



Number CDP 2015/0025, 29 June 2015

Debate Pack: Shale gas

By David Hough
Edward White

Inside:

1. News items
2. Press releases
3. Parliamentary Questions
4. Other parliamentary material
5. Further Reading
6. Annex 1: Library Briefing Paper *Shale gas*



Contents

Summary	3
1. News items	4
2. Press releases	7
3. Parliamentary Questions	16
4. Other parliamentary material	20
5. Further Reading	24
6. Annex 1: Library Briefing Paper <i>Shale gas</i>	26

Contributing Authors: Author, Subject, Section of document

Attributed to [Marcellus Shale Gas Well](#) by [wcn247](#). Licensed under [CC BY 2.0](#) / image cropped.

Summary

This debate pack has been compiled ahead of the debate on *Shale gas* on Tuesday 30 June 2015 at 09:30am.

The Member in charge of the debate is *Kevin Hollinrake MP*. Debate packs are produced quickly after the announcement of parliamentary business. They are intended to provide a summary or overview of the issue being debated and identify relevant briefings and useful documents, including press and parliamentary material. More detailed briefing can be prepared for Members on request to the Library.

In the UK, drilling for shale gas is at only the exploratory phase. But the rapid development of shale gas resources in North America has transformed the world gas-market outlook.

The consensus seems to be that shale gas will not be a 'game changer' in the UK as in the US. There is, for example, less land available to drill on and landowners do not own the rights to hydrocarbons beneath their land. However, in June 2013 Centrica acquired a 25% stake in Cuadrilla's exploration licence in Lancashire and the Government and British Geological Survey published raised estimates of the shale gas resource in Northern England. The Government is also consulting on legislation to introduce tax incentives for shale gas exploration, and has announced community financial benefits.

Existing onshore petroleum exploration and development licences, which are not specific to shale gas, are therefore more likely now to be explored for their shale potential.

Shale gas is extracted from solid rock using a process called hydraulic fracturing, or 'fracking'. The Royal Society and Royal Academy of Engineering have [reviewed](#) the risks associated with fracking. They concluded that the health, safety and environmental risks can be managed effectively in the UK, by implementing and enforcing best operational practice. However, they made several recommendations including calling for more research on the carbon footprint of shale gas extraction.

A report on this was published by DECC in September 2013, in which shale gas emissions were said to be similar to those of conventional gas and lower than those of coal and LNG, leading the Secretary of State to describe shale gas as a 'bridge' to a low-carbon future.

The Queen's speech in 2014 confirmed Government plans to streamline the underground access regime and make it easier for companies to drill for shale gas. The Infrastructure Bill has been amended to provide this. It also provides a number of new 'safeguards'.

There are no commercial shale gas operations in the UK though, at the time of printing, Lancashire County Council were in the process of [considering one application for the site, Little Plumpton](#). Planning Officers have already recommended that permission at the site is granted.

1. News items

Please note: the Library is not responsible for either the views or accuracy of external content.

Independent.co.uk

June 25, 2015

[Fracking: Decision on Lancashire shale gas site postponed amid an extraordinary legal row; Councillors said their decision had been constrained by 'secret' legal advice](#)

BBC Online

24 June 2015

[Lancashire fracking decision deferred until Monday](#)

The Guardian

June 24, 2015

[Lancashire county council defers fracking decision; Councillors defer decision on Cuadrilla's bid to undertake hydraulic fracturing for shale gas at Preston New Road, saying they need to seek further legal advice](#)

The Daily Telegraph

June 23, 2015

[Green influence on anti-tracking report backed by Burnham](#)

Independent.co.uk

June 22, 2015

[Fracking poses 'significant' risk to humans and should be temporarily banned across EU, says new report](#)

The Daily Telegraph

June 19, 2015

[Fracking: ministers ordered to publish secret report into impact on house prices](#)

The Guardian

June 19, 2015

[Britain's political consensus on fracking is fractured](#)

BBC Online

16 June 2015

[Environment Agency consultation on North Yorkshire fracking plans](#)

5 Shale gas

Financial Times

June 15, 2015

[Lancashire planners give go-ahead to Cuadrilla fracking plan](#)

The Guardian

June 10, 2015 Wednesday 5:58 PM GMT

[Majority of MEPs support fracking moratorium in symbolic vote;](#)

The Guardian

June 6, 2015

[Andy Burnham to call for moratorium on fracking](#)

FT.com

June 4, 2015

[US agency finds no widespread fracking impact on drinking water](#)

FT.com

June 4, 2015

[Statoil and ExxonMobil chiefs call on EU to allow fracking](#)

The Guardian

May 19, 2015

[Fracking support falls as Tory government promises to 'deliver shale'](#)

City A.M.

May 18, 2015

[New energy secretary says Tory government will back fracking](#)

FT.com

May 13, 2015

[Fracking could unlock 140bn barrels of oil worldwide, says report](#)

FT.com

May 6, 2015

[Fracking: The energy revolution that shook the world](#)

telegraph.co.uk

May 4, 2015

[Rolls-Royce and Weir form joint venture in fracking;](#)

The Daily Telegraph

May 1, 2015

[House prices in tracking sites could drop by 70pc, estate agents warn](#)

The Guardian

April 28, 2015

[US government says drilling causes earthquakes - what took them so long?](#)

The Guardian

April 15, 2015

[Green groups accuse EU shale gas panel of fracking lobby takeover](#)

The Guardian

April 7, 2015

[Billionaire founder of Ineos wants to start shale gas revolution in the UK;](#)

The Guardian

April 7, 2015

[Shale gas unlikely to make the UK energy self-sufficient, says UK Energy Research Centre](#)

FT.com

March 17, 2015

[Ineos seeks to convince Scots over shale gas fracking](#)

BBC Online

10 March 2015

[IGas signs £30m shale gas deal with Ineos to expand](#)

The Guardian

March 12, 2015

[Shale gas should be at centre of next government's energy policy - Tim Yeo;](#)

telegraph.co.uk

March 11, 2015

[Fracking: communities may miss out on cash payments;](#)

2. Press releases

Cuadrilla

25 June 2015

Statement from Cuadrilla Regarding Lancashire County Council's Development Control Committee's Decision to Deny Planning Consent for the Application to Drill, Fracture and Flow test up to Four Wells at Roseacre Wood

"We are disappointed but not surprised that Lancashire County Council's Development Control Committee has denied planning consent for our application at Roseacre Wood, as their decision follows a negative recommendation by the Council's Planning Officers. We are committed to the responsible exploration and development of the huge quantity of natural gas locked up in the shale rock deep underneath Lancashire. We will now take time to consider our options, including our right to appeal.

After a year since our application was submitted to the Council, The Planning Officer's cited just one reason of traffic concerns for giving a negative recommendation. We remain confident that our original proposed route, together with the proposed road improvements and traffic management plan, was safe and suitable for the modest level of HGV journeys proposed and met all necessary guidelines.

We completed the most comprehensive Environmental Impact Assessments ever carried out for operations of this kind. These Assessments are the product of thousands of hours of work from independent expert environmental scientists and other engineering specialists and they demonstrate beyond question that the operations can and will be conducted safely and without damage to people's health or their environment. This view was supported by the Planning Officer's report which only cited traffic concerns as a potential issue.

If we can unlock this shale gas potential it will help create jobs, generate economic growth, help fuel and heat local businesses and homes and boost local tax revenues for Lancashire."

Cuadrilla

15 June 2015

Statement From Cuadrilla Regarding Lancashire County Council's Planning Officer Recommendations on the Applications to Drill, Fracture and Flow Test Up to Four Wells at Preston New Road and Roseacre Wood In Lancashire

"We are pleased that Lancashire County Council's Planning Officers have recommended that the Council's Development Control Committee grant planning consent for our application at Preston New Road. In

January 2015, Officers recommended refusal at Preston New Road only on grounds of night-time noise and we duly submitted additional information on mitigation measures, which was publicly consulted on, to further bring down noise levels well below limits set out in government guidance.

We note that, as in January, the Planning Officer's report is satisfied with all other aspects of the planning applications, in particular with regard to drilling and fracking. These include Air Quality, Archaeology and cultural heritage, Greenhouse gas emissions, Community & socio-economics, Ecology, Hydrogeology & ground gas, Induced seismicity (including subsidence), Land Use, Landscape and visual amenity, Lighting, Resources and waste, Water resources and Public Health.

For our application at Roseacre Wood we supplied additional information regarding traffic routes which we and our expert advisers believe addressed issues which were raised in the Officer's report in January. Whilst we remain confident that our original proposed route was adequate, the alternative route suggested also met with all necessary guidelines in our view. We are disappointed that Officer's do not support this in their negative recommendation today, however we are pleased to note that as with Preston New Road, they are satisfied with all other aspects of the Roseacre Wood planning applications.

We will await the Councillors' decisions on both these applications at the end of June."

Department of Energy & Climate Change and Environment Agency

14 June 2015

Government response to recent media coverage of shale regulation in the UK.

Over the last couple of days, some newspapers have been misreporting the regulation of the potential shale reserves that could play a key role in securing Britain's future energy supplies. We want local communities to play an important role in helping to safely develop the shale industry. The government also remains committed to ensuring communities have their say on fracking applications and this is why there is no change to the process for environmental permits for fracking.

The Independent's article 'Fast-track fracking without public consent' and a follow up commentary piece in The Telegraph 'Double standards will fuel suspicion on fracking' implies that fracking applications would receive less environmental scrutiny from the public. This is simply untrue. The Government has said from the start that we will consult with local communities about the impact of fracking and we will continue to work closely with the Environment Agency (EA) and other

regulators to ensure all operators abide by the strict rules that govern the industry.

The process for operators to apply for a fracking permit has not changed. Any operator wanting to undertake fracking needs to apply for an environmental permit, conduct an environmental impact assessment and apply for planning permission. This is open to full public consultation.

The current consultation by the EA, however, focuses on two techniques used for testing conventional and unconventional oil and gas wells. The consultation looks to define the standard rule permits for operators applying to drill and carry out preliminary testing of oil and gas wells and not on the permits for fracking. The Government supports the work by the EA to ensure the thorough and effective environmental regulation of oil and gas extraction.

As we have said before, we have made a commitment to ensure local people have a say about fracking in their community. The Government continues to support the development of the shale industry in a safe and sustainable way.

Department of Energy and Climate Change

09 Feb 2015

Environment Agency grants shale gas permit for Roseacre Wood

The Environment Agency has recently (6 February) granted the environmental permits Cuadrilla need to carry out operations safely at their proposed shale gas exploration site at Roseacre Wood near Elswick in Lancashire.

The permits set out the requirements Cuadrilla must meet to protect groundwater, surface water and air quality and to ensure the safe storage, management and disposal of wastes.

The Environment Agency has carried out a thorough assessment of Cuadrilla's applications and carried out two periods of extensive public consultation since June 2014.

Steve Molyneux, Environment Manager for Lancashire, said:

Over the past six months we have rigorously assessed Cuadrilla's applications and carefully considered all of the public comments received. I am confident that the strict controls set out in the permits to manage waste, safe flaring of gas and conditions to safeguard local water resources will ensure that people and the environment remain protected.

Our assessment has covered the environmental risks at this site and how we believe they can be controlled through a permit. The planning

authority, in this case Lancashire County Council, will decide whether the activity is acceptable at that particular location.

Cuadrilla still needs planning permission to be in place to develop the site. Should they begin exploration, we will ensure the permit conditions are enforced.

[View the permits and decision documents](#)

Department of Energy & Climate Change and Environment Agency

16 January 2015

Environment Agency grants shale gas permit for Preston New Road

Environment Agency grants Cuadrilla environmental permits for shale gas exploration. Strong environmental standards are in place.

The Environment Agency has today (16 January) granted the environmental permits Cuadrilla needs to carry out operations safely at their proposed shale gas exploration site at Preston New Road, Plumpton in Lancashire.

The Environment Agency has over the last 6 months conducted a rigorous assessment of Cuadrilla's applications and carried out 2 periods of extensive public consultation.

The permits set out the conditions Cuadrilla must follow to protect groundwater, surface water and air quality and to ensure the safe storage, management and disposal of waste.

Steve Molyneux, Environment Manager for Lancashire, said:

After completing a rigorous assessment of Cuadrilla's application and the public consultation responses, we are confident the permits issued will ensure people and the environment are protected. The right controls are in place to manage waste and the flaring of gas safely, and protect local water resources.

We value the feedback received during the public consultation and will continue to work with the local community. Should Cuadrilla begin exploration, we will ensure the permit conditions are enforced.

[View the permits and decision documents](#)

Department of Energy and Climate Change

28 Jan 2015

Shale developments to be banned in all UK national parks

The Government's commitment is to an outright ban on fracking in National Parks, Sites of Special Scientific Interest (SSSI) and Areas of Outstanding Natural Beauty (AONB).

This is an extension of existing Government commitments. Previously we published guidance that confirmed planning permission should be refused in National Parks, the Broads and Areas of Outstanding Natural Beauty, except in exceptional circumstances and where it can be demonstrated they are in the public interest.

This was announced as part of the debate of the Infrastructure Bill in the House of Commons.

A Government Spokesperson said yesterday:

"The Government has already built a robust regulatory system for the development of the shale industry in the UK. Today we are committing to formalise the safeguards, including a new ban on fracking in National Parks, Areas of Outstanding Natural Beauty and Sites of Special Scientific Interest. Successfully extracting shale gas out of the ground can create a whole new British industry, creating jobs, and make us less reliant on imports from abroad, but we recognise the need for a measured approach for this nascent industry."

Notes to editors

We yesterday:

- Made a public commitment to an outright ban on fracking in National Parks, SSSI and AONB.
- Put in place a range of measures to provide the public with confidence that this industry is being taken forward in a balanced way, including environmental impact assessments, groundwater monitoring and community benefit measures.
- Built on a previous amendment, if the Committee on Climate Change advise us that shale gas may adversely impact on climate change objectives, we commit to either deactivate the underground access provisions or make a written statement to parliament explaining the reasons for not doing so.

British Geological Survey

15 January 2015

UK's first independent research to monitor fracking as it happens

The British Geological Survey (BGS) plans to expand its existing national environmental monitoring programmes by carrying out independent detailed research in areas of the UK that may see shale gas exploration and production. In a UK first, this will include independent monitoring during hydraulic fracturing ('fracking') subject to planning approvals at two proposed shale gas exploration sites in Lancashire. All results of this research will be open and made freely available to the public.

The BGS has existing national environmental research programmes that include seismic and groundwater monitoring. This research will be enhanced in selected areas where shale gas resources have been identified to gain vital 'baseline' information. In addition, if planning applications for shale gas exploration are approved in Lancashire, this research will include monitoring during hydraulic fracturing. This ground-breaking research will provide the UK scientific community, with unique real time data from a shale gas operation over its whole life cycle - before, during and after hydraulic fracturing has taken place.

As part of the enhanced research programme, groundwater, regional air quality, seismicity and ground movements will be independently monitored at two proposed hydraulic fracturing sites in Lancashire. This will be carried out by a UK consortium led by the BGS with university partners (Birmingham, Bristol, Liverpool, Loughborough and Manchester). This work is different to the operator's own monitoring and that required by the regulator. It is designed to enhance the scientific understanding and knowledge of the effects of shale gas operations on the environment and support peer reviewed science.

Department of Energy and Climate Change

29 Sep 2014

Ineos awarded license for onshore oil and gas exploration

DECC has given the go ahead to major chemicals giant Ineos to take a majority share in an onshore oil and gas licence block in Scotland by taking over BG's interest (51%).

The Department of Energy and Climate Change (DECC) has given the go ahead to major chemicals giant Ineos to take a majority share in an onshore oil and gas licence block in Scotland by taking over BG's interest (51%). The other licensee, Dart is the operator in the block next to the Firth of Forth.

Like the rest of the shale industry, Ineos believe it's important that the local community benefits from shale gas. Ineos will give 6% of production revenue to landowners and communities, split 4% and 2%

respectively. It's not unusual for energy companies to make payments to communities; people local to wind farms receive payments too.

Business and Energy Minister Matthew Hancock said:

"It's very welcome news that Ineos want to explore for shale gas. We have a huge amount of natural gas trapped deep beneath the ground which could be used to heat our homes, and reduce our reliance on expensive foreign imports.

"It's a real vote of confidence that Ineos recognise the potential of shale gas to transform local communities, create jobs and new economic opportunities; providing a cleaner, greener domestic energy resource".

Notes to editors:

Dart is the operator of on PEDL 133. Ineos are going to be a non-operating partner – they share the costs and benefits of the license and have a say as to what happens on the license but operations are only undertaken by the operator (Dart). Ineos haven't applied to DECC for operatorship.

Department of Energy and Climate Change

26 Sep 2014

Government to remove barriers to onshore oil and gas and deep geothermal exploration

By removing barriers to deep underground drilling access we are speeding up oil and gas and deep geothermal energy exploration.

Now more than ever, the UK needs secure domestic energy supplies. Since 2003, as North Sea Oil has declined, we have become a net importer of oil and gas and are now increasingly dependent on international energy resources. It is essential that we make the most of home-sourced energy and start exploring the natural energy supplies beneath our feet.

Our vision for Britain is for a prosperous low carbon future, which is why we have made record investment in renewables. Renewable electricity capacity has more than doubled under this government, the number of homes with solar panels on their roofs has risen from 15,000 to more than 500,000 and we have been ranked the world number one for offshore wind.

We know there's more to do. We know that our journey towards a low carbon future will take time and that emerging energy industries often need government support to get going. That's why, alongside a further £40 billion of renewable investment running into 2020 we are exploring for shale gas. As the cleanest fossil fuel shale gas provides a bridge to much greener future, and Geothermal energy can supply renewable

heat to our homes and businesses. This diverse, and continually evolving energy mix is a central part of our plan to reach our carbon targets and guarantee our energy security in the years ahead.

[By removing barriers to deep underground drilling access](#), we are speeding up oil and gas and deep geothermal energy exploration. Realising this potential would help to help bolster our national energy security. Up to now, national oil and gas and geothermal exploration projects at depths around a mile or so beneath the ground could have been significantly delayed by one single landowner. We are introducing legislation so oil and gas and geothermal companies will be able to use underground land but only below 300m (1,000ft). These companies will still need to obtain all the necessary regulatory permissions, like planning and environmental permits.

Business and Energy Minister Matt Hancock said:

“Exploring the natural energy resources beneath our feet, within a robust regulatory framework, is important for our national energy security and helps create jobs. These new rules will help Britain to explore the great potential of our national shale gas and geothermal resources, as we work towards a greener future - and open up thousands of new jobs in doing so.

Total

January 13, 2014

Total Becomes the First Major to Enter into Shale Gas Licences in the UK

Total announces that it has acquired a 40% interest in two shale gas exploration licences in the United Kingdom. The interests are in Petroleum Exploration & Development Licences 139 and 140 in the Gainsborough Trough area of the East Midlands region of the UK which cover an area of 240 km²

Commenting on the acquisition, Patrice de Viviès, Total’s Senior Vice President for Northern Europe, said:

“This opportunity is an important milestone for Total E&P UK and opens a new chapter for the subsidiary in a promising onshore play. The Group is already involved in shale gas projects in the US, Argentina, China, Australia and in Europe in Poland and in Denmark, and will leverage its expertise in this new venture in the UK.”

On completion of the transaction, Total’s partners in the project will be GP Energy Limited (a subsidiary of Dart Energy Europe) (17.5%), Egdon Resources UK Ltd (14.5%), Island Gas Ltd (IGas) (14.5%) and eCorp Oil & Gas UK Ltd (13.5%). IGas will be the operator of the initial

15 Shale gas

exploration programme, with Total subsequently taking over operatorship as the project moves towards development

3. Parliamentary Questions

Asked by: Mr Gordon Marsden (Blackpool South) (Lab)

Why has the Prime Minister promised local people the final say on onshore wind farms but denies local people in Blackpool and Lancashire the final say over local fracking applications? Why are there double standards on renewable energy and fracking?

Answered by: The Prime Minister

The hon. Gentleman is making a slightly odd comparison. We have taken away the unnecessary subsidy for onshore wind, given that it is now a mature technology, and we have a sensible planning system so that unconventional gas can go ahead under very strict environmental conditions. I will tell him what I want for Blackpool. I want Blackpool to be the centre of expertise and excellence for this industry. I want the jobs, the apprenticeships and the training rather than to see things stuck, which is what he wants.

24 Jun 2015 | House of Commons 597 cc887-1014

Asked by: Lilley, Mr Peter |

To ask the Secretary of State for Energy and Climate Change, what discussions her Department has had with the Environment Agency on post-abandonment monitoring of onshore shale gas wells; and what steps she plans to take to ensure a monitoring regime is in place.

Answering member: Andrea Leadsom | Department for Energy and Climate Change

The duration of monitoring required after decommissioning/well closure will be assessed on a site-by-site basis by the Environment Agency. The environmental permit requires the operator to have in place a closure and rehabilitation plan, which must be agreed with the Environment Agency before decommissioning begins. The operator will not be allowed to surrender their permit until the Environment Agency is satisfied that there is no-ongoing risk to the environment.

18 Jun 2015 | House of Commons | 900406

Asked by: Geraint Davies (Swansea West) (Lab/Co-op) Party

Will the Chancellor confirm that the waste water from fracking will be properly treated, so that it is safe to drink again?

Answered by: Mr Osborne | Department: Prime Minister

We will have the proper environmental standards around the exploration of shale gas, but I think for this country to turn its back on one of these great natural resources, which other countries are using, would be to basically condemn our country to higher energy bills and not as many jobs. Frankly, I do not want to be part of a generation that says, "All the economic activity was happening somewhere else in the world, and was not happening in our country, and was not happening on our continent." So we should get on with the safe, environmentally protected exploration of our shale gas resources.

17 Jun 2015 | House of Commons 597 c313

Asked by: Graham Jones (Hyndburn) (Lab)

The Chancellor's Government keep talking about the Tory fantasy of a northern powerhouse, which never mentions Lancashire. Is it still his Government's policy on the Treasury revenues from fracking that 1% will go to Lancashire and more than 60% will go to Whitehall?

Answered by: Mr Osborne | Department: Treasury

I gave the original speech on the northern powerhouse in Lancashire, if we count Manchester as being in the traditional county—[Interruption.]

I think it will be one of those four-year apprenticeships, at this rate. I will say to the hon. Gentleman something which I know is not universally agreed with: I think the potential for shale gas in the north of England is a massive boost to the local economy there. I know it is not always popular with some local communities. That is why we have made sure that the benefits go to local communities, and we committed in our manifesto to creating a sovereign wealth fund for the north of England from the revenues from shale gas exploration so that we get a lasting benefit to the natural resources of that part of our country.

16 Jun 2015 | House of Commons | 597 c181

Asked by: Lord Greaves

To ask Her Majesty's Government in respect of which areas (1) they have granted licences for exploratory drilling in relation to fracking, (2) applications have been made for such licences but have not yet been determined, and (3) applications have been made for planning permission relating to exploratory drilling for fracking.

Answering member: Lord Bourne of Aberystwyth | Department for Energy and Climate Change

Petroleum Exploration and Development Licences (PEDLs) are not specific to shale gas. They grant exclusive rights to extract hydrocarbons, including shale gas but also other forms, within a particular onshore area. A separate consent is required before any drilling or hydraulic fracturing (fracking) can take place. So far the Government has granted hydraulic fracking consent for shale to Cuadrilla's Lancashire operations.

The Oil & Gas Authority does not have any undetermined consent applications. Applications for new PEDLs under the 14th Onshore Licensing Round are being considered – 95 applications for 295 licence blocks have been made.

Planning permission is a matter for the local Mineral Planning Authority. However, the applications submitted by Cuadrilla in Lancashire and by Third Energy in North Yorkshire are in the public domain.

16 Jun 2015 | House of Lords | HL296

Asked by: Elliott, Julie

To ask the Secretary of State for Energy and Climate Change, what recent estimate her Department has made of the proportion of people in the UK who support (a) onshore wind, (b) nuclear power and (c) fracking.

Answering member: Andrea Leadsom | Department for Energy and Climate Change

The Department's most recent estimates of UK public attitudes (covering the UK) were published on 28th April 2015 and can be found here:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/424507/PAT_summary_wave_13.pdf .

The results indicate that 65 percent support onshore windfarms. This is lower than the proportion in favour of solar, offshore wind and wave and tidal technologies while 78 percent were in support of renewable energy developments providing direct benefits to the communities in which they are located. An estimated 39 percent support nuclear power compared to 21 percent opposed with 36 percent neither in support nor opposed; and 24 percent support fracking (shale gas) compared to 26 percent opposed with 44 percent neither in support nor opposed.

10 Jun 2015 | House of Commons | 1314

Asked by: Lord Wigley

To ask Her Majesty's Government whether onshore fracking for gas in Wales will become the responsibility of the National Assembly for Wales.

Answering member: Lord Bourne of Aberystwyth | Department for Energy and Climate Change

The Welsh Government already has substantial control of onshore oil and gas activities through planning controls and environmental regulation as these are devolved. Through the relevant planning authorities in Wales, the Welsh Government has the power to take decisions on individual shale projects.

The Government will implement the St David's Day Agreement in full which includes devolving licensing functions for onshore oil and gas exploration to Welsh Ministers.

03 Jun 2015 | House of Lords | HL70

4. Other parliamentary material

Ministerial Statements

Planning

Brandon Lewis | Department for Communities and Local Government

05 Mar 2015 House of Commons | HCWS352

I would like to update hon. Members on further technical measures that the Coalition Government is making to improve the planning system, helping deliver more homes and increase certainty for both applicants and local residents.

[Extract...]

Supporting the potential for shale gas extraction

The Government is taking steps to ensure that we lead the way with robust and efficient regulation of shale oil and gas. Shale gas has the potential to increase our energy security, create thousands of jobs and reduce carbon emissions. This nascent industry presents new challenges for mineral planning authorities in how they consider and determine planning applications for shale exploration.

This is why, as part of the £5 million pound support package announced in the Autumn Statement in December, we have decided to make £1.2 million available in 2015-16 to support local authorities to assist with the administration of shale planning applications, ensuring they can be handled, with due process and a fair hearing in an efficient and timely manner. A prospectus inviting bids for funding to boost local authorities' capacity and capability to deal with these applications has been published today.

We are also today publishing for technical consultation a proposal to improve the process for potential petroleum exploration, including shale gas, through making a minor amendment to existing permitted development rights in relation to mineral exploration.

This change would grant permission for the drilling of boreholes for groundwater monitoring for petroleum exploration, enabling limited works to be carried out to establish baseline information on the groundwater environment in advance of, or in parallel to, any planning application or applications coming forward for such development.

For this activity, it would improve environmental monitoring and put petroleum exploration on the same footing as that capable of being carried out under existing permitted development rights for mineral exploration more generally. We consider that the amended right should, with the exception of an intended raising of the current height

restriction of structures needed to carry out the development from 12 to 15 metres, be subject to the same restrictions and conditions that apply to the existing permitted development rights.

Local Government

Kris Hopkins | Department for Communities and Local Government

29 Jan 2015 | House of Commons | HCWS240

I would like to update Hon. Members on a series of announcements relating to local government.

[Extract...]

Extending local business rate retention

The Coalition Government has introduced new financial incentives to councils to support locally-led enterprise and economic growth, as part of our programme of decentralisation and as part of our long-term economic plan.

Since 2013, local government keeps half of all business rate revenues and business rate growth. But we want to go further over time to increase these incentives.

Last year, we announced proposals to allow 100% local retention of business rates on shale oil and gas sites. In October, we published a technical consultation on draft regulations to implement this measure. We received 25 responses. A majority of those supported retention of 100% of business rates on shale oil and gas by local government. Having considered the responses we have decided to continue with our proposals as set out in the technical consultation. This policy will ensure that local councils that host shale oil or gas sites can benefit from millions of pounds in business rates paid. The measure could be worth up to £1.7 million for a typical site and will be funded by central government.

Shale will help to improve energy security, create jobs and meet carbon targets benefitting the UK through improved energy security and economic prospects. Local councils and communities have an important part to play in securing those improvements and we believe they should also share in the economic opportunities and benefits of shale. Tough environmental protections are in place, and are being further enhanced as announced to the House during the Infrastructure Bill on Monday.

The associated secondary legislation has been laid before Parliament, and the responses to the consultation published. Subject to

Parliamentary approval, the provisions will come into force in April 2015.

Shale Gas and Geothermal Energy (Underground Access)

**The Minister of State, Department of Energy and Climate Change
(Michael Fallon)**

05 Jun 2014 | House of Commons | 582 cc10-1WS

The Government published a consultation on proposals to reform the procedure for securing underground access to oil or gas deposits and geothermal energy on the 23 May. This consultation will run for 12 weeks and close on 15 August.

This consultation concerns two fledgling industries, shale gas and geothermal energy, which may hold significant potential for adding to the UK's domestic energy resources. While these industries are both at an early stage, the Government are considering whether the existing legislative framework is fit for purpose to enable them to determine this potential.

The consultation examines the existing procedures by which companies who wish to extract oil, gas or geothermal energy obtain access rights to underground land, and the problems raised by these procedures. We believe that, so far as underground development goes, the existing system does not strike the right balance between the legitimate interests and concerns of landowners, and the benefits to the community and nation at large of permitting development, where that development is otherwise acceptable in planning and environmental terms.

The consultation also sets out the options that have been considered during this process. The preferred solution presented consists of three elements: an underground right of access below 300 metres (nearly 1000 feet), a voluntary payment from industry, and a voluntary public notification for access. The voluntary industry agreement would be supported by a statutory reserve power in the case that industry defaulted on their commitment. Notification would be made in the form of public announcements to the local community. This solution would significantly simplify the existing procedure. The shale and geothermal industries will be able to proceed with developing their potential, and local communities will be appropriately informed and compensated for this right of access.

The solution outlined in the consultation does not change any other aspect of the existing regulatory system, such as procedures for surface access, planning/environmental permits or safety controls. In particular, the proposals do not affect existing requirements for public consultation

prior to the grant of planning permission or environmental permits of developments.

The Government are inviting feedback on the solution outlined in this consultation, and would welcome views from anyone with an interest.

The consultation can be viewed at:

<https://www.gov.uk/government/consultations/underground-drilling-access> .

Debate

Westminster Hall: [Fracking](#)

25 Nov 2014 | 588 cc195-221WH

[Noman Baker MP](#)

[The Minister for Business and Enterprise \(Matthew Hancock\):](#)

5. Further Reading

Environmental Audit Committee

[*Environmental risks of fracking*](#)

21 Jan 2015 | HC 856 2014-15

Environment, Food and Rural Affairs Committee

Oral evidence: [*Defra's responsibility for fracking*](#),

10 March 2015 | HC 589 2014-15

Environment, Food and Rural Affairs Committee

Oral evidence: [*Defra's responsibility for fracking*](#),

10 September 2014 | HC 589 2014-15

[*Energy generation in Wales: Shale Gas: Government response to the Committee's first report of session 2014-15.*](#)

14 Oct 2014 | HC 662 2014-15

[*Energy generation in Wales: Shale Gas:*](#)

10 Jun 2014 | HC 284 2014-15

Department for Energy and Climate Change

[*About shale gas and hydraulic fracturing*](#)

Department for Energy and Climate Change

[*Interactive map*](#)

Department for Environment and Rural Affairs

[*Website*](#)

Environment Agency

[*Services*](#)

British Geological Survey

[*Shale Gas*](#)

British Geological Survey

[*National methane baseline survey of UK groundwaters*](#)

January 2015

British Geological Survey

[*Shale gas environmental monitoring in Lancashire*](#)

Durham Energy Institute

[*Drilling for shale gas: Is the UK well-prepared?*](#)

DEI Briefing Note No. 904: March 2014

Parliamentary Office of Science and Technology (POST)
Note No 374 [*Unconventional Gas*](#) April 2011

European Parliament Research Service
[*Shale gas and EU energy security.*](#)
December 2014

6. Annex 1: Library Briefing Paper *Shale gas*

The Library Briefing Paper on *Shale Gas* is attached.

The House of Commons Library research service provides MPs and their staff with the impartial briefing and evidence base they need to do their work in scrutinising Government, proposing legislation, and supporting constituents.

As well as providing MPs with a confidential service we publish open briefing papers, which are available on the Parliament website.

Every effort is made to ensure that the information contained in these publically available research briefings is correct at the time of publication. Readers should be aware however that briefings are not necessarily updated or otherwise amended to reflect subsequent changes.

If you have any comments on our briefings please email papers@parliament.uk. Authors are available to discuss the content of this briefing only with Members and their staff.

If you have any general questions about the work of the House of Commons you can email hcinfo@parliament.uk.

Disclaimer - This information is provided to Members of Parliament in support of their parliamentary duties. It is a general briefing only and should not be relied on as a substitute for specific advice. The House of Commons or the author(s) shall not be liable for any errors or omissions, or for any loss or damage of any kind arising from its use, and may remove, vary or amend any information at any time without prior notice.

The House of Commons accepts no responsibility for any references or links to, or the content of, information maintained by third parties. This information is provided subject to the [conditions of the Open Parliament Licence](#).



BRIEFING PAPER

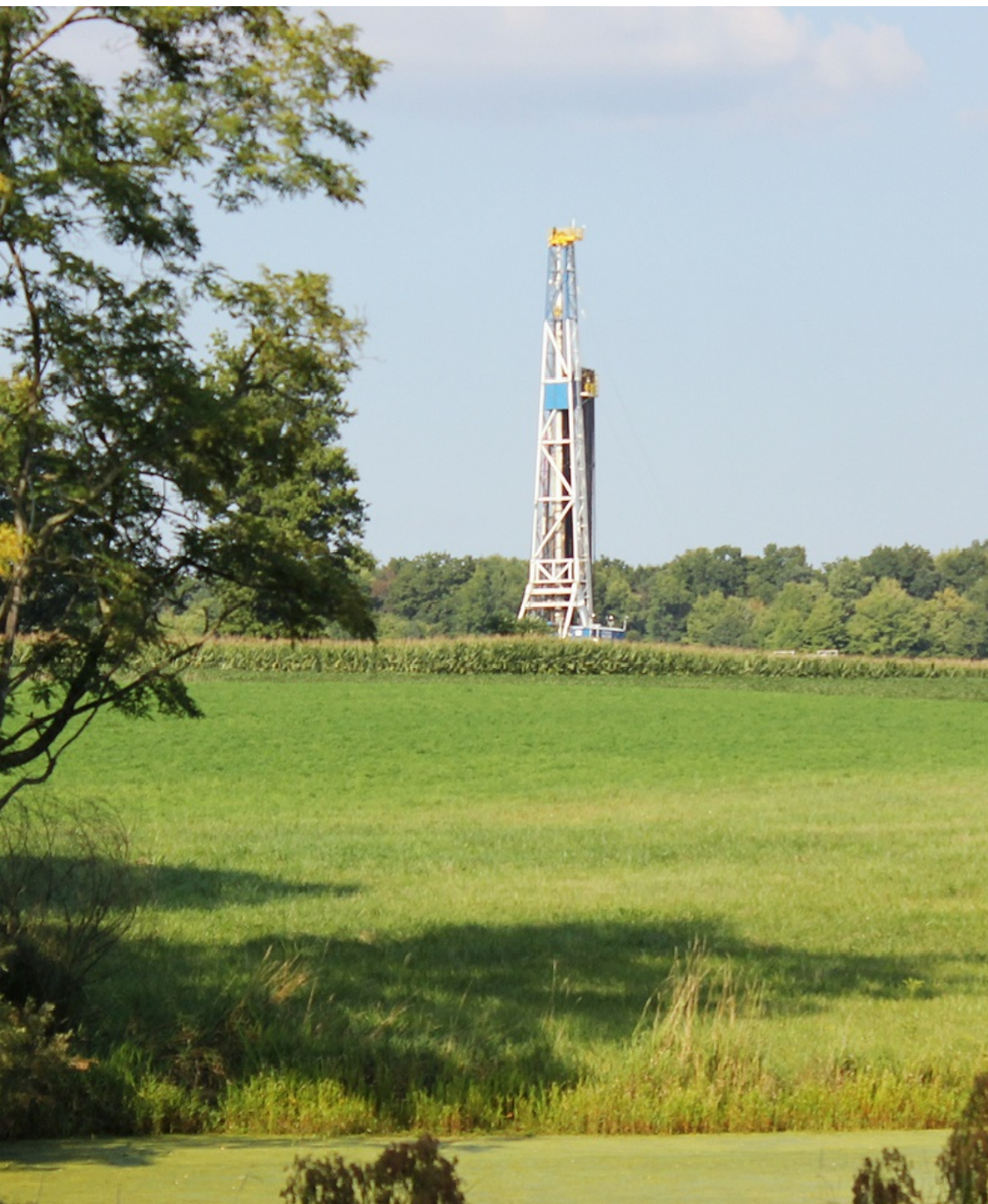
Number SN06073, 25 June 2015

Shale gas and fracking

By Edward White
Mike Fell, Louise Smith,
Matthew Keep

Inside:

1. Hydraulic fracturing, or fracking
2. The shale gas resource in the UK
3. Regulatory regime
4. The Infrastructure Act - access rights and other issues
5. Environmental considerations
6. Support for the industry and support for communities
7. Appendix; extant onshore PEDL licences by constituency



Contents

Summary	3
1. Hydraulic fracturing, or fracking	4
1.1 A note of definitions	4
1.2 What is Fracking?	4
2. The shale gas resource in the UK	6
2.1 Where is it, and how much is there?	6
2.2 Economic implications	7
3. Regulatory regime	9
3.1 Petroleum exploration and development licences (PEDLs)	9
3.2 Other permissions	9
3.3 Planning permission	10
Planning practice guidance for onshore oil and gas	12
Major infrastructure planning regime	13
3.4 Where are the PEDLs?	13
4. The Infrastructure Act - access rights and other issues	15
4.1 Consultation	15
The Bill in the Lords	17
Commons Committee Stage	18
Commons report and third reading	19
Ping Pong	20
5. Environmental considerations	21
5.1 Greenhouse gas emissions	21
5.2 Pollution incidents in the US and implications for the UK	23
5.3 Opinions on fracking in the UK	25
5.4 Water use	25
5.5 Seismic events	26
6. Support for the industry and support for communities	29
6.1 Autumn Statement 2014	30
7. Appendix; extant onshore PEDL licences by constituency	31

Edward White , Science and Environment

Summary

In the UK, drilling for shale gas is at only the exploratory phase. But the rapid development of shale gas resources in North America has transformed the world gas-market outlook.

The consensus seems to be that shale gas will not be a 'game changer' in the UK as in the US. There is, for example, less land available to drill on and landowners do not own the rights to hydrocarbons beneath their land. However, in June 2013 Centrica acquired a 25% stake in Cuadrilla's exploration licence in Lancashire and the Government and British Geological Survey published raised estimates of the shale gas resource in Northern England. The Government is also consulting on legislation to introduce tax incentives for shale gas exploration, and has announced community financial benefits.

Existing onshore petroleum exploration and development licences, which are not specific to shale gas, are therefore more likely now to be explored for their shale potential.

Shale gas is extracted from solid rock using a process called hydraulic fracturing, or 'fracking'. The Royal Society and Royal Academy of Engineering have [reviewed](#) the risks associated with fracking. They concluded that the health, safety and environmental risks can be managed effectively in the UK, by implementing and enforcing best operational practice. However, they made several recommendations including calling for more research on the carbon footprint of shale gas extraction.

A report on this was published by DECC in September 2013, in which shale gas emissions were said to be similar to those of conventional gas and lower than those of coal and LNG, leading the Secretary of State to describe shale gas as a 'bridge' to a low-carbon future.

The Queen's speech in 2014 confirmed Government plans to streamline the underground access regime and make it easier for companies to drill for shale gas. The Infrastructure Bill has been amended to provide this. It also provides a number of new 'safeguards'.

There are no commercial shale gas operations in the UK though, at the time of printing, Lancashire County Council were in the process of [considering one application for the site, Little Plumpton](#). Planning Officers have already recommended that permission at the site is granted.

1. Hydraulic fracturing, or fracking

1.1 A note of definitions

In short, 'unconventional gas' is natural gas, but from unconventional sources. 'Shale gas', as the name suggests, is found within organic-rich shale beds, which are actually layers of rock, rather a conventional 'reservoir' capped by shale or other beds.

The conventional view was that oil and gas would mature within these organic-rich and low-permeability rocks, and then migrate into conventional reservoirs from where they could be recovered. However, with advances in drilling and wellsite technology, and increases in the wholesale prices of hydrocarbons, production of gas directly from the shale beds is now commercially viable. The processes are described below.

DECC has produced a note on [Resources vs Reserves: What do estimates of shale gas mean?](#)¹ The Parliamentary Office of Science and Technology (POST) has also published a POSTbox on [UK Shale Gas Potential](#). The following terms are used most commonly:

- **Total Resources:** the estimated total volume of oil and gas physically contained in the rock. One measure of total resources used commonly, including by the BGS, is the **Gas in Place (GIP)** which is an estimate of the total amount of gas that is trapped within the shale rock.
- **Reserves:** the amount of resources that are deemed to be technically and commercially recoverable.
- **Technically Recoverable Resource (TRR):** the estimated volume of gas that it is possible to extract from the total resource if not constrained by economics (and therefore larger than the reserves estimates).²

POSTnote 374, [Unconventional Gas](#) (April 2011), also gives some background.

1.2 What is Fracking?

Gas held within shale beds is accessed through a technique called "hydraulic fracturing" or "fracking" for short. Water, containing sand, is pumped at high pressure into the rock. The sand keeps the small fractures in the rock open while the gas is extracted. According to the [British Geological Survey](#) (BGS):

After initial exploration of the shale deposits, a borehole is drilled into the shale horizon at a carefully selected site. It may be drilled horizontally to increase the volume of rock that can be accessed by the borehole. A process called hydraulic fracturing ('fracking') is undertaken. This involves pumping water into isolated sections of the borehole at pressures high enough to fracture the

¹ DECC, 27 June 2013 (erroneously dated as 27 July 2013 on its cover)

² DECC, [Resources vs Reserves: What do estimates of shale gas mean?](#) 27 June 2013 and [UK Shale Gas Potential](#), POSTbox July 2013

5 Shale gas and fracking

surrounding rock. Sand entrained in the water helps to 'prop' open the fractures, create permeability in the rock and allow the gas to flow into the borehole. Chemicals are also added to improve the efficiency of the fracking operation.³

Horizontal drilling is a technique used increasingly in conventional exploration and development. It gives access to harder-to-reach deposits and allows drilling (and fracking) in several directions from a single well bore.

³ BGS website, [New shale gas resource figure for central Britain](#) accessed 11 July 2013

2. The shale gas resource in the UK

2.1 Where is it, and how much is there?

Shale beds are not found all over the UK. A report for DECC by the BGS on the [Unconventional Hydrocarbon Resources of Britain's Onshore Basins – Shale Gas](#) shows the British formations with most shale gas potential.⁴ The diagrams reflect geological maps, where the same outcrops or formations run roughly on a South-East/North-West axis, running for example from the North East of England down to the South/South West coast.

These include the Upper Bowland Shale (the source rock for the Irish Sea conventional fields, and where Cuadrilla were first exploring), and both the Kimmeridge Clay and Lias of the Weald Basin (source rocks for the North Sea and English Channel fields).

On 27 June 2013 the BGS/DECC published a [Bowland Shale Gas Study](#), including a gas-in-place (GIP) resource assessment for the Bowland shale formation in Northern England.⁵ This is not therefore an assessment for the entire country. Nor is it an estimate of the commercially recoverable gas.

Their central estimate of GIP is 37.6 trillion cubic meters (tcm). A [POSTbox](#) shows how this can be extrapolated to potentially recoverable resources of 1,800-13,000 billion cubic meters (bcm) by assuming similar recovery factors to the US, of 8-20%. This compares to DECC's published figures of a current annual UK gas consumption of 77 bcm and potentially recoverable conventional gas resources of 1,466 bcm.⁶

These are much higher than earlier BGS estimates, although a 2013 report from the [US Energy Information Agency](#) had suggested the technically recoverable resource could be as high as 736 bcm.⁷

A September 2012 [report](#) from the UK Energy Research Centre (UKERC) formed part of a larger study of unconventional gas resources by the Joint Research Centre of the European Commission.⁸ This noted many significant uncertainties in assessing the recoverable volumes of shale gas, at regional and global level. It notes also that recovery rates are much lower than for conventional gas, around 15-30% of original gas in place (OGIP) compared to perhaps 80% in conventional reservoirs.

⁴ DECC/BGS, [Unconventional Hydrocarbon Resources of Britain's Onshore Basins – Shale Gas](#), 2012

⁵ Andrews, I.J. 2013. The Carboniferous Bowland Shale gas study: geology and resource estimation. British Geological Survey for Department of Energy and Climate Change, London, UK.

⁶ [UK Shale Gas Potential](#), POSTbox July 2013

⁷ EIA/ARI, [World Shale Gas and Shale Oil Resource Assessment](#), June 2013, XI-2, converted from original figure of 26 trillion cubic feet

⁸ European Commission, Energy Security Unit of the Joint Research Centre [Unconventional Gas: Potential Energy Market Impacts in the European Union](#), 2012

7 Shale gas and fracking

The most accurate estimates can really be obtained by test drilling. A company called [Cuadrilla](#) started drilling shale gas exploration wells near Blackpool in August 2010.⁹ In September 2011 Cuadrilla [estimated](#) that 5.7 tcm of gas was in the Bowland shale under Lancashire.¹⁰ The BGS expressed scepticism about the accuracy of this estimate, and pointed out that recovery rates would be much lower.¹¹ In August 2013 Cuadrilla started test drilling at Balcombe in West Sussex before scaling back drilling operations after a protest camp; it has recently submitted a new planning application for the area.¹²

In June 2013 [IGas](#), another company which has been conducting exploratory studies in the UK, [published estimates](#) of “gas initially in place” (or total resource) in shales in the North West (including the Bowland shale) with a “most likely” value of 102 trillion cubic feet (2.9 tcm). Drilling to be conducted in Q4 of 2013 was expected to further refine these estimates.¹³

The British Geological Survey has completed [an estimate for the amount of shale oil and shale gas in the Weald Basin in south-east England in 23 May 2014](#). Though it is estimated that large quantities of shale oil are present, No significant gas resource is recognised using the current geological model because the shale is not thought to have reached the geological maturity required to generate gas.

2.2 Economic implications

An Energy and Climate Change Select Committee (ECCC) [inquiry](#) in 2011 concluded that shale gas was unlikely to be a “game-changer” as in the US, or perhaps countries like Poland.¹⁴ A major factor is that there is less land available to drill on.¹⁵

A follow-up inquiry by ECCC in 2013 into [the impact of shale gas on energy markets](#), recommended that further exploratory operations be encouraged to help establish reliable resource estimates. It found that it was “too early to say whether domestic production of shale gas could result in cheaper gas prices in the UK”, and that it would be wrong to assume that prices would come down as a result of domestic or foreign shale gas.¹⁶

In October 2011 Cuadrilla published Regeneris Consulting’s [full economic assessment of the impact of shale gas exploration and production in Lancashire and the UK](#). This estimated that for test wells alone:

- A single test well operation, in 2011 prices, costs in the region of £10.5 million, made up of Cuadrilla’s own costs, that of its two

⁹ <http://www.cuadrillaresources.com/what-we-do/locations/>

¹⁰ Cuadrilla Resources, [About natural gas](#), accessed 25 June 2013

¹¹ “[What the frack?](#)” *Economist*, 1 October 2011

¹² <http://www.cuadrillaresources.com/our-sites/balcombe/> accessed 9 September 2013

¹³ IGas, [Shale Gas in place in IGas’ North West licences of up to ca.170Tcf](#), 3 June 2013

¹⁴ House of Commons Energy and Climate Change Committee, [Shale Gas](#), May 2011

¹⁵ British Geological Society [Shale Gas Prospectivity web pages](#)

¹⁶ House of Commons Energy and Climate Change Committee, [The Impact of Shale Gas on Energy Markets](#), April 2013

internal service companies and expenditure on a range of first tier suppliers.

- Some 18% of expenditure is shown to be deployed on Lancashire workers/suppliers, with a third going overseas. Of all UK expenditure (circa £7 million per test well), a third is deployed on labour costs, with 7% being utilised for subsistence expenditure of workers most of which flows to Lancashire businesses.
- We estimate the test well activity will support some 250 FTE jobs across the UK over a 12 month period. Half of the jobs will occur within Cuadrilla and its extensive range of 1st tier suppliers.
- Some 15% of the jobs (circa 40) are estimated to be taken by Lancashire residents. ... At this stage very few of the specialist supply chain contractors make extensive use of local labour although this would change under a full commercial extraction scenario.¹⁷

Cuadrilla's report estimated that test well activity might support 250 FTE jobs across the UK over a twelve month period. Also at the UK Level, the estimated FTE employment impact peaks at some 5,600 FTE jobs in the period 2016 through to 2019, with a build up in the years from 2013 onwards, if there is a move to a commercial extraction phase.¹⁸

In June 2013 [Centrica acquired](#) a 25% interest in the Bowland exploration license from Cuadrilla.¹⁹

A May 2013 [report](#) from the Institute of Directors presented a scenario where UK shale gas production attracts investment of £3.7 billion per year and supports up to 74,000 jobs, often focused in regions with currently high unemployment and in sectors such as manufacturing. It also potentially contributes significant tax revenue.²⁰

In a speech in September 2013 the Secretary of State repeated these IoD figures, and even proposed hypothecation of shale gas revenues, a policy normally opposed by Chancellors:

One policy proposal before our party conference is that a Low Carbon Transition Fund is established from some of the tax revenues from any future shale gas production²¹

However, he noted that the uncertainties around the amount that could be commercially extracted were too great to know what effect shale gas would have on energy prices. Reporting the speech, [Business Green](#) noted that the Secretary of State was therefore being more cautious than the Prime Minister and the Chancellor, both of whom had argued shale gas could play a significant role in bringing down energy costs.²²

¹⁷ Regeneris Consulting for Cuadrilla, *Economic Impact of Shale Gas Exploration & Production in Lancashire and the UK* September 2010 published 5 October 2011

¹⁸ Ibid, p.44

¹⁹ [Centrica, Centrica acquires a 25% interest in UK shale exploration licence](#), 13 June 2013

²⁰ IoD, [Infrastructure for Business: Getting shale gas working](#), 22 May 2013

²¹ DECC, Speech by Ed Davey [The Myths and Realities of Shale Gas Exploration](#) 9 September 2013

²² Business Green 9 September 2013 [Davey: UK shale gas is compatible with climate change targets](#)

3. Regulatory regime

3.1 Petroleum exploration and development licences (PEDLs)

Shale gas drilling is currently only in the exploratory phase in the UK. It is covered by the normal UK regime for all oil and gas exploration and development. A UK Petroleum Exploration and Development licence (PEDL) allows a company to pursue a range of exploration activities, including exploration and development of unconventional gas, subject to necessary drilling/development consents and planning permission.²³

Oil and gas extraction starts with an exploration phase, which may include performing seismic surveys. A test bore may be drilled, to explore what is really underground and how rich the deposits are at different depths and formations. Only then might a company seek to move on to a phase of extraction or 'development'.

DECC outlines the onshore licensing system on its [oil and gas website](#).

These existing licenses, now that unconventional hydrocarbons are more attractive, may be re-examined for their potential.²⁴ This will often be in terms of seismic surveys initially, but then possibly moving on to test drilling, where drills may be continued, through where conventional reservoirs are expected to be, to see if shale beds also have potential.

DECC advises that there is no firm distinction between exploration for shale gas and exploration for other targets. Some companies who are drilling mainly for conventional oil and gas have decided to drill deeper than they otherwise might have, in order to see whether there is prospective shale in their licensed areas (coring is all that is envisaged in these cases and no fracking is involved).²⁵

DECC publishes drilling activity [figures](#) for exploration, appraisal and development wells drilled each year. Six onshore wells were drilled during the first half of 2013, but three of these were development wells, so these will be for conventional resources since shale gas drilling is only at exploratory phase at present.

3.2 Other permissions

Other permissions are required before fracking can commence. These controls were outlined by DECC in its [Synopsis of main questions raised in responses to DECC consultation on mitigation of seismic risks from hydraulic fracturing for shale gas, with Government responses](#).²⁶

PEDLs allow a company only exclusivity in an area to search for, bore for and get hydrocarbons. They are separate from all other permissions, including:

²³ See http://www.decc.gov.uk/en/content/cms/meeting_energy/oil_gas/shale_gas/shale_gas.aspx#7 for more links to information on the regulatory regime

²⁴ HL Deb 6 October 2011 c213WA

²⁵ DECC pers. comm., August 2013

²⁶ 21 December 2012

- Planning permission
- Any need to gain access rights from landowners
- Environmental permits, including for mining waste, from the Environment Agencies
- Health and safety regulations and permits from the HSE
- Consent to drill and frack, from DECC.

The terms of the PEDL licences require DECC's approval for the choice of operator. One of the issues DECC checks before approving an operator is coverage of relevant insurances.²⁷

All drilling operations are subject to notification to the Health and Safety Executive. Also, each site is assessed by the Environment Agency (SEPA in Scotland) who regulate discharges to the environment, issue water abstraction licences, and are statutory consultees in the planning process.²⁸ The Environment Agency has [issued guidance](#) on this which notes that a mining waste permit will be required for drill cuttings, spent drill muds and drill fluids, flowback fluids, waste gases and wastes left underground. A permit will also be needed if large quantities of gas are to be flared and for groundwater activities, depending on the local hydrology.²⁹

The UK has, alongside Norway, one of the most stringent offshore drilling safety regimes in the World. According to the [HSE](#);

HSE monitors shale gas operations from a well integrity and site safety perspective. We oversee that safe working practices are adopted by onshore operators as required under the Health and Safety at Work Etc Act 1974, and regulations made under the Act. These specifically are:

- The Borehole Site and Operations Regulations 1995 (BSOR) applies to shale gas operations. (These regulations are primarily concerned with the health and safety management of the site).
- The Offshore Installations and Wells (Design and Construction, etc) Regulations 1996 (DCR) apply to all wells drilled with a view to the extraction of petroleum regardless of whether they are onshore or offshore.³⁰

In November 2012 the [Environment Agency](#) and HSE produced a [joint working strategy](#) on how they will work together to ensure a joined up approach and that there is appropriate monitoring and inspection of unconventional oil and gas operations.³¹

3.3 Planning permission

As with all other proposals for oil and gas developments, proposals for shale gas exploration or extraction are subject to the requirements of

²⁷ DECC pers. comm., 22 February 2013

²⁸ HC Deb 1 February 2011 c669w and <http://www.environment-agency.gov.uk/business/topics/126689.aspx>

²⁹ <http://www.environment-agency.gov.uk/business/sectors/148556.aspx> December 2012

³⁰ HSE [The regulation of onshore unconventional oil and gas exploration \(shale gas\)](#) webpage accessed 13 August 2013

³¹ HSE/Environment Agency, November 2012

the [Town and Country Planning Act 1990](#) administered by the Minerals Planning Authority (MPA) for the area in which the development is located. DECC's consent for all drilling or production operations for oil and gas is given only once planning permission has been obtained.³²

The MPA will take the decision in accordance with the policies set out in the [National Planning Policy Framework](#) (NPPF) and the "minerals" section of the online [National Planning Practice Guidance](#) (NPPG).

The procedure used to determine these applications is set out in the [Town and Country Planning Act 1990](#) and the [Town and Country Planning \(Development Management Procedure\) \(England\) Order 2010](#) (SI 2010/2184). Under these rules planning applications must be publicised by site display and in local newspapers and information about the application must also be available on the relevant local authority website. This must include a section on how interested people can submit representations about the application, giving a period of at least 14 days.

Following a [consultation](#), in September 2013 and [Government response](#) in January 2014 changes were made to the system of how landowners and tenants should be notified by applicants of applications for onshore oil and gas development.³³ The requirement to serve notice on individual owners and tenants of land on the above ground area where works are required was retained, but the requirement for owners of land beyond this area i.e. the owners of land where solely underground operations may take place, was removed. This was implemented by the [Town and Country Planning \(Development Management Procedure and Section 62A Applications\) \(England\) \(Amendment No. 2\) Order 2013](#) (SI 2013/3194), which came into force from 13 January 2014.

All representations on a planning application must be submitted in writing, either on paper or electronically. Verbal comments are not accepted. If the planning application is to be determined at a planning committee meeting a constituent may be able to speak at a the meeting.

When a decision is made on a planning application, only planning matters called "material considerations" can be taken into account. There is no exhaustive list of what constitutes a material planning consideration. The Government, in the [NPPG](#), lists the following as some "principal issues" for consideration:

- noise associated with the operation
- dust;
- air quality;
- lighting;
- visual impact on the local and wider landscape;
- landscape character;
- archaeological and heritage features;

³² HC Deb 11 June 2012 c200W

³³ Department for Communities and Local Government, [Revised requirements relating to planning applications for onshore oil and gas: Proposals for comment](#), 2 September 2013

- traffic;
- risk of contamination to land;
- soil resources;
- geological structure;
- impact on best and most versatile agricultural land;
- blast vibration;
- flood risk;
- land stability/subsidence;
- internationally, nationally or locally designated wildlife sites, protected habitats and species, and ecological networks;
- impacts on nationally protected landscapes (National Parks, the Broads and Areas of Outstanding Natural Beauty);
- nationally protected geological and geo-morphological sites and features;
- site restoration and aftercare;
- surface and, in some cases, ground water issues;
- water abstraction.³⁴

While there is no definitive list of what is a material consideration, certain types of issue have been held by the courts *not* to be material considerations. These include issues such as loss of property value, loss of view and opposition to the principle of development – representations on these issues will not be considered when a planning decision is taken.

For more information about how to comment on a planning application see the Planning Aid England guide, [Commenting on Planning Applications](#).

MPAs must take relevant comments into account and make their decisions and the reasons for either accepting or refusing a planning application public.

In addition to this process, planning authorities should have a section on mineral extraction in their local plan. Government guidance directs that these plans should identify and include policies for extraction of mineral resources. The plan may identify particular sites in an area where the local authority believes such extraction would be suitable. The local plan would have gone through (or will go through if not yet in place) a period of public consultation. For more information about how the public consultation process works see the RTPI factsheet, [The Local Plan: why, when and how to get involved](#).

Planning practice guidance for onshore oil and gas

The Government published [Planning practice guidance for onshore oil and gas](#) in July 2013 to try to give more certainty to local councils taking planning decisions on onshore oil and gas about the sorts of considerations they should take into account. The guidance has caused some controversy among some planning industry experts who have

³⁴ NPPG, Minerals: [What are the environmental issues of minerals working that should be addressed by mineral planning authorities?](#), Paragraph: 013Reference ID: 27-013-20140306

criticised it for limiting the issues that local councils can consider and have accused it of being “weighted in favour of granting permission”.³⁵

In a Westminster Hall debate, Green Party MP Caroline Lucas criticised the guidance for not having been consulted on first.³⁶ The Minister, Michael Fallon responded to this point by saying that “the Government do not normally consult on planning guidance. We consult on planning policy.”³⁷

From March 2014 this guidance was replaced by the [Minerals section](#) of the online NPPG. The NPPG is updated when necessary by Government and attention should be paid to the latest date of revision published next to each paragraph.

Major infrastructure planning regime

In November 2012, the Government consulted on extending the major infrastructure planning regime to certain types of business and commercial development – to include onshore oil and gas extraction developments of over 500 tonnes per day for petroleum and 500,000 cubic metres per day for gas.³⁸ This planning regime is different because for such projects, the Planning Inspectorate examines the application and will make a recommendation to the relevant Secretary of State, who will make the final decision on whether to grant or to refuse development consent – instead of the local planning authority.

The Government published its consultation response in June 2013 and decided not to include these oil and gas extraction projects in the major infrastructure planning regime:

The Town and Country Planning Association were concerned that including coal, oil and gas within the business and commercial category raised questions about the Government’s commitment to addressing climate change.

(...)

After considering the responses received and comments made during the passage of the Growth and Infrastructure Act, the Government has concluded that applications for planning permission for onshore oil and gas schemes, including any future planning proposals for shale gas development, should not be included in the new business and commercial category but will keep this under review.³⁹

3.4 Where are the PEDLs?

Any site where DECC issues consent to drill must have obtained planning permission first. After the last (13th) Onshore Licensing Round

³⁵ “Warning of fracking guidance ‘bias’, *Planning* 26 July 2013

³⁶ [HC Deb 18 July 2013 c357WH](#)

³⁷ [HC Deb 18 July 2013 c358WH](#)

³⁸ Department for Communities and Local Government, [Nationally significant infrastructure planning: extending the regime to business and commercial projects: Consultation](#), 22 November 2012

³⁹ Department for Communities and Local Government, [Major infrastructure planning: extending the regime to business and commercial projects, Summary of responses and government response](#), 21 June 2013

in 2008 and following the grant of planning permission, consent was given to drill for shale gas in five locations. Of these, consent for fracking of the shale was given to Cuadrilla at two sites at Poulton-le-Flyde. (Other permissions are required too; please see sections 4.3 and 4.4 below.)

A DECC [map](#) shows the onshore licences as of August 2013.⁴⁰ The yellow areas are those currently under licence. Zooming in on this map shows each PEDL number and the company to whom it was awarded. Comparing them to the geological maps may indicate where most shale gas potential is, bearing in mind that none are shale-specific, but since shale gas is only another hydrocarbon, all could in theory be explored for shale gas potential.

Appendix 1 to this note gives a list of all the current PEDL licences according to parliamentary constituency.

Finally, looking at the licence holding companies' websites often gives more detail about the operations being undertaken or planned.

In May 2013 the Energy Minister said that DECC expect to launch a new (14th) round of onshore licence applications in 2014 and that AMEC would carry out the Strategic Environment Assessment for this.⁴¹

⁴⁰ DECC, [Oil and gas: onshore maps and GIS shapefiles](#),

⁴¹ DECC press release 15 May 2013 [Robust regulation in place to accelerate shale development, says Energy Minister](#)

4. The Infrastructure Act - access rights and other issues

The [Queen's Speech](#) confirmed [Government plans](#) to streamline the underground access regime and make it easier for companies to drill for shale gas. It also confirmed that the new underground access regime would apply to drilling for geothermal energy.

Under the existing system, licence holders do not have automatic access rights to drill under landowners' property and permission should be sought before they can do this. If permission is refused then licence holders can apply through the Secretary of State and courts to gain access but the Government considers this route to be too time consuming.

The Secretary of State issues Petroleum Exploration and Development Licences (PEDLs) under powers granted by the [Petroleum Act 1998](#). They confer the right to search for, bore for and get hydrocarbons, but do not provide access rights to do this. However, section 7(1) of the Act applies the [Mines \(Working Facilities and Support\) Act 1966](#) in England, Wales and Scotland so a licensee can acquire ancillary rights to assist with development, including access rights. Such rights can be granted by the court if it is not reasonably practicable to obtain them by private negotiation. In these instances the landowner is entitled to compensation, determined in line with the principles established by the Supreme Court in *Star Energy Weald Basin Ltd & Anor v Bocardo SA* [\[2010\] UKSC 35](#).

4.1 Consultation

The Government consulted during summer 2014 on proposals to improve the access regime. The changes set out in the consultation would:

- Grant underground access rights to companies extracting petroleum resources (including shale gas and oil) and for geothermal energy in land at least 300 metres below the surface;
- Provide a voluntary community payment of £20,000 for each unique lateral (horizontal) well that extends by more than 200 metres laterally. Alongside this would be powers to make such payments compulsory if companies fail to volunteer; and
- Provide a public notification system, under which the company would set out drilling proposals along with details of the voluntary payment.⁴²

The consultation received over forty thousand responses. The vast majority of which came as letters from individuals opposing the proposals.⁴³ At the same time the *Guardian* reported a YouGov survey that found 74% of people opposed changes allowing companies to drill

⁴² DECC, [Underground Drilling Access: Consultation on Proposal for Underground Access for the Extraction of Gas, Oil or Geothermal Energy](#), May 2014

⁴³ DECC, [Government Response to the Consultation on Proposal for Underground Access for the Extraction of Gas, Oil or Geothermal Energy](#), 25 September 2014

under peoples' property without permission.⁴⁴ Industry stakeholders had few substantial issues with the proposals, other than concerns about the impact of deep drilling on existing mineral rights. The Government considered that existing regulation could manage such issues and that:

[...] the proposed policy remains the right approach to underground access and that no issues have been identified that would mean that our overall policy approach is not the best available solution.⁴⁵

A side issue that arose during the consultation was the application of the proposals to Scotland and Wales. In particular, their application in Scotland was opposed by Scottish Ministers during the referendum build up.⁴⁶ The UK Government considered that the new rights would apply in both Scotland and Wales and were compatible with devolved legislative powers.⁴⁷ However, it has since been confirmed by the Smith Commission that the licensing of onshore oil and gas extraction underlying Scotland will be devolved to the Scottish Parliament.⁴⁸

Further information on the consultation is available from the Gov.uk web site:

- [Government proposals to simplify deep underground access for shale gas and geothermal industries](#)
- [Access rights workshop presentation](#)
- [Underground Drilling Access](#)

1.1 Progress of the Bill through Parliament – a summary

Clauses to provide underground access, in line with the proposals set out in the Government consultation from summer 2014, were introduced into the Infrastructure Bill during the Lords Committee stage. Opposition amendments seeking to define a more prescriptive regulatory process and provide greater assurance around the voluntary community benefits package were tabled during the Lords and Commons Committee stages, but the Bill was not significantly amended until the Commons report stage.

At report stage the extent of the underground access provision was limited by amendment to England and Wales - reflecting the recommendation of the [Smith Commission](#) to devolve onshore oil and gas licensing to the Scottish Government.

An amendment was added that would require the Secretary of State to seek advice from the Committee on Climate Change and report on the

⁴⁴ "[Fracking trespass law changes opposed by 74% of British public, poll finds](#)", *The Guardian*, 6 May 2014

⁴⁵ op cit., [Government Response to the Consultation on Proposal for Underground Access for the Extraction of Gas, Oil or Geothermal Energy](#), p10

⁴⁶ BBC News, "[Minister opposes change in fracking residential drilling rules](#)", 15 August 2014

⁴⁷ DECC, [Underground drilling access](#) [accessed 4 December 2014]

⁴⁸ Smith Commission, [Report of the Smith Commission for further devolution of powers to the Scottish Parliament](#), 27 November 2014, p21

likely impacts of greenhouse gas emissions resulting from onshore petroleum resources and drilling activity.

An opposition amendment was added to the Bill setting out 13 conditions before fracking could take place –including conditions relating to site monitoring and inspections; ground water protection, environmental assessment and permitting; community benefits, protected areas and the depth at which access provided.

Following this a [Government amendment](#) was agreed in the Lords that primarily redrafted the 13 conditions.

More detail on the Bill's passage is set out below.

The Bill in the Lords

On [14 October Government amendments](#) were agreed in Lords Grand Committee, taking forward the Government's proposals through the following clauses:

- **Clause 39 (as numbered for Commons report stage)** would provide for a right to use deep-level land for the purpose of exploiting petroleum or deep geothermal energy. It defines deep level land as being 300 metres below the surface; **Clause 40** defines the scope of activity for which the access is provided; **Clauses 41 to 43** would provide the Secretary of State with a power to introduce a payment scheme and a notification scheme and that consultation would be required if these powers were to be used; and
- **Clause 44** is an interpretation provision, defining relevant terms.

The amendments provide that when drilling and fracking companies would be able to pump various substances underground to aid with the fracking process. Clause 39 covers the ways in which the access right may be exercised and includes a right of 'passing any substance through, or putting any substance into, deep-level land or infrastructure installed in deep-level land'. The wording of the legislation was criticised by a number of campaign groups who were concerned it gave 'free reign' to use any chemicals in the fracking process.⁴⁹ Such chemicals are regulated through the permissions process that fracking operators are required to adhere to, as explained by Baroness Verma:[...] chemical disclosure, is already required on a well-by-well basis. Operators must notify the environmental regulator of the volume and composition of the frack fluid and seek its permission prior to proceeding. The regulator will set this out when publishing the permit, including each chemical and the maximum concentration authorised for use. In addition, the industry has committed to publish this information, including each of the chemicals used, the total volume of frack fluid used and the maximum volume of each chemical within that.⁵⁰

Subsequent amendments were tabled during Report stage to bring about a statutory monitoring and assessment process for any wells using the new access rights, and for the access rights to be excluded

⁴⁹ "[UK to allow fracking companies to use 'any substance' under homes](#)", *The Guardian*, 14 October 2014

⁵⁰ [HL Deb, 14 October 2014, cc58-61GC](#)

from protected areas such as National Parks, Sites of Special Scientific Interest and Areas of Outstanding Natural Beauty.⁵¹ These were withdrawn following debate. Baroness Verma considered that existing planning policy was sufficient to protect such areas.⁵² Renewable Heat Incentive

Clause 45 of the Bill was introduced as a Government amendment in the Lords. The new clause would allow the Secretary of State to appoint an alternative body to administer the Renewable Heat Incentive (RHI), although Ofgem would continue to administer the scheme for the moment. It would also allow payments under the RHI to be made to third parties assigned by the current owner of an installation, and would simplify the procedure to amend the scheme by making it subject to the negative resolution procedure. DECC published a [policy briefing](#) explaining the reason for the proposals. With regard to third party payments it states:

This could lead to an increase in both demand for and supply of renewable heat technologies by allowing consumers to access finance for renewable heat installations more cheaply and easily. This could lead to a mix of higher deployment and lower costs, depending in part on future spending decisions.⁵³

Commons Committee Stage

A series of amendments were debated during the Commons committee stage dealing with environmental regulation and community benefits. However these clauses were not amended.

The first of these were concerned with the regulatory process and in particular the issue of pumping 'any substance' into the ground was revisited. Tom Greatrex said that the term "any substance" was 'needlessly open-ended' and 'provocative-sounding'. An amendment was voted against that would have required any fracking fluid substance to be approved by the Environment Agency.⁵⁴ Amendments were also tabled, but not agreed to, to prevent fracking in certain protected areas such as National Parks and to set out, more prescriptively, the process for assessing the environmental impacts of fracking developments, monitoring these sites and disclosing information about processes being used at them.⁵⁵

The set of amendments relating to community benefits was tabled with the aim of providing a more clear assurance and structure around the way contributions from fracking development would be spent in communities. The industry has agreed to pay £100,000 to communities per hydraulically fractured well site at exploratory stage, and 1% of revenue if it successfully goes into production. In addition, the industry has confirmed that operators will contribute a voluntary one-off payment of £20,000 for the right to use deep-level land for each unique lateral well that extends by more than 200 metres, and will notify the

⁵¹ [HL Deb, 10 November 2014, cc59-63](#)

⁵² [HL Deb, 14 October 2014 c46GC](#)

⁵³ DECC, [Infrastructure Bill: The Renewable Heat Incentive](#), 24 October 2014

⁵⁴ PBC [13 January 2015 c298](#)

⁵⁵ PBC [13 January 2015 c293](#)

public when exercising this power. The Minister explained that more detail on how funding would be spent would emerge from pilot projects:

The industry will work with UK Community Foundations on two pilot exploration schemes. UK Community Foundations is an independent registered charity, which is experienced in engaging with and consulting communities and in dealing with funding allocation. This will ensure that these community benefit schemes are independent of the industry and that communities have the lead role in identifying local priorities for the funds. In terms of the payment scheme, in return for the right of use, the current provisions already allow the Secretary of State, if not satisfied with the schemes, to introduce regulations to set up a statutory payment or notification mechanism. The focus should now be on exploration, so that we can first know how much shale gas we can really extract, to see what benefits will actually go to communities.⁵⁶

Commons report and third reading

At report stage the extent of the underground access provision was limited by amendment to England and Wales - this reflected the recommendation of the [Smith Commission](#) to devolve onshore oil and gas licensing to the Scottish Government.

Amendment, clause 15 was added which requires the Secretary of State to seek advice from the Committee on Climate Change and report on the likely impacts of greenhouse gas emissions from onshore petroleum.

An opposition amendment, new clause 19, was added to the Bill setting out 13 conditions before fracking could take place:

- (a) unless an environmental impact assessment has been carried out;
- (b) unless independent inspections are carried out of the integrity of wells used;
- (c) unless monitoring has been undertaken on the site over the previous 12 month period;
- (d) unless site-by-site measurement, monitoring and public disclosure of existing and future fugitive emissions is carried out;
- (e) in land which is located within the boundary of a groundwater source protection zone;
- (f) within or under protected areas;
- (g) in deep-level land at depths of less than 1,000 metres;
- (h) unless planning authorities have considered the cumulative impact of hydraulic fracturing activities in the local area;
- (i) unless a provision is made for community benefit schemes to be provided by companies engaged in the extraction of gas and oil rock;

⁵⁶ PBC [13 January 2015 c299](#)

- (j) unless residents in the affected area are notified on an individual basis;
- (k) unless substances used are subject to approval by the Environment Agency
- (l) unless land is left in a condition required by the planning authority, and
- (m) unless water companies are consulted by the planning authority.”

An amendment table by the Environmental Audit Committee, New Clause 9, for a moratorium on fracking was not agreed to.

Ping Pong

The Lords had an opportunity to change these Commons amendments on 9 February 2015. A [Government amendment to do this](#) was tabled and accepted.

[Concerns were reported](#) from environmental groups that the Lords amendment would ‘water down’ some of the 13 conditions. The amendment means monitoring of fugitive emission will not be required after a permit had expired; that residents will not have to be individually notified about fracking; fracking could not take place in “protected groundwater source areas”, a type of designation to be defined in secondary legislation, rather than established groundwater source protection zones. Secondary legislation will also be used to define the other ‘protected areas’ within which fracking could not take place.

[The Act sets](#) out that this secondary legislation is required to be tabled by the end of July 2015.

5. Environmental considerations

In 2012 the Royal Society and Royal Academy of Engineering (RS/RAE) conducted a short [review of the risks associated with fracking](#). The report concluded that the health, safety and environmental risks can be managed effectively in the UK, by implementing and enforcing best operational practice. The report also made some specific recommendations however, referred to further below.

The May 2012 *World Energy Outlook* special report on unconventional gas, [Golden rules for a golden age of gas](#), summarises the concerns around fracking. While unconventional resources could boost energy diversity and security, this has to be done in an environmentally acceptable manner:⁵⁷

Producing unconventional gas is an intensive industrial process, generally imposing a larger environmental footprint than conventional gas development. More wells are often needed and techniques such as hydraulic fracturing are usually required to boost the flow of gas from the well. The scale of development can have major implications for local communities, land use and water resources. Serious hazards, including the potential for air pollution and for contamination of surface and groundwater, must be successfully addressed. Greenhouse-gas emissions must be minimised both at the point of production and throughout the entire natural gas supply chain. Improperly addressed, these concerns threaten to curb, if not halt, the development of unconventional resources.

The IEA has developed a set of 'golden rules' in response, which it estimates would add on 7% to the cost of developing a typical shale gas wellsite, but which it says would give the industry public and environmental acceptance and a 'social licence' to operate.⁵⁸

5.1 Greenhouse gas emissions

It has been argued that generating electricity from natural gas is relatively clean in comparison to coal fired generation.⁵⁹ It has been suggested that more gas could help bridge the gap to cleaner renewables or more nuclear generation.⁶⁰ US carbon emissions have fallen by 9% since 2005, reversing a strong upwards trend, and the US Environmental Protection Agency (EPA) has attributed almost half of the reduction to shale gas use.⁶¹

From the UK perspective, the IoD highlight the emissions benefits of domestic production over importing liquid natural gas (LNG), the

⁵⁷ International Energy Agency, [Golden rules for a golden age of gas](#) WEO special report 29 May 2012

⁵⁸ Ibid, in text box on pages 13 and 14

⁵⁹ e.g. "[The case for shale and tight gas](#)", Speech given by Malcolm Brinded, Executive Director, Upstream International, at the Foundation for Science and Technology, London, England, November 9, 2011

⁶⁰ Pearce, F., "[Fracking: the monster we greens must embrace](#)", *Guardian*, 15 March 2013, accessed 14 June 2013

⁶¹ "Frack to the Future", *New Scientist*, 10 August 2013 pp. 36-41

potential of shale gas as a transport fuel and avoided emissions through supporting energy efficient manufacturing in the UK.⁶²

However, cheap gas may divert investment from more expensive (up-front) alternatives such as renewables and nuclear, weakening the case for reducing reliance on fossil fuels.⁶³ The former Director of the Tyndall Centre for Climate Change Research, Professor Kevin Anderson, has said that "From a climate-change perspective this stuff simply has to stay in the ground."⁶⁴ A Tyndall Centre [report](#) published in November 2011 concluded:

... emissions from a fully developed UK shale gas industry would likely be very substantial in their own right. If the UK Government is to respect its obligations under both the Copenhagen Accord and Low Carbon Transition Plan, shale gas offers no meaningful potential as even a transition fuel.⁶⁵

A [letter to the Guardian](#) (27 September 2011) said that the lower CO₂ emissions of gas compared to coal or oil were countered by methane releases of up to 10% of production. However, in a [letter in response](#) (6 October 2011), a petroleum engineer said that methane leakage with frac fluids can be either captured or flared and leakage of 10% would not be tolerated by any commercial company.

The 2013 ECC Committee [final report](#) recommended that policies on flaring and venting of methane should be reviewed to keep fugitive emissions as close to zero as possible, and that these emissions should be monitored by DECC.⁶⁶

The RS/RAE in its [June 2012 report](#) considered that more work was needed to monitor this, and to explore the carbon footprint and climate risks associated with extraction and use.⁶⁷

In June 2013, Energy Minister Michael Fallon said that a study and report on this had been requested by the Secretary of State, to include recommendations to mitigate the impacts of shale gas exploration, production and use.⁶⁸ On 9 September 2013 DECC published a report by its Chief Scientific Adviser, Professor David Mackay, and Dr Timothy Stone on the [Potential Greenhouse Gas Emissions Associated with Shale Gas Extraction and Use](#).

This concludes that local emissions should not be significant if properly regulated, compared to the overall emissions from burning shale gas. It found that shale gas's overall carbon footprint was comparable to gas extracted from conventional sources, lower than that of LNG, and,

⁶² IoD, [Infrastructure for Business: Getting shale gas working](#), 22 May 2013

⁶³ Schrag, D.P., "[Is shale gas good for climate change?](#)" *Daedalus*, 141(2), 72-80, 2012

⁶⁴ "What the Frack?" *The Economist*, 1 October 2011 p.34 and "Natural Gas: Should fracking stop?" *Nature* Volume 477, pp 271–275 15 September 2011

⁶⁵ Tyndall Centre for Climate Change Research, [Shale gas: an updated assessment of environmental and climate change impacts](#), Executive summary, November 2011, p7

⁶⁶ House of Commons Energy and Climate Change Committee, [The Impact of Shale Gas on Energy Markets](#), April 2013

⁶⁷ RS/RAE [Shale gas extraction in the UK: a review of hydraulic fracturing](#) June 2012

⁶⁸ [HC Deb 3 June 2013 cc942-3W](#)

when used for generating electricity, significantly lower than that of coal.

Responding to the report on the same day in a [speech to the Royal Society](#), the Secretary of State said this meant that gas was ‘part of the answer to climate change’, as a bridge in our transition to a green future. Indigenous ‘on-shore’ production would allow the UK to control the emissions better rather than off-shoring them, contribute to energy security, and maintain tax revenues as the North Sea wound down. He said:

The continued use of gas is perfectly consistent with our carbon budgets over the next couple of decades.

If shale gas production does reach significant levels we will need to make extra efforts in other areas.

Because by on-shoring production we will be on-shoring the emissions as well.⁶⁹

This overall effect on keeping within Carbon Budgets is likely to be challenged by those who say that any dash for gas risks these.⁷⁰

5.2 Pollution incidents in the US and implications for the UK

The [Chartered Institution of Water and Environmental Management](#) considers that “Many apprehensions over fracking in the UK are a result of the experience of regulation in the US”, where “each State regulates separately and to varying levels of stringency.”⁷¹

Anecdotal instances of pollution in the USA received prominence through the Gasland film. Some states (e.g. [New York](#)) have put in place moratoriums on fracking, as have some countries including Northern Ireland and France.⁷²

The RS/RAE report noted differences in practice between the UK and North America:

Studies in North America have used well data to identify key factors affecting leakage, especially the number of casings and the extent to which these casings were cemented. Some of the leaky wells in a Canadian study had only a single casing or were left uncased except in the section from the surface casing down to just below the aquifer (Watson and Bachu 2009). Others had not been cemented at all or the cementation had not reached the required height (Watson and Bachu 2009). Several percent of older oil and gas wells leaked, while fewer than 0.5% of those constructed since 2000 according to stricter standards were found to be leaky (Watson and Bacchu 2009).

⁶⁹ DECC, Speech by Ed Davey [The Myths and Realities of Shale Gas Exploration](#) 9 September 2013

⁷⁰ See for example BBC 19 March 2012 [Has the 'greenest government ever' gassed itself?](#)

⁷¹ CIWEM position paper [Hydraulic Fracturing \(Fracking\) of Shale in the UK](#) October 2012

⁷² Reuters, [New York State Assembly votes to block fracking until 2015](#) 6 March 2013 or see list on p.53 of Policy Exchange 24 February 2012 [Gas Works? Shale gas and its policy implications](#)

In the USA, it is common to have two strings of casings. When intermediate casing is not installed, cementing the production casing to the surface should be considered (API 2009). Intermediate casing is not always cemented all the way back to the surface. At a minimum, the cement should extend above any exposed water or hydrocarbon bearing zones (API 2009). In some states, such as Pennsylvania and Texas, there is a requirement to cement casing to approximately 75 ft below any aquifers. Failure to do this can lead to groundwater contamination as occurred in Pavillion, Wyoming (DiGiulio et al 2011). In the UK, standard practice is to have three strings of casing with at least two (intermediate and production casing) passing through and thereby isolating any freshwater zones. Best practice is to cement casings all the way back to the surface, depending on local geology and hydrogeology conditions.⁷³

Given this, public concern and the proliferation of fracking, the US EPA has embarked on studies on the '*Potential Impacts of Hydraulic Fracturing on Drinking Water Resources*', publishing a [progress report](#) in December 2012 and with a final draft report due in 2014.⁷⁴

The EPA notes that it is hard to compile and isolate statistics on incidents due to fracking (compared to 'conventional' leaks) given also that there is no national database in the US, with many data recorded at State level.

The EPA has also said that it is "supporting the State of Wyoming in its further investigation of drinking water quality in the rural area east of Pavillion, Wyoming".⁷⁵

In 2011, the former Energy Minister Charles Hendry noted that the investigated US incidents of water pollution were explained by accidents on the surface rather than underground leaks, and said that the UK would learn from this. Regarding US methane leaks,

Also, some incidents of methane contamination of water were not attributable to oil or gas operations at all; they were caused by methane of recent biological origin.

However, there were cases in which gas leaks had occurred. That was attributed to unsatisfactory well construction or cementing. That confirms, if any confirmation were needed, that drilling for shale gas—like drilling for any other kind of oil or gas—is a hazardous operation that requires careful and consistent regulation. However, that also supports the Committee's conclusions that there is no evidence that the fracking process itself poses a direct risk to underground water resources, and that the risks are related to the integrity of the well and are not different from those encountered in conventional oil and gas extraction.⁷⁶

⁷³ RS/RAE [Shale gas extraction in the UK: a review of hydraulic fracturing](#) June 2012 page 26

⁷⁴ <http://www.epa.gov/hfstudy/index.html> accessed 17 December 2012

⁷⁵ EPA website [Pavillion groundwater investigation](#) accessed 9 September 2013

⁷⁶ HC Deb 3 November 2011 c363WH

5.3 Opinions on fracking in the UK

The Environment Agency describes fracking as an established technology.⁷⁷ The 2011 Tyndall Centre report set out concerns about ground and surface water contamination, possibly even affecting quality of drinking water and wetland habitats, depending on factors such as the connection between ground and surface waters.

The depth of shale gas extraction gives rise to major challenges in identifying categorically pathways of contamination of groundwater by chemicals used in the extraction process.⁷⁸

The ECC Committee's 2011 inquiry found no evidence that fracking poses a direct risk to underground water aquifers provided the drilling well is constructed properly.⁷⁹ In its response to the Committee, the Government noted:

The technologies used in shale gas operations are not generically novel or unfamiliar. Hydraulic fracturing, water injection and lateral drilling, individually or in combination, are all familiar techniques that DECC and the other regulators have had to deal with robustly for a long time.⁸⁰

The RS/RAE considered that because fracking takes place many hundreds of metres or even several kilometres below aquifers, it is very unlikely that fracking will affect those aquifers. However, more likely causes of possible contamination include faulty wells, and the report called for the same stringent controls for offshore wells to be applied onshore:

Ensuring well integrity must remain the highest priority to prevent contamination. The probability of well failure is low for a single well if it is designed, constructed and abandoned according to best practice. The UK's well examination scheme was set up so that the design of offshore wells could be reviewed by independent, specialist experts. This scheme must be made fit for purpose for onshore activities.⁸¹

According to an answer in June 2011, the fluids used by Cuadrilla have comprised: fresh water and sand—99.96% and polyacrylamide friction reducers—0.04%. Other potential additives include hydrochloric acid, typically at a concentration of 0.125%, or biocide at a concentration of 0.005% if required to purify the local water supply.⁸²

5.4 Water use

The Tyndall Centre highlighted excessive water use for fracking as a particular problem "given that water resources in many parts of the UK

⁷⁷ <http://www.environment-agency.gov.uk/business/topics/126689.aspx>

⁷⁸ Tyndall Centre for Climate Change Research, [Shale gas: an updated assessment of environmental and climate change impacts](#), November 2011, pp9-10

⁷⁹ Committee Press Release, *Shale gas gets support from MPs in new report*, 23 May 2011 <http://www.parliament.uk/business/Committees/Committees-a-z/commons-select/energy-and-climate-change-Committee/news/new-report-shale-gas/>

⁸⁰ Energy and Climate Change - *Seventh Special Report Shale Gas: Government Response to the Committee's Fifth Report of Session 2010-12* 19 July 2011

⁸¹ RS/RAE [Shale gas extraction in the UK: a review of hydraulic fracturing](#) June 2012 page 4

⁸² [HC Deb 29 June 2011 c853w](#)

are already under pressure”.⁸³ For its exploration sites Cuadrilla anticipated using approximately 1,600 m³ of water for each hydraulic fracture operation.⁸⁴ The RS/RAE report recommends recycling and re-use of wastewaters and that water disposal options should be planned from the outset.

Because shale gas reserves are more diffuse than conventional reservoirs, productivity at each well falls relatively quickly. The IEA considers that, apart from local community buy-in, the most important above-ground considerations for unconventional gas developments are the availability of sufficient land and water. Shale gas drilling leaves “a large and comparatively invasive footprint on the landscape” because of the large number of wells needed. The IEA also notes that access to water may be a barrier to unconventional gas developments, although technology is starting to reduce the amount required.⁸⁵

In its [response](#) to the 2011 ECC Committee inquiry, the Government said that “Adverse effects on water resources as a result of possible expansion of the shale gas industry in the UK are not expected.”⁸⁶ Any operator will also need a licence to abstract water from the Environment Agency who will assess existing abstraction levels and licences.⁸⁷ Because abstraction is controlled in the UK, the RS/RAE consider that water use can be managed sustainably.⁸⁸

5.5 Seismic events

In April and May 2011 there were some small earth tremors near Blackpool.⁸⁹ Cuadrilla issued a [statement](#) on 31 May 2011 saying it was postponing fracking operations while it interpreted seismic information. In its July 2011 response to the ECC report,⁹⁰ the Government agreed that a pause in hydraulic fracturing operations was appropriate.

‘Induced seismicity’ can occur in previously aseismic areas following oil and gas activities. Thousands of induced earthquakes are registered annually, and operators can take steps to reduce or control seismicity.⁹¹ Natural or mining-induced earthquakes in the UK are not uncommon with around 150 earthquakes recorded on average each year.⁹²

The BGS said in January 2012 that the risks to groundwater and of earthquakes had been exaggerated, with the minor earthquakes caused

⁸³ Tyndall Centre for Climate Change Research at Manchester University, [Shale gas: a provisional assessment of climate change and environmental impacts](#), January 2011, p6-7

⁸⁴ [HC Deb 29 June 2011 c853w](#)

⁸⁵ IEA [World Energy Report 2009](#) Chapter 11, p.415

⁸⁶ Energy and Climate Change - *Seventh Special Report Shale Gas: Government Response to the Committee's Fifth Report of Session 2010-12*, 19 July 2011

⁸⁷ [HC Deb 23 April 2012 c614W](#)

⁸⁸ RS/RAE *Shale gas extraction in the UK: a review of hydraulic fracturing* June 2012 http://royalsociety.org/uploadedFiles/Royal_Society_Content/policy/projects/shale-gas/2012-06-28-Shale-gas.pdf

⁸⁹ “Gas drilling on hold after earth tremor”, *Daily Post (Liverpool)* 1 June 2011 p.14

⁹⁰ Op cit.

⁹¹ *Petroleum Review* April 2012 p.16 “Shakin’ all over”

⁹²

by fracking “Comparable in size to the frequent minor quakes caused by coal mining. What's more, they originate much deeper in the crust so have all but dissipated by the time they reach the surface”.⁹³

Cuadrilla funded a geomechanical study by the BGS which was given to DECC to consider. In April 2012 DECC [published the report](#), which said:

The report concludes that minor earth tremors detected in the area of Cuadrilla's Preese Hall operations near Blackpool in April and May last year were caused by fracking and, among other measures, recommends a real time seismic monitoring system and a "traffic light" control regime based on this monitoring.⁹⁴

A consultation period was announced, and in the meantime the Environment Agency continued studies to ensure it had all the information it needed to regulate the industry. On 13 December 2012 the Secretary of State [announced](#) that exploratory hydraulic fracturing for shale gas could resume in the UK.⁹⁵ New regulatory requirements for operators seeking consent under licences for fracking are related to seismicity only and are to:

- Conduct a prior review of information on seismic risks and the existence of faults;
- Submit to DECC a frac plan showing how any seismic risks are to be addressed;
- Carry out seismic monitoring before, during and after the frac;
- Implement a “traffic light” system which will be used to identify unusual seismic activity requiring reassessment, or halting, of operations.⁹⁶

In the Secretary of State's December 2012 statement he also said that the Government would act on the [RS/RAE] recommendations regarding regulation of a future production phase and environmental risk assessment:

...the academies have in addition recommended that an environmental risk assessment should be mandatory for all shale gas operations, involving the participation of local communities at the earliest possible opportunity, and that this assessment should address risks across the entire lifecycle of shale gas extraction.

DECC will therefore take steps to enhance the existing frameworks for consultation and consenting to these activities, in line with these recommendations. Licensees will be required to carry out a comprehensive high-level assessment of environmental risks, including risks to human health, and covering the full cycle of the proposed operations, including well abandonment; and to consult with stakeholders including local communities, as early as practicable in the development of their proposals.⁹⁷

Cuadrilla would, he said, be asked to do this in Lancashire. Even as exploratory drilling resumes in Lancashire, or begins in West Sussex⁹⁸,

⁹³ *New Scientist* “[Fracking risk is exaggerated](#)” 11 January 2012

⁹⁴ HC Deb 23 April 2012 c617WA

⁹⁵ HC Deb 13 December 2012 c44WS

⁹⁶ DECC press release [New controls announced for shale gas exploration](#) 13 December 2012.

⁹⁷ HC Deb 13 December 2012 c51WS

⁹⁸ <http://www.cuadrillaresources.com/our-sites/balcombe/>

this is some way away from full commercial development, as the then Energy Minister Charles Hendry noted in July 2012. This is not least because the situation regarding ownership of underground resources is different.⁹⁹ In the UK, the Crown holds the right to gold and silver, and the State to oil, petroleum and natural gas - landowners hold only the remaining mineral rights.

⁹⁹ HC Deb 12 July 2012 c441

6. Support for the industry and support for communities

During a [Westminster Hall debate](#) on the Government's response to the ECC Committee's 2011 report on shale gas, the overall consensus was that the Committee, which was broadly supportive of the industry, had taken a balanced and cautious approach.¹⁰⁰

In the 2012 Autumn Statement, the Chancellor set out the overall Government policy:

Today, we publish our gas strategy to ensure that we make the best use of lower-cost gas power, including new sources of gas under the land. We are consulting on new tax incentives for shale gas and announcing the creation of a single office so that regulation is safe but simple. We do not want British families and businesses to be left behind as gas prices tumble on the other side of the Atlantic.¹⁰¹

The Government's [Gas Generation Strategy](#) noted that shale gas production might commence in the second part of this decade, but production was likely to grow more slowly than in the US. There were two main commitments:

- A new DECC Office for Unconventional Gas and Oil, to join up responsibilities across Government, ensure a simplified and streamlined regulatory process, and engage with communities.
- A 'fair tax regime' for future shale gas production.¹⁰²

[Budget 2013](#) said that the Government would introduce a new field allowance for shale gas and consult on the detail.¹⁰³ In July 2013 the Government launched its consultation on [tax incentives for drilling companies](#).¹⁰⁴ Following this the it was announced in the 2013 Autumn Statement that the tax rate on a portion of a company's profits would be reduced from 62 to 30% and that companies will receive a tax allowance equal to 75% of capital spent on projects.¹⁰⁵ The Government is [consulting](#) on the draft legislation that would provide this.

Energy Minister Michael Fallon said in June 2013 that the Government would soon be consulting on community benefits "through grants or expenditure, or, better still, through discounts on their bills, which could be significant".¹⁰⁶ Details of the package were announced on 27 June 2013:

- The Government has also welcomed a package of community benefits that has been brought forward by industry today.

¹⁰⁰ HC Deb 3 November 2011 c399WH

¹⁰¹ [HC Deb 5 December 2012 c881](#)

¹⁰² DECC Gas Generation Strategy 5 December 2012 Cm 8407

¹⁰³ DECC, [New Office to look at community benefits for shale gas projects](#), 20 March 2013

¹⁰⁴ HM Treasury and DCLG press release 19 July 2013 [Shale gas: government unveils plan to kick start investment with generous new tax breaks](#)

¹⁰⁵ HM Treasury, [Autumn Statement](#), Dec 2013

¹⁰⁶ [HC Deb 6 June 2013 c1655](#)

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.

- These will include £100,000 for communities situated near each exploratory (hydraulically fracked) well, and 1% of revenues from every production site.¹⁰⁷

These all send clear signals of Government support for the industry. The [Energy Act 2012-13 to 2013-14](#), currently in the Lords, includes an Emissions Performance Standard set at a level to allow new gas generating plant to be built. More detail can be found in the Library Research Paper on the [Energy Bill \(Committee Stage Report\)](#).¹⁰⁸

A further statement, made by the Prime Minister on 13 January 2014, announced that councils would be able to keep 100 per cent of business rates collect from shale gas sites. This doubled the existing 50 per cent figure under the Government's business rate retention scheme which according to a Government estimate could be worth up to £1.7 million for a typical 12 well site.¹⁰⁹ The Local Government Association responded to the announcement, which they saw as a 'step in the right direction' but argued that more financial support should be given to communities. It should be proportionate to the tax breaks the industry received.¹¹⁰

6.1 Autumn Statement 2014

On 3 December 2014 the Chancellor 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.
- £31 million of funding to create world class sub-surface 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.

¹⁰⁷ DECC press release 27 June 2013 [Estimates of shale gas resource in North of England published, alongside a package of community benefits](#)

¹⁰⁸ [Energy Bill: Committee Stage Report - Commons Library Research Paper](#), 9 April 2013

¹⁰⁹ [Millions of pounds in business rates will be handed to councils in England which give the green-light to shale gas developments](#). Gov.uk, 13 January 2013

¹¹⁰ [LGA responds to Government fracking announcement](#), LGA media release, 13 January 2014

7. Appendix; extant onshore PEDL licences by constituency

The tables overleaf show the results of overlying DECC's onshore PEDL licence areas with constituency boundary data.

These are all current extant PEDL licenses, none of DECC's licences distinguish between shale gas or other forms of hydrocarbons. Comparing these to the geological maps may indicate which are in areas of shale gas potential. However, as mentioned in section 4.2 above, the best way of determining whether there are any plans to explore for shale gas is to contact the company holding the licence, or check its website.

Onshore licences located within parliamentary constituencies, by constituency, as at August 2013

Constituency	% of constituency covered by licence	Licence Operator	Round	Licence AS
	block		awarded under	
Aberavon	1.0%	UK METHANE	13	PEDL214
Aberavon	3.0%	ADAMO	13	PEDL218
Aberavon	4.9%	UK METHANE	0	PEDL148
Aberavon	28.5%	UK METHANE	0	PEDL149
Aberavon	28.7%	UK METHANE	13	PEDL215
Aberavon	30.6%	ADAMO	9	PEDL100
Airdrie and Shotts	47.5%	REACH	13	PEDL162
Altrincham and Sale West	25.0%	IGAS	13	PEDL193
Alyn and Deeside	1.0%	BIOGAS	0	EXL203
Alyn and Deeside	5.6%	DART	13	PEDL187
Alyn and Deeside	11.2%	IGAS	13	PEDL184
Alyn and Deeside	34.6%	DART	12	PEDL147
Amber Valley	42.4%	LOW	13	PEDL199
Arundel and South Downs	0.0%	IGAS	0	PL240
Arundel and South Downs	0.7%	KEY	0	PL241
Arundel and South Downs	2.8%	IGAS	0	PL205
Arundel and South Downs	3.3%	CELTIQUE	13	PEDL243
Arundel and South Downs	3.3%	CUADRILLA	13	PEDL244
Arundel and South Downs	6.3%	CELTIQUE	13	PEDL232
Arundel and South Downs	10.5%	IGAS	13	PEDL233
Arundel and South Downs	17.4%	CELTIQUE	13	PEDL234
Ashfield	0.4%	ALKANE	9	PEDL001 Kings Mill
Ashfield	0.4%	C.E.	0	C.E.
Ashfield	9.3%	DART	0	EXL290 Area 2
Ashfield	22.5%	LOW	13	PEDL199
Barnsley Central	1.1%	ALKANE	9	PEDL037 Monk Bretton
Barnsley Central	1.9%	ALKANE	9	PEDL037 Monckton
Barnsley East	0.1%	ALKANE	9	PEDL037 Monckton
Barnsley East	0.5%	ALKANE	9	PEDL037 Monk Bretton
Barnsley East	1.2%	ALKANE	9	PEDL011
Barnsley East	1.2%	ALKANE	9	PEDL011
		HUMBLY GROVE GAS		
Basingstoke	0.0%	STORAGE	0	PL116
Bassetlaw	0.0%	IGAS	0	ML007
Bassetlaw	0.1%	ALKANE	9	PEDL001 Welbeck
Bassetlaw	0.2%	SCOTTISH	0	PL162 Area 2
Bassetlaw	0.4%	IGAS	0	PL178
Bassetlaw	0.6%	COURAGE	9	PEDL090 Area 1
Bassetlaw	0.7%	DART	13	PEDL207
Bassetlaw	0.9%	DART	13	PEDL210
Bassetlaw	0.9%	IGAS	0	ML006
Bassetlaw	1.9%	IGAS	0	ML004 Area 2
Bassetlaw	2.6%	IGAS	0	ML004 Area 1
Bassetlaw	6.9%	DART	9	PEDL012
Bassetlaw	7.2%	IGAS	9	PEDL006 Area 1
Bassetlaw	9.4%	DART	12	PEDL139
Bassetlaw	17.3%	DART	13	PEDL200
Bassetlaw	23.6%	DART	12	PEDL140
Beaconsfield	3.6%	FAIRFAX	13	PEDL236
Beckenham	95.8%	NORTHDOWN	13	PEDL245
Berwickshire, Roxburgh and Selkirk	0.0%	DART	12	PEDL159
Beverley and Holderness	0.2%	DART	13	PEDL176
Beverley and Holderness	85.8%	RATHLIN	13	PEDL183
Bexhill and Battle	4.7%	CUADRILLA	13	PEDL247
Birkenhead	28.1%	IGAS	13	PEDL184
Blackpool North and Cleveleys	97.4%	BOWLAND	13	PEDL165
Blackpool South	89.2%	BOWLAND	13	PEDL165
Bognor Regis and Littlehampton	0.1%	KEY	0	PL241
Bognor Regis and Littlehampton	47.4%	CELTIQUE	13	PEDL232
Bolsover	0.0%	LOW	13	PEDL199
Bolsover	0.1%	ALKANE	9	PEDL001 Markham
Bolsover	0.4%	ALKANE	9	PEDL001 Shirebrook
Bolsover	0.4%	ALKANE	9	PEDL001 Whitwell
Bolsover	0.4%	ALKANE	9	PEDL001 Bolsover
Bolsover	1.0%	ALKANE	0	PL213
Bolsover	8.9%	C.E.	0	C.E.
Bolton West	2.1%	BOWLAND	13	PEDL165

Onshore licences located within parliamentary constituencies, by constituency, as at August 2013

Constituency	% of constituency covered by licence	Licence Operator	Round	Licence AS
	block		awarded under	
Bootle	2.7%	EDP	13	PEDL164
Bournemouth East	0.2%	PERENCO	0	PL259
Bournemouth East	98.3%	NWE	13	PEDL238
Bournemouth West	5.9%	PERENCO	0	PL259
Bournemouth West	94.0%	NWE	13	PEDL238
Brecon and Radnorshire	0.1%	UK METHANE	0	PEDL148
Brecon and Radnorshire	0.2%	ADAMO	13	PEDL212
Bridgend	11.2%	COASTAL	13	PEDL217
Bridgend	38.6%	COASTAL	13	PEDL216
Bridgend	47.0%	ADAMO	9	PEDL100
Brigg and Goole	0.0%	SCOTTISH	0	PL161 Area 3
Brigg and Goole	0.4%	EUROPA	0	DL001
Brigg and Goole	0.6%	BLACKLAND PARK	13	PEDL209
Brigg and Goole	2.6%	EGDON	13	PEDL241
Brigg and Goole	3.0%	EUROPA	13	PEDL180
Brigg and Goole	3.9%	DART	12	PEDL140
Brigg and Goole	5.2%	DART	13	PEDL179
Brigg and Goole	5.6%	EGDON	13	PEDL182
Brigg and Goole	6.2%	DART	0	PL162 Area 1
Brigg and Goole	7.6%	DART	13	PEDL173
Brigg and Goole	8.0%	DART	13	PEDL178
Brigg and Goole	10.5%	DART	13	PEDL174
Brigg and Goole	10.9%	SCOTTISH	0	PL162 Area 2
Brigg and Goole	18.6%	EUROPA	13	PEDL181
Bristol East	17.2%	UK METHANE	13	PEDL228
Bristol North West	0.0%	SONOREX	13	PEDL224
Bristol South	11.8%	UK METHANE	13	PEDL228
Bristol South	46.8%	UK METHANE	13	PEDL226
Bromley and Chislehurst	53.0%	NORTHDOWN	13	PEDL245
Broxtove	56.5%	LOW	13	PEDL199
Burton	2.0%	DART	13	PEDL198
Caithness, Sutherland and Easter Ross	1.8%	CAITHNESS	12	PEDL158
Canterbury	3.6%	COASTAL	13	PEDL249
Canterbury	13.8%	COASTAL	13	PEDL250
Cardiff West	3.4%	COASTAL	13	PEDL219
Cardiff West	18.6%	COASTAL	13	PEDL220
Carlisle	3.8%	DART	12	PEDL159
Carmarthen East and Dinefwr	0.0%	ADAMO	13	PEDL212
Carmarthen East and Dinefwr	0.2%	DART	13	PEDL211
Carshalton and Wallington	99.1%	NORTHDOWN	13	PEDL245
Charnwood	0.6%	EGDON	13	PEDL201
Chesterfield	1.7%	ALKANE	9	PEDL001 Markham
Chesterfield	5.5%	ALKANE	0	PL213
Chichester	0.1%	KEY	0	PL241
Chichester	0.5%	IGAS	0	PL211
Chichester	3.4%	IGAS	13	PEDL233
Chichester	3.4%	IGAS	13	PEDL235
Chichester	3.6%	CELTIQUE	13	PEDL232
Chichester	4.2%	IGAS	0	PL240
Chichester	4.4%	NORTHERN	12	PEDL155
Chichester	12.3%	CELTIQUE	13	PEDL234
Chichester	12.4%	NORTHERN	11	PEDL126
Chichester	19.9%	CELTIQUE	13	PEDL231
Chorley	50.3%	BOWLAND	13	PEDL165
Christchurch	54.4%	NWE	13	PEDL238
City of Chester	4.0%	IGAS	13	PEDL190
City of Chester	4.7%	DART	13	PEDL187
City of Chester	8.3%	DART	13	PEDL188
City of Chester	24.9%	IGAS	13	PEDL184
City of Chester	25.9%	DART	12	PEDL147
City of Chester	32.2%	DART	13	PEDL189
Cleethorpes	0.4%	EGDON	13	PEDL241
Cleethorpes	78.5%	EUROPA	13	PEDL181
Clwyd South	1.0%	DART	13	PEDL187
Clwyd South	10.2%	DART	13	PEDL185
Clwyd South	13.9%	DART	13	PEDL186
Coatbridge, Chryston and Bellshill	28.0%	REACH	13	PEDL162

Onshore licences located within parliamentary constituencies, by constituency, as at August 2013

Constituency	% of constituency covered by licence block	Licence Operator	Round awarded under	Licence AS
Congleton	30.0%	CELTIQUE	13	PEDL197
Crawley	1.9%	MAGELLAN	13	PEDL246
Crawley	3.1%	CUADRILLA	13	PEDL247
Crawley	20.2%	MAGELLAN	12	PEDL137
Crawley	74.8%	CELTIQUE	13	PEDL243
Crewe and Nantwich	0.3%	IGAS	9	PEDL040 Rest
Croydon Central	100.0%	NORTHDOWN	13	PEDL245
Croydon North	85.4%	NORTHDOWN	13	PEDL245
Croydon South	62.6%	NORTHDOWN	13	PEDL245
Cumbernauld, Kilsyth and Kirkintilloch East	69.8%	REACH	13	PEDL162
Cynon Valley	1.1%	UK GAS	9	PEDL014 Tower
Cynon Valley	1.7%	ADAMO	13	PEDL218
Dartford	5.0%	NORTHDOWN	13	PEDL245
Delyn	6.4%	IGAS	10	PEDL107
Delyn	18.0%	IGAS	13	PEDL184
Don Valley	0.0%	DART	12	PEDL140
Don Valley	0.5%	DART	0	EXL288 Area 3
Don Valley	1.7%	DART	0	EXL288 Area 2
Don Valley	2.5%	DART	13	PEDL173
Don Valley	4.9%	SCOTTISH	0	PL162 Area 2
Don Valley	5.5%	DART	13	PEDL174
Don Valley	11.4%	ALKANE	13	PEDL169
Don Valley	14.1%	SCOTTISH	0	PL161 Area 3
Don Valley	17.6%	ALKANE	9	PEDL043
Don Valley	21.9%	DART	12	PEDL139
Doncaster Central	4.1%	SCOTTISH	0	PL161 Area 3
Doncaster Central	4.9%	ALKANE	0	EXL288 Area 1 Trumfleet
Doncaster Central	52.9%	ALKANE	13	PEDL169
Doncaster North	0.0%	ALKANE	9	PEDL011
Doncaster North	0.0%	ALKANE	9	PEDL011
Doncaster North	0.1%	ALKANE	9	PEDL011
Doncaster North	0.1%	ALKANE	9	PEDL043
Doncaster North	0.3%	DART	0	EXL288 Area 3
Doncaster North	0.4%	ALKANE	9	PEDL011
Doncaster North	0.5%	ALKANE	13	PEDL169
Doncaster North	2.6%	DART	0	EXL288 Area 2
Doncaster North	3.2%	DART	0	EXL288 Area 1 Fenwick
Doncaster North	3.8%	DART	0	EXL288 Area 1 Rest
Doncaster North	3.9%	ALKANE	0	EXL288 Area 1 Trumfleet
Doncaster North	6.5%	DART	13	PEDL174
Doncaster North	6.9%	ALKANE	0	PL161 Area 2
Doncaster North	7.8%	DART	0	EXL288 Area 1 Rest
Dover	11.0%	COASTAL	13	PEDL250
Dover	20.1%	COASTAL	13	PEDL252
Dover	29.5%	COASTAL	13	PEDL251
Dover	34.6%	COASTAL	13	PEDL249
Dumfriesshire, Clydesdale and Tweeddale	2.4%	DART	12	PEDL159
Dunfermline and West Fife	20.7%	DART	9	PEDL133
Dunfermline and West Fife	30.7%	DART	13	PEDL163
East Dunbartonshire	35.2%	REACH	13	PEDL162
East Hampshire	0.5%	NORTHERN	11	PEDL126
East Hampshire	5.7%	HUMBLY GROVE GAS STORAGE	0	PL116
East Hampshire	51.9%	CELTIQUE	13	PEDL231
East Surrey	1.5%	CUADRILLA	0	EXL189 Lingfield
East Surrey	1.9%	NORTHDOWN	13	PEDL245
East Surrey	2.9%	CUADRILLA	0	EXL189 Cowden
East Surrey	4.4%	MAGELLAN	12	PEDL137
East Surrey	4.9%	IGAS	0	ML018
East Surrey	6.0%	CUADRILLA	13	PEDL247
East Surrey	7.2%	IGAS	0	ML021
East Surrey	12.5%	CUADRILLA	0	PL055
East Surrey	14.4%	IGAS	0	PL182
East Surrey	16.4%	MAGELLAN	13	PEDL246

Onshore licences located within parliamentary constituencies, by constituency, as at August 2013

Constituency	% of constituency covered by licence block	Licence Operator	Round awarded under	Licence AS
East Yorkshire	0.3%	CAYTHORPE	0	PL234
East Yorkshire	1.1%	VIKING	0	PL081
East Yorkshire	3.1%	RATHLIN	13	PEDL183
East Yorkshire	10.5%	DART	13	PEDL176
Eddisbury	0.0%	DART	13	PEDL187
Eddisbury	2.0%	IGAS	13	PEDL190
Eddisbury	5.6%	DART	13	PEDL185
Eddisbury	7.3%	DART	13	PEDL189
Eddisbury	11.1%	DART	13	PEDL188
Ellesmere Port and Neston	0.0%	ALKANE	13	PEDL191
Ellesmere Port and Neston	3.7%	DART	13	PEDL189
Ellesmere Port and Neston	39.2%	IGAS	13	PEDL190
Ellesmere Port and Neston	50.5%	IGAS	13	PEDL184
Elmet and Rothwell	0.0%	ALKANE	9	PEDL037 Wheldale
Elmet and Rothwell	0.1%	ALKANE	9	PEDL037 Newmarket
Elmet and Rothwell	0.4%	ALKANE	9	PEDL037 Ackworth
Epsom and Ewell	39.8%	NORTHDOWN	13	PEDL245
Erewash	19.4%	LOW	13	PEDL199
Falkirk	27.0%	REACH	13	PEDL162
Falkirk	53.4%	DART	9	PEDL133
Fareham	5.3%	NORTHERN	0	PEDL256
Folkestone and Hythe	3.6%	COASTAL	13	PEDL249
Fylde	8.7%	CUADRILLA	0	EXL269 Area 1
Fylde	18.1%	CUADRILLA	0	EXL269 Area 2
Fylde	71.8%	BOWLAND	13	PEDL165
Gainsborough	0.0%	IGAS	0	PL199 Area 1
Gainsborough	0.1%	IGAS	9	PEDL006 Area 1
Gainsborough	0.1%	EUROPA	12	PEDL150 Area 1
Gainsborough	0.2%	DART	12	PEDL140
Gainsborough	0.3%	EUROPA	13	PEDL180
Gainsborough	0.3%	IGAS	0	PL179 Area 1
Gainsborough	0.3%	EUROPA OIL & GAS (WEST FIRSBY) LTD	0	DL003
Gainsborough	0.6%	ALTAQUEST	0	DL005 Area 2
Gainsborough	0.7%	IGAS	0	AL009
Gainsborough	0.8%	CIRQUE	0	EXL294 Area 1 Eastern Part
Gainsborough	0.9%	COURAGE	0	EXL294 Area 1 Western Part
Gainsborough	0.9%	COURAGE	9	PEDL090 Area 2
Gainsborough	1.3%	IGAS	0	ML004 Area 2
Gainsborough	1.8%	SCOTTISH	0	PL162 Area 2
Gainsborough	2.9%	IGAS	0	ML004 Area 3
Gainsborough	5.0%	BLACKLAND PARK	13	PEDL209
Gainsborough	5.8%	EGDON	13	PEDL241
Gainsborough	5.9%	EGDON	13	PEDL253
Gainsborough	6.6%	DART	13	PEDL210
Gainsborough	7.7%	IGAS	9	PEDL006 Area 2
Gainsborough	8.5%	IGAS	0	PL179 Area 2
Gainsborough	8.7%	EUROPA	13	PEDL181
Garston and Halewood	31.8%	IGAS	10	PEDL116
Garston and Halewood	52.5%	ALKANE	13	PEDL191
Gedling	2.0%	ALKANE/NEWTON	13	PEDL254
Gedling	11.8%	LOW	13	PEDL199
Gedling	64.5%	ALKANE/NEWTON	13	PEDL255
Glasgow North East	0.2%	REACH	13	PEDL162
Glenrothes	3.4%	DART	13	PEDL161
Glenrothes	36.8%	DART	13	PEDL163
Gower	1.3%	ADAMO	13	PEDL212
Gower	4.5%	UK METHANE	13	PEDL214
Gower	24.7%	DART	13	PEDL211
Grantham and Stamford	5.0%	NEWTON	13	PEDL208
Great Grimsby	100.0%	EUROPA	13	PEDL181
Guildford	1.3%	EUROPA	12	PEDL143
Guildford	2.4%	CELTIQUE	13	PEDL243
Guildford	3.4%	IGAS	0	DL004
Guildford	25.2%	CELTIQUE	13	PEDL234

Onshore licences located within parliamentary constituencies, by constituency, as at August 2013

Constituency	% of constituency covered by licence	Licence Operator	Round	Licence AS
	block		awarded under	
Haltemprice and Howden	12.3%	DART	13	PEDL179
Haltemprice and Howden	18.4%	DART	13	PEDL176
Haltemprice and Howden	32.9%	RATHLIN	13	PEDL183
Halton	0.2%	IGAS	10	PEDL116
Halton	0.8%	IGAS	13	PEDL190
Halton	3.6%	IGAS	12	PEDL145 Area 3
Halton	22.8%	IGAS	12	PEDL145 Area 1
Halton	24.0%	BIOGAS	0	EXL276
Halton	34.8%	ALKANE	13	PEDL191
Havant	0.4%	IGAS	0	PL211
Havant	12.8%	NORTHERN	0	PEDL256
Havant	29.0%	NORTHERN	12	PEDL155
Hemsworth	0.0%	ALKANE	9	PEDL037 Monckton
Hemsworth	0.5%	ALKANE	9	PEDL011
Hemsworth	0.7%	ALKANE	9	PEDL037 Allerton Bywater
Hemsworth	0.7%	ALKANE	9	PEDL037 Nostell
Hemsworth	0.7%	ALKANE	9	PEDL037 Featherstone
Hemsworth	0.7%	ALKANE	9	PEDL037 South Kirby
Horsham	7.8%	CUADRILLA	13	PEDL244
Horsham	12.9%	CELTIQUE	13	PEDL234
Horsham	14.1%	CUADRILLA	13	PEDL247
Horsham	60.3%	CELTIQUE	13	PEDL243
Isle of Wight	1.8%	NORTHERN	13	PEDL240
Isle of Wight	43.1%	NWE	13	PEDL239
Kingston and Surbiton	27.0%	NORTHDOWN	13	PEDL245
Kingston upon Hull East	88.5%	RATHLIN	13	PEDL183
Kingston upon Hull North	100.0%	RATHLIN	13	PEDL183
Kingston upon Hull West and Hessle	78.5%	RATHLIN	13	PEDL183
Kingswood	9.6%	UK METHANE	13	PEDL228
Kirkcaldy and Cowdenbeath	56.9%	DART	13	PEDL163
Knowsley	1.8%	ALKANE	13	PEDL191
Knowsley	3.5%	IGAS	10	PEDL116
Lancaster and Fleetwood	23.1%	BOWLAND	13	PEDL165
Leigh	1.1%	ALKANE	9	PEDL039 West Leigh
Leigh	1.3%	ALKANE	0	EXL253 Golborne
Leigh	1.5%	ALKANE	9	PEDL039 Parsonage
Leigh	1.5%	ALKANE	9	PEDL039 Bickershaw
Leigh	1.6%	DART	0	EXL273
Leigh	53.4%	IGAS	13	PEDL193
Lewes	2.2%	CUADRILLA	13	PEDL247
Lewes	4.7%	CUADRILLA	13	PEDL244
Lewisham West and Penge	23.0%	NORTHDOWN	13	PEDL245
Lichfield	27.7%	IGAS	10	PEDL115
Lincoln	1.9%	COURAGE	0	EXL294 Area 1 Western Part
Lincoln	2.3%	IGAS	0	PL179 Area 2
Lincoln	6.2%	IGAS	0	PL199 Area 1
Lincoln	6.4%	EUROPA	12	PEDL150 Area 1
Lincoln	46.0%	DART	13	PEDL210
Linlithgow and East Falkirk	10.1%	DART	9	PEDL133
Linlithgow and East Falkirk	18.9%	REACH	13	PEDL162
Liverpool, Wavertree	16.9%	ALKANE	13	PEDL191
Llanelli	1.4%	DART	13	PEDL211
Loughborough	1.4%	IGAS	0	PL220 Area 2
Loughborough	17.3%	EGDON	13	PEDL201
Louth and Horncastle	0.7%	EUROPA	13	PEDL181
Louth and Horncastle	0.8%	EGDON	9	PEDL005 Keddington Gas
Louth and Horncastle	0.9%	EGDON	9	PEDL005 North Somercotes
Louth and Horncastle	2.1%	WINGAS	9	PEDL005 Saltfleetby Gas
Louth and Horncastle	8.5%	EGDON	13	PEDL253
Macclesfield	31.4%	CELTIQUE	13	PEDL197
Maidenhead	7.1%	FAIRFAX	13	PEDL236
Makerfield	0.5%	ALKANE	9	PEDL039 West Leigh
Makerfield	0.5%	IGAS	13	PEDL193
Mansfield	0.8%	ALKANE	9	PEDL001 Kings Mill
Mansfield	0.8%	ALKANE	9	PEDL001 Welbeck
Mansfield	1.3%	ALKANE	9	PEDL001 Sherwood
Mansfield	1.3%	ALKANE	9	PEDL001 Warsop
Mansfield	1.3%	ALKANE	9	PEDL001 Mansfield

Onshore licences located within parliamentary constituencies, by constituency, as at August 2013

Constituency	% of constituency covered by licence block	Licence Operator	Round awarded under	Licence AS
Meon Valley	0.9%	NORTHERN	12	PEDL155
Meon Valley	4.8%	IGAS	9	PEDL070
Meon Valley	5.9%	IGAS	0	PL211
Meon Valley	6.1%	NORTHERN	0	PEDL256
Meon Valley	9.8%	NORTHERN	11	PEDL126
Mid Derbyshire	3.2%	LOW	13	PEDL199
Mid Dorset and North Poole	5.7%	EGDON	0	PL090
Mid Dorset and North Poole	25.9%	NWE	13	PEDL238
Mid Dorset and North Poole	54.4%	PERENCO	0	PL089
Mid Sussex	0.4%	CELTIQUE	13	PEDL243
Mid Sussex	26.3%	CUADRILLA	13	PEDL247
Mid Sussex	45.1%	CUADRILLA	13	PEDL244
Middlesbrough	0.6%	EGDON	9	PEDL068 Kirkleatham
Middlesbrough South and East Cleveland	0.0%	EGDON	9	PEDL068 Kirkleatham
Mitcham and Morden	88.5%	NORTHDOWN	13	PEDL245
Mole Valley	1.9%	IGAS	0	DL004
Mole Valley	2.4%	KEY	9	PL235
Mole Valley	8.8%	CELTIQUE	13	PEDL243
Mole Valley	11.8%	MAGELLAN	12	PEDL137
Mole Valley	24.2%	EUROPA	12	PEDL143
Monmouth	0.8%	SONOREX	13	PEDL224
Morley and Outwood	1.2%	ALKANE	9	PEDL037 Newmarket
Motherwell and Wishaw	0.1%	REACH	13	PEDL162
Neath	2.7%	DART	13	PEDL211
Neath	6.3%	UK METHANE	0	PEDL149
Neath	14.2%	UK METHANE	13	PEDL215
Neath	33.2%	ADAMO	13	PEDL212
Neath	33.4%	UK METHANE	0	PEDL148
New Forest West	0.1%	NWE	13	PEDL239
New Forest West	5.8%	NWE	13	PEDL238
Newark	0.0%	BLACKLAND PARK	0	PL199 Area 2
Newark	0.0%	BLACKLAND PARK	0	PL215 Area 2
Newark	0.1%	COURAGE	0	EXL141 Area 3
Newark	0.2%	EGDON	11	PEDL130
Newark	0.3%	EGDON	10	PEDL118
Newark	0.4%	COURAGE	0	EXL141 Area 1
Newark	0.5%	EGDON	13	PEDL203
Newark	0.6%	ALKANE/NEWTON	13	PEDL254
Newark	0.9%	IGAS	0	ML006
Newark	1.1%	IGAS	9	PEDL006 Area 1
Newark	1.2%	ONSHORE	0	PL215 Area 1
Newark	1.2%	ALTAQUEST	0	DL005 Area 2
Newark	1.7%	IGAS	0	ML007
Newark	1.9%	NEWTON	13	PEDL208
Newark	2.9%	ALKANE	13	PEDL202
Newark	3.3%	COURAGE	9	PEDL090 Area 1
Newark	3.6%	DART	13	PEDL207
Newark	3.7%	IGAS	0	ML003
Newark	4.1%	NEWTON	13	PEDL204
Newark	4.3%	COURAGE	9	PEDL090 Area 2
Newark	5.6%	ALKANE/NEWTON	13	PEDL255
Newark	7.6%	EUROPA	12	PEDL150 Area 1
Newark	14.3%	EGDON	13	PEDL206
Newcastle-under-Lyme	2.7%	ALKANE	9	PEDL057
Newcastle-under-Lyme	7.6%	IGAS	9	PEDL056 Rest
Newcastle-under-Lyme	8.7%	ALKANE	9	PEDL040 Siverdale
Newcastle-under-Lyme	11.6%	IGAS	9	PEDL040 Rest
Newcastle-under-Lyme	33.0%	ALKANE	9	PEDL056 Silverdale
Newport East	17.5%	SONOREX	12	PEDL157
Newport East	43.8%	SONOREX	13	PEDL224
Newport West	6.6%	SONOREX	12	PEDL157
Normanton, Pontefract and Castleford	1.2%	ALKANE	9	PEDL037 Wheldale
Normanton, Pontefract and Castleford	1.2%	ALKANE	9	PEDL037 Prince of Wales
North Dorset	0.3%	NWE	13	PEDL238
North Dorset	3.0%	PERENCO	0	PL089

Onshore licences located within parliamentary constituencies, by constituency, as at August 2013

Constituency	% of constituency covered by licence block	Licence Operator	Round awarded under	Licence AS
North East Derbyshire	0.0%	C.E.	0	C.E.
North East Derbyshire	0.0%	ALKANE	0	PL213
North East Fife	11.8%	DART	13	PEDL161
		HUMBLY GROVE GAS STORAGE		
North East Hampshire	19.5%		0	PL116
North East Somerset	17.6%	UK METHANE	13	PEDL227
North East Somerset	22.4%	UK METHANE	13	PEDL226
North East Somerset	27.6%	UK METHANE	13	PEDL228
North Shropshire	0.3%	DART	13	PEDL186
North Shropshire	1.1%	IGAS	9	PEDL040 Rest
North Shropshire	1.5%	IGAS	9	PEDL078 Area 1
North Shropshire	9.8%	DART	13	PEDL185
North Somerset	22.8%	UK METHANE	13	PEDL226
North West Hampshire	6.6%	IGAS	9	PEDL021
Nottingham East	3.7%	ALKANE/NEWTON	13	PEDL255
Nottingham East	8.1%	ALKANE/NEWTON	13	PEDL254
Nottingham North	40.7%	LOW	13	PEDL199
Nottingham South	0.2%	LOW	13	PEDL199
Ochil and South Perthshire	4.0%	DART	13	PEDL163
Ochil and South Perthshire	5.3%	DART	9	PEDL133
Ogmore	0.0%	COASTAL	13	PEDL217
Ogmore	0.4%	COASTAL	13	PEDL219
Ogmore	0.5%	UK GAS	9	PEDL014 Wyndham
Ogmore	0.5%	UK GAS	9	PEDL014 Pontycymer
Ogmore	7.7%	COASTAL	13	PEDL220
Ogmore	13.5%	ADAMO	13	PEDL218
Ogmore	14.8%	UK METHANE	0	PEDL149
Ogmore	62.5%	ADAMO	9	PEDL100
Old Bexley and Sidcup	0.1%	NORTHDOWN	13	PEDL245
Orpington	79.6%	NORTHDOWN	13	PEDL245
Penrith and The Border	5.8%	DART	12	PEDL159
Pontypridd	0.1%	ADAMO	13	PEDL218
Pontypridd	1.4%	COASTAL	13	PEDL219
Pontypridd	3.0%	ADAMO	9	PEDL100
Pontypridd	61.7%	COASTAL	13	PEDL220
Poole	8.5%	PERENCO	0	PL089
Poole	23.5%	PERENCO	0	PL259
Poole	65.1%	NWE	13	PEDL238
Portsmouth North	18.5%	NORTHERN	0	PEDL256
Preston	100.0%	BOWLAND	13	PEDL165
Redcar	38.4%	EGDON	9	PEDL068 Kirkleatham
Reigate	0.1%	IGAS	0	ML021
Reigate	0.3%	MAGELLAN	13	PEDL246
Reigate	3.7%	NORTHDOWN	13	PEDL245
Reigate	31.7%	MAGELLAN	12	PEDL137
Rhondda	1.0%	COASTAL	13	PEDL220
Rhondda	2.0%	UK GAS	9	PEDL014 Cwmparc
Rhondda	59.9%	ADAMO	13	PEDL218
Ribble Valley	7.5%	BOWLAND	13	PEDL165
Richmond (Yorks)	0.1%	EGDON	9	PEDL068 Westerdale
Richmond Park	5.6%	NORTHDOWN	13	PEDL245
Romsey and Southampton North	2.5%	IGAS	0	DL002
Romsey and Southampton North	2.6%	IGAS	9	PEDL021
Romsey and Southampton North	3.4%	IGAS	0	PL233
Rother Valley	7.2%	ALKANE	9	PEDL043
Rother Valley	18.6%	DART	13	PEDL200
Runnymede and Weybridge	7.9%	FAIRFAX	13	PEDL236
Rushcliffe	2.3%	IGAS	0	PL220 Area 2
Rushcliffe	4.7%	ALKANE/NEWTON	13	PEDL255
Rushcliffe	9.6%	NEWTON	13	PEDL204
Rushcliffe	15.0%	EGDON	13	PEDL201
Rushcliffe	30.3%	ALKANE/NEWTON	13	PEDL254
Rutland and Melton	0.4%	IGAS	0	PL220 Area 1
Rutland and Melton	2.7%	EGDON	13	PEDL201
Rutland and Melton	3.7%	NEWTON	13	PEDL204
Rutland and Melton	3.9%	NEWTON	13	PEDL208
Salford and Eccles	19.7%	IGAS	13	PEDL193

Onshore licences located within parliamentary constituencies, by constituency, as at August 2013

Constituency	% of constituency covered by licence block	Licence Operator	Round awarded under	Licence AS
Scarborough and Whitby	3.7%	VIKING	0	PL077
Scarborough and Whitby	4.9%	MOORLAND	10	PEDL120
Scarborough and Whitby	5.2%	EGDON	9	PEDL068 Westerdale
Scunthorpe	0.4%	DART	0	PL162 Area 1
Scunthorpe	1.6%	EGDON	13	PEDL182
Scunthorpe	3.3%	EUROPA	0	DL001
Scunthorpe	3.8%	SCOTTISH	0	PL162 Area 2
Scunthorpe	5.9%	DART	13	PEDL178
Scunthorpe	11.5%	EGDON	13	PEDL241
Scunthorpe	16.0%	DART	13	PEDL173
Scunthorpe	41.9%	EUROPA	13	PEDL180
Sefton Central	1.2%	BOWLAND	13	PEDL165
Sefton Central	52.1%	EDP	13	PEDL164
Selby and Ainsty	0.1%	DART	13	PEDL176
Selby and Ainsty	0.1%	HARWORTH	0	EXL250 Stillingfleet
Selby and Ainsty	0.2%	DART	0	EXL288 Area 1 Fenwick
Selby and Ainsty	1.1%	DART	0	EXL288 Area 1 Rest
Selby and Ainsty	8.1%	DART	12	PEDL146
Sevenoaks	1.1%	MIDMAR	13	PEDL248
Sevenoaks	2.3%	CUADRILLA	13	PEDL247
Sevenoaks	6.9%	IGAS	0	PL182
Sevenoaks	41.2%	NORTHDOWN	13	PEDL245
Sherwood	0.0%	ONSHORE	0	PL215 Area 1
Sherwood	0.2%	IGAS	0	ML006
Sherwood	0.3%	ALKANE	9	PEDL001 Rufford
Sherwood	0.3%	ALKANE	9	PEDL001 Clipstone
Sherwood	2.2%	EGDON	13	PEDL203
Sherwood	2.8%	EGDON	10	PEDL118
Sherwood	6.9%	ALKANE/NEWTON	13	PEDL255
Sherwood	9.1%	LOW	13	PEDL199
Sherwood	14.2%	EGDON	11	PEDL130
Sherwood	20.9%	ALKANE	13	PEDL202
Sleaford and North Hykeham	0.0%	BLACKLAND PARK	0	PL215 Area 2
Sleaford and North Hykeham	0.2%	DART	13	PEDL210
Sleaford and North Hykeham	0.2%	COURAGE	0	EXL294 Area 1 Western Part
Sleaford and North Hykeham	0.4%	BLACKLAND PARK	0	PL199 Area 2
Sleaford and North Hykeham	0.4%	CIRQUE	0	EXL294 Area 1 Eastern Part
Sleaford and North Hykeham	4.6%	EUROPA	12	PEDL150 Area 1
Sleaford and North Hykeham	9.8%	NEWTON	13	PEDL208
Slough	31.0%	FAIRFAX	13	PEDL236
Somerton and Frome	3.8%	UK METHANE	13	PEDL227
Somerton and Frome	9.0%	FAIRFAX	13	PEDL225
South Dorset	0.1%	PERENCO	0	PL259
South Dorset	4.0%	PERENCO	0	ML005
South Dorset	6.7%	EGDON	13	PEDL237
South Dorset	37.7%	EGDON	0	PL090
South Dorset	44.8%	PERENCO	0	PL089
South Ribble	96.6%	BOWLAND	13	PEDL165
South Staffordshire	0.8%	DART	13	PEDL195
South Thanet	20.9%	COASTAL	13	PEDL252
South Thanet	29.4%	COASTAL	13	PEDL250
South West Surrey	0.0%	IGAS	0	DL004
South West Surrey	6.3%	CELTIQUE	13	PEDL234
South West Surrey	11.9%	CELTIQUE	13	PEDL231
South West Surrey	30.4%	IGAS	13	PEDL235
Southport	84.9%	BOWLAND	13	PEDL165
St Helens North	0.0%	ALKANE	0	EXL253 Hermitage Green
St Helens North	1.0%	ALKANE	0	EXL253 Parkside
St Helens North	1.6%	IGAS	13	PEDL193
St Helens North	13.6%	DART	0	EXL273
St Helens South and Whiston	3.3%	IGAS	12	PEDL145 Area 2
St Helens South and Whiston	7.7%	BIOGAS	0	EXL276
St Helens South and Whiston	9.9%	ALKANE	13	PEDL191
St Helens South and Whiston	27.6%	DART	0	EXL273

Onshore licences located within parliamentary constituencies, by constituency, as at August 2013

Constituency	% of constituency covered by licence block	Licence Operator	Round awarded under	Licence AS
Stafford	0.0%	DART	13	PEDL198
Stafford	0.1%	DART	13	PEDL196
Stafford	2.5%	IGAS	9	PEDL078 Area 2
Stafford	17.5%	DART	13	PEDL195
Stafford	41.5%	IGAS	10	PEDL115
Staffordshire Moorlands	0.6%	DART	0	AL010
Staffordshire Moorlands	0.6%	CELTIQUE	13	PEDL197
Staffordshire Moorlands	18.8%	SEVEN SEA	12	PEDL141
Stirling	2.8%	DART	9	PEDL133
Stockton North	3.9%	EGDON	9	PEDL068 Kirkleatham
Stoke-on-Trent Central	1.2%	DART	0	AL010
Stoke-on-Trent Central	5.0%	SEVEN SEA	12	PEDL141
Stoke-on-Trent Central	16.4%	ALKANE	9	PEDL057
Stoke-on-Trent North	5.2%	SEVEN SEA	12	PEDL141
Stoke-on-Trent South	41.2%	ALKANE	9	PEDL057
Stoke-on-Trent South	55.3%	DART	0	AL010
Stone	0.7%	ALKANE	9	PEDL057
Stone	0.8%	ALKANE	9	PEDL056 Silverdale
Stone	1.6%	ALKANE	9	PEDL040 Siverdale
Stone	1.7%	IGAS	9	PEDL078 Area 2
Stone	1.9%	IGAS	9	PEDL056 Rest
Stone	4.1%	IGAS	9	PEDL040 Rest
Stone	7.5%	DART	13	PEDL195
Stone	8.6%	DART	0	AL010
Stone	11.3%	DART	13	PEDL198
Stone	12.0%	DART	13	PEDL196
Stone	12.8%	IGAS	10	PEDL115
Stone	13.9%	IGAS	9	PEDL078 Area 1
Streatham	3.2%	NORTHDOWN	13	PEDL245
Stretford and Urmston	85.5%	IGAS	13	PEDL193
Sutton and Cheam	100.0%	NORTHDOWN	13	PEDL245
Swansea East	2.5%	ADAMO	13	PEDL212
Swansea East	7.0%	DART	13	PEDL211
Swansea East	10.2%	UK METHANE	13	PEDL215
Swansea East	79.8%	UK METHANE	13	PEDL214
Swansea West	86.1%	UK METHANE	13	PEDL214
Tamworth	4.9%	IGAS	10	PEDL115
Tatton	0.0%	IGAS	12	PEDL145 Area 1
Tatton	9.5%	IGAS	13	PEDL193
Tatton	11.7%	CELTIQUE	13	PEDL197
Telford	8.6%	IGAS	9	PEDL078 Area 2
The Wrekin	22.5%	IGAS	9	PEDL078 Area 2
Thirsk and Malton	0.2%	VIKING	0	DL005
Thirsk and Malton	0.4%	EGDON	9	PEDL068 Westerdale
Thirsk and Malton	0.8%	VIKING	0	PL080 Area 2
Thirsk and Malton	0.9%	VIKING	0	PL077
Thirsk and Malton	0.9%	VIKING	0	AL006
Thirsk and Malton	1.7%	VIKING	13	PEDL177
Thirsk and Malton	3.8%	VIKING	0	PL080 Area 1
Thirsk and Malton	4.3%	VIKING	0	PL079
Thirsk and Malton	4.7%	VIKING	0	PL081
Thirsk and Malton	5.4%	DART	12	PEDL146
Thirsk and Malton	9.2%	MOORLAND	10	PEDL120
Tonbridge and Malling	0.0%	CUADRILLA	0	EXL189 Lingfield
Tonbridge and Malling	0.9%	NORTHDOWN	13	PEDL245
Tonbridge and Malling	9.8%	CUADRILLA	13	PEDL247
Tonbridge and Malling	11.1%	CUADRILLA	0	EXL189 Cowden
Tonbridge and Malling	22.9%	MIDMAR	13	PEDL248
Tunbridge Wells	8.1%	CUADRILLA	13	PEDL247
Tunbridge Wells	11.3%	MIDMAR	13	PEDL248
Vale of Glamorgan	0.0%	COASTAL	13	PEDL220
Vale of Glamorgan	0.5%	ADAMO	9	PEDL100
Vale of Glamorgan	4.6%	COASTAL	13	PEDL216
Vale of Glamorgan	28.0%	COASTAL	13	PEDL217
Vale of Glamorgan	29.8%	COASTAL	13	PEDL219
Wallasey	8.8%	IGAS	13	PEDL184

Onshore licences located within parliamentary constituencies, by constituency, as at August 2013

Constituency	% of constituency covered by licence block	Licence Operator	Round awarded under	Licence AS
Warrington North	0.1%	IGAS	12	PEDL145 Area 2
Warrington North	0.2%	ALKANE	0	EXL253 Parkside
Warrington North	1.0%	ALKANE	0	EXL253 Hermitage Green
Warrington North	17.8%	DART	0	EXL273
Warrington North	78.7%	IGAS	13	PEDL193
Warrington South	1.3%	BIOGAS	0	EXL276
Warrington South	1.7%	DART	0	EXL273
Warrington South	12.4%	IGAS	12	PEDL145 Area 1
Warrington South	20.8%	IGAS	12	PEDL145 Area 2
Warrington South	57.6%	IGAS	13	PEDL193
Wealden	0.1%	MIDMAR	13	PEDL248
Wealden	0.6%	CUADRILLA	13	PEDL244
Wealden	60.2%	CUADRILLA	13	PEDL247
Weaver Vale	0.2%	IGAS	13	PEDL193
Weaver Vale	0.5%	ALKANE	13	PEDL191
Weaver Vale	10.7%	IGAS	13	PEDL190
Weaver Vale	15.0%	IGAS	12	PEDL145 Area 1
Wells	9.9%	UK METHANE	13	PEDL227
Wells	10.3%	UK METHANE	13	PEDL226
Wells	19.8%	FAIRFAX	13	PEDL225
Wentworth and Dearne	0.6%	ALKANE	9	PEDL043
Wentworth and Dearne	1.1%	ALKANE	9	PEDL011
Wentworth and Dearne	1.1%	ALKANE	9	PEDL011
West Dorset	4.2%	EGDON	0	PL090
West Dorset	7.9%	EGDON	13	PEDL237
West Lancashire	18.1%	EDP	13	PEDL164
West Lancashire	41.9%	BOWLAND	13	PEDL165
Weston-Super-Mare	2.6%	UK METHANE	13	PEDL226
Wigan	18.0%	BOWLAND	13	PEDL165
Wimbledon	44.9%	NORTHDOWN	13	PEDL245
Winchester	0.1%	IGAS	0	DL002
Winchester	4.8%	IGAS	0	PL249
Winchester	5.1%	IGAS	9	PEDL070
Winchester	13.7%	IGAS	0	PL233
Windsor	43.8%	FAIRFAX	13	PEDL236
Wirral South	43.7%	IGAS	13	PEDL184
Wirral West	60.5%	IGAS	13	PEDL184
Worsley and Eccles South	64.2%	IGAS	13	PEDL193
Wrexham	0.0%	DART	12	PEDL147
Wrexham	4.7%	DART	13	PEDL185
Wrexham	9.7%	DART	13	PEDL188
Wrexham	10.7%	DART	13	PEDL186
Wrexham	17.9%	BIOGAS	0	EXL203
Wrexham	57.0%	DART	13	PEDL187
Wyre and Preston North	1.3%	CUADRILLA	0	EXL269 Area 1
Wyre and Preston North	98.1%	BOWLAND	13	PEDL165
Wythenshawe and Sale East	15.2%	IGAS	13	PEDL193
York Central	55.2%	DART	12	PEDL146
York Outer	1.2%	DART	13	PEDL176
York Outer	31.9%	DART	12	PEDL146

Sources:

Ordnance Survey. Boundary-Line.

Department of Energy & Climate Change. Onshore licences.

About the Library

The House of Commons Library research service provides MPs and their staff with the impartial briefing and evidence base they need to do their work in scrutinising Government, proposing legislation, and supporting constituents.

As well as providing MPs with a confidential service we publish open briefing papers, which are available on the Parliament website.

Every effort is made to ensure that the information contained in these publically available research briefings is correct at the time of publication. Readers should be aware however that briefings are not necessarily updated or otherwise amended to reflect subsequent changes.

If you have any comments on our briefings please email papers@parliament.uk. Authors are available to discuss the content of this briefing only with Members and their staff.

If you have any general questions about the work of the House of Commons you can email hcinfo@parliament.uk.

Disclaimer

This information is provided to Members of Parliament in support of their parliamentary duties. It is a general briefing only and should not be relied on as a substitute for specific advice. The House of Commons or the author(s) shall not be liable for any errors or omissions, or for any loss or damage of any kind arising from its use, and may remove, vary or amend any information at any time without prior notice.

The House of Commons accepts no responsibility for any references or links to, or the content of, information maintained by third parties. This information is provided subject to the [conditions of the Open Parliament Licence](#).