On-shore oil and gas development in Hampshire

Conventional (oil and gas) and unconventional (shale oil and gas)

Frequently Asked Questions (FAQs)

October 2014 (FAQ - Version 13)

This document has been prepared by Hampshire County Council (HCC). The purpose of this document is to address FAQs associated with conventional and unconventional on-shore oil and gas in Hampshire. The FAQ considers the following issues:

- 'What is conventional and unconventional oil and gas and how is it exploited?'
- 'Who owns the mineral rights for oil or gas?'
- 'Concerns raised about potential impacts on the environment, community and economy'
- 'Where does the UK's oil and gas come from?'
- 'Why are oil and gas important?'
- 'What are the uses and potential benefits of oil and gas?'
- 'Exploration, appraisal and production of oil and gas'
- 'Current planning policy and guidance for oil and gas'
- 'Oil and gas licensing'
- 'Planning process for oil and gas development'
- 'Other regulatory agencies and consents for oil and gas development'
- 'Other organisations with an interest in oil and gas development'
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- 'Current unconventional oil and gas (shale) extraction in the United Kingdom'
- 'Current on-shore oil and gas activity in Hampshire'
- 'Is there potential for unconventional oil or gas in Hampshire?'
- 'How will local communities be kept informed of the operation of oil and gas sites if planning permission is granted?'
- 'Monitoring of oil and gas development and enforcement'
- 'How will an oil or gas site be restored?'
- 'What work are the Hampshire Authorities doing on oil and gas?'
- 'Where can I find out more information?'

It is important to note that planning policy for minerals development in Hampshire (including oil and gas) is prepared by HCC alongside other partner Minerals Planning Authorities in Hampshire.
What is conventional and unconventional oil and gas and how is it exploited?

1) What is conventional oil and gas?

‘Conventional’ onshore oil and gas refers to oil and gas resources (also known as ‘hydrocarbons’) which are situated in relatively porous sandstone or limestone rock formations. The source rocks of these oil and gas reservoirs are usually underlying shale (see question 4).

Conventional oil and gas resources can be found on-shore as well as off-shore (e.g. the North Sea).

The oil and gas industry is well established in the United Kingdom, having focused historically on exploiting onshore and offshore conventional oil and gas.

Conventional oil and gas exploration and production is not a new activity in Hampshire with conventional oil and gas exploration and production taking place in a number of areas (see question 36).

Conventional onshore oil and gas extraction does not include the extraction of shale oil or gas (see question 2).
2) What is unconventional oil and gas?

Oil and gas produced from shale is often referred to as ‘unconventional’ and refers to the type of rock in which it is found.

In short, ‘unconventional oil and gas’ is from unconventional sources. It is found where oil and gas has become trapped within the shale rock itself and did not form traditional conventional reservoirs.

Geologists have known for years that substantial deposits of oil and natural gas are trapped in deep shale formations. These rock formations have previously been considered too impermeable (‘tight’) to allow for economic recovery. However, technological advancements over the last decade have made the potential to extract shale oil or gas potentially more economically viable. As a result, unconventional oil and gas is emerging as a form of energy supply and the Government's position is that there is a pressing need to establish (through exploratory drilling) whether or not there are sufficient recoverable quantities of unconventional oil and gas present to facilitate economically viable full scale production. The level of resource which can be viably extracted is still largely unknown. Exploratory development will allow for a better understanding of the nature of unconventional resources.

This type of hydrocarbon is typically found at far greater depths than conventional oil and gas resources.

In Hampshire, unconventional oil and gas relates only to the potential for shale oil and gas. Other unconventional resources such as coal bed methane will not be found in the County due to its geology.

Shale oil

Shale oil is unconventional oil produced from oil shale rock fragments through the use of processes such as pyrolysis, hydrogenation or thermal dissolution. These processes convert the organic matter within the rock into synthetic oil or gas. The resulting oil can be used immediately as a fuel or upgraded to meet refinery feedstock specifications and can be used for the same purposes as those derived from crude oil.

Unconventional oil is extracted using techniques different to those used than the conventional (oil well) method.

The potential for the extraction of shale oil in Hampshire and indeed in the wider south east of England has recently been investigated by the British Geological Survey (BGS) (see question 37).

Shale gas

Unconventional gas relates to shale gas, coal bed methane and underground coal gasification. Only shale gas is relevant to Hampshire as the County does not have the geology to support other unconventional resources. Shale gas, as the name suggests, is found within organic-rich shale beds.

Shale gas is produced directly from the layered source rock which makes it different to conventional extraction which is extracted from reservoirs (see question 1). Shale gas is mostly comprised of methane.
Shale gas is found far deeper in the ground than conventional oil and gas reservoirs and therefore requires deeper wells and, in some cases, lateral well extensions into the shale (see diagram under question 4).

It is uncertain whether Hampshire has any potential for shale gas (see question 42) at this stage.

3) **What is underground gas storage?**

Natural gas, like many other commodities can be stored for an indefinite period of time in gas storage facilities for later consumption. It is commonly held in an inventory underground, under pressure, for example in depleted reservoirs at oil and gas fields. Underground storage provides greater and deeper storage options than storage on the surface.

Depleted reservoirs are capable of holding injected natural gas. The use of reservoirs also allows for the re-use, with modification, of the extraction and distribution infrastructure remaining at productive oil and gas fields.

Gas storage has an economic importance. It is seen as a way of managing gas supply, particularly during periods of peak demand and as a stand by for interruptions in the import of gas which the United Kingdom relies on to meet its demand for this resource (see question 7).

Underground gas storage takes place at one of Hampshire’s oil fields (see question 42).

4) **What are the differences between conventional and unconventional onshore oil and gas?**

The following diagram illustrates the differences between onshore conventional and unconventional oil and gas activity.

![Diagram of Extraction of conventional and unconventional oil and gas](image_url)

The key outward differences between conventional and unconventional oil and gas is flow rate and the depth of drilling. Drilling into a conventional resource would normally result in at least some flow of oil and gas immediately. An unconventional accumulation has to be stimulated in some way before it will even begin to flow e.g. through ‘fracking' (see question 6) and other processes. Drilling for unconventional resources also takes place at a much deeper depth than it does for conventional resources.
All oil and gas development takes place in phases which may differ between conventional and unconventional oil and gas activity (see question 18).

5) **How is oil and gas exploited?**

Conventional extraction methods generally involve drilling a borehole down to porous rock where oil or gas has formed in a reservoir (see diagram under question 4).

For *conventional production*, if the site is going to be vertically drilled, a hole will be drilled straight into the ground. Once the borehole has been drilled, the drill will be removed and replaced with a steel pipe (‘surface casing’). Cement will then be pumped into the casing and then back up between the casing and the wall of the borehole, creating the impermeable protective barrier between the borehole and the surrounding land. The borehole will then be tested to ensure that it is impermeable before any drilling takes place. Typically, depending on the geology of the area and the depth of the well, extra casing sections are put in and then cemented in place to ensure that there can be no movement of fluids or gas between those layers and the groundwater sources. The production phase will then begin as the oil and gas will be able to flow from the well bore and the fracturing fluid can be recovered.

The oil and gas resources are then pumped out of the ground using beam pumps (‘nodding donkeys’) or electric pumps.

For *unconventional production* where horizontal drilling takes place, a well is drilled vertically to the right depth called the ‘kick off point’, and at this point, the well bore begins curving to become horizontal. What makes drilling for hydrocarbons in a shale formation unique is that it is necessary to drill horizontally. Horizontal drilling means that it is possible to drill several laterals from only one point on the surface (surface drilling pad). When the target distance is reached, the drill pipe will be removed and more steel casing will be inserted through the full length of the well bore and the casing is cemented in place. Once the drilling is finished and the final casing is installed, the drilling rig will be removed and preparations will be made for the next steps, well completion and testing. The exploration phase for unconventional developments is likely to see the drilling of a number of small diameter vertical wells, of around six inches in diameter will be drilled and fractured to determine if shale resources are present and are suitable for extraction.

The first step in completing a well is to create a connection between the final casing and the rock which is holding the oil and gas. A special tool, called a perforating gun, is lowered to the rock layer. This perforating gun is then fired, creating holes through the casing and the cement and into the targeted rock. These perforating holes connect the rock holding the oil and gas and the well bore.

Since these perforations are only a few inches long and are performed more than a mile underground, no activity will be detectable on the surface. The perforation gun is then removed before hydraulic fracturing (see question 6), if this is required. The production phase will then begin as the oil and gas will be able to flow from the well bore and the fracturing fluid can be recovered.
Accessing shale resources requires the use of established oil and gas techniques. These include:

- **Vertical drilling**: used to reach the required depth below the surface;
- **Horizontal drilling**: used to maximise the amount of shale available for hydraulic fracturing; and
- **Hydraulic fracturing (‘fracking’)**: used to maximise the amount of resources that can be extracted.

Whilst none of these techniques are new, technological advances have allowed for increased control and accuracy during drilling allowing for shale exploitation.

The United Kingdom Onshore Operators Group provides more information on the drilling process.¹

6) **What is hydraulic fracturing (‘fracking’)??**

As shale is less permeable (or easily penetrated by liquids or gases), it requires a lot more effort to extract the hydrocarbons from the rock. However, recent technological advancements have resulted in horizontal drilling which has made tapping into shale deposits more financially viable.

Hydraulic fracturing or ‘fracking’, is a technique used in the extraction of oil or gas from ‘shale’ rock formations by injecting water at high pressure (see question 2). The technique uses fluid, usually water, which is pumped at high pressure into the rock to create narrow fractures.

‘Fracking’ is a method used to stimulate the oil or gas either to begin or continue flowing. This does not mean it has become an unconventional well as the nature of the hydrocarbon accumulation has not changed.

The wells are cased with steel tubes along the horizontal section of the well are perforated. Once the fractures have been created, other materials such as sand are pumped into them to keep the fractures open, allowing the resources to be extracted.

The water used in the ‘fracking’ process normally contains small quantities of other substances to improve the efficiency of the process (see question 10). All chemical used in the ‘fracking’ process require pre approval from the Environment Agency (see question 11).

With regards to gas, once gas has been allowed to migrate into a well, it displaces the water forcing some of it back up the well to the surface. This is known as ‘flow back’ fluid.

The following diagram summarises the unconventional resource extraction process.

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¹ UKOOG information on drilling (2013): [www.ukoog.org.uk/onshore-extraction/drilling-process](http://www.ukoog.org.uk/onshore-extraction/drilling-process)

Like conventional oil and gas development, unconventional development will take place in phases (see question 18).

'Fracking' will only occur for a limited period as part of an oil or gas development. Typically a horizontal well would be ‘fracked’ for a few days to a few weeks. Hydraulic fracturing is only required to release the resources from the rock formations so they can be extracted (i.e. not at all stages of the development). The fractures achieved create paths for the oil or gas to flow into the wellbore up to the surface.

The United Kingdom has a history of ‘fracking’ for conventional oil and gas developments (see question 40). It has been used to help extraction by improving flow rates.

Planning practice guidance for onshore oil and gas issued by the Department of Communities and Local Government in 2013 provides more detailed definitions of ‘fracking’\(^3\). In addition, the British Geological Survey (BGS) and the Department of Energy and Climate Change (DECC) also provide further information on the ‘fracking’ process\(^4\)\(^5\).

The United Kingdom Onshore Operators Group (UKOOG) website includes more information on the drilling process\(^6\).

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\(^4\) BGS: [www.bgs.ac.uk/research/energy/shaleGas/basics.html](http://www.bgs.ac.uk/research/energy/shaleGas/basics.html)


Why are oil and gas important to the United Kingdom?

7) Why are oil and gas important?

Oil and gas (also known as 'hydrocarbons') are primary sources of energy. They play a central role in the economy of the United Kingdom (UK). However, oil and gas are both finite natural resources which are being depleted through our energy requirements. The whole of Hampshire requires oil or gas in one way or another, largely due to its use in a large number of everyday products (see question 17). Accordingly, there is a national and local need to sustainably secure oil and gas resources and to support sustainable growth of the economy.

Conventional onshore oil and gas developments are not new activities in Hampshire (see question 42).

Unconventional oil and gas (such as shale) is emerging as a form of energy supply nationally but is not an activity which currently takes place in Hampshire (see question 44). The Government believes shale oil and gas has the potential to provide the UK with greater energy security, growth and jobs.

Increasing demands for oil and gas and the need for national energy security, has led to oil and gas companies seeking to employ new techniques to extract the oil or gas resources from the ground. One such technique is hydraulic fracturing or 'fracking' (see question 6).

Who owns the mineral rights for oil or gas?

8) Who owns the mineral rights for oil and gas?

A landowner does not own the right to conventional or unconventional oil and gas resources which may lie beneath their landholdings. The Petroleum Act 1998\(^7\) vests all rights and ownership of hydrocarbon resources to the Crown. These rights are administered by the Secretary of State for Energy and Climate Change (the Department of Energy and Climate Change - DECC) on behalf of the Crown (see question 32).

Concerns raised about potential impacts on the environment, community and economy

9) What are the main concerns being raised about unconventional oil or gas extraction and associated ‘fracking' in Hampshire?

‘Fracking' for unconventional oil and gas is a process which has come under intense environmental scrutiny in the United Kingdom in recent years. The main environmental concerns related to unconventional shale oil or gas extraction being raised by interested parties in Hampshire include:

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- water quantities, potential impact on water resources and water supply (see question 10);
- chemical usage (see question 11);
- potential seismic impacts (see question 12);
- waste disposal (see question 13);
- impact on climate change (see question 14);
- the effectiveness of the planning and regulatory systems to deal with proposals (see questions 27 – 34); and
- how other environmental and amenity concerns (such as HGV movements, noise, impact on designated sites, restoration and aftercare will be addressed (see questions 27 and 49).

The Oil and Gas Development in Hampshire Event in June 2014 highlighted many of these concerns (see question 50).

10) Will oil and gas development impact water resources and how will water resources be protected?

It is important that any oil or gas development (conventional or unconventional) does not have a significant impact on water resources, particularly when these feed into local water supplies. Water resources and potential impacts on local water availability are therefore very important considerations in the planning process, even though this issue is also covered under other regulatory regimes.

Aquifers are very important as they help to provide us with the water we need. Freshwater aquifers are at shallow depths (typically within 100 metres of the ground surface). The British Geological Survey (BGS) have mapped the principle aquifers in the UK\(^8\). Oil and gas resources (whether conventional or unconventional) will lie thousands of metres below aquifers. The BGS has recently published information on aquifers and shales in the United Kingdom\(^9\) (see question 37).

Aquifers are protected during oil and gas by the use of triple cemented casing. This means that the risk of water contamination associated with oil and gas development is low provided operations follow industry standards and obey the necessary regulations. In relation to ‘fracking’, evidence shows that this process will take place at a depth sufficiently distant from groundwater to ensure that the risk of fractures extending into aquifers is considered to be negligible. Extraction therefore would take place well below the aquifers.

For any oil or gas development which has 'fracking' associated with it, water is an essential part of the process as it is injected, at pressure, into the shale rock to help with the gas extraction process (see question 6). Water use is greatest at the production stage as part of the 'fracking' process.

The water required for oil and gas development may be obtained from the local mains water supply (subject to agreement from the relevant utilities company) or taken ('abstracted') from surface or groundwater (if permitted by the EA).

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\(^8\) BGS mapping of principle aquifers: [www.bgs.ac.uk/research/groundwater/shaleGas/aquifersAndShales/maps/aquifers/home.html](http://www.bgs.ac.uk/research/groundwater/shaleGas/aquifersAndShales/maps/aquifers/home.html)

\(^9\) BGS work on aquifers and shale (2014): [www.bgs.ac.uk/aquifers-shales](http://www.bgs.ac.uk/aquifers-shales)
As a result, the ‘fracking’ process is likely to use significant volumes of water, though the Government considers the amount is not exceptional compared with other industrial or leisure activities. Cuadrilla are the only company to have hydraulically fractured for shale gas in the UK to date and in this instance water from a local water utility company was used (see question 40).

In relation to shale gas, a report was prepared by the Royal Society and Royal Academy of Engineering (RSRAE) on the scientific and engineering evidence relating to the technical aspects of the risks associated with ‘fracking’.

**Consideration through the planning process in Hampshire**

The National Planning Policy Framework sets out the basis for minerals policy in the United Kingdom (see question 23). Locally, the adopted Hampshire Minerals & Waste Plan (2013) includes a policy (Policy 10: Protecting health, safety and amenity) which considers the protection of water resources (see question 26).

**Consideration through the regulatory process**

The Environment Agency (EA) protects water resources as part of its role as an environmental regulator (see question 33). Where risks to the environment are significant (for example where development is proposed contrary to the EA Groundwater Protection policy and guidance), the EA are likely to object to any planning application for the construction and operation of individual wells.

**Water supply**

When proposing a site, developers must ensure that there is sufficient water and infrastructure for their operations.

Water companies will assess the amount of water available before agreeing to supply an operator. If the operator applies for a licence to extract water, it will be granted by the EA only where a sustainable water supply is available.

Before any gas or oil operation starts in the UK, operators must submit details of their plans to the EA for assessment of risks and the acceptability of issuing permits. If proposals are considered to have a potential to contaminate groundwater (either directly or indirectly), the EA may find the risk to the environment unacceptable and would not grant a permit.

A permit may be issued if the risk can be limited by, for example, the design of the well, monitoring or limiting the concentration of chemicals.

The UK regulatory regime already ensures that hazardous substances are not be allowed to enter groundwater.

In the UK, the regulations prevent flowback fluid contaminating water sources by requiring the operator to:

- make appropriate plans for storing fluid safely and not in open pits;
- design the site so spills are avoided (and are contained if they do happen); and
- to dispose of flowback fluid safely.

The operator must obtain an Environmental Permit for the disposal of flowback fluid from the EA and have an agreed Waste Management Plan in place.

Once a 'frack' has taken place, the production (extraction) of oil or gas commences. Significant amounts of water are then no longer required as the 'frack' has been completed to facilitate the 'fracking' process. The volume of water required will depend on each individual site and the nature of the processes which are to be undertaken.

There is an opportunity to reduce the overall water consumption associated with oil and gas developments by recycling and re-using the flowback water in certain instances.

11) **What chemicals are used in 'fracking' in the United Kingdom (UK)?**

The chemicals used in 'fracking' fluids have to be assessed by the Environment Agency (EA). The operator has to demonstrate that any chemicals are not hazardous in their application to the EA.

Only one company in the UK has so far carried out 'fracking' for shale gas (see question 40) as part of an exploratory phase of development. In this instance, 99.75% of the shale gas fracking fluid was made up of water and sand. Beyond that, a very limited number of other chemicals are used, all of which have to be approved for use by the EA and publicised.

For all future unconventional oil and gas activities (subject to appropriate protection for commercial sensitivity), the Department of Energy and Climate Change (DECC) has decided that operators should disclose\(^{11}\) the chemical constituents of fracturing fluids and additives on a well-by-well basis, along with a brief description of their purpose and any hazards they may pose to the environment.

The EA holds powers for the disclosure of chemicals used in the 'fracking' process\(^{12}\) (see question 33).

Some fluids used as part of the 'fracking' process will return to the surface (flowback).

Any excess liquid would be contained and if necessary removed for treatment at an appropriate facility (see question 13). The subsequent disposal of any chemicals or waste water used is therefore important to ensure there is no risk of contamination to land or groundwater. This is also regulated by the EA.

12) **Does shale oil or gas extraction and associated 'fracking' cause subsidence or seismic activity and if so how will this be prevented?**

The potential for unconventional gas development to cause subsidence has been raised as a concern. Globally, there are no documented cases of fracturing operations causing subsidence large enough to cause damage at the surface. Subsidence can happen when rock is compressed and collapses in on itself. But shale rock is not easily compressed, so subsidence is unlikely. Unlike coal mining, shale oil or gas production does not remove large quantities of rock from underground which can cause subsidence.

It is also important to note that no explosives are used in 'fracking' operations.

\(^{11}\) Disclosure of information either on operators own websites or on third-party developed websites

\(^{12}\) Powers held through the Water Resources Act 1991 and the Environmental Permitting Regulations 2010
Another environmental concern relating to ‘fracking’ is its potential to result in seismic activity. As with subsidence, there are no documented cases of global shale gas operations (at any phase of development) causing tremors large enough to cause damage to infrastructure on the surface or injury. This includes the small (2.2 magnitude) earth tremor which occurred near Blackpool in April 2011 (see question 40).

This tremor led to the Government’s Chief Scientific Advisor commissioning the Royal Society and Royal Academy of Engineering (RSRAE) carrying out an independent review of the scientific and engineering evidence relating to the technical aspects of the risks associated with ‘fracking’13 (see question 15). This report considered the issue of subsidence and seismic activity.

Investigations were subsequently completed and concluded that the seismic events may have been caused by the unconventional gas extraction activities nearby. As a result, a series of safeguards were recommended to prevent a similar situation occurring in the future. In December 2012, the DECC announced that exploratory hydraulic fracturing (‘fracking’) for shale gas could resume, subject to new controls to mitigate the risks of seismic activity14. The DECC also concluded that 'appropriate controls are available to mitigate the risks of seismic activity'.

The new safeguards are required by the DECC for all 'fracking' operations. The DECC will also ensure that appropriate monitoring and control arrangements are in place to regulate seismic activity caused by 'fracking' and agreed, before consent is granted (see question 32). Operators will also be required to:

- have procedures in place to monitor, report and mitigate seismic activity;
- undertake a prior assessment of the geological risks including the location of known faults;
- submit a Hydraulic Fracturing Plan (HFP) (‘Fracking Plan’) to the DECC, including documenting information at all stages of the development; and
- undertake detailed risk assessments which are required as part of the DECC frack consent. This will also describe the control and mitigation measures for fracture containment and for any potential induced seismicity.

Where ‘fracking’ takes place, 'real time' seismic monitoring will be used to operate a 'traffic-light' warning protocol15 under which operations will be halted and pressures immediately reduced if a seismic event of magnitude greater than 0.5 is detected.

This magnitude is well below the energy level that could be felt at the surface, and the protocol would enable a review of the possible causes of the event and allow further steps to be taken to prevent the occurrence of larger events.


13) How will any waste generated through oil and gas development be managed?

It is likely that each stage of oil and gas development will generate some form of waste which will require management or disposal. Waste generated may include:

- drill cuttings from drilling activities; and
- flowback water.
Some of the wastes generate, such as drill cuttings will require disposal (e.g. to landfill).

Flowback water will be collected and contained on-site in close tanks on site. This water will then need to be discharged to the sewer system or transported to a waste water treatment works for treatment. Flowback water associated with both conventional and unconventional developments may contain Naturally Occurring Radioactive Materials (NORM) at low levels. Procedures for the management of NORM are well established in the United Kingdom. These will include pre-treatment prior to conventional water treatments.

14) Will oil and gas development cause emissions and will it impact the climate change and the renewable energy agenda?

As there is a long history of conventional oil and gas development in the United Kingdom (UK), the carbon footprint associated with the impacts of the practice is more known. However, the potential carbon footprint of unconventional oil and gas development is not yet known due to the limited activity in this area to date.

**Climate change and emissions**

Concerns have been raised that oil and gas development does and will continue to contribute towards climate change, in particular through the generation of Greenhouse Gases (GHG). GHG are associated with emissions (methane) released during the extraction process and the carbon footprint when gas in particular is used for electricity production. The Government has indicated that it is essential to develop as clear a picture as possible about the environmental impact of all fossil fuels including conventional and unconventional oil and gas through further research.

David McKay and Tim Stone published a report in 2013 on potential greenhouse gas emissions associated with shale gas extraction and use. The report assesses the potential GHG emissions from the production of shale gas in the UK and the compatibility of such emissions with the UK’s legislated climate change targets.

The report demonstrates that GHG emissions from shale gas extraction is likely to be less than emissions from coal, Liquefied Natural Gas and Non EU piped gas. The report set out eight recommendations which are as follows:

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1. managing fugitive, vented or flared methane throughout the exploration, preproduction and production of shale gas;
2. careful monitoring and inspection of GHG emissions relating to all aspects of exploration, pre-production and production for shale gas;
3. monitoring of sites to ensure early warning of unexpected leakages and to obtain emissions estimates for regulators and government;
4. research into development of more effective extraction techniques associated with shale gas production;
5. the Government and industry should actively pursue new techniques to minimise GHG emissions associated with exploration, pre-production and production of shale gas and also reduce the impact on local environment and infrastructure;
6. the shale gas industry should research methods to minimise water demand and vehicle movements, so as to reduce greenhouse gas emissions and the impact on local infrastructure;
7. there should be a detailed scientific research programme of methane measurement; and
8. this research programme should be independent and managed jointly between Government and industry.

In April 2014, the Government published its response to this report\(^\text{17}\). This recommended full acceptance of the report’s eight recommendations.

The Government believes that the production of shale gas is likely to be able to help the UK meet its carbon reduction targets by providing a ‘bridge’ to a low-carbon future and as we move away from the use of oil and coal. Further data to inform future assessments is expected to emerge from studies presently being conducted.

Any emissions of methane from unconventional oil and gas operations, including leakage, will need to be taken into account in the UK’s GHG inventory and count towards UK carbon budgets and international commitments on emissions reduction.

The Hampshire Authorities have prepared a FAQ on minerals development and climate change. This is available to view on the HCC website\(^\text{18}\).

It is important to note that a lot of the currently available data on emissions is based on research undertaken in the United States where the developments and regulatory controls are very different to those in the UK.

**Regulation through planning permission and permitting**

In the UK, all oil and gas operators must minimise the release of gases as a condition of their licence from the Department of Energy and Climate Change (DECC).

Planning permissions and associated permits and consents for oil and gas developments may require monitoring or the imposition of further limits on emissions.

In particular, any planning application would be required to minimise the release of emissions to the atmosphere, in accordance with the policies and provisions of the adopted Hampshire Minerals & Waste Plan (2013) (see question 26).

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\(^\text{18}\) Hampshire County Council County Planning webpages – FAQs: [www.hants.gov.uk/minerals-waste-faq.htm](www.hants.gov.uk/minerals-waste-faq.htm)
Ultimately, emissions from oil and gas development will be determined by the design and planning conditions associated with each particular development.

Hampshire County Council as Minerals Planning Authority visit all permitted oil and gas sites to ensure the operator complies with the conditions attached to their planning permission within its administrative boundary (see question 47).

Operators must also monitor air quality and share their results to the relevant environmental regulator (the Environment Agency in England) or, when appropriate, to the Health and Safety Executive (HSE). Operators must be able to show that their activities, including flaring during exploration, have not led to air pollution at levels higher than those set out in their environmental permits.

Operators must also submit a Waste Management Plan to the EA (see question 33). In it, operators will state what waste gases they expect and how they will minimise them. The EA may carry out spot-check monitoring and unannounced inspections depending on the risk to the environment posed by a site.

When it can’t be economically used, natural gas must be ‘flared’ to reduce its GHG emissions. In the UK, natural gas may only be ‘vented’ (released into the air) when necessary for safety.

**Gas and renewable energy**

Another concern often raised is that the development of the unconventional oil and gas industry will undermine the renewable energy agenda in the UK. The Government has stated its commitment to meeting its legally binding target to cut emissions by at least 80% by 2050 and its renewable energy target by 2020. The Government has, and continues to, strongly support the roll-out of low carbon energy across the UK and considers the need for a diverse energy mix including renewables, nuclear and gas. It has also made it clear that they will not allow shale production to compromise the focus on boosting renewables, nuclear and other low carbon technologies and will instead be used to support them. However, it is also clear that as the UK moves towards the greater use of renewables, there will still be a need for gas in the shorter term. Unconventional gas production would, in the first instance, replace declining offshore gas production. Beyond that point, use of gas could displace use of coal and oils, with a positive effect on GHG reduction.

The Government considers gas to be the cleanest fossil fuel, and one which is part of the answer to climate change, as a bridge to a green future, especially during the move away from the use of coal. It hopes that shale gas will become a significant part of the future energy mix for the UK. This will be in a way that is compatible with legally binding climate change targets. Therefore, it is anticipated that gas generation will continue to play a major role in the UKs electricity provision over the coming decades, alongside low-carbon technologies.

Hampshire County Council has an Energy Strategy in place which sets out the response that the County Council will be taking to minimise the energy risks of security of supply, affordability and carbon emissions, and to take advantage of the opportunities to support the development of a low carbon economy in Hampshire.

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15) **Is the extraction of shale oil or gas safe?**

Oil and gas operations in the United Kingdom (UK), as with other industrial activities, are regulated under a number of different stringent regimes.

All oil and gas development in Hampshire will require planning permission when issues of safety and subsequent monitoring (see questions 27 and 45) will be addressed.

All operators must comply with a comprehensive set of health and safety regulations on well design, construction, operation and monitoring to minimise the risk of leaks. Like all oil and gas operations, drilling must be done in accordance with best industry practice and standards established by the industry body, the UK Onshore Operators Group, in consultation with the Department of Energy and Climate Change (DECC), the Environment Agency (EA) and Health and Safety Executive (HSE).

The DECC have issued documentation on safety and design21 (see question 32).

The EA has published a number of guidance documents and regulations it refers to which have been designed to reduce risks to people and the environment to a level that is as low as reasonably practical (see question 33).

The HSE also monitors all phases of oil and gas operations from a safety perspective (see question 34).

Public Health England (PHE) have investigated potential public health impacts of exposures to chemical and radioactive pollutants as a result of shale gas extraction and have concluded that based on current evidence, that the potential risks to public health in the vicinity of shale gas extraction sites are low if shale gas extraction is properly run and regulated22 (see question 35).

The Government's Chief Scientific Advisor commissioned the Royal Society and Royal Academy of Engineering (RSRAE) to carry out an independent review of the scientific and engineering evidence relating to the technical aspects of the risks associated with 'fracking' in the United Kingdom (UK)23. The main conclusion of the RSRAE report was that the risks associated with ‘fracking’ for shale gas can and could be managed effectively in the UK provided that operational best practices are implemented and enforced through regulation. The findings have been accepted by the Government and included:

- the health, safety and environmental risks can be managed effectively in the UK;
- fracture propagation is an unlikely cause of contamination;
- well integrity is the highest priority;
- robust monitoring is vital;
- an Environmental Risk Assessment (ERA) should be mandatory (see question 32);
- seismic risks are low;
- water requirements can be managed sustainably;
- regulation must be fit for purpose; and
- policy-making would benefit from further research.

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22 Potential public health impacts of exposures to chemical and radioactive pollutants as a result of shale gas extraction (PHE, 2014): www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1317141035385
Where does the UK’s oil and gas come from?

16) Where does the United Kingdom (UK) get the oil and gas it needs from?

The UK's production of conventional oil and gas from onshore and offshore fields helps to meet the demand for oil and gas. The extraction of the UK's oil resources is important to meeting the UK's demand for oil. In 2012, it was estimated that onshore and offshore resources accounted for 3,348,852.4 tonnes (67,775,095 tonnes from onshore and 3,281,077,471 tonnes from offshore)24. The UK also relies on imports of oil. These largely come from Norway, Russia and Algeria25.

Like with oil, the extraction of the UK's natural gas resources is important to meeting the UK's demand for gas. The production of conventional natural gas in the UK has been declining in the last few decades as reserves deplete, particular in the North Sea. As a result, evidence is showing that the UK is becoming increasingly reliant on imports of gas to meet its energy needs. Imports of gas via pipeline connections with Europe as well as seaborne deliveries of liquefied natural gas (LNG) now account for more than half of the UK's natural gas supply26.

What are the uses and potential benefits of oil and gas?

17) What are the potential uses and benefits of extracting conventional and unconventional oil and gas?

The oil and gas industry is well established in the United Kingdom (UK), having focused historically on exploiting conventional onshore and offshore (e.g. the North Sea) oil and gas resources.

Oil and gas provide the energy source or raw material to make a wide range of products used in modern life. Oil is refined to produce petroleum for use as a transport fuel, whilst natural gas can be used as an energy source for electricity.

Both oil and gas can also be used for domestic heating (e.g. heating houses, buildings and water) and are important fuels for industry. Oil is also used to make other by-products such as:

- medicines;
- DIY items (such as paints);
- toiletries and cosmetics (e.g. as shampoo, toothpaste, contact lenses, soaps, shaving foam, lipstick);
- textiles and clothing;
- household items (e.g. as washing powder and cleaning products);
- vehicle maintenance (e.g. as coolant, antifreeze);
- packaging;
- bottles;
- plastics;
- tyres;
- rubber;
- asphalt (e.g. for roads surfacing); and
- industrial materials (e.g. as adhesives, solvents, pipes, cleaners).

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Shale oil can be used immediately following its extraction as a fuel or upgraded to meet refinery feedstock specifications. The refined products can be used for the same purposes as those derived from crude oil.

Natural gas is also the raw material for plastics.

The Government believes that shale gas extraction could provide an opportunity to extract further gas resources in the UK, rather than relying on imports. As a result it considered to be a promising new potential energy resource that could contribute significantly to the UK’s energy security (security of supply) and economy (see question 14).

It is important to note that the likely future interest in exploration and production of oil and gas is highly dependent on our energy requirements, the price of oil and gas and getting the necessary consents such as planning permission (see question 27) and Environmental Permits (see question 33).

Production of unconventional gas could help to reduce UK’s energy prices. This has been the case in the United States (US) where unconventional gas extraction has helped to reduce the price of gas. However, the actual impacts on energy prices in the UK is not currently known as the industry is still emerging. It is also important to note that the energy market is quite different in the US than in Europe.

The economic benefits of oil and gas development can be seen at both a local and national level. The local economic impact is considered to be significant in supporting local services, associated businesses and direct employment. The potential for providing a local supply of resources, rather than relying on imports, will also have economic benefits. Proponents of shale oil and gas extraction point to the economic benefits from the extraction of large amounts of formerly inaccessible oil and gas resources.

**Exploration, appraisal and production of oil and gas**

18) **What are the phases of onshore oil and gas activity?**

Oil and gas development, like other mineral uses, is a temporary land use, although it can often take place over a long period of time. What an oil or gas site looks like will be different depending on each site (see question 19).

Some initial seismic work may be considered to be permitted development (does not require planning permission)^27^.

There are three phases of onshore oil and gas development (conventional and unconventional):

- exploration;
- appraisal (testing); and
- production.

The nature of the oil and gas exploration, appraisal and processing operations are very different from other mineral workings (such as sand and gravel extraction) and are significantly less intrusive in terms of their limited land-take. They can also be more flexible in their locational requirements.

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^27^ Part 2 of Schedule 22 to the Town and Country Planning (General Permitted development) Order 1995
Exploratory, appraisal or production phase of oil and gas development can only take place in areas where the Department of Energy and Climate Change (DECC) have issued a licence under the Petroleum Act 1998 (Petroleum Licence) (see question 20).

Planning permission is required for each phase of oil and gas development from the relevant Hampshire Minerals Planning Authority (MPA) (Hampshire County Council, Portsmouth and Southampton City Councils or the New Forest or South Downs National Park Authorities) (see questions 27 and 28). Planning applications should be submitted to the relevant MPA depending on its location and which administrative boundary the proposal falls within.

A summary of what each phase involves for conventional and unconventional resources is highlighted below (Source - Hampshire County Council, 2014).
<table>
<thead>
<tr>
<th>Purpose of the phase</th>
<th>Exploration</th>
<th>Appraisal</th>
<th>Production</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conventional</strong></td>
<td>This phase seeks to acquire geological data to establish whether oil or gas resources are present.</td>
<td>Phase will take place following exploration when the existence of oil or gas has been proven, but the operator needs further information about the extent of the deposit or its production characteristics to establish whether resources are economically viable for exploitation.</td>
<td>The phase will take place once commerciality of the resource has been determined through the exploratory and/or appraisal stage.</td>
</tr>
<tr>
<td><strong>Unconventional</strong></td>
<td>Data collected at this stage will form the basis for the 'appraisal' stage.</td>
<td>The phase may allow an operator further time to appraise or flow test the well before making any further commercial decision about potential production.</td>
<td></td>
</tr>
<tr>
<td><strong>What the phase involves</strong></td>
<td>This stage may involve seismic surveys and exploratory drilling.</td>
<td>The phase can take several forms including additional seismic work, longer-term flow tests, or the drilling of further wells.</td>
<td>Any additional sites following exploration, will be selected by taking account of what they have discovered at previous phases, as well as the ability to access the resource will also and seeking to minimise or avoid any adverse environmental and amenity issues.</td>
</tr>
<tr>
<td></td>
<td>Extraction involves drilling a borehole to the reservoirs where oil or gas is located.</td>
<td>May involve 'fracking' followed by flow testing to establish the level of the resource and its potential productivity.</td>
<td>The decommissioning and restoration of the site at the end of the development is also important.</td>
</tr>
<tr>
<td></td>
<td>Exploration</td>
<td>Appraisal</td>
<td>Production</td>
</tr>
<tr>
<td>-------------------------</td>
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<tr>
<td></td>
<td>Conventional</td>
<td>Unconventional</td>
<td>Conventional</td>
</tr>
<tr>
<td><strong>What the phase involves (cont)</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
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<tr>
<td><strong>Well design</strong></td>
<td>The wells are designed to log and take samples of rock ('core') in order to acquire the geological data.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Length of development</strong></td>
<td>Exploration drilling is a short term, but an intensive activity. The length of this phase will complete this stage will depend on the work required as well as planning permissions/associated consents granted.</td>
<td>The length of time to complete this stage will depend on the size and complexity of the oil or gas reservoir involved as well as the planning permissions/associated consents granted.</td>
<td>It is estimated the production life of an oil or gas field can be up to 20 years, possibly more (depending on the resource).</td>
</tr>
</tbody>
</table>
## FAQ - Onshore oil and gas (conventional and unconventional) development in Hampshire – October 2014 (v13)

<table>
<thead>
<tr>
<th>Length of development (cont)</th>
<th>Exploration</th>
<th>Appraisal</th>
<th>Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site construction, drilling and site clearance takes between 3 to 6 months</td>
<td>Exploratory drilling for unconventional oil or gas may take longer than conventional drilling, especially if there is going to 'fracking'</td>
<td>Surface operations typically tend to last 4 to 6 months, with on-site activity diminishing as the longer term flow testing is undertaken</td>
<td>The length of the production stage will depend on the nature of the resource and the planning permissions /associated consents granted</td>
</tr>
<tr>
<td>Community benefits</td>
<td>£100,000 of community benefits will be provided per well site where 'fracking' takes place (see question 34)</td>
<td></td>
<td>1% of revenues at the production stage will be paid to local communities (see question 39)</td>
</tr>
</tbody>
</table>
On completion of drilling operations, a well may be suspended to allow for future testing. If it is concluded that there is no commercially viable oil or gas resources present or if the extraction of resources has been completed, then the well will be abandoned, in accordance with the latest Oil and Gas United Kingdom Standards\(^{28}\).

Once the decision has been made to abandon a well, it will be made safe and the site infrastructure will be removed. The site will then be restored to its former condition or to enhanced or a more beneficial after use. A period of aftercare will commence following restoration to ensure that the land returns to a state that is the same or better than it was prior to operations commencing (see question 41). It is important to note that decommissioning and restoration could take place within any of the three stages set out in the above table.

### 19) What does an oil or gas site look like?

What an oil or gas site looks like on the ground will depend on its location, its design and the type and phase of development taking place (see question 18). The location of a site will be determined by the results of geological and seismic surveys which will determine where viable oil or gas deposits may be located. These will be used as a guide to determine potential locations of sites.

Preventing a site involves ensuring that it can be properly accessed and that the area where the equipment will be placed has been properly graded.

Drilling pads, roads and any other associated infrastructure will be built and maintained.

The site constructed will be large enough to accommodate the drilling equipment and onsite water storage requirements, staff facilities, parking and space for vehicle deliveries and movements.

The well will be situated on a pad and will normally consist of a vertical well and potentially a small number of lateral extensions.

The site will normally be vacated after the exploration stage.

The appraisal phase may involve additional drilling at another site away from the exploration site or additional wells at the original exploration site.

A rig will be on site for the duration of the exploratory phase. It will also be used to drill any further boreholes which may be required within the appraisal and production stages.

For both types of development, the production phase is likely to require a larger well pad than for previous stages. Production pads may be different sizes from location to location, depending on the specific geology and surface location.

The level and number of HGV movements associated with a site will vary depending on the phase of the development and whether the site is a conventional or unconventional oil or gas site.

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Typically, sites will contain a number of vertical wells and associated underground laterals on a site, which would be about two hectares (five acres) in size.

Associated equipment such as pipelines and gas processing facilities may be required at the production stage and will be constructed subject to additional planning permissions.

Once drilling has been completed, surface activity will diminish significantly as wells start to produce oil or gas.

When all of the oil or natural gas that can be recovered economically from a reservoir has been produced and production ceases, the facilities will be dismantled. Wells will be filled with cement and pipes cut off 3-6 feet below ground level. All surface equipment will be removed and all pads filled in. The sites will then be restored to their former use, or, in some circumstances, an appropriate new use (see question 49).

**Oil and gas licencing**

**20) What are oil and gas licences?**

The Department for Energy and Climate Change (DECC) is responsible for administering and issuing the oil and gas licensing system in the United Kingdom (UK) (see question 32). It is important to note that Hampshire County Council (or any of the other Hampshire Mineral Planning Authorities) do not issue licences for oil and gas development.

The DECC issue Petroleum Exploration and Development Licences (PEDL) periodically, giving a company or group of companies (a joint venture) exclusive rights to explore for, and develop, the resource in a particular geographic location. The licencing system in the UK has been active for over 40 years.

Licences allow a company to pursue a range of exploration activities for conventional or unconventional gas, subject to planning permission (see question 27) and the necessary associated consents (see questions 32, 33 and 34).

Previously, the Government issued separate licences for separate stages of an onshore oil or gas field’s life. These included Production Licences (PL) and Development Licences (DL). The DECC no longer issue PL or DL licences but a number of these are still in force, including some in Hampshire. PEDLs were introduced as part of the eighth licencing round in 1996.

PEDLs are valid for a sequence of periods (terms) and are designed to comprise the typical life cycle of a field (exploration, appraisal and production). These can be summarised as follows:

- the initial term for a licence is usually an exploration period and is usually set for a period of six years; and
- the second term is intended for appraisal and is set for five years. Each licence expires automatically at the end of each term, unless the licensee has completed the Working Programme agreed with the DECC. A licence will expire at the end of a second term unless the Secretary of State approves a development plan. The third term is intended for production and is set at 20 years.

The terms of the PEDL licences require the DECC’s approval for the choice of operator.
Before approving, the DECC checks an operator has coverage of relevant insurances and will look at the technical competence of the operator, more specifically the following factors:

- capability to supervise, manage and undertake the proposed operations; and
- scope of relevant insurance coverage.

If and when an operator is approved for each licence, the operator is given the responsibility for managing all activity in the PEDL. No method for drilling is specified in the initial licence, as it only conveys exclusivity in an area for the licencee.

The DECC states that ‘final consent to any well or well operations is dependent on confirmation that all other necessary permits and consents have been obtained’\(^{29}\). Licences do not give consent for drilling or any other operations or development. Potential operators will also need to obtain the following before any development can commence:

- consent from the landowner;
- planning permission of each stage of development (explorations, appraisal and production) (see questions 18 and 27) from the MPA;
- regulatory consents (such as from the Environment Agency) (see question 33); and
- any additional consents (including well consent) from the DECC for drilling operations (see question 32).

The DECC will also consider the view of the Health and Safety Executive in reaching the final decision on licences.

The granting of a licence of the exploration of the resource does not imply that planning permission would be granted for the extraction of the resource (see questions 27).

Under licencing agreements, operators will agree to follow good oilfield practice\(^ {30}\).

In 2008, the 13th Onshore Licensing Round was completed and resulted in oil and gas licences being issued in Hampshire (see map under question 22), as well as licences for shale gas in five locations in the United Kingdom\(^ {31}\).

Now that the opportunities for unconventional oil and gas are being explored in the UK, it is conceivable that existing licences may be re-examined for their potential for unconventional resources. This may take place through the 14th round of onshore oil and gas licences (see question 21).

21) **What is the 14th round of oil and gas licencing?**

The issue of oil and gas licencing is being re-looked at by the Department of Energy and Climate Change (DECC).

The necessary Strategic Environmental Assessment report for the 14th licencing round was issued by the DECC in December 2013 for consultation\(^ {32}\).

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\(^{29}\) DECC: [www.decc.gov.uk/en/content/cms/meeting_energy/oil_gas/shale_gas/shale_gas.aspx#4](www.decc.gov.uk/en/content/cms/meeting_energy/oil_gas/shale_gas/shale_gas.aspx#4)

\(^{30}\) Good Oilfield Practice: [www.gov.uk/oil-and-gas-measurement-of-petroleum](www.gov.uk/oil-and-gas-measurement-of-petroleum)

\(^{31}\) House of Commons Library SN/SC/6073: [www.parliament.uk/briefing-papers/SN06073.pdf](www.parliament.uk/briefing-papers/SN06073.pdf)

\(^{32}\) 14th round of licensing: [www.og.decc.gov.uk/upstream/licensing/onshore_14th/index.htm](www.og.decc.gov.uk/upstream/licensing/onshore_14th/index.htm)
The report identifies, describes and evaluates the likely significant effects on the environment of DECC’s proposals to invite applications for new licences, the reasonable alternatives to that plan, and how these effects can be reduced or offset. The SEA report identified the whole of Hampshire as a possible location where licences may come forward as part of the 14th round. Views were sought on the report and the Hampshire Authorities submitted a response to this consultation before the end of the consultation on 28 March 2014.

Following the completion of the SEA consultation, Ministers considered the representations received before deciding to progress to a further round of licensing.

On 28 July 2014, the Government announced the start of the 14th round of licencing. A Post Adoption Statement for the SEA report was also issued. Oil and gas operators now have an opportunity to apply for further onshore oil and gas licences or the renewal of licences already in place. Operators have 90 days to submit their nominations and associated paperwork (until 28 October 2014).

The 14th round also introduced the term ‘Production Licences’. These replace PEDL licences and cover all stages of oil and gas development (exploration, appraisal and production).

Applicants for licences can come from a single company or from a group of companies. The companies may be either British or foreign, but there are minimum residence requirements. Each application must therefore be supported by evidence that the applicant meets the minimum criteria.

Once the nomination stage has been completed, the DECC will consider the nominations for licences before new licences are issued. The Secretary of State has full discretion to make decisions on applications for Production Licences, but will always make them in line with published policies and objectives.

More information on the 14th round can be found on the DECC website.

22) Are there any oil and gas licences (conventional or unconventional) in Hampshire?

Hampshire already has a number of oil and gas licences which have been issued by the Department for Energy and Climate Change (DECC). As already indicated under question 20, the granting of a licence of the exploration of the resource does not imply that planning permission would be granted for the extraction of the resource (see question 27). Based on information available from the DECC at the time of the publication of this FAQ, the existing licences (as set out in the 13th round) are located across Hampshire, in the administrative areas covered by the Hampshire Authorities (Hampshire County Council (HCC), Portsmouth City Council (PCC) and the New Forest National Park Authority (NFPNA)) as well as the South Downs National Park Authority (SDNPA). These include PEDL, DL and PL licences at the following locations:

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36 DECC Licensing: www.gov.uk/browse/business/licences/oil-and-gas-licensing
37 DECC Licence information: www.og.decc.gov.uk/information/licence_reports/onshorebylicence.html - search by licence code
- North Winchester, from Kings Worthy and Littleton stretching west almost to Stockbridge (Licences - PL233, PL249 and DL002 - licences fall within the administrative area of HCC); further north, reaching from Wherwell and Chilbolton west to Amport (Licence - PEDL021 - licence falls within the administrative area of HCC);
- east of Winchester from Chilcombe towards the village of Cheriton (Cheriton is not within the licence area) (Licence - PEDL070 - licence area falls within the SDNPA);
- to the north east of Hampshire from Herriard in the west across to Bentley in the east (Licence - PL116 - licence falls within the administrative area of HCC and the SDNPA); stretching west from Hinton and Bransgore in the New Forest (Licence - PEDL238 - licence falls within the administrative areas of HCC and the NFNPA) with the licence area stretching over into Dorset;
- from east of Fareham, stretching further east to Havant (Licences - PEDL256 and PEDL155 (licences fall within the administrative areas of HCC, the SDNPA and PCC);
- stretching east from Alton in the west and Petersfield, Liss, Whitehill & Bordon in the east (Licence - PEDL231 - licences fall within the administrative area of HCC and the SDNPA); and
- stretching east from the Hambledon area to Rowlands Castle (Licences - PL211 and PEDL126 - licences fall within the administrative area of HCC and the SDNPA).

Please note the above descriptions are only indicative. The DECC provides more detailed information on which areas fall within each licence area (including the holder of each licence)38.

Although it has been reported in some local media sources that there is a licence covering the area from North Badgesley to the A3051 at Fairthorne (licence number PEDL125), this is not an existing licence. This has been confirmed by the DECC.

Existing licences (for both conventional and unconventional oil and gas) in Hampshire are outlined in the following map:

38 DECC Licence information: [www.og.decc.gov.uk/information/licence_reports/onshorebylicence.html](http://www.og.decc.gov.uk/information/licence_reports/onshorebylicence.html) - search by licence code
Current planning policy and guidance for oil and gas

23) What is current national planning policy on onshore oil and gas development?


The NPPF was issued in 2012, replacing most previous Planning Policy Statements, Minerals Policy Statements and Minerals Planning Guidance relating to minerals. The NPPF sets out minerals planning policy for onshore oil and gas in England through a section on facilitating the sustainable use of minerals which includes oil and gas development.

The NPPF includes:

- a clear direction that the responsibility for determining planning applications for onshore oil and gas activities, including for the exploration of shale oil and gas, is with Minerals Planning Authorities (MPAs) (such as Hampshire County Council or one of the other MPAs in Hampshire (Southampton City Council, Portsmouth City Council, New Forest National Park Authority and South Downs National Park Authority)). In Hampshire, any proposals will be determined in accordance with the provisions of the adopted Hampshire Minerals & Waste Plan (HMWP) (see question 26).
- a clear direction that MPAs should identify and include policies for extraction of mineral resources of local and national importance in their area. This includes both conventional and unconventional oil and gas. Oil and gas development is specifically addressed in the HMWP through Policy 24 (Oil and gas development).
- an expectation that MPAs will ensure that mineral extraction does not have an unacceptable adverse impact on the natural or historic environment or human health. These issues are also addressed by the policies of the HMWP.

Other relevant sections include the presumption in favour of sustainable development and the supply of energy.

National Planning Practice Guidance (NPPG) (Live)

As the unconventional oil and gas industry develops, the Government wanted to ensure that an effective, locally-led planning system is in place. Therefore new planning practice guidance on onshore oil and gas was published July 2013. In 2014, the Government published the National Planning Practice Guidance (NPPG). This is a live online document and it includes a section within it on Planning for Hydrocarbon Extraction. The NPPG supersedes the guidance issued in July 2013.

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40 Planning for hydrocarbon extraction section: [http://planningguidance.planningportal.gov.uk/blog/guidance/minerals/planning-for-hydrocarbon-extraction](http://planningguidance.planningportal.gov.uk/blog/guidance/minerals/planning-for-hydrocarbon-extraction)


43 Planning for hydrocarbon extraction section: [http://planningguidance.planningportal.gov.uk/blog/guidance/minerals/planning-for-hydrocarbon-extraction](http://planningguidance.planningportal.gov.uk/blog/guidance/minerals/planning-for-hydrocarbon-extraction)
The NPPG provides advice on the planning issues associated with the three phases of oil and gas development.

Guidance includes:

- a clear direction that the planning system is about controlling the use and development of land;
- the issues that MPAs (such as Hampshire County Council or the other MPAs in Hampshire) should address at the planning application stage (see question 27); and
- makes it clear that issues such as emissions, health and safety and water resources may be addressed by other regulatory agencies (i.e. not the MPA) although these issues may be relevant to planning applications and therefore maybe put before a MPA as part of this process (see question 31).

The NPPG was updated in July 2014 to include guidance on unconventional oil and gas development in designated areas. The guidance includes the need for MPA to give great weight to conserving their landscape and scenic beauty when considering planning applications for unconventional hydrocarbon development in designated areas such as National Park and Areas of Outstanding Natural Beauty. It also states that where applications represent major development, planning permission should be refused except in exceptional circumstances and where it can be demonstrated that the proposals are in the public interest.

The guidance will be kept under review. It should be read alongside other planning guidance and the NPPF.

24) **What is the current Government position on unconventional oil and gas development?**

The Government considers that shale oil and gas represent promising new potential energy resources which could contribute significantly to the United Kingdom (UK), reducing reliance on imported oil and gas as well as supporting growth and providing employment (see question 17). The Government also hopes that shale gas will become a significant part of the future energy mix for the UK (see question 14).

In January 2012, the Government stated that it was (is) supportive of the industry 'so long as such exploitation proved to be technically and economically viable, and can be carried out with full regard to the protection of the environment'. The Secretary of State for the Department of Energy and Climate Change, Ed Davey, said in 2013 that 'we must make sure that the rigorous regulation we are putting in place is followed to the letter, to protect the local environment.'
We must pursue vigorously the development and deployment of technologies that will reduce emissions to protect the planet\textsuperscript{46}.

The Royal Society and the Royal Academy for Engineering (RSRAE) published an independent report into the environmental, health and safety risks of fracturing for shale gas in June 2012\textsuperscript{47}. The main conclusion of the RSRAE report was that the risks associated with 'fracking' for shale gas can be managed effectively in the UK provided that operational best practices are implemented and enforced through regulation. The findings of the report have been accepted by the Government (see question 15).

In December 2012, following the completion of a review of potential for shale and oil extraction, and the investigation into the earth tremors in Lancashire, the DECC announced that 'exploratory hydraulic fracturing ('fracking') for shale gas could resume, subject to new controls to mitigate the risks of seismic activity'\textsuperscript{48} (see question 12).

The Government established the Office of Unconventional Gas and Oil (OUGO) in December 2012 to develop the unconventional oil and gas industry. OUGO is part of the DECC (see question 32).

The Government has prepared planning policy guidance which considers onshore oil and gas development\textsuperscript{49} (see question 23).

The British Geological Survey (BGS) produced an assessment of potential for unconventional gas resources in the UK in 2012\textsuperscript{50}. In May 2014, the BGS also issued an assessment of the Weald basin which includes resources in Hampshire (see question 44).

The Government announced the start of the 14\textsuperscript{th} round of oil and gas licencing on 28 July 2014 (see question 21)\textsuperscript{51}.

25) What do the Government’s recent consultations and guidance documents on onshore oil and gas cover?

The Government has issued a number of consultations and guidance documents relevant to oil and gas development. These include the following:

Proposals to reform the procedures for gaining underground access to oil or gas deposits and geo thermal energy (May 2014)

The Government launched a consultation\textsuperscript{52} on the proposed reform of procedure for gaining underground access to oil or gas deposits and geo thermal energy in May 2014\textsuperscript{53}. The new proposals seek to simplify procedures.

\textsuperscript{47} Royal Society and the Royal Academy for Engineering: http://royalsociety.org/policy/projects/shale-gas-extraction/report
\textsuperscript{48} Planning practice guidance: http://planningguidance.planningportal.gov.uk/
\textsuperscript{49} Planning practice guidance: http://planningguidance.planningportal.gov.uk/
\textsuperscript{50} BGS: www.bgs.ac.uk/research/energy/shaleGas/howMuch.html
\textsuperscript{51} Commencement of the 14\textsuperscript{th} round of licensing: www.gov.uk/government/news/new-onshore-licensing-round-opens
\textsuperscript{52} Launch of consultation on reform of procedures for gaining underground access to oil or gas deposits and geo thermal energy (DECC, 2014): www.gov.uk/government/news/government-proposals-to-simplify-deep-underground-access-for-shale-gas-and-geothermal-industries
\textsuperscript{53} Proposals to reform the procedures for gaining underground access to oil or gas deposits and geo thermal energy (DECC, 2014): www.gov.uk/government/consultations/underground-drilling-access
The proposals are:

- underground right of access for shale gas and deep geothermal operations only below 300 metres (nearly 1000ft);
- a voluntary community payment of £20,000 per lateral well; and
- a clear notification system to alert local people.

The consultation opened on 23 May 2014 for twelve weeks. Once completed, the Government will consider the responses received and set out the next steps.

**Regulatory Roadmap for Onshore Oil and Gas (December 2013)**

The Regulatory Roadmap was issued by the DECC at the end of 2013\(^\text{54}\). It is intended that the Roadmap should be the first point of reference for anyone seeking to understand the permitting and planning permissions process for exploratory work for onshore oil and gas in the United Kingdom. The Roadmap is primarily focused on unconventional oil and gas operations. The Roadmap is considered to be a 'live' document and will be updated, as required as legislation changes or develops in this area.

**Proposals to revise the requirements relating to planning applications for onshore oil and gas (September 2013)**

In September 2013, the Government consulted on revised requirements relating to planning applications for onshore oil and gas\(^\text{55}\).

The aim of the consultation was to ensure that planning application requirements for such developments were fit for purpose and proportionate. The original consultation paper set out a number of proposals for possible changes to secondary legislation and included proposed changes to how landowners and tenants were to be notified by applicants of planning applications for onshore oil and gas development. The consultation ended in October 2013.

In December 2013, the Government laid a Written Ministerial Statement to confirm that, following the responses to the consultation, it is taking forward the proposed changes to planning application requirements and fees for onshore oil and gas development\(^\text{56}\). The first set of regulations came into effect on 13 January 2014. The fee regulations will be subject to further debates in the House of Lords before they may enter into force.

**26) What is Hampshire’s current planning policy for onshore oil and gas (conventional and unconventional)?**

Adopted planning policy for minerals and waste in Hampshire is set out in the Hampshire Minerals & Waste Plan (HMWP) (2013)\(^\text{57}\).

The HMWP was prepared by Hampshire County Council in partnership with Portsmouth City Council, Southampton City Council, the New Forest National Park Authority and the South Downs National Park Authority, as minerals and waste planning authorities (MWPAs).

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\(^{55}\) Consultation on revised requirements relating to planning applications for onshore oil and gas: www.gov.uk/government/publications/regulatory-roadmap-onshore-oil-and-gas

\(^{56}\) Written Ministerial Statement on revised requirements relating to planning applications for onshore oil and gas: http://tinyurl.com/octwuh4

The Plan was adopted by the partner authorities on 16 October 2013 and replaced the Hampshire Minerals and Waste Core Strategy (HMWCS) and the saved policies of the Hampshire Minerals and Waste Local Plan (1998) as planning policy for minerals and waste development in Hampshire.

The HMWP provides a robust planning framework for minerals and waste development in Hampshire.

It includes adequate safeguards for potential environmental, community or amenity impacts from minerals development, against which any proposal for conventional or unconventional oil and gas development in Hampshire would be judged and considered on their own merits.

The MWPAs in Hampshire will use the HMWP to determine any conventional or unconventional oil or gas development within their administrative boundaries.

The HMWP includes a policy specifically on oil and gas development (Policy 24: Oil and gas development).

The policy is as follows:

**Policy 24: Oil and gas development**

Oil and gas development will be supported subject to environmental and amenity considerations.

a. Exploration and appraisal of oil and gas will be supported, provided the site and equipment:

i. is not located within the New Forest National Park or South Downs National Park except in exceptional circumstances, where the reasons for the designation are not compromised and where the need for the development can be demonstrated; and

ii. is sited at a location where it can be demonstrated that it will only have an acceptable environmental impact; and

iii. the proposal provides for the restoration and subsequent aftercare of the site, whether or not oil or gas is found.

b. The commercial production of oil and gas will be supported, provided the site and equipment:

i. is not located within the New Forest National Park or South Downs National Park except in exceptional circumstances, where the reasons for the designation are not compromised and where the need for the development can be demonstrated; and

ii. a full appraisal programme for the oil and gas field has been completed; and

iii. the proposed location is the most suitable, taking into account environmental, geological and technical factors.
Any proposal for conventional or unconventional oil and gas development, submitted to the MPA, will be judged against this policy, its associated supporting text as well as all other relevant policies in the Plan in relation to protecting the environment (policies 2-9), maintaining communities (such as protection of water resources, protection of health, safety and amenity, managing traffic impacts etc.) (policies 10-14) and supporting the economy (policies 15-34).

The HMWP does not allocate any sites (site allocations) for onshore conventional or unconventional oil and gas development in Hampshire.

As oil and gas resources are found much deeper in the ground than other mineral resources, there is no need to safeguard (protect) oil and gas deposits as they are less threatened by surface development compared to other mineral resources (such as sand and gravel and brick-making clay) which can be sterilised by non-minerals or waste development which tend to lie closer to the surface.

As a result, oil and gas resources are not safeguarded in Hampshire (through Policy 15: Safeguarding - mineral resources).

Hampshire County Council (HCC) has prepared a number of FAQs. These include FAQs on the County Council’s role in the planning process as well as the HMWP. These are available to view on the HCC website.

Planning process for oil and gas development

27) What will a planning application for onshore oil and gas development entail?

Obtaining planning permission is one of the main regulatory requirements that oil and gas operators must meet before any conventional or unconventional oil and gas development can take place. A Minerals Planning Authority (MPA) will determine whether the activity is acceptable in planning terms at the particular location proposed, after consultation has taken place.

In Hampshire the MPAs are Hampshire County Council, Southampton City Council, Portsmouth City Council, the New Forest National Park Authority and the South Downs National Park Authority. These MPAs will determine proposals for oil and gas within their administrative area. The administrative areas for each MPA in Hampshire are set out on the following map.

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The planning system controls the development and use of land in the public interest and this includes:

- ensuring that new development is appropriate for its location taking account of the potential effects (including cumulative effects) of pollution on health, the natural environment or on general amenity; and
- the potential sensitivity of the area or proposed development to adverse effects from pollution.

In doing so, the focus will be on:

- whether the development itself is an acceptable use of the land;
- what the potential impacts of those uses (e.g. on communities and the environment) may be and any control (mitigation) measures; and
- health and safety issues or emissions themselves where these are subject to approval under other regimes (see question 31).

Hampshire's District and Borough Councils do not grant planning permission for oil and gas development although they will be consulted on any proposal within or impacting their administrative area (see question 27).

Oil and gas developments are not considered to be a part of the major infrastructure regime 59 which means all proposals will be dealt with by the local MPA.

There are three phases of oil and gas development (see question 18) and planning permission is required for each phase from the relevant MPA.

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Before an application for oil or gas development can be valid, an oil and gas licence will need to be issued by the Department of Energy and Climate Change (see question 20).

In some cases, minor initial seismic work may be considered to be permitted development\(^60\) and would not require planning permission from the MPA.

The DECC issued a Regulatory Roadmap in 2013\(^61\) which is intended to be the first point of reference for anyone seeking to understand the permitting and planning permission process for exploratory work for onshore oil and gas in the United Kingdom (see question 25).

The following diagram summarises the planning process for oil and gas development.

### Pre-application discussions

Pre-application discussions are encouraged by HCC in advance of any planning application for oil and gas development being submitted\(^62\). Operators are also encouraged to undertake pre-application discussions on the likely nature of any planning application with other key consultees (e.g. the Environment Agency (EA)).

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\(^{60}\) Part 2 of Schedule 22 to the Town and Country Planning (General Permitted development) Order 1995


\(^{62}\) Hampshire County Council webpages on pre-application discussions: [www.hants.gov.uk/mineralsandwaste/pre-application-2.htm](www.hants.gov.uk/mineralsandwaste/pre-application-2.htm)
Submission of a planning application

The MPA will determine whether a standard planning application or if an Environmental Impact Assessment (EIA) application is required\(^{63}\) (see question 27) through screening. It is unlikely that an EIA will be required for exploratory drilling operations that do not involve ‘fracking’, unless the well pad is located on a site that is unusually sensitive to limited disturbance occurring over the short period involved. However, all planning applications will be assessed on a case-by-case basis.

Consideration of key issues

The location, scale and character of any future proposal for oil or gas development will only be known when a planning application is submitted to the MPA for consideration. At this stage its potential impacts (including impacts on health, the environment, local amenity) will be fully considered. National planning policy guidance for onshore oil and gas\(^{64}\) identifies the principle issues (material considerations) which should be addressed at the planning application stage for any oil and gas development (only relevant issues will apply to individual proposals). These include the issues identified in the following diagram:

![Diagram of key issues](Source: Hampshire County Council, 2014)

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\(^{63}\) EIAs are required if the scale of the operations meets certain thresholds, or if depending on their nature, scale and location, they may have significant environmental impacts

\(^{64}\) Planning practice guidance: [http://planningguidance.planningportal.gov.uk/](http://planningguidance.planningportal.gov.uk/)
The potential impact of oil and gas development on water resources is a very important consideration (see question 10) even though this issue is covered under other regulatory regimes. The MPA will take a view on the potential impacts on water resources associated with any proposal, taking into account regulatory systems already in place on this issue as well as the advice and guidance given by the EA at the planning application stage.

Groundwater will be protected in the ‘fracking’ process through any planning permissions being granted or associated consents by:

- ensuring the casing around the well is of an adequate standard;
- ensuring adequate distance (and therefore rock) between the ‘fracking’ activity and the groundwater;
- ensuring the nature of the chemicals used and the quantities used render it harmless, should they enter the water supply; and
- controlling the storage and disposal of waste from the sites.

Other issues such as on site storage facilities and waste disposal may also be important considerations.

There are known oil and gas resources within Hampshire’s two National Parks and exploration already takes place within the South Downs National Park. There are other examples nationally of where oil and gas development takes place within designated areas. This includes western Europe’s largest oilfield at Wytch Farm, Dorset and sites in Surrey all of which are located within Areas of Outstanding Natural Beauty. The potential impact of a proposal or designations will be taken into account in detail at the planning application stage. The Government has recently announced new planning guidance on unconventional oil and gas development in areas of designation such as National Parks, AONBs and heritage sites (see question 23). There are also policies in the adopted Hampshire Minerals & Waste Plan in relation to minerals developments in designated areas (including Policy 4: Protection of the designated landscape) which will be used to guide whether planning permission should be given in such locations.

Potential impacts of a proposal on surrounding areas (e.g. outside of Hampshire) will be taken into account in decision making (see question 27).

The restoration of an oil or gas site is an essential part of the planning process (see question 49).

The potential impact on property prices is not an issue which can be taken into account by a MPA in decision making.

Many of the issues highlighted under this question are considered in FAQs prepared by the Hampshire Authorities. These include FAQs on development within areas of designation (nature conservation, landscape, heritage, Green Belt and historic heritage), development and the local environment, community and economy, restoration, community engagement, community benefits and the Hampshire Minerals & Waste Plan. These are all available to view on the HCC website.

Consultation

The MPA will advertise and consult local communities and interested parties as part of the planning application process. Engagement with local communities and interested parties engagement is also an essential element of the planning process (see question 29).

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http://planningguidance.planningportal.gov.uk/blog/guidance/minerals/planning-for-hydrocarbon-extraction/determining-the-planning-application/#paragraph_223

The views of interested parties will then be taken into account when the MPA grants or refuses planning permission.

Hampshire County Council, as Minerals Planning Authority, will ensure that all water companies are consulted on any oil and gas applications which may affect their catchment areas (see question 29).

**Determining a planning application**

The MPA will rigorously assess and scrutinize all proposals for oil and gas development within its administrative area. All proposals for oil and gas development will be considered on their individual merits and will only be granted planning permissions where they are considered to be acceptable and in accordance with the adopted Hampshire Minerals & Waste Plan (see question 26).

**The planning system and tax breaks**

The Government has recently announced tax breaks for shale gas\(^\text{67}\). These tax breaks are similar to those breaks which are already in place for renewable energy. It is important to note that any potential financial schemes or incentives associated with oil or gas development will not be taken into account when planning applications are being considered and determined by the MPA. This is because such funding sits outside of the planning process. It is therefore not considered to be relevant to any proposals for oil and gas development.

**Links to the regulatory system**

After planning permission is granted, a number of other consents and licenses are required before development can commence. These include Environmental Permits, HSE notification and Well Consents. The diagram under question 31 sets out how the planning and regulatory system works alongside each other for oil and gas development and summarises the roles of the main organisations and bodies involved in the process.

28) **What is the role of the Minerals Planning Authority in the planning process?**

Hampshire County Council (HCC) is a Mineral Planning Authority (MPA). Southampton and Portsmouth City Council’s and the New Forest and South Downs National Park Authorities are also MPAs within their own administrative areas in Hampshire.

Before any oil or gas development can take place, an operator must submit a planning application to the relevant MPA to seek planning permission for exploration, appraisal or production (see question 18). The relevant MPA has the responsibility of processing and determining any planning application for onshore oil and gas development within their administrative area.

District and Borough Councils do not grant planning permission for oil and gas development although they will be consulted on any proposal which is within or impacts their administrative area.

HCC encourages pre-application discussions in advance of the submission of a planning application for oil and gas development\(^\text{68}\). HCC will engage in discussions with operators (and other interested parties where relevant).

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\(^\text{68}\) Hampshire County Council webpages on pre-application discussions: [www.hants.gov.uk/mineralsandwaste/pre-application-2.htm](http://www.hants.gov.uk/mineralsandwaste/pre-application-2.htm)
The MPA will determine whether a standard planning application or if an Environmental Impact Assessment (EIA) application is required. This will depend on the type and nature of the proposal (see question 27). An operator can make a formal request to the MPA, under the Town and County Planning (Environmental Impact Assessment) Regulations 2011, for an EIA Screening Opinion.

The MPA will then screen a proposal. An EIA will be required if a proposal is considered to have a likely significant effect. An EIA is mandatory for all proposals for the extraction of more than 500 tonnes of oil or 500,000 cm³ of gas under schedule 1 of the Regulations.

Once a planning application for onshore oil and gas has been submitted to the MPA, it will be advertised, in line with the procedures set out in the relevant Statement of Community Involvement (SCI) (see question 29). This gives interested parties and local communities the opportunity to comment on any proposal.

For Hampshire County Council this is the Hampshire SCI. All planning applications received by HCC are available to view at the following locations:

- online: [www.hants.gov.uk/county-planning](http://www.hants.gov.uk/county-planning);
- at Hampshire County Council offices (by appointment during normal office hours); or at the
- relevant District or Borough Council offices (by appointment during normal office hours).

Any proposal for oil and gas development will also include consultation with statutory consultees, such as Natural England, English Heritage and the Environment Agency (EA) (see question 33) and other interested parties such as the Health and Safety Executive (see question 34) and Public Health England (see question 35).

Potential impacts of a proposal on surrounding areas (e.g. outside of Hampshire) will be taken into account in the event that a planning application is received by one of the Hampshire MPAs.

Appropriate bodies and Councils (other MPAs, District, Borough, Parish or Town Councils) will be consulted on any planning application received which may impact their area. Local communities outside of Hampshire will also be consulted in line with the provisions for neighbourhood notification as set out in the relevant SCI.

It is the role of the MPA to consider representations received on a proposal, alongside the policies in the adopted Hampshire Minerals & Waste Plan to determine whether a proposal for oil or gas development should be granted planning permission (see question 21).

Where planning permissions for oil and gas development are granted, HCC and the other Hampshire MPAs will expect Liaison Panels to be established (see question 46).

The MPA is responsible for ensuring sites are restored through planning permissions granted, through monitoring conditions in relation to this issue (see question 49).

HCC and the other MPAs do not issue licences for oil and gas (see question 22).

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69 EIA are required if the scale of the operations meets certain thresholds, or if depending on their nature, scale and location, they may have significant environmental impacts
71 Hampshire Statement of Community Involvement: [www.hants.gov.uk/sci-2.htm](http://www.hants.gov.uk/sci-2.htm)
72 Hampshire Authorities Statements of Community Involvement: [www.hants.gov.uk/sci-2.htm](http://www.hants.gov.uk/sci-2.htm)
The operator must also seek the relevant other associated consents (such as relevant environmental permits from the EA and consents from the Department of Energy and Climate Change) (see question 32).

HCC has prepared a number of FAQs. These include a FAQ on the County Council’s role in the planning process. This is available to view on the HCC website73.

29) How will local communities be consulted on any planning application submitted for oil or gas development in Hampshire?

Public consultation forms an important and essential part of every minerals planning application (including oil and gas) in Hampshire. The Hampshire Mineral Planning Authorities (MPAs) encourage community representations on minerals (and waste) proposals in their local area. Local knowledge is considered to be vital to informing decisions on the potential impact of minerals (or waste) development on an area.

Following submission of a planning application for oil and gas development, the local community and other interested parties in the area which the proposal is located will be consulted. The views of interested parties and the local communities will be taken into account when coming to a decision on whether a proposal should be granted planning permission.

Each of the Hampshire MPAs has its own Statement of Community Involvement (SCI)74 which set out the measures which each individual authority will take for consultation on any minerals (waste or County Council development) planning application submitted or in relation to the preparation of minerals and waste planning policy.

The SCI’s essentially set out how the authorities will involve local communities and interested parties in minerals and waste decision-making.

Hampshire County Council’s SCI75 sets out the measures for consultation on any minerals (waste or County Council development) planning application submitted to HCC which includes:

- notifying nearby residents if a proposal has been received76;
- notifying the local County Councillor77 of any proposal;
- placing notices in local newspapers and on site;
- notifying District, Borough, Parish, Town Councils and established residents groups with an interest that an application has been received;
- making the application and all supporting information available to view at the HCC offices;

73 Hampshire County Council County Planning webpages – FAQs: www.hants.gov.uk/minerals-waste-faq.htm
74 Information on the other Hampshire Authorities Statement of Community Involvement can also be found at the following link: www.hants.gov.uk/sci-2.htm
75 Hampshire Statements of Community Involvement: www.hants.gov.uk/sci-2.htm
76 Neighbour notification is undertaken for all applications. This is done by sending a letter to properties which are within 50 metres of the application site in urban areas or 100 metres from the application site in rural areas. Additional notification beyond these areas is at the discretion of the case officer and will depend on the type of application e.g. neighbourhood notification distance will be extended if the proposal is considered to potentially impact a wider area.
77 Who is my County Councillor?: www.hants.gov.uk/yourcountycouncillors.htm
• providing copies of the application to all District and Borough Council's for display; and
• making the application available to view electronically\textsuperscript{78}.

HCC adopted its new SCI in May 2014. The new SCI reflects changes in development management procedures and experiences gained from the preparation of the Hampshire Minerals & Waste Plan (2013). The new SCI includes a commitment by HCC to consult all of Hampshire’s water companies on all oil and gas proposals which may impact their Catchment areas. More information on the SCI is available on the HCC website\textsuperscript{79}.

Statutory consultees such as Natural England, English Heritage, the Environment Agency (see \textit{question 33}) and local planning authorities (District, Borough, Parish and Town Councils) will be consulted on oil and gas proposals which are relevant to their interests and local areas. Other interested parties may also be notified and consulted on the proposal for oil and gas development (such as the Health and Safety Executive (see \textit{question 34})) where their interests are relevant to a proposal.

Potential impacts of a proposal on surrounding areas will be consulted on any planning application received which may impact their area (see \textit{question 28}).

In September 2013, the Government consulted on revised requirements relating to planning applications for onshore oil and gas\textsuperscript{80} (see \textit{question 24}). The outcomes of this consultation will be taken into account by HCC, as appropriate.

The Office for Unconventional Gas and Oil (OUGO)\textsuperscript{81} has also made it a priority to help interested parties understand the facts about unconventional oil and gas, including supporting local authorities’ engagement with their communities to help resolve any issues (see \textit{question 29}).

For unconventional oil and gas development, the industry’s own Charter sets out that communities must be engaged from the very start of any planning application process\textsuperscript{82}.

The main aim of the charter is to ensure open and transparent communications between industry, interested groups and the communities in which they operate to promote a greater understanding and involvement by communities.

The Charter outlines the steps the industry will take to mitigate concerns around safety, noise, dust, truck movements and other environmental issues. The charter also covers community benefits (see \textit{question 39}). The United Kingdom Onshore Operators Group (UKOOG) have stated their commitment to working with independent and experienced organisations to ensure that complete transparency and local communities are fully engaged throughout any planning application process.

Oil and gas operations in the United Kingdom (UK), as with other industrial activities, are regulated under a number of different stringent regimes. These regimes are separate but complementary to the planning process. This means that some issues of importance may be covered by other regulatory regimes but may be relevant to the planning process in specific circumstances. This includes areas covered by organisations such as the Environment Agency (EA) (see \textit{question 33}) and the Health and Safety Executive (see \textit{question 34}).

\textsuperscript{78} All minerals and waste applications received by the County Council can be viewed at: \url{www.hants.gov.uk/county-planning}

\textsuperscript{79} Hampshire Statements of Community Involvement: \url{www.hants.gov.uk/sci-2.htm}

\textsuperscript{80} Consultation on revised requirements relating to planning applications for onshore oil and gas: \url{www.gov.uk/government/consultations/revised-requirements-relating-to-planning-applications-for-onshore-oil-and-gas}

\textsuperscript{81} Office for Unconventional Gas and Oil: \url{www.gov.uk/government/policy-teams/office-of-unconventional-gas-and-oil-ugo}

\textsuperscript{82} United Kingdom Onshore Operators Group Community engagement charter: \url{www.ukoog.org.uk/elements/pdfs/communityengagementcharterversion6.pdf}
The Hampshire Authorities have prepared a number of FAQs. These include a FAQ on community engagement in the planning process. This is available to view on the HCC website.

30) **If planning permission is granted, what else is required before oil and gas development can commence?**

If the Minerals Planning Authority (MPA) grants planning permission to explore oil or gas resources, the Department of Energy and Climate Change (DECC) will consider an application to drill at least 21 days before drilling is planned (a ‘well consent’) (see question 32).

Notification of an intention to drill has to be served to the Environment Agency (EA) under section 199 of the Water Resources Act, 1991 (see question 33).

The Health and Safety Executive (HSE) must also be notified of the well design and operation plans to ensure that major accident, hazard or potential risks to people from wells (and well related activities) are properly controlled. HSE regulations also require examination of the well design by an independent and competent third party (see question 34).

Once the DECC has checked the geo-technical information submitted, and the EA and HSE are aware and consulted on the scope of the well operations, the DECC may consent to drilling. If the intention is to ‘frack’, the DECC would impose the new controls (as introduced in December 2012).

Following exploration, if operators then wish to go into production (to actually extract gas), the company must gain:

- a new planning permission from the relevant MPA;
- a Field Development Consent from the DECC; and
- an Environmental Permit from the EA.

Where planning permissions for oil and gas development are granted, HCC and the other MPAs in Hampshire will expect Liaison Panels to be established (see question 46).

Other regulatory agencies and consents for oil and gas development

31) **How does the planning process link to other regulatory regimes?**

Oil and gas operations in the United Kingdom (UK), as with other industrial activities, are regulated under a number of different stringent regimes. National planning guidance clearly states that these regimes are separate but complementary to the planning process (see question 31). The Government believes that the existing regulation systems are fit for purpose.

Some issues which may be of importance and relevance to the planning process may be covered by other regulatory regimes.

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83 Hampshire County Council County Planning webpages – FAQs: [www.hants.gov.uk/minerals-waste-faq.htm](http://www.hants.gov.uk/minerals-waste-faq.htm)

84 National Planning Policy Practice Guidance, paragraph 29 (DCLG, 2013 (and as updated))
This may include issues such as:

- mitigation of seismic risks;
- design, construction and integrity of wells;
- operation of surface equipment on the well pad;
- chemical content of hydraulic fracturing fluid;
- flaring or venting of any gas produced as part of the exploratory phase;
- final off-site disposal of water and mining waste; and
- well decommissioning, completion of development and restoration.

A summary of how the planning and regulatory systems link is shown in the following diagram.
The planning process and regulatory process

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
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<tbody>
<tr>
<td>Licence (oil and gas) issued - see question 20</td>
<td>Issued by DECC</td>
</tr>
<tr>
<td>Pre application discussions (not compulsory) – see question 27</td>
<td>Operator undertakes ERA Operator discusses application with local communities, Minerals Planning Authority (MPA) and statutory consultees</td>
</tr>
<tr>
<td>Screen for Environmental Impact Assessment (EIA) – see question 27</td>
<td>MPA</td>
</tr>
<tr>
<td>EIA undertaken – see question 27</td>
<td>Operator prepares EIA Operator submits application to MPA and permit to the Environment Agency</td>
</tr>
<tr>
<td>Submission of planning application – see question 27</td>
<td>MPA</td>
</tr>
<tr>
<td>Validation of the planning application / EIA</td>
<td>Operator will inform HSE</td>
</tr>
<tr>
<td>Advertises and consults on application / EIA</td>
<td>Consent issued by DECC. BGS are consulted if appropriate. Operator notifies EA - intent to drill</td>
</tr>
<tr>
<td>Planning application / EIA is decided (granted or refused). Planning conditions imposed if granted</td>
<td>Site commenced by operator Monitoring and enforcement by MPA, EA, HSE, DECC (throughout development and following restoration). Operator submits information - BGS</td>
</tr>
<tr>
<td>Notification of Health and Safety Executive (HSE) 21 days in advance of commencement – see question 34</td>
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<tr>
<td>Well consent granted – see question 32</td>
<td></td>
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<tr>
<td>Commencement of site operations</td>
<td></td>
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<tr>
<td>Site is completed, site is abandoned</td>
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<tr>
<td>Site is restored</td>
<td></td>
</tr>
<tr>
<td>Monitoring and enforcement</td>
<td></td>
</tr>
</tbody>
</table>

Source: Hampshire County Council, 2014
In such instances, the relevant Hampshire Minerals Planning Authority (MPA) will assume that other regulatory regimes operate effectively. Whilst these issues may be put before MPAs as part of the planning process, MPAs will not need to carry out our own assessment on issues as they can rely on the assessment of other regulatory bodies. However, before granting planning permission, the MPA will need to be satisfied that these issues can and will be adequately addressed by taking the advice from the relevant regulatory body. This is why it is important that statutory consultees are consulted on minerals planning applications.

Following exploration, a well is likely to be suspended and abandoned for a period of time. Health and Safety Legislation requires (with regards to its well design and construction) that, so far as reasonably practicable, there is no unplanned escape of fluids.

It is important to note that the UK’s regulatory regime is very different to the regime operated in the United States where unconventional oil and gas production is already taking place.

32) **What is the role of the Department of Energy and Climate Change (DECC) and the Office of Unconventional Gas and Oil (OUGO) in relation to oil and gas development?**

The DECC’s responsibilities include:

- issuing Petroleum Licences that give consent to drill and give operators exclusive rights to explore for and develop the resource (see question 20);
- assessing risk of and controlling seismic risks (usually through the licence consent regime). Seismic assessment of the geology of the area to establish the geological conditions, risk of seismic activity and mitigation measures to put in place is required by the DECC for all hydraulic fracturing processes;
- granting consent and controlling the flaring or venting of any gas produced as part of the exploratory phase;
- ensuring that appropriate monitoring and control arrangements are in place to regulate seismic activity caused by ‘fracking’ and are agreed, before consent is granted. Operators will be required to have procedures in place to monitor, report and mitigate seismic activity, a Hydraulic Fracturing Programme (HFP) and a detailed risk assessment as part of any ‘fracking’ consent granted by the DECC; and
- issuing final well consents after all final checks have been made by the Health and Safety Executive (HSE) (see question 34).

The DECC will check that the proposals make efficient use of the nationally owned resource, and it will impose limits on flaring if proposed.

An Environmental Risk Assessment (ERA) is required for all shale gas operations which involve ‘fracking’, as a matter of good practice. An ERA should assess risks across the entire life cycle of planned activities. The ERA can be used to inform other assessments which may be required for planning applications (e.g. Environmental Impact Assessment) of environmental permitting. The DECC is charged with reviewing the ERA.

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85 Guidance on the preparation of an environmental risk assessment for shale gas operations (DECC, 2014):

If ‘fracking’ is intended, the DECC will require the following to be submitted for their consideration:

- a geological assessment identifying faults;
- a Hydraulic Fracturing Plan; and
- monitoring of seismic activity before, during and after ‘fracking’.

Operators will also need to establish arrangements to control seismicity (see question 12).

Finally, the DECC will check that the Environmental Agency (EA) and Health and Safety Executive (HSE) have no objections to the proposed operations, before consent is given.

The DECC has adopted the best practice recommendations which were set out in the Royal Society and Royal Academy of Engineering (RSRAE) report\(^86\) in 2012 (see question 15).

The DECC will grant consent to drill once all permits are in place and all relevant consultees have been notified (EA, HSE, British Geological Survey).

The DECC issued more information on the facts associated with shale gas extraction and the Regulatory Roadmap in December 2013\(^87\) \(^88\).

The OUGO\(^89\) sits within the DECC and aims to promote the safe, responsible, and environmentally sound recovery of unconventional oil and gas resources. It has been set up specifically to coordinate the activity of the regulatory bodies and departments in the oil and gas industry. One of OUGO’s main aims is to help interested parties understand the facts about unconventional oil and gas.

33) What is the role of the Environment Agency (EA) in relation to oil and gas development?

The EA is a public body whose responsibility is to protect the environment in England.

Before any oil or gas operation commences in the UK, operators must submit details of their plans to the EA for assessment of risks and the acceptability of issuing permits. The EAs responsibilities include:

- protection of water resources (including groundwater aquifers);
- ensuring appropriate treatment and management of any naturally occurring radioactive materials;
- controlling the actual operation of a site’s equipment in relation to preventing run-off of any liquid from the pad and controlling any impact on local amenity (such as noise) along with the Health and Safety Executive (see question 29);
- ensuring that extractive wastes do not harm human health and the environment;
- regulates any flaring or venting of any gas produced as part of the exploratory phase; and
- ensures that the final treatment/disposal at suitable water treatment facilities is acceptable.

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The EA are a statutory consultee in the planning process for planning applications for onshore oil and gas exploration, appraisal or production.

Hampshire is covered by the EA's South East region offices\(^{90}\).

The EA advise operators to undertake pre-application discussions on the content of planning applications when applying for Environmental Permits.

In England, onshore oil and gas exploratory activities require Environmental Permits issued under the Environmental Permitting Regulations (2010) and other permissions from the EA as environmental regulator, depending on the methods used and the geology of the site.

An Environmental Permit will be required by the EA for the different phases of oil and gas development. This will require the operator to produce and implement a Waste Management Plan. There are different types of environmental permits which may be required for oil and gas developments and these include:

### Types of Environmental Permits

<table>
<thead>
<tr>
<th>Type of Permit</th>
<th>Why this type of permit may be required for oil and gas development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groundwater activity</td>
<td>Where the EA considers that the risk of inputs to groundwater requires this.</td>
</tr>
<tr>
<td>Mining waste activity</td>
<td>Likely to apply in most circumstances.</td>
</tr>
<tr>
<td>Industrial emissions activity</td>
<td>When the intention is to flare more than 10 tonnes of natural gas per day (generally applies to exploration phase only).</td>
</tr>
<tr>
<td>Radioactive substances activity</td>
<td>Likely to apply where low level Naturally Occurring Radioactive Material (NORM) are contained in the rock cuttings or fluid returned to the surface from the well.</td>
</tr>
<tr>
<td>Water discharge activity</td>
<td>If surface water run-off from the site becomes polluted, for example, due to a spill of diesel.</td>
</tr>
<tr>
<td>Abstraction</td>
<td>If more than 20,000 litres of water per day is to be abstracted as part of the development.</td>
</tr>
<tr>
<td>Groundwater investigation</td>
<td>To cover drilling and test pumping where there’s the potential to abstract more than 20 cubic metres per day (m(^3)/day) of water.</td>
</tr>
<tr>
<td>Water abstraction licence</td>
<td>If the plan is to abstract more than 20m(^3)/day for own use rather than purchasing water from a public water supply utility company.</td>
</tr>
<tr>
<td>Flood defence consent</td>
<td>If the proposed site is near a main river or a flood defence.</td>
</tr>
</tbody>
</table>

The EA are due to publish several sets of standard permitting rules for certain types of activity in this sector in Spring / Summer 2014\(^{91}\). This is likely to include:

- a template Waste Management Plan that companies will need to use to characterise the wastes they are likely to produce;
- the risks presented by those wastes; and the
- mitigating actions they will take to reduce those risks.

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\(^{90}\) Environment Agency South East region: [http://apps.environment-agency.gov.uk/contact/128488.aspx](http://apps.environment-agency.gov.uk/contact/128488.aspx)

Environmental Regulations\(^{92}\) require a notice to be served on the EA to ‘construct a boring for the purposes of searching for or extracting minerals’.

Public consultation on all Environment Permits applications received by the EA associated with oil and gas development will take place when the permit application is being considered\(^{93}\).

The chemical content of hydraulic fracturing fluid are also covered by the Environmental Permitting regime as operators are obliged to inform the EA of all chemicals that they may use as part of any ‘fracking’ process (see question 11).

The EA has powers to require full disclosure of chemicals used in hydraulic fracturing in England and Wales\(^{94}\) and assesses the hazards presented by ‘fracking’ fluid additives on a case by case basis. Environmental aspects of oil and gas operations are monitored by the EA as regulator, in particular when permits are granted (see question 48).

The EA have issued a number of pieces of guidance relating to exploratory unconventional oil and gas extraction operations\(^{95} \ 96\).

The EA has also issued draft technical guidance for onshore oil and gas exploratory operations in 2013\(^{97}\). The technical guidance sets out what environmental regulations apply to the onshore oil and gas exploration sector and what operators need to do to comply with those regulations. It is expected that this guidance will be finalised in due course. It is expected that further technical guidance will also be issued by the EA on the production phase.

The EA issued a joint working strategy with the Health and Safety Executive in 2012\(^{98}\). This sets out how both organisations will work together to ensure a joined up approach and that there is appropriate monitoring and inspection of oil and gas operations.

34) **What is the role of the Health and Safety Executive (HSE) in relation to oil and gas development?**

The HSE monitors all phases of oil and gas operations from a well integrity, safety and site perspective.

The HSE ensures 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); and
- Offshore Installations and Wells (Design and Construction, etc.) Regulations 1996 (DCR).

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\(^{94}\) Powers through the Water Resources Act 1991 and the Environmental Permitting Regulations 2010


The HSE's responsibilities include:

- responding to notification of well integrity and the drilling process after planning permission has been granted. The HSE have 21 days to respond to such notifications;
- enforcement of legislation (concerning well design and construction of a well casing for any borehole throughout the life of the development);
- examining scheme design, construction and planned maintenance when an oil and gas site is in production, to ensure the integrity of the well;
- regulate the transportation of gas products and injection into the national grid; and
- controlling the operation of the site’s equipment in relation to preventing run-off of any liquid from the pad and controlling any impact on local amenity (such as noise) along with the EA.

The HSE's main role in relation to both conventional and unconventional oil and gas developments is to regulate the health and safety risks to people from these operations. In doing this, the HSE works closely with the Environment Agency (EA) and the Department of Energy and Climate Change (DECC) to ensure that all material considerations are addressed.

When wells are abandoned, operators should inform the HSE to show that the process complies with Oil and Gas United Kingdom Guidelines99.

The HSE issued a joint working strategy with the EA in 2012. This sets out how they will work together to ensure a joined up approach and that there is appropriate monitoring and inspection of oil and gas operations100.

**Other organisations with an interest in oil and gas development**

**35) What is the role of Public Health England in relation to oil and gas development?**

The Health Protection Agency (HPA) is now part of Public Health England (PHE). PHE is an executive agency of the Department of Health.

Public Health England (PHE) has reviewed the literature on the potential public health impacts of exposures to chemical and radioactive pollutants as a result of shale gas extraction. This led to the publication of a finalised report on potential public health impacts of exposures to chemical and radioactive pollutants as a result of the shale gas extraction in June 2014101. The PHE have concluded that based on currently available evidence, the potential risks to public health in the vicinity of shale gas extraction sites are low if shale gas extraction is properly run and regulated.

**36) What is the role of the United Kingdom Onshore Operators Group (UKOOG)?**

UKOOG are the representative body for oil and gas companies in the United Kingdom (UK).

UKOOG have issued industry guidelines covering best practice for unconventional well operations in the UK which were developed with the Environment Agency and the Health and Safety Executive.

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101 Potential public health impacts of exposures to chemical and radioactive pollutants as a result of shale gas extraction (PHE, 2014): [www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/131714035385](http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/131714035385)
The UKOOG have set out their commitment to shale oil and gas community engagement in their Community Charter\(^{102}\) (see question 39).

**37) What is the role of the British Geological Survey (BGS) in relation to oil and gas?**

The BGS is a part of the Natural Environment Research Council. It is the principal supplier of national capability in geoscience. It advances understanding of the structure, properties and processes of the solid Earth system through surveys, monitoring and research.

The BGS requires information on any borehole that is intended to penetrate to a depth of more than 30 metres or the deepening of an existing well as part of oil and gas developments. For oil and gas wells, operators must submit information on core and cutting samples to the BGS.

The BGS in association with the Department of Energy and Climate Change has completed an estimate for the amount of shale oil and shale gas in the Weald Basin in south-east England (see question 43).

The BGS has recently published information on aquifers and shales in the United Kingdom\(^{103}\) (see question 37). The purpose of this work has been to set out spatial relationships between principal aquifers and some of the major shale and clay units in England and Wales. This is done through a series of national scale aquifer/shale separation maps and supporting information about the geology and hydrogeology of the rocks. The BGS have also mapped the principle aquifers in the UK\(^{104}\) as well as aquifer and shale separation\(^{105}\).

**38) What other bodies may be involved in the process of consenting oil and gas extraction?**

Other bodies which may be involved in the consenting of the process include:

- *Natural England*, who may need to issue European Protected Species Licences in certain circumstances; and
- *Hazardous Substances Authorities*, who may need to provide hazardous substances consents.

There may also be additional consents and orders, such as stopping up rights of way or temporary road orders, which must be obtained.

**Community benefits**

**39) What community benefits can be associated with oil and gas developments?**

Minerals developments such as oil and gas can provide community benefits in their host areas. Community benefits may be as a result of the actual development (e.g. through the restoration of the site) or through associated community benefits schemes (which sit outside the planning process) which can be used to address local issues or fund local projects.


\(^{103}\) BGS work on aquifers and shale (2014): [www.bgs.ac.uk/aquifers-and-shales/](http://www.bgs.ac.uk/aquifers-and-shales/)

\(^{104}\) BGS mapping of principle aquifers: [www.bgs.ac.uk/research/groundwater/shaleGas/aquifersAndShales/maps/aquifers/home.html](http://www.bgs.ac.uk/research/groundwater/shaleGas/aquifersAndShales/maps/aquifers/home.html)

\(^{105}\) BGS work on aquifer and shale separation: [www.bgs.ac.uk/research/groundwater/shaleGas/aquifersAndShales/maps/separationMaps/home.html](http://www.bgs.ac.uk/research/groundwater/shaleGas/aquifersAndShales/maps/separationMaps/home.html)
In Hampshire, community funds associated with many sand and gravel extraction sites have already been used to fund local infrastructure improvements such as play areas and replacement village hall roofs.

The unconventional oil and gas industry has set out their commitment to shale oil and gas community engagement in its Community Charter\(^{106}\). Through the Charter, the industry has committed to a package for communities that host unconventional oil and gas development in their area. This includes:

- engagement with local communities, residents and other consultees at each of the three stages of operations (exploration, appraisal or production), beginning in advance of any operations and in advance of any planning application;
- £100,000 in community benefits to be provided per well-site where ‘fracking’ takes place at the exploration stage;
- 1% of revenues at the production stage will be paid out to communities;
- operators will publish evidence each year of how these commitments have been met; and
- regular review of the Charter as the industry develops and operators consult further with local communities.

The Department of Energy and Climate Change (DECC) have estimated that community benefit funding could be worth £5-£10 million for a typical producing site over its lifetime\(^ {107}\).

The United Kingdom Onshore Operators Group (UKOOG) have stated their commitment to working with independent and experienced organisations to ensure that communities receive complete transparency and are fully engaged throughout any distribution of any associated community benefits. UKOOG have indicated that they will work with local communities to establish community fund panels in locations where shale oil and gas extraction takes place and this panel will be independent of the operators or UKOOG.

The DECC have indicated that it is anticipated that community benefits associated with oil and gas development will be managed by the United Kingdom Community Foundations\(^ {108}\). Once a board has been established, the board will be free to spend the funds from oil and gas developments, subject to the board’s scheme approval process.

In January 2014, the Government announced that local authorities in England will now be able to keep 100 % of the business rates they collect from shale gas sites, rather than the usual 50%\(^ {109}\). The DECC have estimated that this commitment could be worth up to £1.7 million a year for a typical unconventional site\(^ {110}\). The Government will determine the division of the business rates amongst authorities and bring forward draft regulations in 2014 to ensure they are in place by 1 April 2015.

In May 2014 the Government announced a consultation which included the proposals for industry to make a voluntary community payment of £20,000 per lateral well\(^ {111}\). This is based on the shale and geothermal industry putting forward a voluntary offer for a payment system which will involve a one-off payment for each unique lateral (horizontal) well that extends by more than 200 metres laterally.

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It is proposed that this payment will be made at a community level.

It is important to note that the issue of community benefits and potential tax breaks for shale oil and gas will not be taken into account in the planning process (see question 27) when the suitability of the proposal will be assessed.

It is also important to note that the Community Infrastructure Levy (CIL)\textsuperscript{112} cannot be applied to minerals extraction developments such as oil and gas unless the associated infrastructure (e.g. offices) is covered by the relevant district or borough council charging schedule. In Hampshire, minerals development is exempt from the CIL charging schedules which have been adopted to date.

The Hampshire Authorities have prepared a number of FAQs. These include a FAQ on community benefits. This is available to view on the HCC website\textsuperscript{113}.

**Current unconventional oil and gas (shale) extraction in the United Kingdom**

40) **Where does unconventional oil and gas development currently take place in the United Kingdom (UK)?**

BGS assessment of national unconventional resources

It is estimated that there are large reserves of unconventional oil and gas beneath the UK, largely in the north and south east of England as well as parts of Scotland. However, it is not known what proportion of this could be economically viable to access currently.

The British Geological Survey (BGS) has been undertaking some assessment of potential for unconventional shale oil and gas nationally as demonstrated in the following map.

Their work in the Bowland Hodder shale (in northern England) has indicated that the area has potential for shale gas extraction. It has been estimated that if only 10% of the estimated gas in this location could be extracted this would still be enough to supply the country for at least 43 years.

The BGS issued a study on the potential for shale oil or gas in the Weald Basin in the south east of England in May 2014. The Weald covers parts of Hampshire (see question 42).

The BGS will now assess the potential for unconventional resources in Scotland.


\textsuperscript{113} Hampshire County Council County Planning webpages – FAQs: [www.hants.gov.uk/mineralsandwaste/planning-help/minerals-waste-faq.htm](www.hants.gov.uk/mineralsandwaste/planning-help/minerals-waste-faq.htm)
Unconventional oil and gas drilling is currently at very early stages in the UK, with only exploratory drilling being undertaken, for shale gas, in one location, to date. As a result, only one unconventional well in the UK that has been partially fractured and tested and this site is only at the exploratory stage. This site is located in Lancashire and is operated by Cuadrilla.

On 1 April 2011, a small (2.2 magnitude) earth tremor occurred near Blackpool and this was subsequently linked to ‘fracking' operations being undertaken nearby. Although the tremor caused no structural damage or injury, the Department of Energy and Climate Change (DECC) did suspend all 'fracking' operations in the United Kingdom (UK) until the potential links between ‘fracking' and seismic activity had been explored (see question 12).

Investigations were completed and it was concluded that the tremors may have been caused by the shale gas extraction. As a result, a series of safeguards were recommended to prevent a similar situation occurring again in the future.

In December 2012, exploratory hydraulic fracturing (‘fracking') for shale gas was allowed to resume in the UK by the DECC. It is believed that operations in Lancashire are currently halted for a short time as the operator carries out an Environmental Impact Assessment (EIA) in relation to the planning permissions previously granted for this development.

No production of unconventional oil or gas is currently taking place in the UK.

The United Kingdom has a history of ‘fracking' for conventional oil and gas developments. It has been used to help extraction by improving flow rates. This does not mean that a well becomes an unconventional well if this takes place as the nature of the hydrocarbon accumulation will not have changed.

There is no shale oil or gas extraction taking place in Hampshire (see question 42).

41) Where else in the world does unconventional oil or gas development take place?

Shale oil

Shale oil was one of the first sources of mineral oil with early records showing exploration taking place as far back as the 15th century. Modern extraction was established in the 19th century in countries such as Scotland and France where the oil was used as a substitute for whale oil. In the 20th century, shale oil was also extracted in countries such as Canada, Australia, Brazil, Estonia, New Zealand, South Africa and United States. The discovery of crude oil in the Middle East in the 20th century reduced the shale oil industry. The 21st century saw renewed operations in countries such as the United States, Canada, China, Australia and Jordan.

Shale gas

Globally there is along history of shale gas extraction, dating back to the 19th century. Shale gas extraction takes place across the world currently in countries such as China, Argentina, Canada, Argentina, Algeria, Mexico, South Africa, Australia, Russia, Brazil, Indonesia and the United States. Resources are also located in countries such as Saudi Arabia, India and Pakistan.

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114 Memorandum submitted by the Department of Energy and Climate Change (SG 1): www.publications.parliament.uk/pa/cm201011/cmselect/cmenergy/writev/shale/sq01.htm
Many European countries are also looking into the potential to extract shale gas resources within the territories. The International Energy Administration has estimated that Europe could hold trillions of recoverable cubic metres of shale gas across several member states.

It is as yet uncertain exactly where reserves are located, how large they are or whether they are commercially viable\(^{115}\). This includes resources in Bulgaria, France, Germany, Poland, Romania, Spain as well as the United Kingdom. Exploration is currently taking place in the UK, Poland, Germany, Romania, Denmark and Hungary. Other resources are also thought to be located within countries such as Norway, Austria and Sweden.

The European Union has deferred the decision to explore shale gas to each member state, which means national governments retain the right to decide if and where they want to explore for shale gas.

France banned ‘fracking’ in 2011. France is a nation which relies largely on nuclear energy.

In Germany there is a moratorium on unconventional exploration that is to be in place until it’s clear that there are no health implications associated with extraction. In July 2014, the German Government issued proposed guidelines for the exploration of shale gas in the country at levels deeper than 3,000 meters.

### Current on-shore oil and gas activity in Hampshire

42) **What onshore oil and gas exploration, processing or production currently takes place in Hampshire?**

Minerals can only be worked where they are found (where they naturally occur) so options of economically viable and environmentally acceptable sites for the extraction of mineral resources may be limited. Hampshire has known oil and gas resources due to its geology. Oil and gas deposits are found at much deeper levels in the ground than other minerals, such as sand and gravel, which are also worked in Hampshire.

The Department for Energy and Climate Change has issued licences for both conventional and unconventional oil and gas development in Hampshire (see map under question 20).

Historically there has been quite a lot of borehole exploration for conventional oil across Hampshire. This has largely been concentrated in the south-east, central and north-east parts of the county and has resulted in the development of three productive conventional oil and gas fields at:

- South Wonston, near Winchester;
- Humbly Grove near Alton; and
- Horndean.

Humbly Grove also stores gas underground.

The following map highlights the locations of current conventional oil and gas activity in Hampshire.

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The sites identified on the map either have planning permission for the exploration or the production of oil and gas. These sites do not extract unconventional oil or gas.

The three conventional oilfields have been operating for a number of years and are all currently in production. The oilfields are comprised of a central production centre with satellite well sites supporting them. There are also examples of other exploratory sites in Hampshire which have not led to production.

The MPAs in Hampshire annually publishes a Monitoring Report (MR) for minerals and waste. The MR will include information on any oil or gas sites that have been granted planning permission or where enforcement action has taken place within the last reporting period. It will also assess the implementation of the policies of the adopted Hampshire Minerals & Waste Plan, including policies relating to oil and gas. Hampshire County Council also publishes a list of all minerals (and waste) sites in Hampshire including Portsmouth City, Southampton City, the New Forest National Park and the South Downs National Park on its website.

117 Site lists for minerals and waste sites in Hampshire (by district / borough / unitary / National Park administrative areas): www.hants.gov.uk/pd-facts-and-figures.htm
Existing Oil and Gas Development in Hampshire

Legend
- Oil and gas
- Plan area
- Urban areas as defined by ONS
- Portsmouth City
- Southampton City
- New Forest National Park
- South Downs National Park
- Strategic Roads

0 5 10 km
Is there potential for unconventional oil or gas in Hampshire?

43) Is there potential for unconventional shale oil or gas extraction in Hampshire?

The British Geological Survey (BGS), in association with the Department of Energy and Climate Change (DECC) has undertaken a study (published 23 May 2014) that estimates the amount of shale oil and gas in the Weald Basin in south-east England. The Weald includes parts of east Hampshire.

The study has estimated the level of unconventional oil and gas resources in the basin and has concluded that the Weald Basin contains:

- between 2.20 and 8.57 billion barrels (bbl) or 293 and 1143 million tonnes (but the central estimate for the resource is 4.4 billion bbl or 591 million tonnes) of shale oil; and that
- there is no significant gas resources which have been recognised using the current geological model within the study.

The following map highlights the findings of the assessment and its impacts on Hampshire.

![BGS assessment of the Weald Basin](source: BGS, 2014)

The estimates for the amount of shale oil in the Weald Basin reflect the geological uncertainty and represent the estimated total amount of oil present in the rocks. It is not known what percentage of the oil present in the shale within the Weald basin could be commercially extracted. The study has indicated that in order to estimate the shale oil reserve, drilling and testing of new wells will be required to give a better idea of oil production rates.

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The lack of significant gas resource in the Weald Basin is thought to be largely due to the fact that the shale has not reached the geological maturity required to generate gas to date. However the study notes that:

- this does not preclude the potential presence of shale gas generated at an early stage of maturity in association with oil; or the
- presence of biogenic gas occurring at shallower depths or the presence of gas within deeply-buried pre-Jurassic shales that cannot be imaged or modelled using current geological and geophysical data.

Even though the research has shown that there is potential for unconventional resources in parts of Hampshire, this does not mean it can be recovered. Any recovery will depend on whether it is practicable and/or feasible to extract and if planning permission and associated regulatory licences and consents are granted to allow such a development to take place.

There has been no assessment of the potential for unconventional oil or gas in the rest of Hampshire, for example in the Wessex Basin in the south west of Hampshire.

44) **Does the extraction of unconventional shale oil or gas development and associated ‘fracking’ currently occur in Hampshire?**

To date, (at the time this FAQ was published), there has been no extraction of unconventional shale oil or gas extraction or associated ‘fracking’ activities which have taken place in Hampshire.

45) **Are there any known proposals for the extraction of unconventional oil (shale oil or gas development (shale gas) and associated ‘fracking’ in Hampshire?**

The Hampshire MPAs (Hampshire County Council, Southampton and Portsmouth City Councils and the New Forest National Park Authority) have not received any planning applications for shale oil or gas extraction and associated ‘fracking’ within their administrative boundaries at the time of this FAQ being published. The Hampshire Authorities have not been informed of any intention to submit a planning application for this type of development to date.

**How will local communities be kept informed of the operation of oil and gas sites if planning permission is granted?**

46) **How can local communities be kept informed of the operation of oil and gas sites once sites have planning permission?**

Local communities and interested parties will continue to be consulted on any further planning applications at existing oil and gas development which may be submitted to Hampshire County Council (HCC) (or the other Minerals Planning Authorities in Hampshire) after the initial planning permissions are granted (see question 27).

Hampshire already has a number of Liaison Panels which allow local communities to be actively involved in the construction phase, operation of minerals (or waste) sites as well as the restoration and after-use of development sites.

This includes panels at some of Hampshire’s existing oilfields.
Liaison Panels help to ensure continued communication and co-operation between the relevant Hampshire Authority, local communities (including neighbouring communities outside of Hampshire), the operator, the relevant Hampshire District or Borough Council and other interested parties following planning permission being granted for minerals (and waste) developments.

In line with the provisions of the adopted Hampshire Minerals & Waste Plan (2013), the Hampshire Authorities will expect all new ‘major’ oil and gas sites, to be accompanied by a Liaison Panel. Liaison Panels should be established and managed by the relevant operator of a site. Other minor minerals developments may also benefit from the establishment of Liaison Panels, and these may be set up as and when required.

**Monitoring of oil and gas development and enforcement**

47) **If planning permission were to be granted for oil and gas development, how would it be monitored by the Minerals Planning Authority?**

Planning permissions for any phase of oil and gas development (whether conventional or unconventional) granted by Hampshire County Council (HCC) will be subject to active monitoring. Monitoring helps to ensure that all development is compliant with relevant planning permissions (and associated conditions or legal agreements) granted.

Monitoring involves unannounced visits to sites, where experienced officers assess compliance with the planning permissions (conditions and any associated legal agreements) granted. All oil and gas sites in Hampshire (within HCC administrative area) have at least four unannounced monitoring inspections per annum.

If required, the Hampshire Authorities have powers to take enforcement action to ensure compliance with planning permissions granted, where it is expedient to do so.

Hampshire County Council has prepared a number of FAQs. This includes a FAQ on the County Council’s role in the planning process. This is available to view on the HCC website.119

48) **What monitoring is undertaken by the regulators?**

In addition to the monitoring undertaken by the Minerals Planning Authority (see question 46), the regulators also monitor oil and gas sites.

Any Environmental Permits granted by the Environment Agency (EA) will also be subject to separate monitoring (see question 33). The Health and Safety Executive (HSE) will also monitor the operations once drilling has commenced (see question 34). Oil and gas operators also have a duty to monitor the drilling process as part of the development and will often have to report this to the EA or HSE if this is required.

The DECC is in discussions with the industry on the introduction of arrangements to ensure that, for a defined period after abandonment of a well, the operator will conduct suitable monitoring the groundwater and the air in the vicinity of the abandoned well.

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How will an oil or gas site be restored?

49) What happens after an oil and gas development has been completed?

If it is concluded that there is no commercially viable oil or gas resources present or if the extraction of resources has been completed, then the well will be abandoned and dismantled, in accordance with the latest Oil and Gas United Kingdom Standards\(^{120}\). Wells will be filled with cement and pipes cut off 3-6 feet below ground level. All surface equipment will be removed and all pads filled in. The well will also be made safe. The site will then be restored to its former condition or to enhanced or a more beneficial afteruse. Planning permissions granted will include a condition(s) relating to restoration and aftercare, as appropriate.

Restoration involves returning the land to an acceptable condition. It may include restoration to its original use or to other land uses such as areas of nature conservation, agriculture, forestry or recreation. The types of restoration applicable to all minerals development is set out in the adopted Hampshire Minerals & Waste Plan (2013) through Policy 9 (Restoration of quarries and waste sites).

A period of aftercare will commence following restoration to ensure that the land returns to a state that is the same or better than it was prior to operations commencing. The successful completion of the restoration of the site will be subject to monitoring (see question 47).

The Hampshire Authorities have prepared a number of FAQs. These include a FAQ on restoration and aftercare. This is available to view on the HCC website\(^{121}\).

Further work on oil or gas in Hampshire following adoption of the HMWP

50) What planning policy work are the Hampshire Authorities currently doing on oil and gas development?

This FAQ was originally produced in August 2013. Since that point it has been continually updated, reflecting changes to policy, guidance and other local issues. The FAQ will continue to be updated regularly.

Due to the significant uptake in interest on issues associated with oil and gas development in the last 12 months, the Hampshire Authorities (Hampshire County Council (HCC), Southampton City Council, Portsmouth City Council and the New Forest National Park Authority) held an event on ‘Oil and Gas Development in Hampshire’ on 5 June 2014. The purpose of the event was to disseminate information regarding oil and gas development in Hampshire and to discuss the issues associated with these activities. A wide and varied mixture of delegates were invited to the event including elected members, District and Borough Councils, other minerals planning authorities, Parish and Town Councils, regulators operators and associated industry, local interest groups, environmental organisations. The day included presentations from the University of Southampton, Department of Energy and Climate Change, Department for Communities and Local Government, HCC, United Kingdom Onshore Oil and Gas Operators Group, Environment Agency, Health and Safety Executive, Friends of the Earth, Frack Free Solent and the Royal Society for the Protection of Birds.


The day also included question and answer sessions and round table discussions about what the main issues, concerns and opportunities which may be associated with oil and gas development.

A Summary Report was prepared setting out the main issues, themes and topics discussed on the day, with outcomes and recommendations. This is available to view on the HCC website. The recommendations included the following:

The Hampshire Authorities have now consider the recommendations outlined in the report to undertake further work on oil and gas issues, in particular the preparation of a supplementary planning guidance (SPG). As a result, it has been agreed that the Hampshire Authorities will prepare a SPG on this issue. The timetable for the delivery of the SPG was recently agreed by HCC122. Further announcements will be made in due course in relation to this issue and all consultees on the Hampshire Minerals & Waste Plan database, as well as those who expressed an interest or attended the oil and gas event will be informed of any developments.

It is important to note that any SPG prepared will not cover the South Downs National Park administrative area within Hampshire as the National Park Authority are no longer part of the plan-making partnership which was established for the Hampshire Minerals & Waste Plan.

More information on the event (including the agenda, the presentations and a report of the day) is available on the Hampshire County Council website123.

**Where can I find out more information?**

Further information relating to oil and gas from other bodies can be found at the following weblinks:


If you wish to discuss the contents of this FAQ or be added to the planning policy consultee database (so you are informed of any work undertaken by the Hampshire Authorities on oil and gas), please contact Hampshire County Council in the following ways:

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122 Hampshire Minerals and Waste Development Scheme approval by the Executive Member for Economy, Transport and the Environment, 9 September 2014: [www.hants.gov.uk/councilmeetings/meetingsummary.htm?date_ID=1433](http://www.hants.gov.uk/councilmeetings/meetingsummary.htm?date_ID=1433)

123 Oil and Gas Development in Hampshire event: [www.hants.gov.uk/oil-gas-development.htm](http://www.hants.gov.uk/oil-gas-development.htm)
The Hampshire Authorities have also produced a number of other FAQs on minerals and waste issues following the adoption of the Hampshire Minerals & Waste Plan (2013). These are available via the Hampshire County Council County Planning website (see above) and include FAQs on the following issues:

### FAQs on other minerals and waste issues published by the Hampshire Authorities

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