

# Fracking and Shale Gas, Today and Tomorrow

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## Introduction

Hydraulic fracturing or “fracking” refers to the process of fracturing of rock by applying a pressurised liquid. Fracking fluid is injected into a well bore under high pressure which creates small fractures in the rock formation, assisting with the extraction of oil and gas. The fracking process creates numerous small fractures which are held open by “proppants”<sup>1</sup> that allows the oil, gas or other fluid to migrate into the well enabling extraction. Fracking has been used in the mining industry for decades but only recently attracted widespread public attention in relation to onshore shale gas extraction.

In 2010, the British Geographical Survey (“BGS”) in conjunction with the Department for Energy and Climate Change (“DECC”) produced a report identifying significant potential areas of shale gas deposits in Northern England.<sup>2</sup> The successful commercial exploitation of such deposits in other counties, notably the United States, has encouraged the UK government to take steps to exploit this unconventional energy resource. In December 2012, the UK government created the Office of Unconventional Gas and Oil (“OUGO”) to develop the shale gas industry in the UK. The OUGO is tasked with ensuring that the UK makes the best use of its resources

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<sup>1</sup> Often sand or aluminium oxide.

<sup>2</sup> Further surveys have identified other large deposits within the UK, including the Weald Basin in the South East.

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(including shale gas) and that regulation of shale gas extraction is as simple as possible but sufficiently robust to protect public safety and the environment.

The extraction of shale gas deposits by means of fracking is a contentious issue with several environmental groups strongly opposing its use. Such opposition draws heavily on a number of serious environmental incidents in the United States.<sup>3</sup> Supporters of fracking argue that these environmental incidents were caused by specific occurrences of malpractice and, properly managed, fracking does not pose environmental risks. This is supported by the review conducted by the Royal Society and the Royal Academy of Engineering in 2012, which concluded that:

‘[t]he health, safety and environmental risks associated with [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.’<sup>4</sup>

Whilst the debate around fracking continues, it is clear that the Government is committed to encouraging the development of a fracking industry in the UK, despite the political sensitivity of the practice. There was a significant focus on shale gas in HM Treasury’s “Investing in Britain’s Future” document in June 2013. It was indicated during the Queen’s speech at the State Opening of Parliament in 2014 that the Coalition Government would introduce a Bill which would enhance energy independence by opening up access to shale and geothermal sites. In a speech delivered on 24 June 2014 at the UK Shale Conference, the Rt Hon Michael Fallon MP (then the Minister responsible for shale<sup>5</sup>) confirmed the UK’s commitment to shale gas and fracking.<sup>6</sup>

There is currently a lot of governmental action surrounding fracking and it is possible that some specific fracking regulation will be introduced in the future. At the time of writing, however, the

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<sup>3</sup> For example, the contamination of groundwater and drinking water in Pavilion, Wyoming in 2011.

<sup>4</sup> <https://royalsociety.org/policy/projects/shale-gas-extraction/report/>

<sup>5</sup> On 15 July 2014, the Rt Hon Michael Fallon MP was appointed Defence Secretary.

<sup>6</sup> <https://www.gov.uk/government/speeches/uk-shale-conference>

extraction of shale gas and oil by fracking is covered by the same patchwork regulatory landscape as the wider oil and gas industry.

### The Current Regime

In the UK, the rights to all oil and gas deposits, including shale deposits, are exclusively owned by the Crown. In order to extract the oil or gas, a mining company must obtain a Petroleum Exploration and Development Licence (“PEDL”) issued by the DECC under the Petroleum Act 1998. PEDLs grant a company the right to search for, bore for and get gas or oil over a limited area and for a limited period. Obtaining a PEDL is a crucial first step but does not grant an automatic right to begin drilling, fracking or otherwise extracting the resource. The process may additionally require planning permission from the Environment Agency (“EA”), permits from the Coal Authority, permits from the Health and Safety Executive (“HSE”) and “consent to drill” from the DECC. These steps will now be addressed in turn.

An environmental risk assessment (“ERA”) should be carried out *before* planning permission is sought in the case of shale gas operations involving fracking. The ERA should involve the participation of all relevant stakeholders, including the local community, and should assess the risks of the entire lifecycle of the mining activity. Planning permission should be sought once the ERA has been conducted. In England and Wales, planning applications are made to the local Mineral Planning Authority (“MPA”). Before determining the planning application, the MPA can (and in the case of fracking, likely will) require an Environmental Impact Assessment (“EIA”)<sup>7</sup> to be completed. Once the EIA has been completed, the resulting information should be presented in an Environmental Statement for consideration by all statutory consultees and the relevant stakeholders.<sup>8</sup> After consideration of the Environmental Statement and consultation with all relevant parties, the MPA will reach a planning decision in accordance with planning law.<sup>9</sup> The

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<sup>7</sup> See the Town and Country Planning (Environmental Impact Assessment) Regulations 2011.

<sup>8</sup> In the case of fracking, it is considered best practice to have completed the Environmental Statement before making the formal application to the MPA for planning permission.

<sup>9</sup> Decisions of the MPA can be appealed through the Planning Inspectorate to the First Secretary of State under section 78 of the Town and Country Planning Act 1990.

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focus of the planning process centres on whether or not the proposed development is an acceptable use of the land and the DECC have indicated that other factors that are subject to approval under other regimes (such as health and safety) should be left to the relevant regulator. The MPA's decisions are often conditional on certain conditions being met before the site can become operational.

Holders of PEDLs must also obtain permits from the EA.<sup>10</sup> In July 2013, the EA published technical guidance for conventional and unconventional (i.e. fracking) oil and gas exploratory operations<sup>11</sup> and it would be strongly advisable to consult this document before commencing the permitting process. Permits may be required from the EA for a number of activities including groundwater activity, mining waste activity, industrial emissions activity, radioactive substances activity and water discharge activity. It may also be necessary to obtain a water abstraction licence and flood risk consent.<sup>12</sup> Further, before drilling can commence the mining company must serve a notice on the EA under section 199 of the Water Resources Act 1991.

In addition to planning permission from the MPA and permits and permissions from the EA, it is necessary to obtain a permit from the Coal Authority if the planned well is likely to pass through a coal seam.<sup>13</sup>

Once all the necessary permits and permissions are in place, the PEDL holder can turn its attention to the question of Health and Safety. Under the Health and Safety at Work etc Act 1974, the HSE is responsible for overseeing the adoption of safe working practices at onshore drilling sites. Further, the HSE also oversees well integrity under the Offshore Installations and

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<sup>10</sup> See the Environmental Permitting Regulations 2010.

<sup>11</sup> <https://consult.environment-agency.gov.uk/file/2582905>

<sup>12</sup> If the EA refuses to grant the necessary permits or consents, the PEDL holder can appeal to the Secretary of State for permits in England. Appeals can often be resolved by negotiation but, where this is not possible, the Secretary of State will normally refer the matter to a planning inspector who can determine the appeal on paper, at a hearing or through an inquiry.

<sup>13</sup> See the Coal Industry Act 1994.

Wells (Design and Construction, etc.) Regulations 1996<sup>14</sup> and requires the well design to be examined and approved by an independent and competent well examiner (who will also review daily well activity). Prior to commencing drilling the mining company must provide the HSE with 21 days' notice of its intention to drill.<sup>15</sup> The BGS must also be provided with 21 days' notice of the intention to drill.<sup>16</sup> Further, in cases of onshore shale gas sites, the mining company should, in accordance with the UKOOG onshore shale gas well guidelines, agree data reporting methods with the DECC.

Finally, after the holder of the PEDL has completed all of the steps outlined above it can seek "consent to drill" from the DECC. The "consent to drill" would allow a conventional mining operation to commence, however further steps must be taken before fracking is permitted. Under the terms of the PEDL and in accordance with the OUGO guidance for onshore shale gas wells, mining companies must agree an outline hydraulic fracturing plan and a method for monitoring induced seismicity with the DECC.<sup>17</sup> Once agreement has been reached, the DECC may give "consent to fracture" and the fracking operation may begin subject to the problematic issue of trespass.

Before the holder of a PEDL can drill under any third party land, it must also acquire the access rights from the owner of that land; whilst the rights to the petroleum belong to the crown, this does not extend to the substrata that must be drilled through to access said petroleum. If access rights are not obtained, the mining company will be guilty of trespass (see *Bocardo SA v Star Energy UK Onshore Ltd* [2010] UKSC 35). Accordingly, the common law of trespass presents a significant hurdle for fracking operations as landowners who are anti-fracking can potentially

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<sup>14</sup> Despite the name these regulations apply to onshore drilling as well as offshore drilling.

<sup>15</sup> See the Borehole Sites and Operations Regulations 1995.

<sup>16</sup> See the Mining Industry Act 1926 and the Science and Technology Act 1965.

<sup>17</sup> The DECC currently utilizes a traffic light monitoring system. Under the system, events of 0.5 magnitude trigger a "red light" and require remedial action.

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veto planned operations.<sup>18</sup> Environmental groups seeking to resist fracking have been promoting local residents' ability to stop fracking by refusing access rights and there remains the potential for "ransom strips" of land to be acquired by groups and campaigners for the same purpose.

The Future of Fracking Regulation

In 2011, a legal assessment by the European Commission concluded that existing EU legislation applied to practices required for unconventional hydrocarbon exploration and extraction (i.e. fracking) and, following consultation throughout 2012 and 2013, the Commission adopted a Recommendation on minimum principles.<sup>19</sup> The Commission has indicated that it adopted a Recommendation rather than other forms of EU legislative instrument due to the urgent need to bring "clarity and predictability to public authorities, market operators and citizens". The Recommendation covers issues such as Strategic Environmental Assessments<sup>20</sup>, restricting sites to geographically suitable areas and preventing cross-contamination but is not legally binding; Member States are not obliged to comply with the Recommendation but the Commission nevertheless expected compliance by 22 July 2014 and Member States are invited to inform the Commission about measures taken by the end of 2014 and annually thereafter. If it becomes apparent that Member States are not complying with the Recommendation, or the Commission otherwise deems it appropriate, specific European Legislation may be implemented: a Fracking Directive remains a possibility.<sup>21</sup>

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<sup>18</sup> If a landowner refuses to grant access rights, the mining company could seek the compulsory acquisition of the rights. Alternatively, the mining company could commence with fracking in any event in the knowledge that it will be committing an actionable trespass and will have to pay damages to the landowner. In order for a landowner to ensure that fracking does not occur, he would have to obtain an injunction from the courts, however whether or not an injunction is granted will depend on the specific circumstances (for example, in *Bocardo SA v Star Energy UK Onshore Ltd* the court refused to grant an injunction and awarded damages for trespass only).

<sup>19</sup> 2014/70/EU: Commission Recommendation of 22 January 2014 on minimum principles for the exploration and production of hydrocarbons (such as shale gas) using high volume hydraulic fracturing.

<sup>20</sup> See also Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment ("the Strategic Environmental Assessment Directive").

<sup>21</sup> Although at this stage no more than a possibility.

In the UK, fracking clearly constitutes a significant element of the Government's future energy plans<sup>22</sup>, and the current position of the Government and the Authorities is that fracking can be effectively regulated through strict enforcement of the current regulatory regime, as detailed above. Nevertheless, political pressure from environmental groups and the general public or, alternatively, a knee jerk reaction to any fracking incident, may result in some form of specific fracking regulation at some point in the future.

It is difficult to predict with any certainty what the regulatory landscape around fracking will be in the future. However, it appears highly likely that, in line with the Government's recent proposals,<sup>23</sup> a general right of access below 300 meters will be created to remove the potential difficulties for fracking projects created by the common law of trespass. The changes to access rights will be accompanied by measures designed to ensure fracking financially benefits local communities, including a community payment in return for access. In addition to the proposed changes, the UK fracking industry has signed up to a community benefit package that will pay £100,000 to communities per well site and 1% of revenue if the site proceeds to production; the Government also plans to allow local councils to retain 100% of the business rates they collect from productive shale gas and oil developments.

### Conclusion

Whilst there are currently no specific UK or European fracking regulations, the regulatory regime that does apply is complicated and extensive; there are a large number of hurdles that must be cleared before a company can commence fracking at a site, some of which are not easy to overcome. The UK Government has repeatedly confirmed its commitment to fracking and is in the process of taking steps to remove some of the obstacles affecting the UK fracking

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<sup>22</sup> In the 2013 Autumn Statement, George Osborne announced a number of incentives to encourage investment in fracking in the UK, including halving the tax rate on early profits.

<sup>23</sup> On 23 May 2014, the DECC published a consultation on proposals to reform the procedure for securing underground access to oil or gas deposits; one of the widely publicised proposals is the creation of an underground right of access below 300m. The consultation closed on 15 August 2014. Nevertheless, there remains the prospect of a legal challenge from Greenpeace following an error in the original consultation document in relation to the existing law and the test to be applied by the Courts (*"Legal fight on fracking under homes"*, *The Times*, 15 August 2014).

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industry. Nevertheless, fracking remains a sensitive subject which appears to be reflected in the consistent political focus on combining pro-fracking incentives and legislative changes with local community payments and benefits. The position across the EU is far less uniform and significant lobbying by some Member States (including the UK) has, thus far, avoided the introduction of European fracking legislation. However, if there is insufficient compliance with the European Commission's January 2014 Recommendation, further action from the Commission will become inevitable and, insofar as the Commission is monitoring the compliance of all Member States, whether or not there is European Legislative intervention is, in many respects, out of the UK's hands.

Many see fracking as economically and politically important to the UK's future, especially in light of the Government drive towards energy independence. On the other hand, many see fracking as one of the greatest threats that the environment currently faces. One certainty is that the appropriate regulation of the fracking industry is important for all concerned parties and over the coming years there is likely to be a great deal of development in this area.