Briefing

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Unit/Directorate:	**Environment**
Audience:	**All**

1.0 PURPOSE OF BRIEFING

1.1 County Council officers and Members have been approached over the last year, by the public, the press and other Local Authorities, for information on the Council's position regarding fracking (hydraulic fracturing of shale rock, in order to extract shale oil or gas). Questions have also been asked on whether there are any existing licences for fracking in Cumbria and whether the County Council has any briefing material on the subject.

1.2 This briefing pulls together factual data on the range of unconventional hydrocarbons, of which shale gas is one, and explains the permissioning process for hydrocarbon licences. It also sets out the current situation regarding licences in Cumbria, national policy on hydrocarbons and discusses the approach taken to hydrocarbons in the Cumbria Minerals & Waste Local Plan.

1.3 This briefing can be used as a baseline to aid responses to questions on fracking and other unconventional hydrocarbons, or can be adapted by the County Council and other Local Authorities in Cumbria, for presentations. This briefing will be updated when new information is received or if the situation in Cumbria changes.

2.0 BACKGROUND

Conventional and unconventional hydrocarbons

2.1 Oil and gas are hydrocarbons. These can be categorised as conventional – oil and gas that are found in a reservoir of sandstone or limestone – or unconventional – shale gas, shale oil and coal bed methane that are found in a reservoir of shale rock or coal seams.

Shale gas

2.2 Shale gas is methane found in rocks, deep below the earth's surface, which had previously been considered too impermeable (i.e. any fissures in the rock were

too small) to allow economically viable recovery. Hydraulic fracturing – often termed fracking - is the process of opening and/or extending existing narrow fractures or creating new ones (fractures are typically hairline in width) in gas or oil-bearing rock, which allows gas or oil to flow into well-bores to be captured.

2.3 During fracking, a mixture of water, sand and chemical additives is pumped under pressure down a borehole into the target rock unit. The grains of sand prop the fractures open to allow gas extraction. The borehole is lined with a steel casing cemented into place, which is only perforated where it crosses the target rocks, to allow the hydraulic fracturing fluid to be injected into the rock. It is often necessary to carry out several phases of fracking over the life of a production well.

2.4 Plugs may be used to divide the well into smaller sections (termed stages). Stages are fractured sequentially, beginning with the stage furthest away from the surface. After the fracking is complete, such plugs can be drilled through and the well depressurised.

2.5 The process is designed to be a closed loop, so that when the high pressure is removed, the fracking fluid returns to the surface for treatment and storage. The flowback water may also contain salts and other dissolved minerals from the shale rock formation. Estimates vary on what percentage of this fluid returns to the surface: from 25% to 75%. This wide range is explained by differences in the properties of the shale and its response to the fracking.

2.6 The results of a study on the Bowland-Hodder shales was published in June 2013[1] by the British Geological Survey (BGS) and the Department of Energy and Climate Change (DECC). The study states that the assessment of shale gas resources in the UK is in its infancy, but the work carried out on these shales, across 11 Local Authority areas, show that they have the potential to form a shale gas resource analogous to the producing shale gas provinces of North America. Other areas in the UK have shale gas and shale oil potential, and have been the subject of further BGS/DECC studies - the Weald Basin of southern England[2] and the Midland Valley of Scotland[3].

2.7 Annex A shows a UK map of shale deposits. The Bowland-Hodder shales across central England and up into North Yorkshire can be clearly seen on this map, as can the relatively sparse distribution of shales across the north of Cumbria. It is known that there are black shale deposits at some of the existing, limestone quarries in the very south of the county, and it is likely that these lie at the very

[1] Andrews, I.J. 2013, '*The Carboniferous Bowland Shale Gas Study: geology and resource estimation'*, British Geological Survey for Department of Energy and Climate Change, London https://www.gov.uk/government/publications/bowland-shale-gas-study

[2] Andrews, I.J. 2014, '*The Jurassic Shales of the Weald Basin: geology and shale oil and shale gas estimation'*, British Geological Survey for Department of Energy and Climate Change, London https://www.gov.uk/government/publications/bgs-weald-basin-jurassic-shale-reports

[3] Monaghan, A.A. 2014, '*The Carboniferous Shales of the Midland Valley of Scotland: geology and resource estimation*', British Geological Survey for Department of Energy and Climate Change, London https://www.gov.uk/government/publications/bgs-midland-valley-of-scotland-shale-reports

top of the Bowland-Hodder shale formation. These Cumbrian deposits have been detailed, but not mapped out at depth, by the BGS memoirs and maps that cover the area; however, due to a lack of exploration data, it is not presently possible to map the shale rock deposits at depth in detail.

Coal bed methane

2.8 This is methane that is extracted from unworked coal seams. Further information on the location of coalfields in England may be found at: http://coal.decc.gov.uk/en/coal/cms/publications/data/map/map.aspx.

2.9 Extraction of coalbed methane is usually from one of two sources:

- drilling vertically into a coal seam (making use of pre-existing fracture patterns); or more likely
- directional drilling along a coal seam

In both cases, the coal seams may be hydraulically fractured to improve flow rates; the well is then pumped to remove water and lower the pressure within the seam to allow release of methane.

2.10 Extracting coal bed methane does not detrimentally affect the physical properties of coal, or prevent it from being worked at a later date, unlike Underground Coal Gasification (discussed below). There are two main factors to consider:

- unlike underground coal mining, extraction of coal bed methane does not cause subsidence of the land surface;
- removing the water is commonly required to initiate gas production - such de-watering can take an extended period of time.

2.11 Due to the large reserves of coal under Cumbria, it is more likely that there will be exploitation of coal bed methane in the county, rather than shale gas or oil.

Permission process for shale gas and coal bed methane

See Annex B for diagram of permissioning process.

2.12 The first step that an operator must take in order to extract hydrocarbons onshore, is to obtain a Petroleum Exploration and Development Licence (PEDL) from the Department of Energy and Climate Change (DECC). This will give the operator the exclusive right to search for oil and gas (including coal bed methane, shale gas or shale oil, conventional gas and oil and even for pumping out methane from abandoned coal mines) within the licensed area. A PEDL does not allow underground coal gasification; that process falls under a different regime.

2.13 Once a company is awarded a licence and wishes to drill, they must negotiate access with a landowner(s) who is willing to allow them to drill on or under their land. The operator then must seek planning permission from the County Council

as it is the Minerals Planning Authority for exploratory and production drilling - the Environment Agency is always consulted on such planning applications. If planning permission is granted, the company must then obtain Environment Agency permits for Mines Waste Disposal, Radioactive Substances (if it is likely that any Naturally Occurring Radioactive Material is present in the rock) and Abstraction (in the case of de-watering for coal bed methane extraction).

2.14 The well design must be scrutinised by the Health & Safety Executive, who can require changes if they are not satisfied. If drilling is likely to penetrate coal, the operator will need a Coal Authority Access agreement. Finally, a consent from DECC is required.

2.15 If the operator proposes to carry out hydraulic fracturing, they must also provide DECC with a Hydraulic Fracturing Programme, and a detailed Environmental Risk Assessment (ERA) of seismic risks - in such cases, DECC will also require submission of a fracking plan, showing how seismic risks will be mitigated. If a test flow over 96 hours is necessary, they can apply for an Extended Well Test along with the initial drilling consent.

2.16 If the well finds hydrocarbons, and the company wishes to go into commercial production to extract gas or oil, they must then obtain a new planning permission for production from the Minerals Planning Authority, secure environmental permits from the Environment Agency, have their plans scrutinised by the Health and Safety Executive and obtain a Field Development Consent from DECC.

2.17 If production of shale gas or coal bed methane goes ahead, the life of a development is usually around 20 to 25 years. When production ceases, the facilities should be dismantled and the site restored to its former use, or some other beneficial use, that was agreed in the restoration scheme required by the planning permission.

2.18 In August 2013, DECC conducted a Strategic Environmental Assessment (SEA) for areas to offer in the next licencing round. On 28 July 2014, DECC announced the opening of the 14th Round of onshore licensing. This opened a 90 day period in which companies seeking new onshore licences could submit applications. The 14th Round material (with a map of the area on offer) can be viewed here: https://www.gov.uk/oil-and-gas-licensing-rounds

2.19 Further information can be found on the DECC website at: https://www.gov.uk/oil-and-gas-onshore-exploration-and-production or, for information on wells, seismicity and historic licences on an interactive map, see the UK Onshore Geophysical Library website: www.ukogl.org.uk. The Library does not provide any assessment of these records, it merely shows the locations of where the data gathering took place.

Underground coal gasification (UCG)

2.20 The UK has large reserves of indigenous coal, both onshore and offshore. The Coal Authority owns virtually all of the unworked coal in Britain. The largest areas

are in Yorkshire, Lincolnshire, the Dee estuary and Warwickshire, with smaller deposits in central Scotland and south Wales. Cumbria has a long history of coal working, but it is unknown if there are sufficient unworked seams, at a suitable depth, for a viable project.

2.21 UCG was first developed in the former Soviet Union in the 1930s; there is at least one commercial-scale scheme operating in Uzbekistan today. A trial was carried out in Derbyshire in the 1950s, but was abandoned at that time for economic reasons. A European trial of UCG in deep coal seams was carried out in Spain in the 1990's, involving the UK's Department of Trade and Industry (DTI). The encouraging results of this trial led the DTI to re-evaluate UCG as a longer term option for clean coal exploitation in the UK.

2.22 UCG is an *in situ* method of converting any unworked coal, deep underground, into a combustible gas. This is achieved by drilling two boreholes into the coal seam, one to inject water/air or water/oxygen mixtures, and the other to bring the gas that comes off the gasified coal, to the surface. It is both an extraction process (like coal mining) and a conversion process (gasification) in one step. Coal has considerable variation in its resistance to flow, depending on its age, composition and geological history, so relying on the natural fissures in the coal to transport the gas is generally not satisfactory. High pressure break-up of the coal with water (hydraulic fracturing), electric-linkage and reverse combustion have all been used with success in both pilot and commercial scale operations. The technique is best suited to deep coal seams, 500 metres plus, and can be undertaken both on and off shore.

2.23 The gas can be used for industrial heating, power generation or the manufacture of fuels, fertilisers, hydrogen, synthetic natural gas or other chemicals. It can also be processed to remove its CO_2 content before it is passed to end users, thereby providing a source of clean energy, with minimal greenhouse gas emissions.

2.24 There is a need for environmental impact assessment and risk analysis, and the following may be required: protection of aquifers; protection from subsidence; and adequate depth of operation to avoid surface disruption. Although the concept is simple, there are problems with putting it into practice. The main problems are: drilling the boreholes; controlling the reaction within the seam; and producing a gas of a consistent and high quality.

2.25 The gasification stage will require the installation of storage facilities for nitrogen, oxygen and water, together with generating and monitoring equipment. The primary environmental considerations at this stage will be visual intrusion, noise, site traffic, water disposal, control of spillage, emissions to air and subsidence. On cessation of operations, all boreholes will need to be sealed and the surface land restored.

2.26 The overall impact is less than that associated with traditional coal mining activities, as no coal is brought to the surface, and the risk of subsidence is reduced by the presence of solids produced during the gasification process,

which remain in the void, and by unworked coal left between gasified panels. Further information on UCG technology can be found at www.ucgp.com

Underground coal gasification (UCG) licences

2.27 The permission process for these is entirely different to PEDLs – they are conditional licences that are granted by the Coal Authority. The technical and economic viability of underground coal gasification has not to date been demonstrated in UK conditions. DECC is monitoring progress and continues to work with other parties (including the Coal Authority and the Environment Agency) to help ensure clarity around the regulatory aspects of the process.

2.28 It should be noted that all the current UCG licences are conditional. As such, no underground coal gasification operations can take place until the licensee has satisfied the pre-conditions set out in the licence, which include the acquisition of all the other necessary rights and permissions to carry out the operations. These include consent from the Minerals Planning Authority for any onshore installations and the equivalent consent for offshore; environmental permissions from the Environment Agency pertaining to the Water Resources Act, Environmental Permitting Regulations, the EU Emissions Trading System and the Control of Major Accident Hazards Regulations; and the consent of the Health & Safety Executive. The licensee will also have to secure the consent of a landowner(s) for any surface installation (or the equivalent for sea bed installations) and satisfy the Coal Authority that the finance is in place to carry out the operations.

2.29 Exploration is permitted under the consent granted by the Coal Authority, but once again this is dependent on other rights being in place. Note that the licences are only for coal gasification and do no permit shale gas or coal bed methane exploitation. The UCG licences are also separate to those granted by the Coal Authority for deep coal extraction.

2.30 The conditional UCG licences are granted for an initial period of 3-5 years so that the projects can be developed. This period can only be extended if the licence holder can demonstrate substantive progress and a proper funded plan to drive the project forward.

2.31 The Coal Authority will normally only consider UCG conditional licence applications for:-

- offshore areas, although this can include an onshore access strip to facilitate the sinking of exploration boreholes during the conditional licence phase and for sinking directional access boreholes into the offshore UCG area during the operational phase;
- onshore areas[4], but only where it can be demonstrated that the surface is suitable for piloting this technology;

[4] Onshore applications will only be accepted where the Coal Authority considers that the applicant has a reasonable chance of bringing the project to fruition. For example, an application for onshore UCG by, or with the agreement of, a surface landowner with ownership of all the surface land likely to be affected by the proposed UCG operation could be said to stand a reasonable chance of getting planning consent, etc.

- areas where there are:-
  - no other Coal Authority Mining Licences & Agreements;
  - no existing Petroleum Exploration and Development Licences;
  - no identifiable defence installations (MOD); and
  - no existing or proposed wind farm sites or other major structures on the seabed;
- a maximum initial application area of 10,000 hectares;
- areas where the Department of Energy & Climate Change, the Crown Estate, the Ministry of Defence or other relevant bodies do not raise objections. Consultation will be undertaken by the Coal Authority with these relevant bodies on receipt of a conditional licence application.

2.32 The main Coal Authority contact for UCG is:

Simon Cooke
Principal Manager Licensing & Permissions
T: 01623-637344
M: 07748-760101
F: 01623-620363
W: coal.decc.gov.uk

Policy and guidance from Government

2.33 Paragraphs 142 to 149 of the National Planning Policy Framework (NPPF) set out minerals planning policy. It makes clear that minerals planning authorities should identify and include policies for extraction of mineral resource of local and national importance in their area - this includes both conventional and unconventional hydrocarbons. It also expects minerals planning authorities to ensure that mineral extraction does not have an unacceptable adverse impact on the natural or historic environment or human health. Unconventional hydrocarbons are emerging as a form of energy supply, and Government says that there is a pressing need to establish – through exploratory drilling - whether or not there are sufficient recoverable quantities of unconventional hydrocarbons present to facilitate economically viable, full scale production.

2.34 DCLG has also published (March 2014) Planning Practice Guidance, to complement the NPPF. Amongst the issues covered is 'planning for hydrocarbon extraction', for onshore oil and gas. This guidance provides advice on the planning issues associated with the three phases of extraction of hydrocarbons – exploration, testing and production. It also contains 'model' planning conditions, on which minerals planning authorities can base their own conditions if granting planning permission for onshore oil and gas exploration, testing or production.

2.35 To coincide with the launch of the 14th Round of Petroleum Exploration and Development Licence offering, DCLG also issued a new paragraph to the Planning Practice Guidance, regarding hydrocarbon activities in or near certain landscape designations. New paragraph 223 refers to National Parks, the Broads, Areas of Outstanding Natural Beauty and World Heritage Sites. It says that great weight should be given to conserving landscape and scenic beauty in

these areas (including adjacent areas if they affect the setting) and that planning permission should be refused for major development except in exceptional circumstances, and where it can be demonstrated that it is in the public interest.

2.36 The DCLG Planning Practice Guidance does not cover underground coal gasification, but the Coal Authority do provide guidance for applicants and also set out their policy towards UCG, on the DECC website (http://coal.decc.gov.uk/publications/).

3.0 THE CURRENT SITUATION IN CUMBRIA

Petroleum Exploration and Development Licences (PEDL)

3.1 There is one existing PEDL (see Annex C) in Cumbria. In 2008, two further PEDLs existed in the county, one at St Bees (013) and one in north Allerdale (064). However, these licences were relinquished by the operators in March 2009 and September 2011 respectively. Three planning permissions were granted by the County Council within these relinquished licence areas; the first one, below, to Greenpark Energy Ltd and the others to Octagon (CBM) Ltd:

- 2/09/9018 coal bed methane extraction; Fisher Gill Farm, Wigton
- 4/01/9021 coal bed methane drilling, testing and extraction; St Bees Road
- 4/01/9023 coal bed methane drilling, testing and extraction; Byerstead Road

3.2 Site visits show that the planning permissions gained by Octagon (CBM) do not appear to have been implemented and no drilling occurred. The Greenpark Energy site at Fisher Gill Farm was drilled and the well abandoned and sealed in accordance with the EA, HSE and DECC requirements. Dart Energy (Europe) Limited, who acquired Greenpark Energy Ltd in 2012, have accepted responsibility for the surface restoration and have appointed contractors to carry out the works in spring 2014.

3.3 The extant PEDL (159) was granted on 1 October 2004, with an anticipated end date of 1 October 2035. Four planning permissions have been granted by the County Council within this licence area; the first three, below, to Greenpark Energy Ltd (now owned by Dart Energy (Europe) Limited) and the fourth to Octagon (CBM) Ltd:

- 1/07/9028 coal bed methane exploration, appraisal, operation; Englishtown
- 1/07/9029 coal bed methane exploration, appraisal and operation; Carwinley
- 1/10/9009 coal bed methane production; Becklees Farm, Longtown
- 1/02/9018 coal bed methane drilling, testing and extraction; Moat, Longtown

3.4 Site visits in September 2013, showed that the Octagon CBM site at Moat was not drilled; the site at Carwinley was fully restored and was back in agricultural use; the sites at Englishtown Farm and Becklees Farm were unrestored. Although Dart Energy report that Greenpark Energy had encouraging results from these latter two wells, in relation to gas content and seam thickness, the depth of

the seams is likely to hamper commercial production. The wells have been capped for the time being, but have not been formally abandoned and sealed in accordance with the regulatory requirements. Dart Energy have the necessary regulatory approvals from the EA and HSE and, in February 2014, were granted planning permission from the County Council for activities necessary for the abandonment process and for surface restoration back to agricultural use. It is expected that this work, once started, will be completed over a period of approximately 7 months.

Underground Coal Gasification (UCG) Licences

3.5 There are three existing UCG conditional licences, issued by the Coal Authority, off the coast of Cumbria, near St Bees (see Annex D). These are owned by Cluff Natural Resources (the most northerly of the licensed areas, which was granted in July 2013) and Riverside Energy Ltd., who own the other two areas, covering some 100km^2, and which were granted in 2010.

3.6 There is also a conditional licence in the Solway Firth, which is recorded as being at Canonbie, so it's unclear whether land access/installations would be required in Cumbria or not. This licence, covering 40km^2, is owned by Clean Coal Limited and was granted in November 2009. This operator is further ahead than any other in the UK, and this site is currently at the Desk Study phase, which includes full feasibility study and appraisal of the project's commercial viability.

3.7 In March 2014, the Coal Authority proposed a further area for UCG licensing, off the coast of Cumbria, from Workington to Maryport. Applicants had 60 days in which to submit an application for a conditional licence for this area, but there are no details available on whether a company has actually applied to the Coal Authority.

3.8 To date (July 2014), there have been no planning applications submitted to Cumbria County Council relating to drilling operations or infrastructure associated with UCG.

4.0 CUMBRIA MINERALS & WASTE LOCAL PLAN

4.1 As the upper tier authority in Cumbria, the County Council is statutorily required to prepare a Minerals & Waste Local Plan (MWLP); previously, a Minerals & Waste Development Framework (MWDF) was required.

4.2 In 2009, Cumbria County Council adopted a Core Strategy and Development Control Policies, under the MWDF system – these two documents are still in force. They set out a strategic framework, indicating minerals and waste developments required in the county, and provide a set of policies that are used when planning applications are considered. There are two existing policies that directly relate to hydrocarbons: Core Strategy Policy 18 and Development Control Policy DC7 (see Annex F). Any development would also have to comply with all the other, relevant, policies, such as those for traffic, environmental impact, biodiversity and geodiversity, landscape, restoration, etc.

4.3 Due to the introduction of the National Planning Policy Framework (NPPF) in 2012, a draft Cumbria MWLP was prepared by the County Council, and a public consultation on its contents was carried out between February and April 2013 (see: http://www.cumbria.gov.uk/planning-environment/policy/minerals_waste/MWLP/Consultation.asp). This document retained Core Strategy Policy 18, word for word, but it was renumbered as SP13; Development Control Policy DC7 was also retained, as DC10, but the wording regarding coal was expanded to include underground coal mining, not just opencast.

4.4 The Policy Maps already show the existing PEDL (north of Longtown) and also the existing deep coal mining licensed areas (north of Longtown and around St Bees). It is planned that the UCG conditional licence areas, off the coast of West Cumbria and in the Solway Firth, are shown on future versions of the mapping.

4.5 Text in the draft Local Plan recognises that the potential for fracking in the UK has moved on since the Core Strategy adoption in 2009. Paragraph 5.33 says:

> "There has also been interest in appraising Cumbria's oil and gas resources. This is not known to have included shale gas and hydraulic fracturing or 'fracking'. A strategic policy is proposed for coal bed methane and for oil and gas. The position with regard to shale gas will be kept under review, as will the implementation of Government energy policy".

Paragraph 20.38 says:

> "Policy SP13 relates to coal bed methane. The areas that have been licensed by the Coal Authority are shown on Policy Map 2. References are made to the high prospects for coal bed methane within the West Cumbria coalfield and the extension of the Canonbie coalfield. The strategic importance of this resource, and others, including oil shales and deep coal, will be kept under review in the Annual Reports."

4.6 A number of responses to the draft Local Plan consultation in early 2013, related to fracking. Some respondents asked for a policy on fracking alone, others asked that it be included in the policy on oil and gas and coal bed methane, with a potential name change to 'unconventional hydrocarbons'. All respondents on this topic were worried that existing policies did not adequately protect the environment; some were worried about climate change mitigation and groundwater contamination.

4.7 County Council officers are at the stage of assessing the responses to the consultation and making recommendations that will be deliberated in Cabinet and Council. It is likely that another public consultation on the draft Local Plan will be held in late 2014 and it is also likely that a policy will be included that relates to fracking and, potentially, underground coal gasification. A new policy would likely be criteria-based for each of the exploration, appraisal and production phases of hydrocarbon extraction. It seems unlikely that a Mineral Safeguarding Area is needed for these hydrocarbons, considering the depth of the resource.

5.0 SUMMARY AND CONCLUSION

5.1 The geology of Cumbria is complex. There is a narrow band of shale rock across Allerdale and Carlisle districts, skirting the top of the Lake District National Park (see Annex A). It is also known that there are black shale deposits at some of the existing, limestone quarries in the very south of the county, and it is likely that these lie at the very top of the Bowland-Hodder shale formation. These Cumbrian deposits have been detailed, but not mapped out at depth, by the British Geological Survey (BGS) memoirs and maps that cover the area; however, due to a lack of exploration data, it is not presently possible to map the shale rock deposits at depth in detail.

5.2 Cumbria contains, in whole or in part, two National Parks (Lake District; Yorkshire Dales) and three Areas of Outstanding Natural Beauty (Solway Firth; Arnside and Silverdale; North Pennines) - in total, these designations cover 49% of the county. There is also a World Heritage Site – Frontiers of the Roman Empire: Hadrian's Wall – across the north of the county. The Government has confirmed that applications for unconventional hydrocarbon development in these areas will only be allowed in exceptional circumstances. The new planning guidance, referred to above, reiterates policy contained in the National Planning Policy Framework (NPPF) in regard to major development in National Parks and AONB: i.e. that great weight should be given to conserving landscape and scenic beauty in these areas (including adjacent areas if they affect the setting) and that planning permission should be refused for major development except in exceptional circumstances, and where it can be demonstrated that it is in the public interest.

5.3 The maps at Annex E, illustrate where the 10km OS grid squares are located in Cumbria, and broadly show their relationship to the National Parks and AONBs. Several of the grid squares identified for offer in the 14th Round of licensing, lie wholly or partly within one of these landscape designations – and given this, the restrictive approach outlined above would apply in these areas.

5.4 There is a much larger resource of coal under Cumbria, both deep and shallow, which runs across the northern half of the county and into Scotland and over to the Pennines. Therefore, it is more likely that coal bed methane extraction will occur onshore, rather than shale oil/gas extraction. Furthermore, because of the coal, it is likely that underground coal gasification could occur offshore, once the technology is mature.

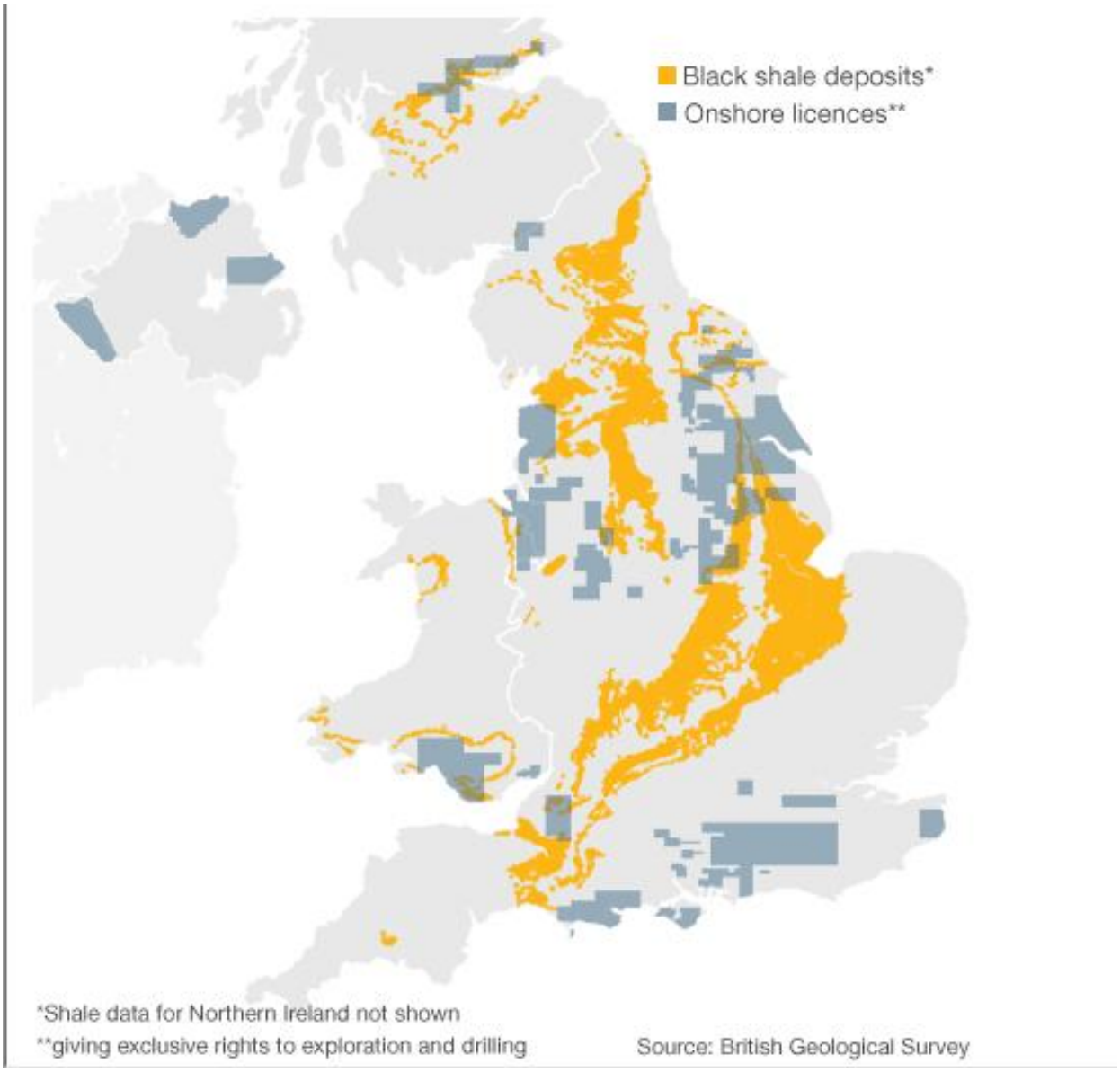
5.5 There is an existing Petroleum Exploration and Development Licence (PEDL) area around Longtown, within which there are four coal bed methane planning permissions for drilling, appraisal and extraction. However, one site was never implemented, one has been restored to agricultural land and the other two are in the process of restoration.

5.6 There are three existing conditional licences offshore at St Bees and one in the Solway Firth for underground coal gasification. There are no planning permissions associated with these licences.

5.7 There are two existing policies on oil and gas and coal bed methane in the MWDF Core Strategy and in the Development Control Policies (both adopted 2009), as well as in the draft Minerals & Waste Local Plan (February 2013). It is expected that the next draft of the Local Plan will include a policy that encompasses fracking – for whichever type of hydrocarbon extraction. Text in this document will also be updated to reflect the current shale gas, coal bed methane and underground coal gasification situation. Furthermore, all existing licences will be shown on the associated Policy Map.

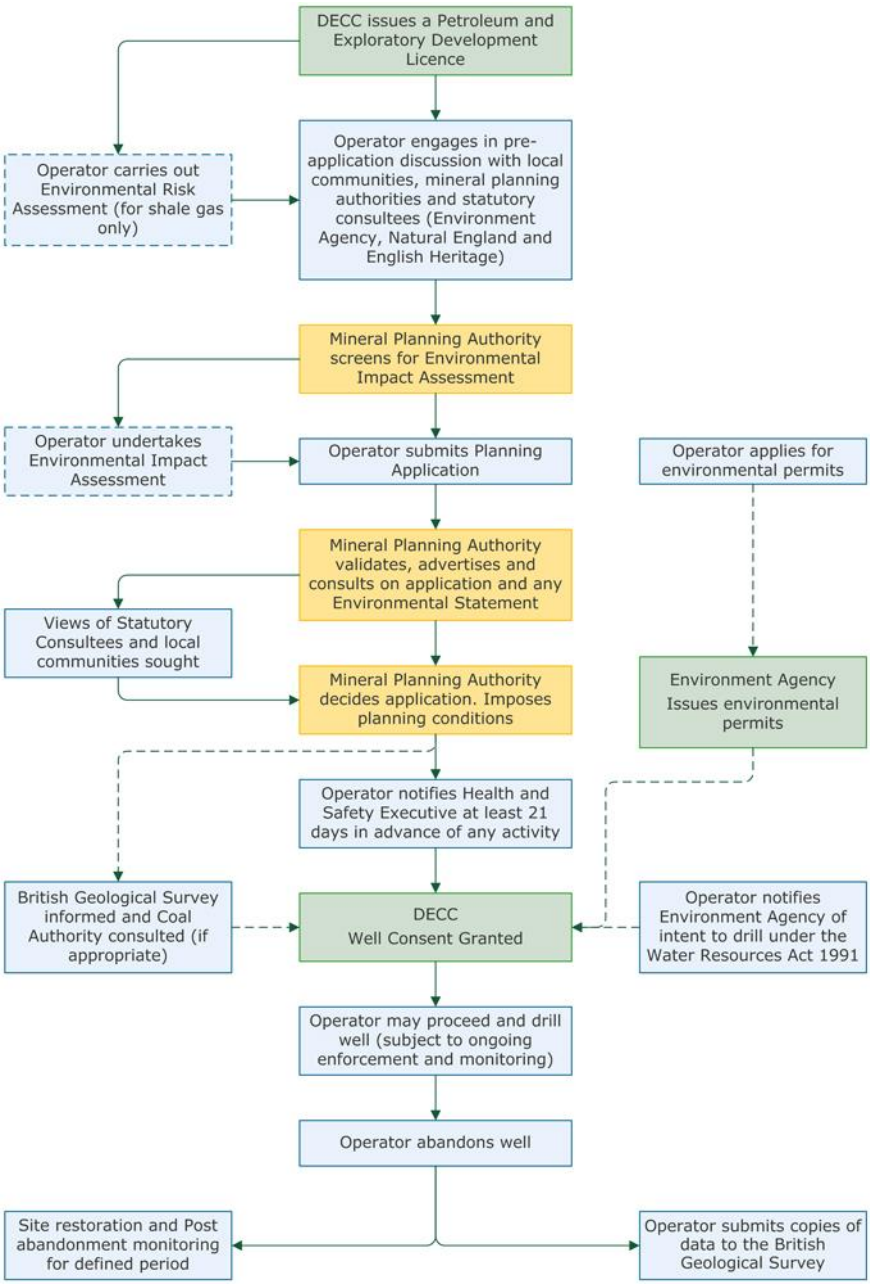
5.8 County Council officers will monitor the situation regarding hydrocarbons in the county and this briefing will be updated when more information is known.

Annex A: Map of shale formations across the UK



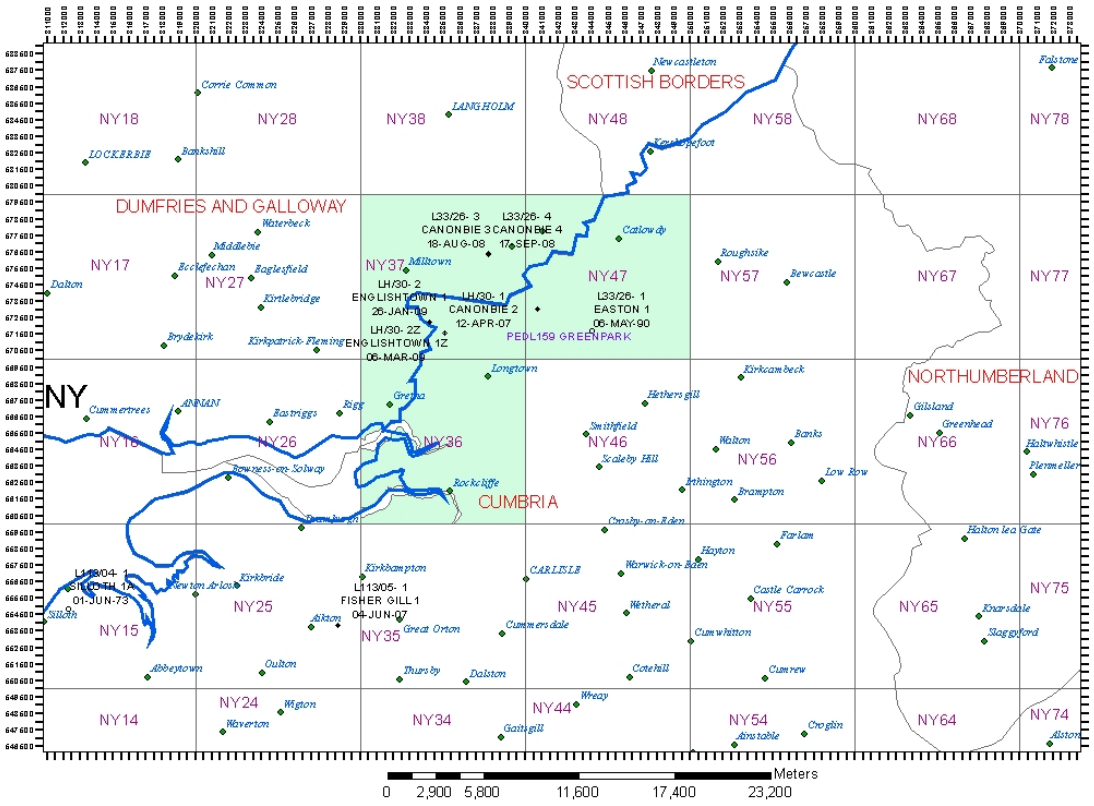
source: BBC news website, 12 August 2013

Annex B: Outline of process for drilling an exploratory well



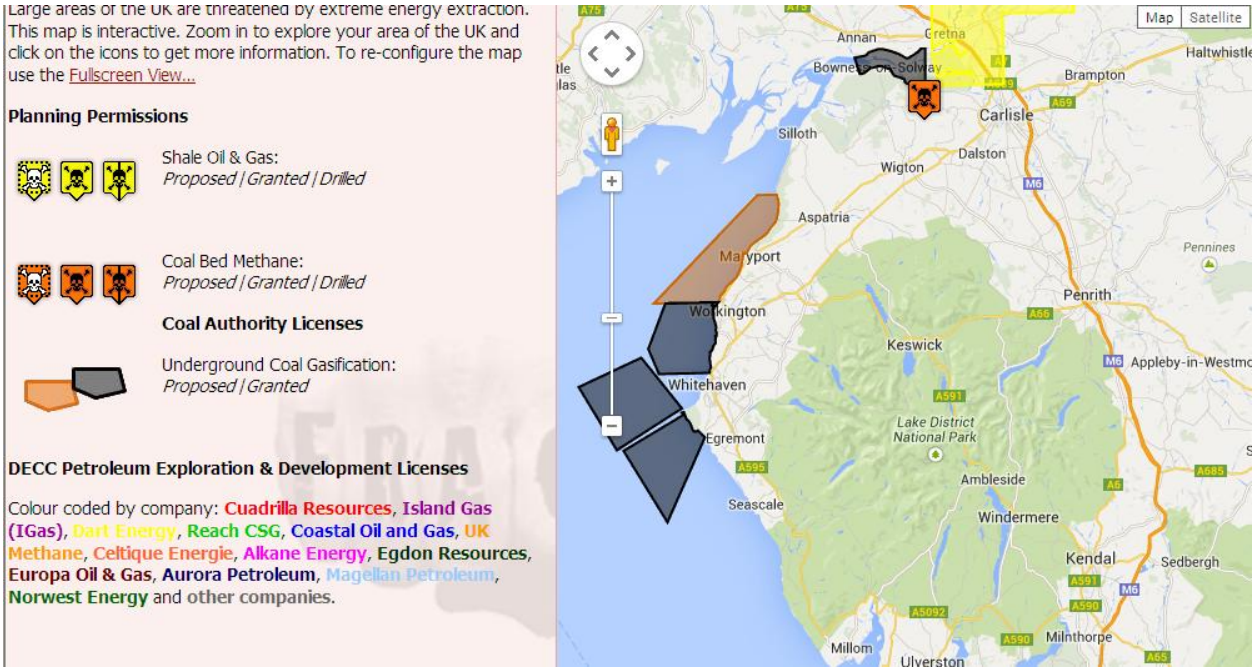
source: Planning Practice Guidance, DCLG March 2014

Annex C: Petroleum Exploration and Development Licences in Cumbria



source: DECC

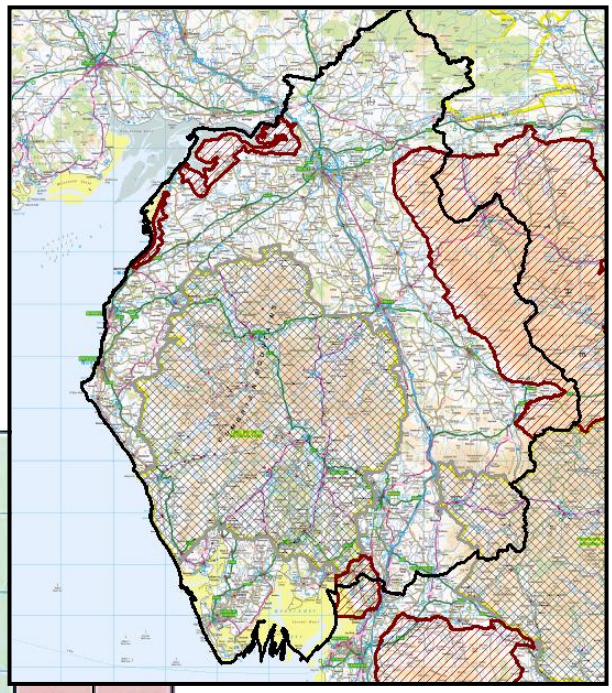
Annex D: Underground coal gasification licences in Cumbria

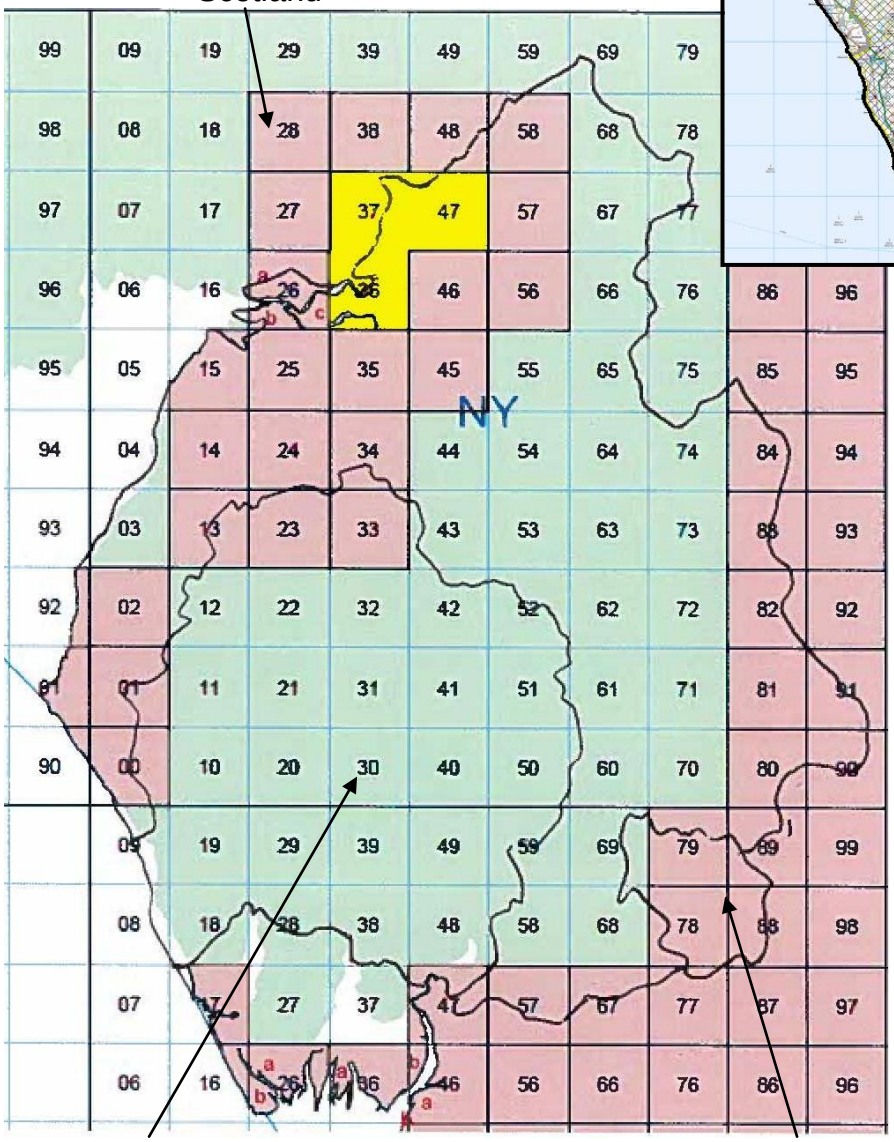


source: http://frack-off.org.uk/locations/ 31 July 2014

Annex E: Map of existing and potential PEDL areas

National Parks and AONBs in Cumbria





source: DECC

Annex F: Existing Cumbria planning policies re hydrocarbons

Core Strategy Policy 18

OIL AND GAS and COAL BED METHANE

Planning permission will be granted for proposals associated with the exploration and development of onshore and offshore oil and gas and coal bed methane in appropriate locations, and which do not have unacceptable environmental impacts.

Development Control Policy DC7

CRITERIA FOR ENERGY MINERALS

Planning permission will be granted for energy minerals developments that conform to the Core Strategy where proposals:

a. for appraisal, drilling and testing or for development of oil and gas or coal bed methane are consistent with an appropriate scheme for the appraisal of the resource.

b. for open cast coal extraction where:

- local and community benefits outweigh the likely impacts on the environment or inward investment, economic development or tourism, and
- working life is minimised commensurate with the environmental and community impacts, and in any events will not exceed 10 years.

The adopted Cumbria Minerals and Waste Development framework documents can be found on the County Council website at: http://www.cumbria.gov.uk/planning-environment/policy/minerals_waste/mwdf/AdoptedDocuments.asp