

## Round 14 Explained

The UK has a long, safe and successful history of conventional oil and gas production, both onshore and offshore, with the first commercial onshore production in 1851. The industry has been present in local areas for decades without disruption to the environment or the local communities and it has proven to be well-regulated, safe and beneficial for the economy.

Today's announcement on the 14<sup>th</sup> Round, gives applicants the ability to explore for oil or gas in 10km by 10km land blocks. What it doesn't do is give those applicants the right to drill – this can only be achieved once approvals have been given by four separate regulators which can take at least 9 months to achieve.

Any drilling proposals are subject to a rigorous, evidence-based approach across the Environment Agency, Health and Safety Executive, local councils, the Oil and Gas Authority and the Department of Energy and Climate Change.

The industry has already drilled more than 2000 wells onshore and about 10% have used fracking techniques primarily for conventional oil and gas. A significant number of these sites exist or co-exist within areas of outstanding natural beauty, nature reserves and sites of special scientific interest (SSSI) as well as next to a RSPB reserve and in the South Downs and the North York Moors National Parks.

Today the onshore UK industry has approximately 250 operating wells on over 100 sites producing over 8 million barrels of oil equivalent a year. This is enough to fuel 1.1 million family cars or heat 950,000 homes.

Nationally, gas is used to produce around 30% of our electricity and heat more than 4 out of 5 homes. It is also used for cooking in 3 out of 5 homes.

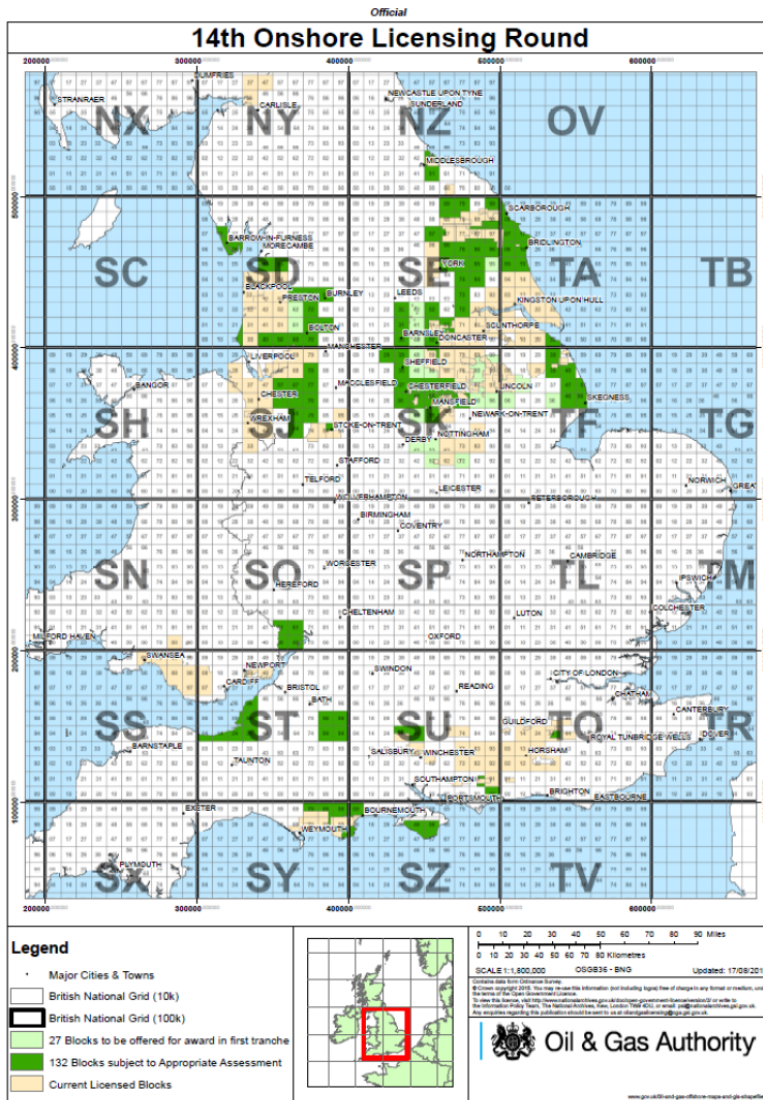
Oil and gas is also used in both industrial processes and manufacturing processes that make items that we use every day, such as cosmetics, computers, medicines and clothing. The chemical industry alone sustains over 500,000 jobs.

### 1. Where are these new areas?

The Government has announced 159 new blocks under 93 new licences. This compares to the current total of 137 licences and 370 blocks from the previous 13 licensing rounds over the past decades.

The new licences can be found in the areas where we know there are hydrocarbons and are shown dark and light green on the map below.

The new licences tend to be in similar areas (coloured yellow) to existing licences and sites where we already have operating wells.



**2. Does this mean you will be fracking near me?**

It is important to note not all onshore oil and gas sites will involve high volume fracking.

The need for fracking is determined by the geology. Fracking is a technique that has been used in the oil and gas industry for over 50 years, both onshore in the UK and in the North Sea as well as in other countries. Fracking is a technique used to retrieve the oil or gas when it is contained within rocks with very low porosity and permeability. Typically these rocks are more than a mile underground.

We already know that a number of the blocks announced involve work programmes that will not involve high volume fracking.

The UK already has substantial onshore conventional oil and gas fields such as Wytch Farm in Dorset, which is the largest producing onshore oil field in Western Europe.

Applicants will make clear when they first start public consultation what their plans are for the area and will explain in depth the techniques they will use.

**3. How will this announcement today meet our commitments under COP21?**

The COP 21 Summit in Paris has set the World on a path to decarbonisation and eventually much lower usage of Oil and Gas in decades to come. The UK will as in the rest of the world still be consuming significant, but declining, amounts of oil and gas in this period.

The Paris Agreement has set some very welcome but demanding challenges to ensure we minimise the impact of climate change. Meeting these targets will require a balance of a number of different technologies, in particular home-grown affordable and reliable sources of oil and gas in order to transition to a low carbon economy.

The first imperative must be to replace coal generation with gas fired generation and renewable energy. Global forecasts prior to COP 21 showed that use of coal was set to rise - this needs to be arrested and this can only be quickly achieved with a significant role for gas. As the Intergovernmental Panel on Climate Change stated, greenhouse gas emissions globally can be “reduced significantly” by replacing existing coal-fired power stations with new gas-fired plants. The US has shown the way on this, cutting CO2 emissions by 12% between 2005 and 2012 through largely replacing coal generation with gas.

Gas is vital – not only for heating furnaces and powering complex machinery but also as raw materials used directly in everyday products including medicines, clothing, computers, mobile phones, fertilisers, furniture and furnishings, cosmetics and toiletries, cleaning products, and plastics. In addition 84% of British homes are heated by gas as well as producing in excess of 30% of our electricity.

Oil currently fuels almost all our transport and while alternative technologies are moving forward rapidly, oil will still be an indispensable part of the energy mix for the foreseeable future.

Gas can also support other technologies. We need gas to recycle glass, provide components for the solar and wind industry and, until Energy Storage is widespread and affordable, to ensure back-up electricity is available when the wind isn’t blowing and the sun isn’t shining.

To sustain and invest in our UK businesses and generate good quality jobs and growth in a sustainable way, it is important that we all recognise the need for a secure, affordable and – crucially – British source of gas and oil.

#### **4. Why are you doing this?**

Onshore oil and gas development has been taking place in this country for many decades and is being treated as a national priority by Government.

Today about 30% of our electricity, over 80% of our heating needs, almost all our transport energy and many thousands of products come directly from either gas or oil. In the last 15 years the UK has gone from being self-sufficient in both oil and gas to becoming very dependent on foreign imports. This position is set to get worse over the next 15 years without the expansion of onshore oil and gas in the UK and will have a detrimental impact on the economy and the environment.

Developing oil and gas onshore in the UK can replace imported energy with British energy, create well-paid jobs and generate tax revenues. It will also benefit the environment, as oil and gas is produced to higher environmental standards in Britain, and it takes a lot of energy to transport gas across oceans and continents. Gas is also the cleanest fossil fuel, producing less than half the emissions of coal, which is being phased out.

Gas is also essential to efforts to improve sustainability, for example providing back-up electricity when the wind isn't blowing and providing the heat for glass recycling furnaces.

## **5. Isn't oil and gas exploration running counter to the need for renewables and reducing the risks of climate change**

Onshore oil and gas should not be seen as a direct competitor to renewable energy.

They perform different functions in the energy system, with renewables providing electricity; gas providing heat and back-up electricity; and oil and gas supplying manufacturing feedstock to create many of the products we use today, such as clothes, medicines and cosmetics. Britain consumes 1.5 million barrels of oil per day: 70% of it is used as fuel for transport, 30% of it is used as petrochemical feedstock and almost none of it is used for electricity generation. In the US, we have seen wind and solar generation as well as shale gas production grow quickly. Texas is the state with the highest shale gas production, and the most wind generation. Between 2005 and 2013 electricity generation from wind increased by 678% in the 18 shale gas producing states, making up almost 60% of the total wind generation in the US. Gas and renewables can work together to replace coal and lower emissions.

Globally, the International Energy Agency's 450 scenario, which sees global emissions kept to levels that avoid more than 2 degrees of warming, envisages gas use rising by 15% by 2040. Together with growth in renewables and nuclear, this ensures that coal use is dramatically reduced.

## **6. Why haven't I seen any public notices on this?**

The licencing Round has been organised by the Oil and Gas Authority (OGA) on behalf of the UK Government. Oil and gas onshore, as in the UK's part of the North Sea, is owned by the Crown.

In July 2014, the OGA asked for expressions of interest for specific areas of the country known to have hydrocarbons (both shale and non-shale) within them. Applicants were asked to provide information on their relevant experience, financial capability and their specific plans for each area they were considering.

What has happened today, is that after considering the applications and completing an assessment under the Conservation of Habitats and Species Regulations 2010 (which was subject to public consultation) the OGA has announced 159 new blocks under what is called Petroleum Exploration and Development Licences (PEDLs). This includes the 27 blocks announced earlier this year.

The licences do not give any applicant permission to drill.

After assessing the area licence holders will have to apply to the local council's mineral planning authority for planning permission, the Environment Agency for environmental permits, seek permission from the Health and Safety Executive for well designs and obtain final consent to drill from the OGA before any drilling can take place.

The local planning and environmental permit consent processes both contain substantial requirements for public consultation. In addition all UKOOG members exploring for shale have

agreed to abide by the [UKOOG community engagement charter](#) which requires members to consult with local communities prior to any planning application being submitted.

## **7. How big are these blocks and what happens next?**

A “block” is an area of land, typically 10km x 10km.

When applying for a block the applicant will have outlined their potential work program to the OGA.

Work programs typically consist of a low impact geophysical surface survey which the applicant will use to progress their technical understanding of the area prior to making any decisions about where to drill. In some instances the applicant may decide not to drill and after a period of time may relinquish the block and return it to OGA.

Once the applicant has decided on the best location to drill they will then start public consultations and the process of applying for planning permission and environmental permitting consent, usually for a small number of exploration wells. This process can take up to nine months.

The typical size of a drill site is up to 2 hectares or about two football pitches. The first exploration wells are used to determine the exact geology in the area and may also be used to ascertain the flow of oil or gas. These wells usually take a matter of months to drill and are temporary.

After exploration wells have been drilled, an operator may then decide after a further period of assessment to drill appraisal wells again from a drill site typically 2 to 3 hectares in size, or they may decide to proceed to produce commercial quantities of gas or oil over a longer period of time.

These further wells and any subsequent work are all subject again to the planning and environmental permitting process and open consultation with local communities.

## **8. Where can I get more information about the Work Programme?**

Each applicant submitted a work programme in October 2014 for consideration by the Oil and Gas Authority. The OGA will have considered this work programme in light of the applicant’s financial and operational capability.

Each work programme submitted can be seen on the OGA’s website. Work programmes may be subject to change in light of the Habitats review and consultation undertaken earlier this year.

## **9. What are the timescales involved?**

The timescales will vary substantially across each block depending on the work program submitted.

As a general rule geophysical surveys will take a couple of months to complete across a large portion of the area, but at a very local level will be completed typically in a day or two. There will then be a period of some months to assess the data collected.

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Exploration wells typically take 2 to 6 months to drill and flow test while full commercial sites will take 6 months to 2 years to complete, however after the drilling is complete these sites will typically be small and discrete with minimal activity.

### **10. How much disruption will there be?**

Geophysical surveys take a matter of days to complete in a local area. The construction of a drill site – like all construction sites – will involve a certain amount of disruption for a short period. Typically disruption will be caused by truck movements bringing equipment to and from the site and noise from the drilling equipment. For sites where hydraulic fracturing is used, there will be further truck movements and noise from the hydraulic fracturing stage.

Each developer will outline their plans including traffic movements in their planning applications which will be subject to public consultation.

Planning rules make clear that planning authorities should ensure that unavoidable noise is controlled, mitigated or removed. Applications are subject to a maximum of 55dB, measured from the edge of the well site. To put this in perspective, a normal conversation is the equivalent of 60-65dB at about 3 feet away. In addition, mineral planning authorities will put in lower evening and nighttime limits.

The local authorities work with the developers, as they would with any construction site, to control working hours. The desired working hours for a drilling rig in pre-production phases are 24h a day. This is in order to maintain down-hole borehole conditions to speed up the process as much as possible and reduce the time drilling rigs are onsite. The fracking process normally only occurs during the daytime.

Operators work hard to limit the disruption that their operations may cause to their neighbours, and will consult with the local community when building development plans.

### **11. What will I see?**

Initially nothing will change and all plans will be outlined to you by the applicant through community consultation.

During early surveying work you may see a few trucks for very short periods of up to a few days. When an early exploration well is drilled there will be some trucks moving to and from site. The most obvious visual sign of activity will be the drill rig, however this will only be on site for a very limited amount of time.

Once the drilling has been completed you are unlikely to see anything at all.

### **12. How do you choose the specific sites?**

The actual location of a site depends on a number of factors including the geology – i.e. where the oil or gas is – access to land and water, transport connections, and connections to the national grid.

Developers will always communicate with the local communities ahead of applying for planning permission to allow a proper discussion of the options.

### **13. Is what you are doing dangerous or harmful?**

The onshore oil and gas industry is highly regulated. The Environment Agency regulates the impacts on air, soil and water; the Health and Safety Executive regulates the design and construction of the well; and the local mineral planning authority regulates the local impacts such as noise, transport and landscape impacts. All of this is overseen by the Oil and Gas Authority and The Department of Energy and Climate Change which give the consent to drill and frack if appropriate.

With respect to shale and fracking the industry has been reviewed by The Royal Society and Academy of Engineering, Public Health England, the Chartered Institution of Water & Environmental Management and an independent scientific panel for the Scottish Government. All of these reports have concluded that the risks are low and can be managed in a properly regulated industry.

Prior to submitting planning applications for new sites, assessments of potential effects on the environment and any neighbours are undertaken to understand what level these impacts could be and how changes and modifications can be made to ensure they are minimised as much as possible.

As part of these assessments baseline monitoring of the existing environment is undertaken, so that if planning permission is granted, regulators can check that there are no operational issues arising that are causing any long term impacts. The baseline monitoring also provides a benchmark as to how the site should be restored.

Applicants aim to work with the local community as part of the site development process, listening and responding to concerns before proposals are finalised and if planning permission is granted, continuing that community engagement through local liaison groups.

### **14. I have seen all these scare stories on the internet about fracking. Are they true?**

Most claims on the internet are concerned about a correlation between water pollution and shale gas production. For example some people will have seen the footage which showed a resident of Colorado striking a match as water came out of his tap; the natural gas dissolved in the water burst into flame.

The water was tested by the Colorado Department of Natural Resources, which reported to the resident: "There are no indications of any oil and gas related impacts to your well water."

The agency concluded that the natural gas in his water supply was derived from natural sources—the water well penetrated several coal beds that had released the methane into the well. This phenomenon has been well known in that part of the US for many decades.

This example highlights what a number of experts in the UK have said about being cautious of translating experiences from other countries to the UK, where the regulation of both the oil and gas industry and the water industry are very different and much stricter.

The Environment Agency, which regulates onshore oil and gas extraction in England, has investigated the likelihood of groundwater contamination with respect to shale production in detail and judged that the environmental risks at each individual stage of exploratory shale gas operation, after proper management and regulation, are "low".

According to a joint Royal Society and Royal Academy of Engineering report, the risk of water contamination is very low provided that shale gas extraction takes place at depths of many hundreds of metres or several kilometres – which would be the case in the UK.

The Chartered Institution of Water and Environmental Management (CIWEM) also agree that risks to groundwater quality are generally considered to be low in the UK where the shale rock in question often exists at considerable depths below aquifers and gas would be required to migrate many hundreds of metres between source rock and sensitive groundwater.

Concerns about pollution of the groundwater are largely based on reports of past practice in the US. The regulatory position in the UK is very clear: operators are required to fully disclose all chemicals used to the Environment Agency under the **Environmental Permitting Regulations 2010** (as amended). This is part of a suite of up to eight environmental permits operators have to apply for, connected to 17 separate EU directives. The general public are also invited to consult on the permit applications. None of this is the case in the US.

Well pads are required to have secondary containment to prevent spills and leaks entering groundwater. Regulators do not permit use of hazardous chemicals, which must be assessed on a case by case basis via the JAGDAG assessment methodology (examines persistency, bioaccumulation and toxicity). Chemicals used pose a very low risk to groundwater in the UK as they will only be permitted by the environmental regulator if determined as non-hazardous to groundwater.

### **15. Will this impact my health?**

For shale gas applications involving fracking, public health issues are reviewed as part of the environmental impact assessment process, in consultation with Directors of Public Health. This process ensures that any potential risk pathways are identified and designed out, to manage potential hazards so that they do not present a significant risk to the environment or human health.

None of the potential hazards are exclusive to the onshore oil and gas industry.

A hazard by itself does not constitute a risk; it is only when there is a source of hazard and a receptor (i.e. a person or population), connected by a pathway to exposure, that there is any potential for risk.

As an example, there has been concern about the contamination of drinking water from fracturing fluids via groundwater. However, in the UK, chemicals in fracturing fluids have to be approved by the Environment Agency as non-hazardous to ground water; a separation distance of impermeable rock between the ground water and the oil and gas formation will typically be significant; the groundwater in question might not be drinkable (high salt content) and the well cannot be drilled within a ground water protection zone 1. In this instance, concern may therefore amount to a risk that doesn't exist (because the fluids are non-hazardous) and there is no pathway through impermeable rock.

In addition the wells location, design and integrity, as regulated by the Health and Safety Executive, are then further applied to minimise the risk to ground water. Site design standards and robust waste management practices are followed to manage the risk of surface water contamination, thereby further decoupling the pathway linkage.



In addition to regulation and design, environmental monitoring to test and validate the protection of the environment is also undertaken under environmental permits regulated by the Environment Agency.

### **16. Will this affect my house price or insurance?**

We have drilled over 2000 wells in the UK over the last 30 to 40 years and there is no evidence linking house price falls to onshore oil and gas activity.

In terms of fracking a number of people have asked us about household insurance, in particular in relation to earth tremors.

Most seismic activity related to shale gas is very rare and is rarely above magnitude 1.5 which is at a level that does not cause damage and cannot be physically felt.

We have asked the Association of British Insurers for their view. They say that there is, at present, little evidence of a link between shale gas and property damage, and they are not aware of any claims where seismic activity as a result of fracking has been cited as a cause of damage.

Damage as a result of earthquakes, subsidence, heave and landslip are all covered, in general, under buildings insurance. Insurers will continue to monitor the situation for the potential for fracking, or similar explorations, to cause damage.

### **17. How will I benefit?**

In addition to the national benefits of producing our own energy rather than relying on other countries to provide it for us, the industry has announced a comprehensive community benefits scheme. With respect to shale gas that involves fracking the industry has announced a for each exploration site the local community will be given £100,000 and for every commercial production site 1% of the revenues which could mean between £5 and £10 million going to the community fund.

The schemes are being piloted in various sites around the country at present.

More widely the industry estimates that we could create up to 64,000 jobs in the first 15 years, many of which will be locally based. In order to ensure we have the right people we are investing in a new National College for onshore oil and gas which will have bases in Glasgow, Blackpool, Chester, Portsmouth and Teeside. This college will train a new generation of skilled engineers and technicians to maintain the UK's position as a global talent hub for oil and gas development.

### **18. Where can I get more information**

There are a number of places you can find more information. The UKOOG website ([www.ukoog.org.uk](http://www.ukoog.org.uk)) has a of information about the industry in the UK, and is complemented by a shale specific website ([www.talkaboutshale.com](http://www.talkaboutshale.com)), which has over 700 questions asked by the general public with answers from independent experts.

Information about individual work programmes can be found on the Oil and Gas Authority website ([www.gov.uk/government/organisations/oil-and-gas-authority](http://www.gov.uk/government/organisations/oil-and-gas-authority)).

Individual applicants will also have their websites and will be making announcements in due course at a local level.