

Consenting UK shale gas projects: risks for investors

The stakes are high for shale gas development. In the US, the impacts of abundant shale gas extraction have been significant and wide-ranging. US spot prices for natural gas fell by at least 50% in the period between 2008 and 2010, and remain low (compared with global prices), providing a boost for the US manufacturing industry. With increasing domestic energy security, the US is likely to become a net gas exporter in the years to come. With significant shale deposits in Europe and major concerns over energy security and prices, many closer to home would ideally like to replicate this situation in the EU.

However, progress is slow. A small number of companies are involved in onshore evaluation and exploration, but shale gas investment in the UK currently gives rise to a variety of obstacles and risks. There are some common themes including:

- Concerns around environmental risk and liabilities.
- Consultation and impact on local communities.
- Uncertainty and complexity of consenting regimes and regulatory change.
- Dealing with landowners.

What is hydraulic fracturing (fracking)?

Hydraulic fracturing involves injecting water, chemicals and sand (or similar matter) into shale rock formations at high pressure to break open the rock, release trapped gas and allow it to flow back into the well. The sand stops the fractures from closing up once pressure has been released. Initially, wells are drilled vertically to several hundred metres, and then horizontally (potentially in a number of directions) through the shale formations, often for several kilometres.

This article considers these risks from a UK perspective and offers some suggestions to investors contemplating shale gas development opportunities.¹

¹ This article was first published in Practical Law's Environment Multi-Jurisdictional Guide.

Government policy

There is currently firm UK coalition government support for shale gas development. This support sits alongside major electricity market reforms that aim to ensure security and affordability of electricity supplies during the transition to a low carbon economy. The government sees shale gas development as a bridge to this new world, along with its policies to support new gas-fired electricity generation capacity.

Environmental concerns over contamination, impact on climate change and seismic activity have dominated the political debate, but the government appears to be comfortable on these points (*see below*).

To implement its pro-shale gas stance, the government has:

- Created an Office for Unconventional Gas and Oil to help streamline regulatory processes.
- Consulted on tax incentives for future shale gas production.
- Put in place planning guidance aimed at bolstering the case for shale gas development.

However, policy risks remain. In particular, the Labour Party's position is less clear on promoting shale gas, focusing rather on the need to ensure that various environmental conditions are met. The Labour Party also criticises the government for exaggerating claims of the economic benefits of shale gas production and prematurely offering tax incentives. It also believes that shale gas has been promoted to the detriment of other low carbon technologies. With commercial production of shale gas seemingly some years away, ongoing public debate raging and a UK general election in 2015 (if not sooner), the political risk of investment in shale gas development remains. Regulation at EU level may also affect the political and commercial outlook for shale gas production (*see below, [European regulation](#)*).

Uncertainty and complexity of consenting regimes and regulatory change

Consents

One facet of shale gas project consenting is the sheer number of consents to be obtained and regulatory regimes that operators must navigate through even at the exploratory stage. For a non-exhaustive list of the permits, licences and information that may be required at exploratory stage in the UK depending on the precise characteristics of the exploration activities and location, see box, [UK consents for shale gas exploration](#). The fact that they are required under different processes from a number of different authorities adds additional cost and delay to the process (which ideally needs to be flexible while the process of proving wells for shale gas potential is undertaken).

Additional consents and permits are required for the later appraisal and production phases. The problem of complexity and delay is recognised in the UK. Given the current policy momentum in favour of shale gas development, the relevant authorities are now seeking to streamline the consenting and permitting processes. For example, operators must notify all landowners within the planning boundary. As this must be set widely (*see below*), there is the potential need to notify a large number of owners. Identifying land ownership is not always straightforward and, given that most landowners are not affected by drilling at depth under their site, the government is proposing to relax these requirements and require owner notification only where above-ground works are taking place. Similarly, the Environment Agency is seeking to streamline the environmental permitting processes for shale gas development.

UK Consents for shale gas exploration

| Consent/permit | Authority |
|--|--|
| Petroleum exploration and development licence | Department of Energy and Climate Change (DECC) |
| Well consent for exploration well | DECC |
| Fracking plan/consent/seismic risk assessment | DECC |
| Environmental risk assessment | DECC |
| Borehole consent | Health |
| Planning permission | Local Authority |
| Environmental impact assessment | |
| Environmental permits for: <ul style="list-style-type: none"> ■ Groundwater activity ■ Mining Waste Activity ■ Industrial Emissions Directive control for flaring ■ Radioactive substances activity (or potentially separate Radioactive Substances Consent) ■ Water discharge activity | Environment Agency |
| Groundwater investigation consent | Environment Agency |
| Flood defence consent | Environment Agency |
| Water abstraction licence | Environment Agency |
| Notice to construct of extend boring | Environment Agency |
| European protected species licence | Natural England |
| British Geological Society (BGS) information requirements | BGS |
| Coal industry act licence | Coal Authority |

In addition, there can be uncertainty over whether certain consents are required or the requirements applying to certain consents. For example, there has been debate over where to draw the boundary around the site for planning application purposes. Industry practice has been to draw the boundary around the above-ground works while the cautious approach now generally accepted is that the boundary must be drawn around the whole extent of the underground works (a practice long used in underground storage applications). This can cause problems since, at the beginning of operations, it is usually impossible to determine the exact route of lateral drilling and therefore the boundary must be set as widely as possible. At least one developer has decided not to rely on a planning permission where the planning boundary was drawn only around the above-ground works, because of the risk of legal challenge.

Environmental impact assessment (EIA)

Under current European rules, EIA is only mandatory where more than 500 tonnes of oil or 500,000 m³ of gas will be extracted per day. Below these levels, for exploratory wells, EIA is only necessary if the activities are likely to have significant environmental effects. The government's position is that EIA is not likely to be necessary for exploration where no hydraulic fracturing is taking place, unless the site is particularly sensitive. This leaves considerable room for differences of opinion over the need for EIA. A further uncertainty is whether the cumulative impacts of drilling multiple wells should be considered. Current government guidance provides that:

"It is unlikely that cumulative impact will be an issue at the exploration phase of development, regardless of how close individual well pads are to each other".

However, developers will undertake exploratory drilling at their peril without carrying out a full EIA and covering cumulative impacts, given the risk of legal challenge from objectors (see also below, [European regulation](#)).

Finally, there can be uncertainty over whether consent will be granted for the operations, particularly planning permission at local level. The shale gas industry has been concerned that, while government policy may promote the need for shale gas exploration and production, local authorities may be more swayed by local arguments over environmental impacts and technology fears. Through controversial planning guidance, the government has endeavoured to ensure that local authorities concentrate on the specific impacts of the development in the particular location (for example, surface water pollution) rather than on the more generic concerns such as potential pollution leakage from wells and risk of earthquake from fracking. The government believes that these generic concerns should be controlled by the national agencies (for example, the Environment Agency, Health and Safety Executive and the Department of Energy & Climate Change (DECC)) which are probably less swayed by local pressures. However, already one London Borough Council is seeking to impose a blanket ban on fracking across its area. Whether developers can avoid these generic issues dominating decision-making processes or being the subject of legal challenges against planning permissions remains to be seen.

European regulation

A wide range of European legislation applies to the different activities of shale gas development (see box, [Selected European legislation covering shale gas activities](#)). In the last two years, the European Commission has been reviewing national legislative systems dealing with shale gas development and considering whether there are gaps in the European regulatory framework that need to be addressed to ensure a "level playing field" of regulation in the EU and a high standard of environmental protection. A study prepared for the European Commission in 2011 reviewed the legislative frameworks in France, Germany, Poland and Sweden. The study identified that, although there were no major gaps in legislation in these countries, there were some deficiencies and differences in national implementation of rules. For example, public participation for exploration activities was deficient, as EIA was often not required for exploration (for the UK position, see above, [Uncertainty and complexity of consenting regimes and regulatory change](#)). The study also found more generally that more integration in core permitting procedures would be beneficial.

The European Commission has recently concluded that an EU-wide risk management framework for unconventional fossil fuels extraction is needed to:

- Provide a clear and simple system that addresses the specific impacts of shale gas operations.
- Provide flexibility for local features.
- Create a level playing field to ensure the integrity of the European internal energy market.
- Encourage transparent decision-making to encourage public acceptance.

Increasing consistency and certainty of regulatory frameworks for shale gas development is likely to be good for investment, but we do not know how interventionist that framework might be. An October 2013 report by media website Euroactiv quoted an unnamed EU official confirming that legislation would cover:

- "Venting and flaring of greenhouse gases.
- Seismic disturbances.
- Water contamination and management of the water supply and reserves.
- Impacts on air quality, and noise emissions.
- Infrastructural problems caused by heavy industrial activity."

Selected European legislation covering shale gas activities

The following European legislation (as amended) covers shale gas activities:

- EIA Directive (Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment).
- Habitats Directive (Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora).
- Mining Waste Directive (Directive 2006/21/EC on the management of waste from extractive industries).
- IPPC Directive (Directive 2008/1/EC concerning integrated pollution prevention and control).
- Industrial Emissions Directive (Directive 2010/75/EU on industrial emissions (integrated pollution prevention and control)).
- Water Framework Directive (Directive 2000/60/EC establishing a framework for Community action in the field of water policy) and daughter directives.
- Seveso II and III Directives (Directives 96/82/EC and 2012/18/EU on the control of major accident hazards involving dangerous substances).
- Environmental Liability Directive (Directive 2004/35/EC on environmental liability with regard to the prevention and remedying of environmental damage).
- Biocidal Products Directive/Regulation (Directive 98/8/EC and Regulation (EU) 528/2012 on biocidal products).
- REACH (Regulation (EC) 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals).
- Waste Shipment Regulation (Regulation (EEC) 259/93 on the supervision and control of shipments of waste within, into and out of the EC).
- CCS Directive (Directive 2009/31/EC on the geological storage of carbon dioxide).
- Ozone Depleting Substances Directive (Regulation (EC) No 1005/2009 of the European Parliament and of the Council of 16 September 2009 on substances that deplete the ozone layer).

The European Parliament has already called for:

- A harmonised framework with consideration of legislation requiring financial security/guarantees.
- EU shale gas producers to operate to highest global standards.

In relation to proposals to extend liability for shale gas operations, see below, [Environmental risk and liability](#). In addition, the European Parliament recently voted to make EIA mandatory for all exploratory operations involving hydraulic fracturing. There are concerns over the impacts on competitiveness if these proposals are taken forward and the UK government has called for further such regulation of shale gas to be rejected.

Investors clearly must keep a close eye on the developing European regulatory framework given its potential to add to liabilities, management burdens and costs.

Public resistance and consultation

A recent survey for the European Commission identified that 75% of people would not want a shale gas project located near to them. Public resistance is a major area of concern for shale gas developers and investors. Publicity surrounding the US experience (including stories of serious environmental impacts and emotive film footage of flaming water taps) has led to public concern in a number of member states. In the UK, concern was heightened by seismic tremors recorded during hydraulic fracturing activities in England in 2011 following which the UK government placed a moratorium on fracking. In addition, press stories have depicted rural life disrupted by 24 hour operations and lorry movements, with injected chemicals affecting water supplies. Public resistance has turned to protest in some cases. For example, in Balcombe in Surrey, a high

profile campaign to stop initial exploratory works (not even involving hydraulic fracturing) resulted in arrests including of a Green Party MP. In Romania, Chevron has reportedly suspended operations at one site after local objectors blocked its trucks. Similar stories have been seen in Poland. Inevitably objectors tend to see even initial exploratory works as just one step away from major long term extraction.

Public acceptance of shale gas operations is likely to depend on three key issues:

- Ensuring that environmental and health and safety risks can be properly controlled.
- Engagement with the community on plans and operations.
- Demonstrating that there is something in it for the local community to support exploration and production in their area.

We look at environmental and health and safety risks below (*Environmental Risk and Liability*). The engagement issue is a question of consultation and transparency. This has been recognised by the UK onshore industry acting through the UK Onshore Operators Group (UKOOG). In its Community Engagement Charter, UKOOG commits to full public engagement at all stages of operations. Much US resistance to hydraulic fracturing developed as a result of the secrecy adopted by operators as to the chemicals being injected into wells to stimulate the flowback of gas. The UKOOG charter has undertaken to publish transparent data on chemicals used. A new European chemical disclosure registry for fracturing fluids has been established to facilitate that transparency by operators. This should help address some of the public concerns over the impacts of shale gas development.

On community benefits, an approach similar to the one adopted successfully in the onshore wind generation sector has been proposed. The UKOOG has committed to providing the following benefits to local communities:

- GB£100,000 per well site (involving hydraulic fracturing) at the exploration/appraisal stage.
- 1% of revenues during production (about two-thirds to the local community and one-third to the county).

However, with the Local Government Association calling for between 5% to 10% of profits to be returned at the local level, it is not yet clear how successful the UKOOG's proposals will be in seeking the public's buy-in.

Land and ownership and access issues

An emerging concern for investors is the question of rights to drill vertical and horizontal wells and above-ground access to development sites. While the shale gas itself is owned by the Crown, these other rights must be acquired separately as they are not granted by the relevant regulatory permits (see above, *Uncertainty and complexity of consenting regimes and regulatory change: Consents*). Rights will have to be negotiated with the landowners concerned in the first instance by private agreement.

Ownership/access rights to a pad site at ground level and vertical drilling rights may be fairly straightforward as the area needed is likely to be clear and the ownerships readily known.

Horizontal drilling used in shale gas development may well prove a more difficult issue. The recent case of *Star Energy Weald Basin Ltd v Bocardo SA [2010] UKSC 35* determined that a well drilled diagonally from an onshore drilling site which then passed through a neighbour's land several hundred feet below the surface, without the neighbour's consent, committed a trespass against the neighbour.

Developers may therefore need to seek agreement for rights of access for horizontal drilling from a multitude of owners. As part of a campaign against hydraulic fracturing operations, Greenpeace has recently called for landowners to refuse to allow developers to drill under their land. This could cause significant delay to projects where there are numerous such owners.

Where access rights cannot be agreed, developers can seek to acquire them compulsorily under the Petroleum Act 1998 or Mines (Working Facilities and Support) Act 1966. However, the legislation is little used and involves an unusual process in front of the High Court requiring evidence that reasonable efforts have been made to come to agreement (but have been unsuccessful). This is not necessarily easy.

One positive outcome of the *Bocado* case for developers is that compensation for compulsory acquisition of below ground drilling rights will be fairly nominal. This is due to the fact that the Supreme Court rejected the landowner's claim that it should be entitled to a share in the revenues from the project. Rather, the Supreme Court determined that compensation should be valued on usual principles linked to the value of the infringed right to the landowner. However, this should not persuade developers to start drilling without seeking agreement, as landowners could potentially obtain an injunction to stop the infringing works. Developers should begin these negotiations at an early stage.

Environmental risk and liability

Inevitably, shale gas exploration gives rise to a number of environmental risks which could lead to liability for developers or enhanced requirements for regulatory controls. Major examples fall within the categories of pollution, health and safety (including seismic risk) and waste management (see box, [Shale gas exploration: principal environmental and health and safety risks](#)).

When exploratory hydraulic fracturing works in Lancashire in 2011 were followed by minor seismic tremors, the government placed a moratorium on fracking while investigations took place as to their cause. Although the fracking was found to have been the cause, the moratorium was lifted in 2012, as the government was comfortable that the risks could be successfully mitigated. The government introduced seismic risk assessments and ongoing monitoring requirements.

More generally, various bodies have been investigating the risks associated with hydraulic fracturing and a consensus view appears to be emerging that shale gas risks can be successfully managed. In a report issued in June 2012 ("*Shale Gas extraction in the UK – a review of hydraulic fracturing - Royal Society / Royal Academy of Engineering – June 2012*"), the Royal Society and the Royal Academy of Engineering noted that hydraulic fracturing technology has been in use for decades and that the UK has a long-standing and highly regulated onshore oil and gas industry. They concluded that the environmental and health and safety risks of hydraulic fracturing can be adequately managed provided best practice is employed by industry. Significantly this conclusion was backed up recently by an authoritative report prepared by independent experts for the Dutch Cabinet. In August 2013, the UK Environment Agency published its own risk assessment on the exploratory phase of drillings with similar findings. However, it is keeping the impacts of production phase open for review. Most recently a draft report in October 2013 by Public Health England assessed likely risks to public health from shale gas extraction to be low.

These assessments should give investors some comfort, but debate on the environmental risks continues. In particular, there is debate over whether emissions of methane from the extraction process would significantly raise the carbon footprint of shale gas. A DECC report suggests that, with suitable controls, the carbon footprint of shale gas should remain below that of imported liquified natural gas (LNG). Therefore, the government is comfortable that promoting shale gas will not harm progress towards its climate change targets. However, this issue remains controversial.

Where the risks are not adequately mitigated, developers are exposed to a range of potential liabilities towards different parties. In addition to liability under the relevant permitting regimes, developers may face both:

Shale gas exploration: principal environmental and health and safety risks

The principal risks are:

- Pollution of surface or groundwaters from substances released or spilled during exploration including gases and fracturing fluids.
- Health or explosion/fire risks/air quality/climate change impact from fugitive gas emissions from boreholes (including methane).
- Health and safety risks associated with on-site chemical handling.
- Pollution associated with managing/disposal of waste: drill cuttings/muds.
- Risks of damage to on-and offsite infrastructure through seismic activity or other physical disturbance.
- Pollution impacts continuing following well closure and abandonment.
- Impacts on underground water supplies through abstraction.

- Clean-up costs under Part IIA of the Environmental Protection Act 1990 or the Environmental Damage Regulations (for contaminated land and waters).
- Potential tortious claims for impacts on neighbours and members of the public. For example, damages claims may come from:
 - neighbouring landowners in relation to migration of contaminants;
 - water companies or others relying on water abstractions relating to contamination of water supplies;
 - owners or operators of infrastructure affected by fracturing operations.

The European Parliament has called for a reversal in the usual burden of proof for operator liability where shale gas development is the likely cause of environmental problems. This would further increase developer exposure.

Securing suitable insurance coverage will be key to giving comfort to investors that the risks will be manageable. Recently, commentary from the US has suggested that insurers are still reticent about unknown shale gas development risks and that reinsurance of risks has become problematic. It remains to be seen whether that experience will be repeated in the UK.

Conclusions

Investment in shale gas projects is beginning to grow in the UK, as evidenced by Centrica's acquiring 25% of Cuadrilla's Bowland exploration operation and GDF's reported purchase of a 25% interest in Dart Energy's Bowland operation. Disagreements over the benefits of shale gas and its impacts coupled with growing public outcry mean that risk management will be key to future investment in shale gas development.

The UK regulatory regime is complex, uncertain and changing. It will be essential to understand these complexities and plan projects carefully to avoid legal challenges which could otherwise derail an already lengthy consenting process. Following regulatory and policy developments in this area will be crucial, and some may wish to get involved in shaping the regulatory environment to ensure unnecessary obstacles to development are not put in place at local, national or EU level.

Developers should engage early with landowners, given the need to seek agreement on access rights and rights to drill (even where rights are needed entirely below ground). High profile events have also demonstrated the need to engage early and pro-actively with stakeholders and, in particular, local communities. However, even where engagement takes place, risks of concerted campaigns remain, and disruption and impact on corporate reputation need also to be borne in mind.

Authors



Nigel Howorth

Partner, Environment & Planning Group

T: +44 207 006 4076
F: +44 207 006 5555
E: nigel.howorth@cliffordchance.com



James Shepherd

Senior Associate, Environment & Planning Group

T: +44 207 006 4582
F: +44 207 006 5555
E: james.shepherd@cliffordchance.com



Michael Coxall

Senior Professional Support, Lawyer, Environment & Planning Group

T: +44 207 006 4315
F: +44 207 006 5555
E: michael.coxall@cliffordchance.com

This publication does not necessarily deal with every important topic or cover every aspect of the topics with which it deals. It is not designed to provide legal or other advice.

www.cliffordchance.com

69697-5-1566

Clifford Chance, 10 Upper Bank Street, London, E14 5JJ

© Clifford Chance 2013

Clifford Chance LLP is a limited liability partnership registered in England and Wales under number OC323571

Registered office: 10 Upper Bank Street, London, E14 5JJ

We use the word 'partner' to refer to a member of Clifford Chance LLP, or an employee or consultant with equivalent standing and qualifications

If you do not wish to receive further information from Clifford Chance about events or legal developments which we believe may be of interest to you, please either send an email to nomorecontact@cliffordchance.com or by post at Clifford Chance LLP, 10 Upper Bank Street, Canary Wharf, London E14 5JJ

Abu Dhabi ■ Amsterdam ■ Bangkok ■ Barcelona ■ Beijing ■ Brussels ■ Bucharest ■ Casablanca ■ Doha ■ Dubai ■ Düsseldorf ■ Frankfurt ■ Hong Kong ■ Istanbul ■ Kyiv ■ London ■ Luxembourg ■ Madrid ■ Milan ■ Moscow ■ Munich ■ New York ■ Paris ■ Perth ■ Prague ■ Riyadh* ■ Rome ■ São Paulo ■ Seoul ■ Shanghai ■ Singapore ■ Sydney ■ Tokyo ■ Warsaw ■ Washington, D.C.

*Clifford Chance has a co-operation agreement with Al-Jadaan & Partners Law Firm in Riyadh.