns about induced seismicity through gas production. The role of Groningen seems to be vital for the future of natural gas in the Netherlands and a possible increase of gas imports should local gas production be capped. The topic of natural gas production in Groningen was subject of a broader opinion survey from 2016, that was carried out on behalf of Milieudefensie, NGO and part of the international Friends of the Earth network (i&o research 2016). According to the survey, large parts of Dutch citizens are critical of natural gas production in Groningen, because they believe that the gas production causes earthquakes in the region (87%). Accordingly, the majority of the respondents believe that the government should stop gas production in Groningen (73%), 33% giving the ban on gas production by the government the highest priority. The main reason in favour for an end of gas production in Groningen is the same for both inhabitants of Groningen (81%) as well as non-inhabitants (72%): The reduction of the risks of earthquakes. For 40% of the respondents not living in Groningen, CO₂ emissions are an important reason for the stop of gas production (i&o research 2016, p. 5). Shale gas was also discussed in the poll at one point. The respondents were asked to judge several possible alternatives to gas production in Groningen as either a good or a bad solution. One of the proposed alternatives was the drilling for shale gas in the Netherlands. Only 11% of the respondents rated this as a good solution. The majority (61%) was against it and 11% abstained. Most respondents rated sustainable electricity generation as a good solution (88%) followed by installing good isolation of residential and office spaces (71%) (Ibid., p. 18).



4 REVIEW OF STAKEHOLDERS' POSITIONS ON SHALE GAS

4.1 Introduction

In this section, we present analysis of political developments in the four studied countries and stakeholders' positions on shale gas. In general, apart from the United Kingdom, the debate on shale gas in Europe calmed down. The United Kingdom saw the most severe protest action in the County of Lancashire in the Northwest, which polarized different stakeholders more strongly into opponents and proponents of shale gas development.

4.2 Poland

When global oil prices fell, and oil indexed gas prices with them, shale gas exploration turned out to be too expensive for the companies operating in Poland. The last hydraulic fracturing operation was carried out in mid-2016 by the Polish oil & gas company PGNiG at the location Wysin. The result was not satisfactory for the company.⁹ In October 2016, PGNiG and Orlen, announced that they are closing their shale gas exploration activities.

In October 2015, the Parliamentary elections in Poland were won by the Law and Justice party that then formed the government and has the majority seats in the Parliament as well as the Senate. Shale gas has not featured much in the Law and Justice discourse on energy policy. After 2015, when it started to be clear that, in the present conditions, shale gas development will not happen in Poland, a new option came up, and namely tight gas. However, no clear declarations have yet been made by the government as to whether some more funding is to be streamed to tight gas exploration in the near future. As of June 30th, 2017, there were twenty licenses for hydrocarbon exploration, including shale gas. In the same month, the Polish oil & gas company PGNiG announce that coalbed methane is a more viable option than shale gas. The company is currently working to develop technologies for capturing coalbed methane from the coal seams before exploitation or during the mining works.

4.3 The United Kingdom

The official position of the UK government is favorable for shale gas development: “the government believes that shale gas has the potential to provide the UK with greater energy security, growth and jobs”.¹⁰

During the last two years, shale gas politics in England evolved around one of the potential drilling sites, a site off the Preston New Road in Lancashire in the northwest. The company engaged in this conflict is Cuadrilla Resources which is preparing to

⁹ <http://biznesalert.pl/pgnig-uzyskalo-niezadowolajace-wyniki-przeplywu-gazu-lupkow-wysinie/> (accessed 14 September 2017)

¹⁰ DECC 2016 <https://www.gov.uk/government/publications/about-shale-gas-and-hydraulic-fracturing-fracking/developing-shale-oil-and-gas-in-the-uk> (accessed 14 September 2017)



conduct the first horizontal hydraulic fracturing operation in a shale gas well in the UK. In North Yorkshire at Kirby Misperton the Third Energy is involved in a similar process. In June 2015, the initial planning application by Cuadrilla was refused by the Lancashire County Council. Cuadrilla appealed against this decision which was followed by a public enquiry in February and March of 2016. On 6 October 2016, the central Government overturned the initial decisions at one site and gave Cuadrilla more time to address traffic concerns (LCC 2017). As Bradshaw and Waite (2017) put it, in January 2017, Lancashire became ‘ground zero’ for the shale gas conflict in England. Protesters have been obstructing the site on daily basis to protest the UK Government’s decision to allow drilling to proceed. There have been numerous arrests and the cost of policing is running into the hundreds of thousands of pounds (Bradshaw and Waite, forthcoming).

As to the recent legislation and licensing rounds, The Oil and Gas Authority is responsible for awarding onshore oil and gas licenses, which include but are not restricted to exploratory fracking operations. These licenses are offered to successful applicants during so-called ‘licensing rounds’. The last round – the 14th Onshore Oil and Gas Licensing Round – closed in October 2015 and resulted in the award of 159 blocks. The *Infrastructure Act 2015* includes provisions to streamline the underground access regime, including horizontal or lateral drilling, and make it easier for companies to drill for shale gas. It also provides a number of new ‘safeguards’. On 16 December 2015 regulations were approved by the House that provide some protection against fracking at depths shallower than 1200m in protected areas. Following a consultation, the Government announced in June 2016 that further protections would be introduced through the licencing process.

The Government has legislated for tax incentives for shale gas exploration, and announced community financial benefits. It is consulting on investment in communities hosting shale gas developments, and on direct payments to households. The *Scotland Act 2016* devolved shale gas licensing to the Scottish Parliament, and the *Wales Bill 2016-17* includes provisions to devolve shale gas licensing to the National Assembly for Wales. A similar situation exists in Northern Ireland, but is currently complicated by the lack of a function devolved government. At the same time, the push for alternative sources of hydrocarbons was stopped in Scotland, where the Scottish National party administration blocked a proposal to extract gas from under the Firth of Forth using a controversial coal-burning technique. The Scottish Government announced a moratorium on fracking in Scotland in January 2015.¹¹ In February 2015, the Welsh Government issued a Directive preventing local planning authorities from approving developments which included fracking. The Labour Party announced in September 2016 that it would ban fracking.¹²

¹¹ <https://www.ft.com/content/09dea1e6-8af4-11e6-8cb7-e7ada1d123b1?mhq5j=e1> (accessed 14 September 2017)

¹² <http://researchbriefings.parliament.uk/ResearchBriefing/Summary/SN06073> (accessed 14 September 2017)



Company representatives maintain that shale gas would bring jobs and economic prosperity locally and contribute to energy security and decarbonisation. Francis Egan, Cuadrilla's chief executive, welcomed a decision he said would "create new economic growth opportunities and jobs for people in Lancashire and the UK".¹³ Campaigners and anti-fracking activists underline risks of water contamination, seismic instability and a detrimental impact on climate. Locally, at the Lancashire site, a 'Frack Off' group was established as a coalition of local groups. In the May 2017 General Election, the Labour party promised to ban fracking, as did the Liberal Democrats and the Green Party. They commented that the decision "bulldozes local democracy" and "risks locking Britain into an old-fashioned dirty energy infrastructure". The Labour party sees renewable power as the future for the UK.¹⁴ Also Greenpeace saw the decision as weakening, rather than strengthening, local democracy.

The energy security framing is still used to talk about shale gas by its proponents in national government and in industry in the UK. However, the current priority is how to keep the energy bills low while facing the prospects of phasing out coal by 2025.¹⁵ Among the proponents, one can also find trade unions that are looking forward to new jobs being created due to the new shale gas onshore industry. "The go-ahead will reduce the gas we will need to import from regimes fronted by henchmen, hangmen and head choppers as the UK will need to use gas for years to come to heat our homes and generate electricity on the 60 days each year when there is no wind," said Stuart Fegan, national officer of the GMB union.¹⁶ According to FT, however, "aside from these few isolated projects, the energy industry has generally been cautious about UK shale. Executives at large oil and gas groups say they are sceptical about whether the scale of the opportunity will outweigh the obstacles".¹⁷

Since 2015, some new regulatory efforts were made in the UK to provide the industry with guidance on shale gas development. In 2016, the then Department for Energy and Climate Change (this Department is now part of a merged 'Department of Business, Energy and Industrial Strategy, BEIS) issued "Guidance on fracking: developing shale oil and gas in the UK" (DECC 2016). The Guidance clarified the permitting process. On the website, DECC stated that:

"The Government takes the safety of the public and protection of the environment very seriously. The Government believes that the regulation is robust for exploration. As the industry develops, we will continually review this position. The Royal Academy of

¹³ <https://www.ft.com/content/09dea1e6-8af4-11e6-8cb7-e7ada1d123b1?mhq5j=e1> (accessed 14 September 2017)

¹⁴ <https://www.ft.com/content/09dea1e6-8af4-11e6-8cb7-e7ada1d123b1?mhq5j=e1> (accessed 14 September 2017)

¹⁵ <https://www.ft.com/content/09dea1e6-8af4-11e6-8cb7-e7ada1d123b1?mhq5j=e1> (accessed 14 September 2017)

¹⁶ <https://www.ft.com/content/09dea1e6-8af4-11e6-8cb7-e7ada1d123b1?mhq5j=e1> (accessed 14 September 2017)

¹⁷ <https://www.ft.com/content/09dea1e6-8af4-11e6-8cb7-e7ada1d123b1?mhq5j=e1> (accessed 14 September 2017)



Engineering and Royal Society has reviewed the scientific and engineering evidence on shale gas.”¹⁸

The review (2016) concluded that: “the health, safety and environmental risks associated with hydraulic fracturing (often termed ‘fracking’) as a means to extract shale gas can be managed effectively in the UK as long as operational best practices are implemented and enforced through regulation.”¹⁹

The Public Health England Report (2013) assessed: “the risk to human health of extracting shale gas. They evaluated available evidence on issues including air quality, radon gas, naturally occurring radioactive materials, water contamination and waste water. They concluded that “the risks to public health from exposure to emissions from shale gas extraction are low if operations are properly run and regulated.”²⁰

In September 2013 Professor David MacKay (then the Department of Energy and Climate Change’s Chief Scientist) and Dr Timothy Stone wrote a report on potential greenhouse gas emissions from UK produced shale gas. They concluded that the overall effect of UK shale gas production on national emissions is likely, with the right safeguards, to be relatively small. Indeed, emissions from the production and transport of UK shale gas would be comparable to imported Liquefied Natural Gas (LNG), and much lower than coal, when both are used to generate electricity.²¹

BEIS currently funds a research consortium led by the British geological Survey to deliver a baseline environmental monitoring programme in and around sites in the Fylde (Lancashire) and Kirby Misperton (North Yorkshire), for which applications for shale gas wells have been made. The researchers are gathering data on features including water and air quality, seismicity and ground motion. Data gathering began in the Fylde in January 2015 and in Kirby Misperton in August 2015.

The monitoring is characterising the environmental baseline before any hydraulic fracturing takes place, in the event that planning permissions and other permits are granted. Future shale gas projects’ data can be checked against these “baseline” data. This allows any significant changes to be flagged for further scrutiny. The investigations are independent of any monitoring carried out by the industry or the regulators, and information collected is freely available to the public.²²

¹⁸ <https://www.gov.uk/government/publications/about-shale-gas-and-hydraulic-fracturing-fracking/developing-shale-oil-and-gas-in-the-uk> (accessed 14 September 2017)

¹⁹ <https://royalsociety.org/topics-policy/projects/shale-gas-extraction/report/> (accessed 14 September 2017)

²⁰ <https://www.gov.uk/government/news/review-of-potential-public-health-impacts-from-shale-gas-extraction> (accessed 14 September 2017)

²¹ <https://www.gov.uk/government/publications/potential-greenhouse-gas-emissions-associated-with-shale-gas-production-and-use> (accessed 14 September 2017)

²² <http://www.bgs.ac.uk/research/groundwater/shalegas/monitoring/home.html> (accessed 14 September 2017)



On its website, DECC²³ also stated that the shale gas industry has set its commitment to community engagement in its Charter.²⁴ This Charter sets out what communities can expect from companies developing shale in their areas. Operators will engage communities in advance of any application for planning permission and then again at each stage of development. The industry has committed to a package for communities that host shale development. This includes:

- At exploration stage, £100,000 in community benefits per well-site where fracking takes place
- 1% of revenues at production will be paid out to communities.
- Operators will publish evidence each year of how they have met these commitments.
- This Charter and offer to communities will be regularly reviewed as the industry develops and operators consult with communities.
- The Community Charter, UK Onshore Oil and Gas (the trade body for companies developing shale gas and oil).

In addition to this, the government has announced that it will create a Shale Wealth Fund to ensure that communities which host shale sites can share the benefits of shale development. The fund will initially consist of up to 10% of tax revenues arising from shale gas production and could provide up to £1 billion of funding in total, a proportion of which could be paid out to each community over 25 years. The government has consulted on the priorities and delivery models for the Shale Wealth Fund.

Church of England also took a stance on the shale gas issue (2016). The Mission and Public Affairs Council and the Environment Working Group issued a Briefing Paper. They start the paper with a note that “As more applications for test drilling and fracking are granted, some affected communities are looking to the Church of England for leadership and perspective on the many issues concerned” (p. 1). The four main goals of the paper were to:

- Identify possible impacts of shale gas exploration and fracking for the Church of England, including dioceses, parishes and the Church Commissioners.
- Suggest a role for dioceses and parishes in working for greater understanding and trust
- Inform MPA’s public affairs work on evidence-based ethics, assisting a planned response to shale gas developments
- Contribute to the Ethical Investment Advisory Group’s work on Extractive Industries (p. 1)

²³ <https://www.gov.uk/government/publications/about-shale-gas-and-hydraulic-fracturing-fracking/developing-shale-oil-and-gas-in-the-uk> (accessed 14 September 2017)

²⁴ <http://www.ukoog.org.uk/community/charter> (accessed 14 September 2017)



4.4 Germany

Political situation

In the previous M4Shalegas report from 2015, we characterized the political situation and the position of the German Government in regard to unconventional gas production as being largely unclear and lacking distinction, though a draft law addressing the issues with unconventional hydrocarbon extraction has been released in April 2015 (Lis et al. 2015, p. 41). On June 24th 2016, the German Bundestag accepted a revised version of the draft law (435 Members of the Bundestag voted in favour of the so-called “fracking-law”, 109 voted against it and 9 abstained from voting).²⁵ On July 8th 2016, this new legislative package was approved by the German Bundesrat²⁶ and the regulations concerning hydraulic fracturing in Germany detailed in the “fracking-law” came into effect on February 11th 2017.²⁷

The now effective legal regulations concerning unconventional hydrocarbon extraction differ from those outlined in the first draft version from 2015 in some substantial ways: In the early version of the draft law, unconventional gas production and hydraulic fracturing should only be prohibited in various wetland areas as well as at a depth above 3000 meters with possible exceptions for an unspecified number of scientific test drillings (Lis et al. 2015, p. 41). In contrast, the new legal regulations lead to a general prohibition of unconventional gas production via hydraulic fracturing in Germany at least until 2021. After five years, the Bundestag can choose to address the issue again and decide if the regulations should stay in place or not. If the Bundestag chooses not to deal with the issue further, hydraulic fracturing will stay prohibited.²⁸ The only exception to this ban consists in the authorization of four test drillings for research purposes regarding the impact of hydraulic fracturing on the environment, subsoil and groundwater supply. These test drillings can only take place in shale, clay, marl or coal rock formations at a depth of more than 3000 meters, under strict conditions and only if the respective provincial governments approve of the test drilling activities (Ibid.). Especially the latter condition raises doubts if these four test drillings will happen in the first place: According to research done by the journalists of the *Osnabrücker Zeitung* (Neue OZ), most of the provincial governments in Germany rule out test drillings in their respective jurisdictions, the exception being Mecklenburg-Vorpommern. Despite a generally sceptical stance, test drilling activities will not be ruled out completely in this federal state. According to the article, previous research declared commercial

²⁵ Document release by the German Bundestag, available online at: <https://www.bundestag.de/dokumente/textarchiv/2016/kw25-de-fracking/429014> (accessed 14 September 2017)

²⁶ Press release, online available at: <https://www.bundesregierung.de/Content/DE/Artikel/2015/04/2015-04-01-fracking-gesetz-kabinett.html> (accessed 14 September 2017)

²⁷ Press release, online available at: <http://www.bmub.bund.de/pressemitteilung/fracking-regelungen-treten-am-11-februar-in-kraft/> (accessed 14 September 2017)

²⁸ Press release, online available at: <https://www.bundesregierung.de/Content/DE/Artikel/2015/04/2015-04-01-fracking-gesetz-kabinett.html> (accessed 14 September 2017)



unconventional gas production in Mecklenburg-Vorpommern to be economically unfeasible in the first place.²⁹

Despite the new regulations being rather strict in comparisons to the earlier version of the draft law, the new law was criticized by members of the Bundestag Hubertus Zdebel (Die Linke/The Left) and Julia Verlinden (Bündnis 90/Die Grünen/ Alliance '90/The Greens). Both argue that hydraulic fracturing in Germany should be prohibited full stop.³⁰ Both political parties The Left and Alliance '90/The Greens demand a general ban of hydraulic fracturing in their respective electoral programs for the upcoming election of the German Bundestag in September 2017 (Die Linke 2017, p. 88; Bündnis 90/ Die Grünen 2017). The Free Democratic Party Germany (FDP) that viewed hydraulic fracturing and unconventional gas a chance for Germany in their previous electoral program (Lis et al. 2015, p. 42), doesn't address this issue in their electoral program for 2017, only stating that forgoing fossil fuels won't be possible in the foreseeable future (Freie Demokraten (FDP) 2017, pp. 134). Another political party gaining traction is the Alternative for Germany (AfD): In their electoral program, hydraulic fracturing and unconventional gas production is not mentioned, though they want to both exit the German "Energiewende" (energy transition) and the Paris Climate Agreement, stating that the use of gas and coal power plants will be necessary for the foreseeable future (Alternative für Deutschland (AfD) 2017, pp. 65). For both political parties forming the German Government - the Christian Democratic Party (CDU/CSU) and the Social Democratic Party (SPD) - unconventional hydrocarbon extraction seems to be of very little relevance. In the electoral program of the CDU/CSU hydraulic fracturing or unconventional gas is not mentioned at all, conventional gas only in relation to decarbonisation and the transition from fossil fuels to eco-friendly energy sources (Christian Democratic Party (CDU/CSU) 2017, p. 68). In their electoral program, the SPD reinforces the decision to ban hydraulic fracturing indefinitely citing that the risks for the public and the environment outweigh economic prospects. In addition, they want to monitor and adapt standards of protection regarding conventional gas production (Social Democratic Party (SPD) 2017, p. 63).

Stakeholders

In the 2015, M4ShaleGas report, we provided an overview on different kinds of stakeholders, including (environmental) NGOs, citizen associations, industry stakeholders as well as academic experts. In the following section, we want to provide a brief update on the activities of these stakeholders. A special focus will be put on two topics that emerged since late 2015, which were and are debated by the various stakeholder communities.

²⁹ Press release, online available at: <https://www.noz.de/deutschland-welt/wirtschaft/artikel/849022/schiefergas-laender-wollen-keine-fracking-probebohrungen-1> (accessed 14 September 2017)

³⁰ Document release, online available at: <https://www.bundestag.de/dokumente/textarchiv/2016/kw25-de-fracking/429014> (accessed 14 September 2017)



The first topic concerns the new fracking law outlined above. Various environmental NGOs as well as citizen and industry associations voiced their opinion on this new development. In a joined press release from April 2016, the following (environmental) associations call for a prohibition of the use of hydraulic fracturing in Germany: BUND (Union for the environment and nature conservation Germany), NABU (Nature and Biodiversity Conservation Union), Campact, DUH (the German Environmental Aid Association) and the German Brewer's Association as well as DNR (the German League for Nature and Environment) and NGO PowerShift.³¹ The first six associations were already mentioned in our last report (Lis et al. 2015, p. 35f.) and have been fighting against unconventional gas drilling in Germany for some years. The latter two, Powershift and DNR became more visible since late 2015. PowerShift describes itself as “a German NGO dealing with questions related to energy, climate, natural resources, trade and economic policies. We want to contribute to a change in global energy policy and economic relations by means of education, public relations, scientific research and political activities.”³² One of their goals for the year 2017 is to challenge the notion of natural gas as a climate-friendly energy source, citing the emissions of environmentally harmful methane as a reason to demand not to extract natural gas from unconventional reserves (Weis 2016). The DNR (the German League for Nature and Environment) is an umbrella organization of German conservation and environmental protection associations, representing 85 member organisations³³, among them several regional environmental organisations, the Global Nature Fund and the above mentioned organisations Campact, BUND and NABU.³⁴ In 2016 in reaction to the revised law regulating the handling of hydraulic fracturing in Germany accepted by the German Bundestag, the DNR published a fact sheet offering background information on the issue, detailing the chronology of the political process leading to the law and voicing their criticisms (Deutscher Naturschutzring (DNR) 2016). The central criticisms can be summarized as the following: Even though the law can be seen as a factual ban of hydraulic fracturing in Germany, granting an exception for four scientific test drillings leaves open a general possibility for hydraulic fracturing in shale, clay, marl or coal rock formations (Ibid., p. 6). The latter distinction is also of importance since the law only prohibits hydraulic fracturing in these rock formations. However, it does not prohibit hydraulic fracturing to extract tight-gas from sandstone. The DNR accuse the German Government to make an arbitrary distinction between unconventional hydraulic fracturing and conventional hydraulic fracturing for gas extraction while classifying tight-gas production via hydraulic fracturing as conventional fracking (Ibid., p. 6). This use of “unconventional” and “conventional”, so the DNR, is scientifically questionable since it is usually used to describe gas deposits – a reading which would classify both shale and tight gas as gas from unconventional sources (Ibid., p. 7). This suggests that the risk associated with hydraulic fracturing in shale, clay, marl or coal rock formations can also be applied to the case of hydraulic fracturing for tight gas in sandstone (Ibid., p.

³¹ Press release, online available at: <https://www.dnr.de/presse/pm-2016/umweltverbaende-und-verband-private-brauereien-deutschland-fordern-nein-zu-fracking/?L=0> (accessed 14 September 2017)

³² Official web site: <https://power-shift.de/our-objectives/> (accessed 14 September 2017)

³³ Official web site: <https://www.dnr.de/> (accessed 14 September 2017)

³⁴ Official web site: <https://www.dnr.de/der-dnr/mitglieder/> (accessed 14 September 2017)



7) and hydraulic fracturing should therefore be prohibited in all possible cases (Ibid., p. 9).

Christoph Löwer, CEO of industry stakeholder BVEG (Bundesverband Erdgas, Erdöl und Geoenergie e.V., formally known as the WEG - the Industry Association for Oil and Gas Producers (see Lis et al. 2015, p. 34/35) voices support of the new legal regulations concerning conventional gas production taking effect in February 2017. The prohibition of unconventional gas drilling and the restriction of test drillings are criticized as incomprehensible.³⁵

In June 21st 2016, “Gegen Gasbohren” (Against gas Drilling) - an umbrella organisation for various German citizens initiatives against hydraulic fracturing (Lis et al. 2015, p. 38) - as well as the Federal Association of Citizens' Initiatives for Environmental Protection (BBU) (Ibid., p. 38f.) issued a joint open letter to the members of the German Bundestag in order to convince them to vote against the revised fracking law, which according to the associations is effectively a law to allow hydraulic fracturing in Germany.³⁶ As their main reason against the use of this technology they focus on the environmentally harmful emissions of methane as well as on the negative health impacts unconventional gas production has on the local population. They base their arguments for the latter on studies from the USA, among them Fleischmann (2016) on behalf of the Clean Air Task Force and Peng et al. (2016): “The Health Implications of Unconventional Natural Gas Development in Pennsylvania”. When the fracking law came into effect in 2017, the BBU accordingly expressed their criticism, calling the law a “carte blanche” for hydraulic fracturing in general and a preparation for the start of shale gas extraction in Germany.³⁷

This last section leads over to the second topic that has been debated among the different stakeholders in Germany. It concerns a recent study published by the epidemiological cancer register of Lower Saxony that analysed the potential influencing factors concerning the rate of cancers in the region, examining also the spatial relationship of the cases to gas extraction sites, mud pits, woodworking and metalworking companies, petrol stations etc. (Krebsregister Niedersachsen 2017, p. 5). According to the researches a geographical proximity to mud pits and (on a much smaller scale) to gas production facilities might be an indicator for a possible link to cancer cases, though they explicitly state that the “result of this explorative analyses

³⁵ Press release, online available at: <http://www.bveg.de/News/Regelungspaket-Fracking-tritt-in-Kraft> (accessed 14 September 2017)

³⁶ Open letter of members of “Gegen Gasbohren” addressed to members of the German Bundestag on 21 June 2016, available online at: <http://www.gegen-gasbohren.de/wp-content/uploads/2016/06/Off.-Brief-an-MdBs-21.06.16-VF3.pdf> (accessed 14 September 2017)

³⁷ Press release, online available at: <http://www.gegen-gasbohren.de/2017/02/11/bbu-kritisiert-inkrafttreten-der-aenderungen-des-wasserhaushaltsgesetzes-freibrief-fuer-fracking/> (accessed 14 September 2017)



cannot prove a causal link between elevated cancer rates and proximity of residence towards mud pits and gas or oil extraction sites” (Ibid., p. 42).³⁸

Despite missing proof of a causal relationship, the study was taken up by the German section of the organization “International Physicians for the Prevention of Nuclear War” (IPPNW) and the “Charitable Network for the environmentally Ill” (GENUK e. V. Gemeinnützige Netzwerk für Umweltkranke). The IPPNW regional group Rotenburg (Wümme) penned an open letter to Cornelia Rundt, Minister of Health in the federal state of Lower Saxony signed by 212 medical practitioners in the Rotenburg region.³⁹ While the signers of the open letter do not see themselves as political advocates and don’t want to make any speculations, they insist on financial resources for further scientific investigations they deem to be urgent and necessary. (Ibid.) Similar demands were issued by the GENUK organisation. In a press release addressing the federal state of Lower Saxony, director of GENUK Kathrin Otte calls for a control study and short-term precautionary measures.⁴⁰

Industry stakeholder BVEG (Industry Association for Oil and Gas Producers) also came forward in the debate stating that the conclusions presented by the county Rotenburg to be biased and misleading. Instead all irregularities should be openly investigated.⁴¹ According to another statement, the BVEG see the study in question as a confirmation that natural gas production is - contrary to prior suspicions - not the cause of elevated cancer rates in the region.⁴²

Apart from these two topics discussed by relevant stakeholders, some updates can be given in regard to academic and think tank experts. Alena Bleicher and Martin David of the Helmholtz Centre for Environmental Research (UFZ) published an article on public participation in the context of energy supply and resource production. In the article the authors affirm the need for more and especially different kinds of engagement with the critical public citing that only approaching the issues with the goal of educating or informing people won't be sufficient. (Bleicher/David (2015), p. 2). Instead, the authors take a closer look at how the public frame these issues. These insights can provide better options to deal with these technological controversies. Though they centre their article on deep geothermal energy, their findings might also be useful for other innovative technologies in this area - like hydraulic fracturing (Ibid., p. 2; 13/14).

³⁸ Original text: “Dieses Ergebnis eines explorativen Analyseansatzes beweist damit nicht einen ursächlichen Zusammenhang der erhöhten Krebserkrankungsrate und Wohnortnähe zu Bohrschlammgruben oder Förderanlagen für Männer.” (translation by authors)

³⁹ Press release, online available at: <https://www.kreiszeitung.de/lokales/rotenburg/rotenburg-ort120515/landesregierung-soll-krebs-ursachenforschung-aktiv-werden-6052082.html> (accessed 14 September 2017)

⁴⁰ Press release, online available at: http://www.genuk-ev.de/files/Presse/2017_04_27%20GENUK%20PM%20zu%20Ergebnissen%20der%20Bev%C3%B6lkerungsbefragung%20Bothel_LK_ROW.pdf (accessed 14 September 2017)

⁴¹ Press release, online available at: <http://www.bveg.de/News/Krebsfaelle-in-der-Samtgemeinde-Bothel> (accessed 14 September 2017)

⁴² Press release, online available at: <http://www.bveg.de/News/Kein-Zusammenhang-erhoehter-Krebsraten-zu-Erdgasfoerderung> (accessed 14 September 2017)



Another interesting publication is an update issued by the Federal Institute for Geoscience and Natural Resources (BGR) mentioned in the last report (Lis et al. 2015, p. 39f., this institute was also part of the “Hanover Declaration”). In their publication from 2016, experts of the BGR offer a correction of the resources of unconventional gas in Germany, citing “that between 320 to 2030 billion cubic metres of shale gas could possibly be recoverable using today’s standard technology” (Bundesanstalt für Geowissenschaften und Rohstoffe (BGR) 2016, p. 92, translation by authors). In their study from 2012, the BGR estimated potential resources to be between 700 to 2300 billion cubic metres (Bundesanstalt für Geowissenschaften und Rohstoffe (BGR) 2012, p. 48). This significant reduction in potential unconventional gas resources was also taken up by citizen initiatives organisation “Gegen Gasbohren” who takes these findings as a further argument in favour of their request to ban hydraulic fracturing in Germany.⁴³ Volker Fritz, author of the article in question also expresses serious doubts regarding the BGR statements about ground water protection and possible induced seismicity. According to the BGR study, only minimal seismic activity can be caused by fracturing activities that are imperceptible for humans and that hydraulic fracturing will not endanger the groundwater supply (Bundesanstalt für Geowissenschaften und Rohstoffe (BGR) 2016, pp. 174).

4.5 The Netherlands

Political situation

According to the previous report on the political situation of shale gas production in the Netherlands, in July 2015 the Dutch government decided to stop commercial drilling of unconventional gas and not renew already existing licences, delaying the decision about shale gas to 2020 (Lis et al. 2015, p. 47). There have been few new developments in the case of shale gas, since it will be another two to three years before unconventional gas production is on the political agenda again. One interesting development is the “Energierapport” (Energy report) about the future of the Dutch energy supply and the transition to sustainable energy published in January 2016. While, according to the report, the overarching goal of the Dutch government is to reduce the use of natural gas as much as possible, it is also stated that natural gas will likely still be necessary for the Dutch energy supply in the future and should therefore be produced in a safely and socially acceptable way. Even though the government put a temporary ban on shale gas exploration, it is not certain if this will stay this way in the future. This is dependent on several influencing factors, including: the pace of the transition, geopolitical or economic developments or technological developments that impact on safety and environment. In order to come to a decision in this matter, two steps are necessary. The first is further research on the available resources of unconventional gas, as well as the potential risks and ways to reduce those. In addition to this research “a careful socio-political assessment will need to be conducted [...] to consider whether, and under

⁴³ Press release, online available at: <http://www.gegen-gasbohren.de/2016/01/19/die-bgr-nimmt-voellig-ueberzogenen-schiefergasschaetzungen-von-2012-endlich-offiziell-zurueck-ueberarbeitung-der-studie-foerderbarer-kohlenwasserstoffe-wird-dreist-zur-propaganda-pro-fracking-benutz/> (accessed 14 September 2017)



which conditions, shale gas could be considered a viable energy option.” (Ministry of Economic Affairs of the Netherlands 2016, p. 6) In the energy report 2016, the implementation of a large-scale public participation process in the form of a citizen’s dialogue was announced, which took place between April 2016 and July 2016. (Ibid, p. 11) The process will be discussed further in section 5.5.

As far as individual political parties are concerned very little change in general positions can be found. The People’s Party for Freedom and Democracy (Volkspartij voor Vrijheid en Democratie, VVD) states that natural gas production should only take place if it is safe. They also advocate for a reduction of gas production, though they argue that a complete ban of drilling in Groningen is not sustainable, as natural gas is still needed.⁴⁴ A particular stance on unconventional gas production via hydraulic fracturing is not a focus of their official position statements. The “Partij van de Arbeid” (PvdA) envisions the Netherlands’ energy supply to be 100% sustainable by 2050. The party has a strict stance against shale gas production, citing better alternatives and many unspecified disadvantages of the technology as their reason to not implement extraction permits.⁴⁵ The Christian Democratic Party – the Christen Democratisch Appèl (CDA) - shares the same position described in our 2015 report. Even though the CDA is not against shale gas production in general, it maintains that it has to be done in a safe and clean way so as not to endanger the supply of drinking water. The party also still calls for sufficient support for drilling activities in the population, a broad discussion about shale gas and states that it should not hinder the transition to renewable energy sources.⁴⁶ The position of the Social Democrats (Democraten 66 (D66)) is that shale gas production should be banned. As for reasons, the party refers to the many risks and uncertainties (earthquakes, contaminated waste water, other negative environmental impacts, impact on residents, falling house prices) that are not outweighed by the limited revenue that might be achieved by shale gas production. For the party the focus should lie on renewable energy resources like solar and wind energy, instead of non-sustainable energy generated by shale gas. All costs that arise from either oil and gas production (sustainable treatment of waste, underground storage of waste water) should be disbursed by the operator.⁴⁷ The Green Party (GroenLinks) positions itself as a strict opponent of shale gas production in the Netherlands, for the same reasons mentioned by other parties - soil and groundwater pollution, earthquakes, methane emissions, negative impacts on the environment and landscapes as well as slowing down a successful transition to renewable energy supply. Therefore, GroenLinks argues against licenses for both commercial and test drilling activities for shale gas in both the Netherlands and the European Union. It also advises consumers to choose natural gas that is free of shale

⁴⁴ Official website: <https://www.vvd.nl/standpunten/aardbevingen-groningen/> and <https://www.vvd.nl/standpunten/olie-en-gas/> (accessed 15 September 2017)

⁴⁵ Official website: <https://www.pvda.nl/standpunten/duurzaamheid-milieu/schaliegas/> (accessed 15 September 2017)

⁴⁶ Official website: <https://www.cda.nl/standpunten/schaliegas/> (accessed 15 September 2017)

⁴⁷ Official website: <https://d66.nl/standpunt-over/geen-schaliegas-winning-natuurgebieden/> (accessed 15 September 2017)



gas and works towards ensuring that consumers are enabled to make this informed choice.⁴⁸

Stakeholder Positions

In the last two to three years there have not been many changes in the positions of the key stakeholders advocating in favour or against shale gas production in the Netherlands. The industry association NOGEP (Dutch Oil and Gas Exploration and Production Association), which was mentioned in the 2015 M4ShaleGas report (Lis et al. 2015, p. 43f.) is still active. Their online information platform called “Aardgas-Update” is not in service anymore, instead further information about NOGEP, its members and regular updates about the situation of oil and gas producers in the Netherlands, can be found at the online platform onsaardgas.nl (“our natural gas”).

Associates of industry stakeholder and Dutch gas and oil producer “Nederlandse Aardolie Maatschappij (NAM)” (the Dutch petroleum society), Eilard Hoogerduijn Strating, Chiel Seinen, Henk Heeringa, and Bart Pestman contributed to the 2016 general assembly of the European Geosciences Union. In their contribution, the authors discuss communication strategies for a successful campaign for hydraulic fracturing used for conventional gas resources in the Netherlands. They provide a brief overview about the situation of shale gas focusing especially on the negative perception of this unconventional natural gas in the Netherlands in the early 2010s and its potential negative impact on a conventional frack campaign (negative public sentiment, negative effects on the Social License to Operate). In order to conduct a successful frack campaign despite these negative associations with hydraulic fracturing, a communication strategy for engaging with key stakeholders and the general public was developed. The strategy included basic information (what is hydraulic fracturing and why is it done, description and assessment of risks, description of the chemicals used in frac fluids) that were distributed on a national, regional and local level to the respective stakeholders. This strategy proved successful until January 2016 and “3-4 conventional frack jobs have been executed per year” (Hoogerduijn Strating et al, 2016). As the public opposition towards this technology is on the rise again, it is necessary to count on engineers trained in communicating with different stakeholders and independent experts (Ibid.).

Apart from stakeholders from the gas and oil producers, “Vewin” - the association of all drinking water companies in the Netherlands⁴⁹ - weighed in on the shale gas debate. On their web page, the association shares a position paper by EurEau, an umbrella organization for European drinking water and waste water operators of which Vewin is a member.⁵⁰ In this article, the EurEau demands that the EU minimise the impacts of hydraulic fracturing used in the production of unconventional gas (shale gas) on water and waste water (EurEau 2016). They call for “consideration of the protection of

⁴⁸ Official website: <https://groenlinks.nl/standpunten/schaliegas> (accessed 15 September 2017)

⁴⁹ Official website: <http://www.vewin.nl/english/About> (accessed 15 September 2017)

⁵⁰ Official website: <http://www.vewin.nl/english/Positions/Paginas/default.aspx> (accessed 15 September 2017)



drinking water resources” (Ibid. p. 1), a “transparent engagement between authorities, water and waste water utility operators and oil and gas companies” (Ibid. p. 1) and to update and revise existing legislation governing the issues of unconventional gas production.

Concerning environmental NGOs and citizens’ associations, Greenpeace Netherlands which according to the last report (Lis et al. 2015, p. 44f.) positioned themselves against hydraulic fracturing in the Netherlands has not been actively engaged with this topic in the last two to three years. NGO Schaliegasvrij Nederlands - also mentioned in the 2015 report (Lis et al. 2015, p. 44f.), is still active and provides regular updates on the situation of unconventional gas exploration in the Netherlands.⁵¹ The same can be said of the Dutch section of international environmental NGO Friends of the Earth - NGO Milieudefensie - which regularly features news about the situation of Dutch shale gas production and hydraulic fracturing. In addition, next to a short dossier on shale gas, they feature a petition for a fossil free energy supply addressed to the Tweede Kamer/Lower House of the Dutch government. As of July 26th 2017, the petition garnered 22602 of 25000 signatures.⁵² The regional citizen’s associations mentioned in the 2015 report - “Groningen Bodem Beweging”, “Schaliegasvrij Haaren” on the opposing end, “Groningen Centraal” in favour of drilling activities - are also still actively engaged with the topic of shale gas in the Netherlands, while more moderate citizen’s association “StopFracking” has not actively contributed to the debate since 2015. A more recent and active organisation is “Tegenegas” - a collaboration of local companies and residents in the Noordoostpolder region that oppose shale gas production.⁵³ One of their actions includes the publishing of an alternative paragraph concerning shale gas production for the Dutch energy report in November 2015 and an accompanying letter to the Minister of Economic Affairs to include this paragraph in the new energy report. The letter was signed by Tegenegas and other civil society associations.⁵⁴

An unconventional topic is addressed by international organization “350” - a collaboration of different stakeholders such as members of the public, community groups and grassroots organizations against the extended exploration of coal, gas and oil or as they themselves summarize: “opposing coal plants and mega-pipelines, [...] building renewable energy solutions and cutting financial ties of the fossil fuel industry.”⁵⁵

The latter aspect is taken up by a Dutch petition on behalf of 350. The goal of the petition is to make the Dutch pension fund for government employees and workers in

⁵¹ Various news articles are available online at: <https://www.schaliegasvrij.nl/category/nieuws/> (accessed 15 September 2017)

⁵² Official website: <https://milieudefensie.nl/schaliegas> (accessed 15 September 2017)

⁵³ Official website: <http://tegenasnop.nl/> (accessed 15 September 2017)

⁵⁴ News article available online at: <http://tegenasnop.nl/aanvulling-energie-rapport-december-2015/> (accessed 15 September 2017)

⁵⁵ Official website: <https://350.org/about/> (accessed 15 September 2017)



education (ABP) fossil free.⁵⁶ In detail, the demands of the petition include the phasing out of investments in fossil energy as soon as possible with a special focus on harmful forms of fossil energy (namely coal, tar sand and shale gas), no new investments in the fossil fuel industry sector, as well as regular and transparent information about the ABP's investments in the fossil fuel industry.⁵⁷ As of August 2nd 2017, the petition garnered 1,454 signatures, 89% of their targeted number of 15.000 signatures. Input from (academic) experts in the debate is not very prominent, though the professor for Sustainable Transitions and System Innovations, Jan Rotmans from the Erasmus University Rotterdam, commented critically on the energy dialogue by the Dutch Government. A summary of his criticisms of the public engagement process can be found in section 5.4.

⁵⁶ Official website: <http://www.abpfossilvrij.nl/> (accessed 15 September 2017)

⁵⁷ Official website: <http://act.350.org/sign/ABPfossilvrij> (accessed 15 September 2017)



5 REVIEW OF COMMUNICATION ACTIVITIES ON SHALE

5.1 Introduction

In this part, we review communication activities in the four case study countries. In Poland, because companies ceased their operation on the ground in mid-2016 and the new government did not revive the debate on shale gas, no communication activities were organized after 2015. In other countries, in contrast, some interesting examples of shale gas communication have taken place.

5.2 Poland

Since 2015, no new communication activities have been organized in Poland. The regional communication campaign Let's Talk about Shale Gas ended in 2013. However, the official website of the campaign has been kept updated - the latest news is from mid-2017. The other regional campaign Razem o Łupkach was officially closed at a conference in December 2014. The project website does not exist anymore.

5.3 The United Kingdom

In the UK, several consultations were organized. In 2016, the HM Treasury launched a consultation seeking views on the delivery method and priorities of the proposed Shale Wealth Fund (HM Treasury 2016, <https://www.gov.uk/government/consultations/shale-wealth-fund>). The consultation ran from 8 August 2016 to 11:59pm on 25 October 2016. Responses were welcomed from individuals or from organisations, such as charities, businesses, local authorities and community groups. The consultation sought to explore the following key issues:

- what the government's priorities should be for the Shale Wealth Fund
- the allocation of funding from the Shale Wealth Fund to different stakeholder groups
- the extent to which the industry community benefits scheme and the Shale Wealth Fund should be aligned
- potential delivery models for the Shale Wealth Fund – to ensure that households and communities benefit, and to
- decide how funds are spent, and how any process should be administered.

In the consultation document, it is stated that: “Exploring and developing the UK's shale gas resources could bring substantial benefits and the government's view is that there is a national need to develop these resources in a safe, sustainable and timely way” (HM Treasury 2016, p. 3). It has been assessed that the Shale Wealth Fund could deliver up to £ 1 billion, which would be shared among communities over 25 years. Moreover, as declared in the document: “the government is clear that local people should have greater control and say in decisions that affect them” (HM Treasury 2016, p. 3). The proposal of the Shale Wealth Fund seeks to ensure that: “the benefits of shale will go to local people first, and individuals and communities who host developments will be directly involved in the decision making about how the tax revenues from shale are



spent” (HM Treasury 2016, p. 3). In the document, a separate section is devoted to explain the national need to explore the UK’s shale gas resources (pages 3-4). Further on, the document briefly explains what shale gas is and how it is extracted (page 4), it then moves on to presenting how the government is planning to ensure that local communities share the benefits of development. The industry’s offer to local communities in a community engagement charter published by UK Onshore Oil and Gas (UKOOG) is repeated. It sets out the obligations of industry partners to provide community benefits by providing £100,000 at each well site where hydraulic fracturing takes place during the exploration phase and then making 1% of total revenues available to provide benefits for the local community during the production phase (HM Treasury 2016, p. 5). The government also declared that the shale industry would make a positive contribution to regional development (HM Treasury 2016, p. 5-6).

The Shale Wealth Fund is planned to be structured as follows:

- The fund will initially consist of up to 10% of tax revenues arising from shale gas production to be used for the benefit of communities which host shale sites;
- It will not be used to replace existing government funding and it will be additional to any benefits provided by the shale industry through its community benefits package. Investment made from the Shale Wealth Fund will be transparent and open to the scrutiny of local stakeholders;
- The Shale Wealth Fund will be funded from tax revenues from sites developed for gas production and so it is likely to come later than the first community benefits funding provided by the industry, which will begin when the first exploration wells are drilled to test the flow of gas;
- The contribution to the Shale Wealth Fund from specific sites will vary as tax revenues are driven by profitability; the profitability of any site is dependent on fuel prices, operator costs and site-specific geology;
- Given the geography of UK shale formations, it is expected that certain regions will see more shale industry development than others.

Through this consultation, the national government is seeking views on the priorities for the Shale Wealth Fund. The proposed priorities are:

- Priority 1: Locally focused benefits;
- Priority 2: Enhancing the regional economy.

The following consultation questions were asked:

- Consultation Question 1: Do you think that providing opportunities for both local and regional investments are the right priorities for the Shale Wealth Fund?
- Consultation Question 2: Do you agree that a more local level should receive revenues before a more regional level (establishing the ‘trickle up’ principle)?



- Consultation Question 3: Over the lifetime of the Shale Wealth Fund, what do you think the proportion of funding allocated between these two priorities should be?
- Consultation Question 4: Should the government retain flexibility regarding the proportion of funding between delivering benefits at local and regional levels, to enable learning from the industry pilot schemes and once the magnitude of shale revenues becomes clearer?
- Consultation Question 5: Do you have views on how the “local community” to a shale site should be defined for the purposes of the Shale Wealth Fund?
- Consultation Question 6: Do you agree that the “local community” should be defined on a case-by-case basis?
- Consultation Question 7: Do you think a set of principles should be developed to ensure consistency of approach for different shale developments?
- Consultation Question 8: If possible, should the government seek to align any “local community” element of the Shale Wealth Fund with the industry’s community benefits scheme?
- Consultation Question 9: Do you agree that at a local level, it should be for local people to determine how the Shale Wealth Fund is spent?
- Consultation Question 10: How could the government ensure that all local residents benefit as directly as possible from the Shale Wealth Fund?
- Consultation Question 11: At the local level, should expenditure from the Shale Wealth Fund be subject to any ring-fences for a specific purpose? If so, should these be locally or centrally determined, and do you have views on what they should be?
- Consultation Question 12: At the local level, would an appropriate use of the Shale Wealth Fund be to make direct payments to households?
- Consultation Question 13: Do you have views on who should make decisions on Shale Wealth Fund allocation at a local level? Do you have a preference between an existing body (such as a parish or district council), using the same community led panel as the industry scheme, or creating a new body?
- Consultation Question 14: How can the government ensure that decisions are as directly influenced by local residents as possible?
- Consultation Question 15: Do you have a view on how the boundaries should be defined for a regional strand of the Shale Wealth Fund?
- Consultation Question 16: What kind of investments do you think should be made from a regional level of the Shale Wealth Fund?
- Consultation Question 17: Do you think a regional level of the Shale Wealth Fund should be administered by direct grants to specific organisations, or through an open bidding process? How can the views of residents across the regions be best taken into account?



- Consultation Question 18: Do you have views on how a regional level of the Shale Wealth Fund should be governed? Are there existing regional organisations, or local or national governance structures that would be particularly suited to oversight of such a fund?

The submissions to the consultation are still under review.

On January 31st, 2017, the Scottish Government opened a consultation on unconventional oil and gas under entitled *Talking “Fracking”*. The consultation closed on May 31st, 2017. The starting point for this consultation is different than the one in the Shale Wealth consultation. The organizers admit that: “the future of unconventional oil and gas in Scotland has proven both complex and controversial, and deeply held, sincere views have emerged on all sides of the debate”.⁵⁸ The official website of the consultation, refers to the fact that the Scottish government has placed a moratorium on unconventional oil and gas development in Scotland in January 2015 and that, since then, it has engaged in gathering evidence on the impacts of hydraulic fracturing for shale oil and gas, and coal bed methane extraction. The consultation is supported by a report by an Independent Expert Scientific Panel and a series of consulting reports⁵⁹, a dedicated website⁶⁰ and a discussion toolkit that was available on-line for any group willing to take part in the consultation. The consultation was been advertised through the Scottish Government’s Newsroom, as well as being reported in mainstream news media, on Twitter and Facebook, so it will potentially have reached many people. This consultation recognises the importance of early engagement, and seeks the views of the public before decisions are made as to whether development should occur. The consultation documents states that the Scottish Government is committed to ‘providing the public with the impartial information it has about the issues’.

The consultation website⁶¹ offers additional information on:

- unconventional oil and gas
- the research on unconventional oil and gas
- regulation
- Scotland’s climate change plan & energy strategy
- and space for other questions

Discussion packs were prepared for smaller and bigger groups and each pack offers clear guidance for how to carry out consultation, including the checklist and cards with

⁵⁸ <https://consult.scotland.gov.uk/energy-and-climate-change-directorate/fracking-unconventional-oil-and-gas/> (accessed 14 September 2017)

⁵⁹ <http://www.gov.scot/Publications/2014/07/1758> (accessed 14 September 2017)

⁶⁰ <https://www.webarchive.org.uk/wayback/archive/20170531100224/http://www.talkingfracking.scot> (accessed 14 September 2017)

⁶¹ <https://www.webarchive.org.uk/wayback/archive/20170531100224/http://www.talkingfracking.scot> (accessed 14 September 2017)



statements about various issues, such as climate change, economic impacts, seismicity, transport, decommissioning, health and two cards with quotations from the final report of the Independent Expert Scientific Panel. Each group can use these cards to inform their opinions but the main objective is to formulate a message to the government and submit it via a consultation website Citizen Space.

On April 13, 2017, a Briefing Paper by the House of Commons, titled “Shale gas and fracking” was published, which is an update of a paper published by POST over the last few years. The document reviews the shale gas resource in the UK, the regulatory regime, the Infrastructure Act of 2015 and environmental considerations. The last part of the report is devoted to support for the industry and support for communities. In this part, the document refers to the promise of the then Energy Minister Michael Fallon who, in June 2013, said that the Government would consult on community benefits through grants, expenditure or discounts on bills. Details of the package, which are set out in the UK Onshore Oil and Gas Shale Community Engagement Charter⁶² were announced on 27 June 2013, including:

1. The Government has also welcomed a package of community benefits that has been brought forward by industry today. Companies have pledged to engage with communities early (prior to any application for planning permission), and to provide community benefits in areas where shale is commercially extracted.
2. These will include £100,000 for communities situated near each exploratory (hydraulically fracked) well, and 1% of revenues from every production site.⁶³

In the 2014 Autumn Statement, the Government announced a range of measures to further encourage the development of shale gas resources in the UK. These were:

- a £5 million fund to provide independent evidence directly to the public about the robustness of the existing regulatory regime;
- £31million of funding to create world class subsurface research test centres through the Natural Environment Research Council. This aims to establish world leading knowledge which will be applicable to a wide range of energy technologies including shale gas and carbon capture and storage;
- setting up a long-term investment fund from tax revenues from shale for the North and other areas hosting shale gas developments, to capture the economic benefits of shale gas for future generations.

In the Spending Review and Autumn Statement 2015, the then Chancellor announced the creation of a Shale Wealth Fund to deliver up to £1 billion of investment in local communities hosting shale gas developments in the north of England and other shale-

⁶² UKOOG, Community engagement charter: oil and gas from unconventional reservoirs, June 2013

⁶³ DECC, Estimates of shale gas resource in North of England published, alongside a package of community benefits, 27 June 2013



producing regions. (HM Treasury, Spending Review and Autumn Statement 2015, November 2015).

5.4 Germany

In 2016, the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) conducted a citizen's dialogue. In this large-scale project, the BMUB invited citizens to participate in several citizens' council meetings and in an online-dialogue to share their input on how to shape living, economy and work in an ecologically sustainable way until 2030 (Bundesministeriums für Umwelt, Naturschutz, Bau und Reaktorsicherheit, n. d., p. 4). The citizen's dialogue was part of the BMUB's development of a new "integrated environmental program for 2030". The results of this citizen participation project were included in the final report and published in August 2016.⁶⁴ The communication and participation activities in this process included six citizen's council meetings in different German cities with 12 to 16 participants each and subsequent "citizen's environmental forum" - a public panel discussion with about 80 participants were the results of the citizen's council meeting were presented and discussed (Ibid., p 4). In conclusion, 79 people participated in the citizen's council meeting (Ibid., p. 7) and 489 people participated in the "citizen's environmental forum" panel discussions (Ibid., p. 9).

In addition to these meetings, an online-dialogue process was initiated. Here, an additional "online council meeting" with 25 participants took place (Ibid., p. 7). This was followed by an "online environmental forum", where internet users had the chance to discuss the main question and its different aspects either as registered participants or as guests. In the time between February 24th, 2016 and April 21th 2016, 324 registered participants as well as about 3000 guests left 1091 entries on the platform for discussions (Ibid., p. 12/13). The spectrum of subjects in this citizen engagement process was very broad and thus the issue of hydraulic fracturing for unconventional gas only played a minor role in the process overall. In the citizen's council meetings, were the participants could set their own topics and agenda, hydraulic fracturing was no central topic (Ibid., p. 51). This was different in the "online council meeting": Here the citizens discussed the topic at length with the concluding request to ban hydraulic fracturing in Germany. In detail, the participants in the online dialogue mentioned a need to prevent the negative environmental outcomes associated with hydraulic fracturing the USA, with regard to groundwater or soil contamination, as well as other unforeseeable environmental consequences. Furthermore, since Germany is much more densely populated compared most producing regions in the USA, hydraulic fracturing should be prohibited. Instead, Germany should enforce strict environmental regulations and establish renewable energy sources (Ibid., p. 60). The demands formulated by the online council meeting were endorsed by both the "citizen's environmental forums" and the "online environmental forum" (Ibid., p. 32, p. 60), the latter indicating that hydraulic fracturing is seen as a both unprofitable and an environmentally harmful method to generate energy. In addition to environmental damages, the participants argued that

⁶⁴An overview of the citizen's dialogue and its results can be found in chapter 5, starting at p. 112



using hydraulic fracturing could lead to slowing down the energy transition away from fossil fuels. Critical voices in the online discussion mentioned the need for scientific monitoring as a necessity to assess fully technologies in general and hydraulic fracturing specifically. Another commenter added that the protest against fracking might lead to the undesirable outcome of benefitting the oil industry, instead of renewable energy technologies.

In addition to this large-scale citizen engagement process, several local communication activities could be identified. Both industry stakeholders DEA (Deutsche Erdöl AG) and ExxonMobil initiated local citizen dialogues and information activities. Examples are a citizen's dialogue in Walle on May 12th 2016⁶⁵ and Langwedel-Holtebüttel on May 4th 2016 with about 50 participants⁶⁶ on behalf of DEA. Since May 2015, ExxonMobil has organised regular regional dialogues in Rotenburg (Wümme), so far four of these dialogues have taken place.⁶⁷

5.5 The Netherlands

In the above-mentioned energy report by the Dutch Ministry of Economic Affairs, published in January 2016, the implementation of a citizen's dialogue about how to transition to sustainable energy supply was promised (Ministry of Economic Affairs of the Netherlands 2016, p. 11). In chapter six of the energy report a short outline of the design, topics of discussion and the aims of the citizen's dialogue was provided (Ibid. pp. 136). The goal of the dialogue is to develop a policy agenda with concrete proposal that will be presented to the Tweede Kamer/Lower House in late 2016 (Ibid, pp.136, p. 138). In an official letter to the President of the Tweede Kamer, Minister of Economic Affairs H.G.J Kamp detailed his plans for the upcoming citizen's dialogue as follows: The process should start with three simultaneous meetings in Rotterdam, Leeuwarden and Eindhoven on April 7th, 2016 with around 450 to 500 participants each (Minister of Economic Affairs Kamp 2016a, p. 2). The meeting in Leeuwarden should focus primarily on the topic of renewable heat in homes and offices and the spatial integration of low-carbon energy supply, while participants in Eindhoven should discuss sustainable transport as well as sustainable electricity. Heat in an industrial context and potential ways of utilizing residual heat in residential areas is the subject of the meeting in Rotterdam. In addition to these large scale initial meetings, about 50 other meetings with either more regionally specific or thematically focused topics were planned to take place until July 2016. An online discussion platform where people were able discuss and comment on different topics should also part of the dialogue process (Ibid., p. 3). According to a news release by the Dutch government, in the three months the citizen's

⁶⁵ Press release, available online at: <http://dea-in-niedersachsen.de/press-releases/dea-laedt-am-12-mai-auch-walle-zum-buergerdialog-ein> (accessed 15 September 2017)

⁶⁶ Press release, available online at: <http://dea-in-niedersachsen.de/press-releases/reges-interesse-info-veranstaltung-der-dea> (accessed 15 September 2017)

⁶⁷ Official web site: <http://www.erdgas-aus-deutschland.de/de-de/im-dialog/regionaldialog-rotenburg/regionaldialog-rotenburg/regionaldialog-rotenburg> and <http://www.erdgas-aus-deutschland.de/de-de/im-dialog/regionaldialog-rotenburg/materialsammlung/materialsammlung> (both accessed 15 September 2017)



dialogue took place, over 3000 people participated in over 125 meetings. The participants include involved citizens, entrepreneurs, scientists and different organizations, from governments to companies and network organizations.⁶⁸ The outcomes of the dialogue process were presented in another official letter to the President of the Tweede Kamer. Here the Minister of Economic Affairs shared a detailed overview on the individual meetings and the involved parties (Minister of Economic Affairs Kamp 2016b).

For our present report, one meeting organized by Tegengas NOP is especially interesting since the meeting, which took place in Emmeloord on July 7th 2016, focused on the topic of shale gas in the context of the energy transition. According to the majority of the participants in this meeting, in the long-term, it is important to have fossil free energy supply. Moreover, participants were against shale gas production precisely because they are in favour of a transition to a more sustainable energy supply. They criticized the Dutch Government for sending out mixed signals in wanting a fossil-free future energy supply based on renewables, on the one hand, while also wanting to produce shale gas, on the other hand. Two reasons were cited as to why shale gas should not play a part in the energy transition and should be ruled out. One addresses the question of why the government should invest in shale gas production, if the actual goal is to be independent of fossil fuels in the long run. The second concerns the fact that shale gas resources are limited and seem not to be worth taking the risks associated with developing them. Though some of the participants in this meeting were of a different opinion and thought that shale gas should not be permanently ruled out, since there might be safe methods for shale gas production in the future (Ibid., pp. 53).

A critique of this public engagement process by the Dutch government was presented by Jan Rotmans, Professor of Sustainable Transitions and System Innovations at the Erasmus University Rotterdam in. In an article in the online publication “Energieoverheid” - an independent knowledge platform on energy policy for governments - Rotmans calls the Energiedialoog: “the wrong tool at the wrong time”.⁶⁹ The main reason for this seems to be the openness of the dialogue and its lack of a clear objective. According to Rotmans, at this stage, it should not be about generating new ideas on how to manage the transition to sustainable energy, since there are a lot of solutions available already. Rotmans maintains that is already support for the energy transition as the majority of the Dutch population is in favour of more sustainable energy sources. What is needed instead, he maintains, is to actually implement the solutions available and to make clear choices, even if they might be radical. As it is, Rotmans does not see the Dutch Government making these choices in the near future and calls the Energiedialoog a “delaying tactic”.

⁶⁸ Press release, online available at:

<https://www.rijksoverheid.nl/actueel/nieuws/2016/07/04/energiedialoog-meer-dan-3000-mensen-in-gesprek-tijdens-ruim-125-bijeenkomsten> (accessed 15 September 2017)

⁶⁹ Online article available at: <http://www.energieoverheid.nl/2016/04/12/energiedialoog-vertragingstactiek-ez/> (accessed 15 September 2017)



6 SHALE GAS AT THE EU LEVEL

It is difficult to work out if the perception of shale gas production in the different EU member states has changed since the last report as no new surveys like the Eurobarometer in 2012 and 2015 were carried out in the assessment period. In 2016, a survey conducted in four European countries was published. The survey was part of the project “European Perceptions of Climate Change (EPCC)” coordinated by Cardiff University and compared the perceptions of climate change and energy transition in France, the United Kingdom, Germany and Norway. Relevant for the present report is question 28 of the survey: “What is your general opinion about the following methods of energy generation for [France/ Germany/ Norway/ the UK]? Please indicate how positive or negative your opinion is.” (Steentjes et al. 2017, p. 52). When asked about hydraulic fracturing as a method for energy generation, the respondents answered in the following way:

Table 2. Public Attitudes to Shale Gas in Selected European States.

Country	Very Negative	Mainly negative	Neither positive nor negative	Mainly positive	Very positive	Never heard of it	Don't know
France	29%	10%	11%	7%	2%	34%	7%
Germany	24%	15%	15%	10%	5%	22%	8%
Norway	22%	15%	16%	5%	1%	30%	9%
U.K.	25%	17%	19%	14%	6%	5%	15%

Source: Table generated on the basis of the data and tables in the EPCC report, p. 52 and 53.

The table reveals some interesting insights: across all countries, hydraulic fracturing is mainly perceived as negative and only a small percentage view it in a positive light. At the same time, in three of the four countries a substantial share of respondents had never heard of the term. The United Kingdom is an outlier in that respect with a very high knowledge rate of this extraction, which is not unexpected given the scale of protest.



7 CONCLUSIONS

7.1 Poland

In Poland, exploration activities stopped in mid-2016. Currently, the shale gas project is on hold, mainly due to difficult geological conditions and low oil and gas prices that make shale gas production in Poland too expensive to bring economic benefits. Due to these circumstances, no new activities in the area of opinion searching or shaping and communication have been organized in Poland. However, interesting academic publications analysing the Polish shale gas experience have been published between the end of 2015 and August 2017.

7.2 The United Kingdom

The United Kingdom has experienced an acceleration and intensification of politics in the area of shale gas development in the last two years. The licensing rounds were accompanied by conflicts around one potential site in Lancashire. Scotland, Northern Ireland and Wales introduced moratoria and a Shale Wealth Fund was announced by the national government. Scotland organized a public consultation on shale gas development, the results of which are still being processed.

7.3 Germany

In Germany, an increase in the number of academic publications dealing with public opinions on hydraulic fracturing and unconventional gas production can be identified. This is in contrast to the very low number of publications in previous years. On a political level, unconventional gas production does not play a role in the upcoming election for the German Bundestag and the legal situation is quite clear: there will be no commercial drilling for shale gas in the foreseeable future and only very limited test drilling activities, though other already established unconventional drilling activities, e. g. for tight gas, are not ruled out.

7.4 The Netherlands

In the Netherlands, stakeholder activity concerning unconventional gas production has decreased since 2015. The public discussion has shifted towards a broader debate about the transition to fossil free energy that includes issues of unconventional gas production. Still a number of publications about the public perceptions and social aspects of shale gas was published between late 2015 until August 2017. If shale gas production is discussed, it happens mostly in the context of gas production in Groningen and its role in local seismic activity. Insofar, Groningen seems to play an important role for the future of natural gas in the Netherlands.

7.5 General conclusions about public perceptions of shale gas in the EU

Even though the number of academic publications dealing with public perceptions of unconventional gas production in the EU has increased, the general controversial debate about widespread production of shale gas in the EU seems to have cooled down in the



last two to three years. In both the Netherlands and Germany, the topic likely won't be on the political agenda for the next few years until the present bans and restrictions of hydraulic fracturing activities will be revisited again. In Poland, shale gas activities were stopped and as such no new surveys or other communication activities addressing the issue were conducted. The only exception is the United Kingdom, England in particular, where shale gas development is going ahead. In light of the United Kingdom leaving the EU in the foreseeable future, the current status of shale gas development in the EU suggests that there will be no shale gas development in the EU by 2020.



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