Preston City Council

Work Plan

Report by the Environmental Scrutiny Panel

March 2013 - January 2014

Chair's Commentary/Foreword

This review was undertaken as a result of a Notice of Motion to Council in December 2012 and our Work Plan Study began in March 2013. The Review Panel quickly realised that the Study would take longer than any undertaken previously, given the complexity and the controversial nature of the subject matter. And this was probably the most serious topic that had come before us since the review system was conceived. During the course of our study Members gained a significant knowledge of the Fracking process and recognised that the future of Shale Gas Extraction will have national consequences, regional significance and local concern.

On behalf of the Environmental Scrutiny Panel I would like to thank all the agencies, outside bodies and organisations that took part in this review and all our Preston City Council Staff and Officers that were involved in helping to put this report together.

Councillor N Pomfret
Chair of the Environmental Scrutiny Panel

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Shale Gas Extraction – Notice of Motion

1. Introduction

1.1 This topic was directed to the Environmental Scrutiny Panel as a review which the Panel could undertake as a work plan study following a Notice of Motion to Council in December 2012 and a presentation by the Corporate Director Environment on Renewable Energy at the Panel meeting held on 19 January 2012. The study began on 7 March 2013.

1.2 The Panel's deliberations were conducted over the course of nine meetings held in March, April, June, July, September, October, November 2013, January and March 2014. Additionally, the Panel undertook one site visit as part of the study details below. This involved detailed information gathering, presentations and interviews held with the following key attendees.

1.3 Preston City Council Officers –

Mick Lovatt, Corporate Director Environment, Preston City Council
Alison Kershaw, Head of Development Management

1.4 External attendees –

Steve Molyneux	-	Environment Agency (EA)
Helen Rimmer/Dorothy Kelk	-	Friends of the Earth
John Arnott	-	Department of Energy and Climate Change (DECC)
Phil Merrin	-	United Utilities (UU)
Francis Egan	-	Caudrilla
Gordon Richardson	-	Arup
Stuart Perrigo	-	Lancashire County Council (LCC)
Laurance Rankin	-	Ribble Estuary Against Fracking (REAF)
Jackie Copley	-	Campaign to Protect Rural England (CPRE)
Neil McInroy	-	Centre for Local Economic Strategies (CLES)
Dr Jim Neilson	-	Health and Safety Executive (HSE)

1.5 Also the Environmental Scrutiny Panel conducted a site visit to Elswick near Fylde to observe a site currently occupied and running by Caudrilla.

2. Membership

2.1 The Panel was chaired by Councillor Nick Pomfret, the full membership being:-


Councillor Pomfret


Councillor Mrs Crompton


Councillor Mrs Atkins


Councillor Mrs Brown


Councillor Crowe


Councillor Davies


Councillor Faruki


Councillor Moore


Councillor Y Patel


Councillor Seddon


Councillor Mrs Smith

3. Deliberations

3.1 The Scrutiny Panel met on a number of occasions to gather information/evidence, interview witnesses and discuss findings.

3.1.2 A summary is given below of the information produced at each meeting. Full detailed minutes can be found by referring to the links included:-

7 March 2013

3.2 Environment Agency (EA)

3.2.1 The Environment Manager, from the Environment Agency was in attendance to give a presentation to the Panel on Shale Gas Extraction and the Environment Agency's role.

3.2.2 It was explained the current position in respect of Shale Gas Extraction. It was reported that shale gas extraction was still at a very early stage in the UK and only Lancashire had three wells that had been drilled of which one had been partly fracked. Following earth tremors fracking activity had been suspended, however the suspension was lifted following investigations. Currently only one organisation called Caudrilla have been licensed for testing, however, there were other companies showing interest. It was reported that it was too early to say how much reserves or possible production was available.

3.2.3 The sites where testing had been taking place and where drilling had started in Lancashire were highlighted to the Panel. The differences between conventional non-associated gas and conventional associated gas was explained. The Panel was shown a detailed map of licensed exploration areas in Great Britain and proposed shale gas exploration sites in England and Wales.

3.2.4 The process involved in shale gas extraction exploration was outlined to the Panel. The structures of the boreholes were explained to Members and the mechanism involved in the exploration process. How the flow back water was dealt with and what happened after the exploration stage was explained to the Panel. The environmental risks from shale gas extraction and measures put in place to deal with those risks we highlighted. Some of the risks highlighted were:

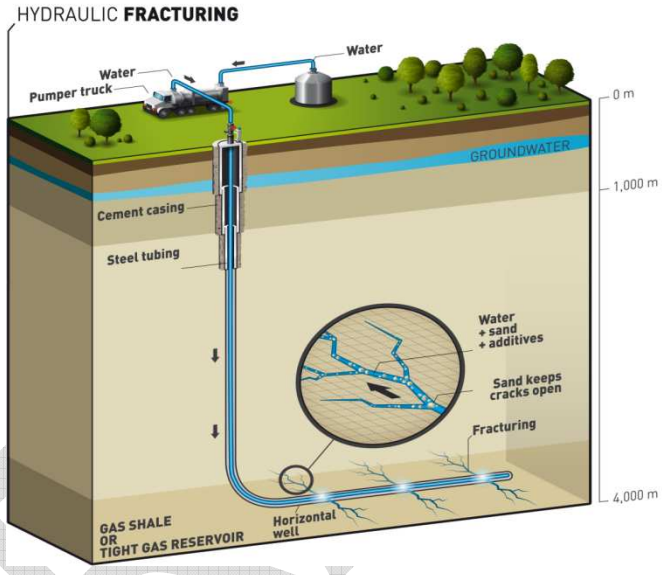
3.2.5

- Impact on water resources from water used in the hydraulic fracturing
- Fugitive emissions of methane
- Inadequate disposal of drill cuttings
- Inadequate or disposal of waste water
- Contamination of soil, surface or groundwater due to spills of chemicals or return fluids

- Contamination of groundwater due to mobilisation of solutes or methane
- Contamination of groundwater due to poor well design or failures

3.2.6 In order to mitigate these risks and to monitor theses a number of agencies were involved including:

- Department of Energy and Climate Change (DECC)
- Health and Safety Executive (HSE)
- Environment Agency (EA)
- Scottish Environment Protection Agency (SEPA) (Scotland only)
- Local Authorities (LA)



3.2.7 The regulation process involved in the exploration of Shale Gas was explained. The role of the Environment Agency was a statutory role in the planning process including, issuing of environmental permits which are site specific, and they have a role under the Environmental Regulations requirements including Notice to drill. And under the Water Resources Act 1991, Ground water activity, Water Abstraction Licensing, Mining Waste Operation and Naturally Occurring Radioactive Materials (NORM) the EA were involved in monitoring. The regulations applicable at each stage were detailed to the Panel. Further details in respect of the well bore and its integrity was provided to Members. The Panel were re-assured that the well bore casings were regularly pressure tested to ensure there were no issues in respect of construction and risks. The HSE were also heavily involved in the process and worked on-site monitoring and managing risks. Other environmental impacts were highlighted such as traffic, machinery and environment.

3.2.8 It was acknowledged that there were a lot of public concerns in relation to Shale Gas Extraction and a number of Pressure Groups had expressed concerns about the possible reduction in investments for renewable if the

Shale Gas extraction was successful and there were also concerns about using up another fossil fuel.

3.2.9 The Environment Agency's position on the subject was summarised as follows:

3.2.9.1 Shale Gas in the UK is at a very early stage of development

3.2.9.2 The environmental risks are taken seriously and they can be managed effectively.

3.2.9.3 All exploratory shale gas operations will require environmental permits

3.2.9.4 The EA have the necessary regulatory controls in place for the exploration stage.

The risks and the control measures to manage those risks were outlined to the Panel.

3.2.10 The Environmental Agency Representative then responded to members' questions and comments on the following:

3.2.10.1 Waste disposal – The Panel were informed that although the EA regulated the disposal of waste at these sites it was a commercial decision of the company as to whom the operators choose to carry out the disposal work. Members were reassured that disposal work could only be undertaken by licensed companies.

3.2.10.2 The effects of the tremors on the concrete wells – the bore wells were monitored throughout the process and following the tremors the work had been suspended for a thorough investigation and it was found that the wells had been unaffected. Regular pressure testing was carried out to monitor any damage or problems to wells.

3.2.10.3 Water source protections zones – extraction in Defined zones (1-3) would not be permitted.

3.2.10.4 Methane gas – was flammable but was controlled and carefully managed.

3.2.10.5 The process involved when a well was abandoned – the Panel were informed that there were strict regulations in place which meant these sites were left in similar condition as before the extraction process began. All abandoned wells were capped and made safe and continued to be monitored.

3.2.10.6 Horror stories from America in relation to Shale Gas Extraction – the Panel were informed that the exploration stage had some of the most

stringent measures in the world in place to prevent any issues or problems that may have been encountered elsewhere.

3.2.10.7 Operations record of Cuadrilla – 20 inspections had been carried out on site and no problems identified.

3.2.10.8 Environment Agency confidence – the EA were comfortable with how the current sites were managed and controlled.

The Chair thanked the representative from the Environment Agency for his attendance and presentation.

5 April 2013

3.3 Site Visit – Elswick Site

3.3.1 The Environmental Scrutiny Panel undertook a site visit to a Cuadrilla Shale Gas Extraction exploration site in Elswick. Upon arrival the Panel members received an overview presentation on Cuadrilla and the process involved in shale gas extraction exploration. A representative of Cuadrilla gave a presentation outlining the process. Details of health and safety were also presented by the Cuadrilla representatives.

3.3.2 Cuadrilla representatives then answered member's questions and concerns in relation to shale gas extraction including:-

- The protection of the water table - measures in place and the monitoring process
- Radiation levels in the waste water
- Tremors directly related to shale gas fracking – there was evidence that recent tremors occurred due to fracturing
- Operational issues particularly impact on the surrounding area
- Details of possible future exploration and extraction plans – due process would follow and the licenses would need to be issued.
- Details of resource implication and employment prospects were provided

- Concerns in relation to abandoned sites were addressed and the process of site closure was explained
- Details of chemical used in the shale gas extraction was provided including the risks involved in their use
- Issues relating to waste water disposal were addressed including the process involved in the disposal of the waste water

Members of the Panel were then shown round the Elswick site.

11 April 2013

3.4 Pressure Group - Friends of the Earth

3.4.1 Representatives of the Friends of the Earth action group attended the meeting to give their perspective on shale gas extraction. The Environmental Scrutiny Panel was informed that the North West Regional Campaigners of Friends of Earth also worked with the local Friends of the Earth Groups. Representative of the local group which covered Preston, Chorley and South Ribble was also in attendance.

3.4.2 A presentation on shale gas extraction was delivered to the Panel. The areas the presentation covered included the impact of shale gas extraction on:

- Climate change and energy
- Water contamination
- Air pollution and health impacts
- Seismic activity
- Local economy
- Government policy
- Global perspective
- The alternative

3.4.3 The risks of hydraulic fracking was outlined, it was stated that according to the European Commission there was a high risk of ground water contamination, surface water contamination, risk to water resource use and air pollution. It was reported that the UN Environment Program also had concerns about the detrimental impact on climate change. The concerns and risks in respect of shale gas extraction in particular the risk of contamination which could affect the water table was illustrated to the Panel. Along with the need to take steps to stop man-made climate change there was a need to reduce growing dependency on fossil fuels. It was reported that 4 of the 5 wettest years in the UK had occurred since 2000 and experts expected extreme weather events such as intense rainfall to become more common.

3.4.4 The Panel was informed that the jury was still out on the question of whether shale gas was cleaner than coal. It was stated that there was 9% leakage of methane gas during the shale gas extraction process. Questions were raised in relation to whether or not shale gas was actually needed. Concerns were expressed regarding the impact of shale gas extraction on the renewable energy programme. It was feared that the investment in shale gas extraction will shift the balance from the renewable energy market. It was also suggested that the possible reduction of energy bills due to shale gas extraction was "wishful thinking" according to Bloomberg New Energy Finance as the operating cost was 30-50% higher in Europe compared to America. It was stated that the only way to tackle fuel poverty was through permanent solution such as the improvement of energy efficiency of homes. Rather than securing our own future gas supply the way forward would be to reduce gas dependency through renewable energy, improved energy efficiency and overall reduction in demand.

3.4.5 Concerns were outlined in relation to impact on water resources. The Panel was informed that each frack required between 9-29 million litres of water which could affect the local water supply. The high volume of water used could cause water contamination as found to be the case in Pavilion, Wyoming in America. It was also stated that the fracking waste water can contain high levels of radiation. An overview on air pollution and health risk were then given it was stated that the European Commission had identified shale gas extraction as high risk to these. US research had found that:

- 40%-50% fracking chemicals could effect the nervous, immune and cardiovascular system
- More than 75% could affect the skin, eyes and respiratory system
- Benzene e.g. in Texas more than five times permitted levels; and
- Asthma rates three times higher near drilling sites

3.4.6 Further concerns were raised in respect of tremors and surface impact and impact underground experienced close to shale Gas exploration sites.

3.4.7 The Environmental Scrutiny Panel was informed that it was found that the projected job figures were over-stated, jobs were short-term and transient. Due to impact on the economy one of the opponents to shale gas extraction were the Australian Tourism Boards. The shale gas extraction process also made it difficult to get an underwriting from insurers for farming land.

3.4.8 It was acknowledged that the Government were driving forward the shale gas extraction programme and had introduced a generous new tax regime including a shale gas field allowance to promote early investment. It was believed that new planning guidance would allow the exploration and extraction process to be expedited and there were proposals to allow local communities to benefit from the extraction of shale gas.

3.4.9 The Panel was told that bans or moratoriums were in place in France, Bulgaria, Netherlands, Cantabria, Vermont, New York and Quebec. It was also reported that there was growing movement against fracking across Europe including in Ireland, Sweden, Romania and Germany.

3.4.10 The alternatives to shale gas extraction were outlined. It was suggested that further investment in renewable energy including wind, solar and tidal wave was the way forward.

3.4.11 Investments on these could lead to 66,000 jobs in offshore wind, 100,000 jobs making homes more energy efficient savings families over £300 per year and it was reported that the solar energy scheme created 27,000 jobs the past year alone.

3.4.12 It was then outlined what the local authorities can do in response to shale gas extraction the options available included:

- Implement a precautionary planning policy
- Make 'Frack free' declaration
- Work with neighbouring authorities
- Respond to consultations on planning guidance and community benefit
- Call on government to keep planning decision local; and
- Support low carbon economy-energy efficiency and renewable generation.

3.4.13 Friends of the Earth representatives then responded to members' questions and concerns on the following:

- Query in relation to support from heating equipment manufacturers and suppliers to develop products that were not gas reliant. It was acknowledged that technology was always developing and there were products available that did not require gas as a source of energy.

- It was suggested that there was no need to undertake shale gas extraction as there was sufficient conventional gas available.
- It was felt that the carbon emission from importing gas could be reduced by extracting our own gas through shale extraction.
- It was pointed out that there were electric boilers available in the market but these needed promoting and developed further for them to take over from gas ones.
- Members raised query about the projected operational cost being 30-50% higher than the US. In response the Panel was informed that the regulations here were more restrictive which could mean higher cost and may not result in cheaper gas.
- It was highlighted that as the shale gas extraction had been promoted by the Government and was heavily regulated by the DECC and the Environment Agency it was very difficult for pressure groups such as Friends of the Earth and also local authorities to ignore or dismiss it as it had government backing.
- It was felt that to take a stance either way i.e for or against shale gas extraction would be difficult. If the Authority decided to keep fracking away from the City then it could result in industry and jobs relating to the process going elsewhere which could lead to possible loss to the local economy.
- In response to a question on liability if there is any water contamination it was stated that this would be the organisation undertaking the fracking who would be held responsible. It was also suggested that this would also be the case if there was failure to adhere to regulations.

The Chair thanked representatives of the Friends of the Earth for their attendance and presentation.

6 June 2013

3.5 **Representative of Department of Environment and Climate Change (DECC)**

3.5.1 A representative from the Department of Environment and Climate Change (DECC) attended the meeting to give a presentation on Shale Gas extraction and the role of DECC. The Panel were firstly reminded how Shale Gas is extracted. Then further explained how Shale Gas was different to conventional gas and then outlined the fracking process. The levels involved during fracking were explained to the Panel. It was stated that at the Preese-Hall site the bore depth went down over 9000 feet approximately two miles. Concerns relating to fracking were then discussed, however, it was stated that claims of water pollution and contamination in the US had not been proven to be frack related. It was confirmed that contamination could occur if the wells were not properly constructed, however it was pointed out that there were stringent monitoring processes in place to ensure that there were no faults in the wells. If any faults were found or there was any change in pressure then the operations would stop until the problem was identified and resolved.

3.5.2 Some notable event dates in the timeline relating to Shale Gas Extraction were then outlined. The key dates included the publication of a report by House of Commons Energy and Climate Change Select Committee and frack related earthquakes near Blackpool in April/May 2011. Then the regulatory process was outlined and the roles of DECC, Environment Agency (EA), Local Planning Authorities and Health and Safety Executive (HSE) was explained. Also, an explanation was given on the control and monitoring processes involved in the Shale Gas exploration. The possible future development of shale gas was discussed and it was stated that it is likely that at some stage the exploration will move to a production at some point.

3.5.3 The DECC representative then responded to members' questions and concerns of the following:

3.5.3.1 In respect of water contamination it was explained that the sites where the current exploration was taking place had a layer of Manchester Marl which was 140 metres thick so it was difficult to see how any contamination would occur. The only risk was from a fault in the wells even then these were strictly monitored and any sign of faults would lead to halt in operations in accordance with regulations.

3.5.3.2 In response to a question the Panel were informed that currently there were over 2,000 conventional gas wells on-shore in the UK, however there had been no examples of contamination reported.

3.5.3.3 In relation to seismic activity as experienced in Blackpool it was reported that following investigations there had been further measures put in place to reduce these. Additional measures include:

- Introduction of a traffic light system monitoring seismic activity
- Initial use of low pressure with systematic increase following stringent monitoring
- Prior geo-technical analysis of frack sites

3.5.3.4 Following concerns raised in relation to Radioactivity levels it was explained that although these were above drinking water levels these were low enough to be transported away for treatment without much concern. The disposal of this water would require its own permit and the treatment process would need to be agreed.

3.5.3.5 It was reported that a report on community benefits of Shale Gas would be published in the summer.

3.5.3.6 Concerns were raised in relation to seismic activity on a site where a number of wells are planned to be operated. It was explained that not all wells would be drilled at the same time. The production company would take a systematic approach. Also it was stated that there was no evidence to suggest that there were any cumulative seismic activity

due to fracking of a number of wells on one site nonetheless all wells being fracked would be monitored throughout the process.

3.5.3.7 Members expressed reassurance from the fact that there were Regulations in place to carefully monitor the shale gas extraction process.

3.5.3.8 In response to a question about centralised planning permission when Shale Gas extraction gets towards production stage. It was reported that this had been considered and consultation had taken place and the response was that the industry had reservations and planning authorities were against the idea. The Department for Communities and Local Government (DCLG) had decided not to pursue with this but it would be kept under review.

3.5.3.9 In relation to the radioactivity found it was stated that this was not uncommon and was expected due to the geological nature of the sites in Lancashire.

3.5.3.10 In response to a question about financial benefits of fracking it was confirmed that at this stage it was very unclear if fracking will be commercially viable. Early indication is that actually there may be a balance between costs and income. The attractive aspect of Shale Gas was that it was a potential new on-shore gas supply.

3.5.3.11 It was confirmed that the Durham University report on Shale Gas fracking was independent and had not been commissioned by DECC.

3.5.3.12 It was acknowledged that the process of fracking required a substantial volume of water for the process. All water supplies would be arranged with a supplier at the planning stage.

3.6 **Representative from United Utilities (UU)**

3.6.1 The Groundwater Manager from United Utilities attended the meeting and gave a presentation. It was acknowledged that the issue of water supply for Shale Gas fracking was significant but not major for UU. An overview of the fracking operation and the legislation pertaining to the activity was presented to the Panel.

3.6.2 It was stated that United Utilities did have a major interest in Shale Gas Extraction due to the volume of water that would be used. The Panel were assured that water supply to residents and existing customers was the priority for United Utilities. It was acknowledged that there were some risks and issues in respect of Shale Gas extraction. The quantity of water to be used was a primary concern and United Utilities were focussed on ensuring that water supply to domestic customers remained unaffected. It was acknowledged that there was a business opportunity for United Utilities to supply water for shale gas extraction but this would not come at a compromise to existing customers. The business opportunity would need to be given serious consideration as if United Utilities did not provide

the water for Shale Gas extraction then another supplier would do so. Any decision would be made following extensive assessments.

3.6.3 The risks to the water table due to the Shale Gas extraction process was outlined to the Panel. The Panel was informed that these risks are monitored by various Government agencies and it was stated United Utilities, if involved, would also monitor this closely. However, it was pointed out that there was very little evidence of this happening elsewhere and the process is very tightly controlled and monitored so the chances of the water table being affected is remote. Management and treatment of the waste water was also an important issue for United Utilities and it was pointed out that the waste water could only be handled, treated or disposed by licensed operators. Again it was acknowledged that this was also a potential business opportunity for United Utilities to consider by offering carrying out this service.

3.6.4 The United Utilities representation then answered Members' questions and comments on the following:

- Low water pressure – if this occurred as a result of the Shale Gas extraction process. The Panel was informed that affected people can raise concerns through the existing normal reporting process. It was re-iterated that the water pressure and supply around Shale Gas extraction sites would be closely monitored.

- In respect of water supply and waste treatment cost the Panel was informed that in terms of new business development this would be looked at with the shale gas company involved however the cost to existing customers would not be affected. The supply and waste management cost relating to the Shale Gas extraction would be passed on to the operating companies.

- If the existing water lines did not have the capacity to supply water to the Shale Gas Extraction sites then there maybe a need to install new and additional pipelines to these sites without compromising supply to existing customers.

The Chair thanked the representatives from DECC and United Utilities for their attendance and presentations.

18 July 2013

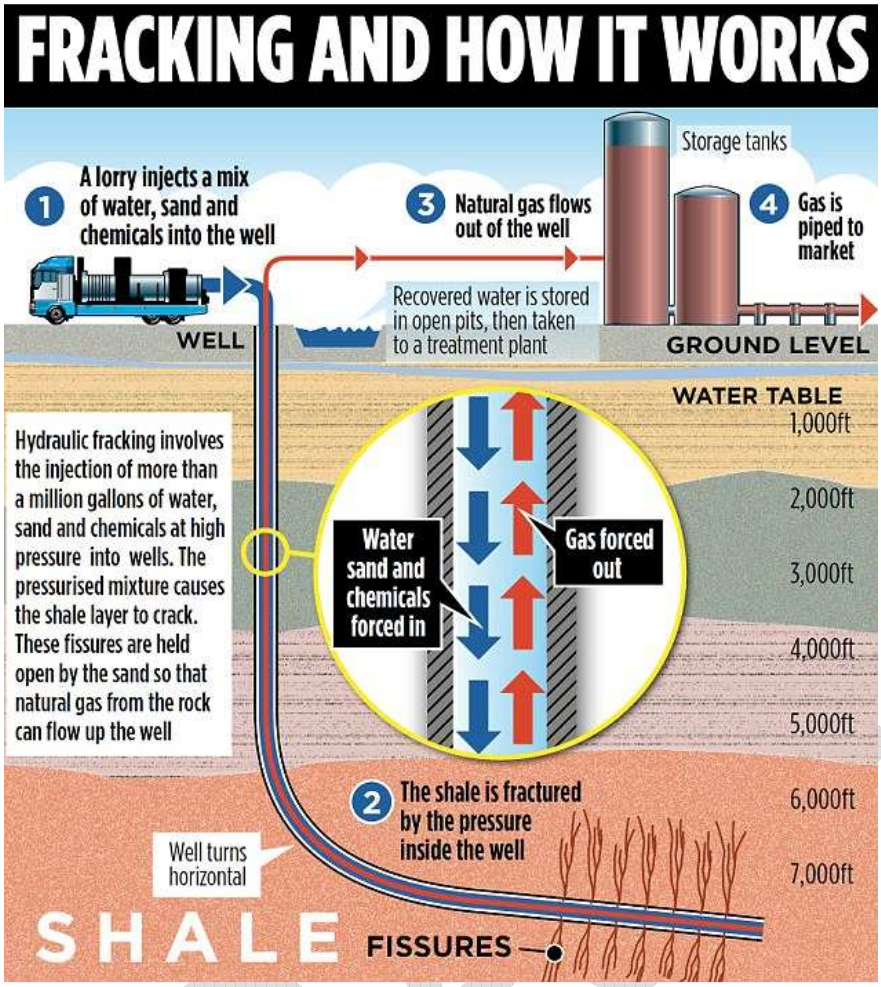
3.7 **Licensed Operator – Cuadrilla**

3.7.1 Representatives of Cuadrilla were in attendance to give a presentation on Shale Gas Extraction and to answer questions from the Panel. The Chief Executive of Cuadrilla was in attendance and gave a presentation to the Panel. He started by giving a background to Cuadrilla. The Panel was informed that recently Centrica had joined the company with a 25% stake of the exploration licence interests; Cuadrilla owned 56.25% and

Australian Partners A J Lucas 18.75%. Although Cuadrilla was still the operators, Centrica added significant expertise across all areas of gas exploration, development and shale.

3.7.2 It was reported that Arup (Consulting Engineers) had been appointed to undertake Environment Impact Assessment (EIAs) for up to eight planning applications. Information about recent government announcements relating to shale gas was highlighted. Cuadrilla's mission statement which was "to create value for all stakeholders, including the communities where we work by identifying, securing and responsibly operating exploration opportunities in unconventional hydrocarbons in the UK and Europe" was outlined. Then the Lancashire Bowland Exploration licence area was highlighted.

3.7.3 The Panel was informed that as of June 2013 three exploration wells had been drilled one of which was partially flow tested. The sites being explored were also being assessed for detailed 3D subsurface mapping of 100km^2 through seismic survey. Exploration plans for 2013-15 were then outlined which included conducting of Environmental Impact Assessments (EIAs) for up to eight exploration well sites in the Fylde area, within the 100km^2 3D area. There is a plan, over time, to submit planning applications (with EIAs) to drill, fracture and flow-test exploration wells at these exploration sites then Cuadrilla intend to submit applications to drill up to three further vertical exploration wells at sites located outside the area covered by the 3D survey. However, it is not intended that these vertical wells will be hydraulically fractured.



3.7.4 In relation to Community benefits announcements it was reported that communities would receive £100,000 for every exploration well site that is hydraulically fractured. Further to this communities will receive one per cent of revenues from future shale gas production which could potentially be worth more than £1 billion over a 20 to 30 year shale gas production timescale. This would be the possible community benefit return to Lancashire within the current Bowland basin licence area alone. The detail of the community benefit is yet to be agreed. It was stressed that sustainable development was at the core of the project which also took account of environmental sustainability, economic efficiency, social acceptance and security and diversity of supply.

3.7.5 The current declining gas supply was illustrated to the Panel and Members were shown what impact shale gas production could have on future supplies. The main issues were highlighted and addressed and the benefits were also outlined. Main issues were in relation to Environment, Carbon, Health and Economy. Areas of benefits identified included economy, community benefit and environment – gas replacing coal and own production was considered to be better than importing energy.

3.7.6 How Cuadrilla engaged with people was outlined. It was stated that many small and large meetings were held, site tours were offered and undertaken and many presentations delivered. Cuadrilla were involved in

research to better understand how issues are seen and they have invested in communications "early and often" before, during and after permitting and operations. The main problems Cuadrilla faced was dealing with inaccurate and negative imagery. It was reported that Cuadrilla was actively dealing with concerns including issues around seismic activity which had been widely reported following the two events in 2011.

3.7.7 The Panel was provided details and were informed about the activity in context of the Royal Society definition for seismicity. It was reported that following these two events Cuadrilla voluntarily stopped operations, meetings were held with DECC, EA, HSE and the British Geological Survey (BGS) and then Cuadrilla commissioned a Geomechanical study of the Blackpool seismicity. DECC also commissioned their own review of shale gas extraction by the Royal Society/Royal Academy of Engineering their report published included ten key recommendations, of these there were three recommendations highlighted, as follows:

- BGS or other appropriate bodies should carry out national surveys to characterise stresses and identify faults in UK shale. Operators should carry out site specific surveys to characterise and identify local stresses and faults.
- Seismicity should be monitored before, during and after hydraulic fracturing.
- Traffic light monitoring systems should be implemented and data fed back to well injection operations so that action can be taken to mitigate any induced seismicity.

3.7.8 Cuadrilla had since taken the following actions as a result of the seismic activity and the subsequent recommendations:

1. Conducted 3D surveys of well sites;
2. Plan to hydro-fracture in smaller stages, and flow-back water between each stage;
3. Place seismometers in arrays around exploration well sites; and
4. Agreed a "traffic light" mitigation system.

The traffic light system was illustrated to the Panel.

3.8 **Environmental Impact Assessments (EIAs)** – **Arup**

3.8.1 A representative of Arup Engineers gave a brief presentation on the Environmental Impact Assessment work. He gave a brief overview of Arup and his involvement in the company. The EIAs process was then outlined to the Panel. This included the project brief, screening and scoping, technical assessment, analysis, summary and technical appendices which all fed into the Environmental Impact Statement. Consultation was key throughout the process. The main areas the EIAs for shale gas looked at were seismicity, water pollution, fugitive gas and

climate change. In relation to site specific matters being considered these were Ecology, Aquifers, Aquifer protection and visual amenity. These areas are assessed on a cumulative effects chart.

3.8.2 A typical Environment Statement would be in three parts:

- **Front End** - which would include an introduction, legislation, process, project description, baseline environment, scope and alternatives.
- **Technical issues** – including Geology, Hydrogeology, contamination, air quality, climate change, noise, traffic, landscape character, visual impacts, Ecology, land use and agriculture, lighting, community and social economic, Archaeology and heritage, resources and waste, site monitoring and management, soils and access.
- **Analysis** – includes direct impacts, indirect impacts, residual impacts, cumulative impacts, summary impact tables and appendices.
- **Non-Technical** - summary

It was stressed that the statement would not be part of the application but an important accompanying document with no recommendations.

3.9 **Development (Future)** – **Cuadrilla**

3.9.1 A brief overview on the possible development in the future in particular in relation to job creation and the types of employment that will be required was presented to the Panel.

3.9.2 It was outlined that an average exploration well costs around £10.5 million which includes costs for site preparation work, all drilling and related costs, all fracturing and related costs including testing. It was stated that these costs contribute to the local economy. Cuadrilla was committed to Lancashire businesses working with firms like Remsol, GGS and PPS. The 3D seismic survey employed an additional 50 people and contributed around £1.5m to the local economy. The Aberdeen effect was highlighted to the Panel. The meeting was informed that Aberdeen, regarded as the energy Capital of Europe, contributed £40 billion to the balance payments, with supply, chain adding another £6 billion in exports of goods and services, totalling 25% of corporation taxes and created 440,000 jobs.

3.9.3 Finally details of the employment distribution and the range of occupations relating to the shale gas operations was provided, including

Management, Business and Financial:	General and Operations Managers; Construction Managers; Engineering Managers; Cost Estimators; Accountants and Auditors

Professional and Related:	Architects except for Landscape and Naval; Surveyors; Civil Engineers; Electrical Engineers; Mechanical Engineers; Petroleum Engineers; All Other Engineers; Architectural and Civil Drafters; Civil Engineering Technicians; Surveying and Mapping Technicians, Geoscientists except for Hydrologists and Geographers; Geological and Petroleum Technicians
Sales and Related:	Sales Representatives, Wholesale and Manufacturing except for Technical and Scientific Products
Office and Administrative Support:	First-line Supervisors/Managers of Office and Administrative Support Workers; Bookkeeping, Accounting, and Auditing Clerks; Secretaries and Administrative Assistants; Office Clerks, General Office

3.9.4 Cuadrilla and Arup representatives then responded to members' questions and concerns of the following:

- The distance between the shale and the water aquifer. Arup representative illustrated the distance and informed the Panel that the water aquifer at the sites in Lancashire is not a drinking water aquifer nonetheless it was stated it was very difficult to see how contamination of the water could occur due to the distance.
- In relation to a televised programme which gave the impression that the chemicals used in the shale gas extraction process were not always declared in the U.S. The Panel was informed that the regulations in UK and relevant EU regulations were very stringent and all additives had to be declared and approved.
- In respect of potential insurance cover issues the Panel was informed that the British Panel of Insurers had said there would be no issues of insurance cover as a result of shale gas activity.
- Following a query about the types of site surveys to be carried out the meeting was informed that all sites would have their own site specific Environmental Impact Assessments (EIAs) to be carried out and the scope for this would be agreed and approved by the planning authority.
- It was again confirmed that no recommendations were included on the EIAs.
- Areas of Natural Beauty would have additional assessments done. However, it was stated that there would be no need to go into such areas as there are other potential sites available.
- In relation to the cost of energy, the Panel was informed that it was difficult to predict what impact shale gas would have on the price of energy, however it is highly likely that the cost of fuel would not be higher with shale gas as there would be a reduction on import cost.

- It was reported that, in America the cost of fuel went down by 75% however it was stressed that the U.S position cannot be used in the UK as it is a different system altogether.
- In relation to gas storage the Panel was informed that this would be subject to separate planning permissions as and when appropriate.

The Chair thanked the representatives of Cuadrilla and Arup for their attendance and presentations.

19 September 2013

3.10 **Campaign to Protect Rural England (CPRE)**

3.10.1 A representative from The Campaign to Protect Rural England (CPRE) was in attendance to present their views on Shale Gas to the Panel.

3.10.2 By way of introduction it was explained the work of CPRE and the campaign work the Lancashire Branch were involved in. The Panel was informed that the Lancashire Branch, which had been running for 80 years, were involved in Housing and Planning, Energy and Waste, Transport and Food and Farming. CPRE's campaign briefings were highlighted to the Panel and members were informed about how to access these briefing documents.

3.10.3 In relation to fracking CPRE acknowledge that there are large shale beds within the Lancashire geology, and it was anticipated that to extract the volumes anticipated there would need to be 250 to 300 well pads. Concerns over the industrialisation of the countryside was explained as it was pointed out that the locations for the shale gas exploration was currently taking place on 'best and most versatile' farmland which would destroy topsoil and important habitats. The Panel was reminded that the tremors in the Blackpool area were due to fracking. However, following investigations the Department for Environment and Climate Change (DECC) authorised the fracking to be resumed in December 2012. It was highlighted that the Treasury had also given tax breaks for shale gas investments.

3.10.4 CPRE were not against shale gas fracturing however the organisation were keen for it to be a transitional energy towards generation of a sustainable energy such as renewables. The CPRE were also pressing for transparency in the planning process and wanted to ensure that long-term impacts were assessed, understood in order to achieve sound planning decisions. It was highlighted that large volume of water was required for the fracking process and there were water storage issues that needed to be considered. The transportation of clean and the disposal and removal of the contaminated water had to be properly assessed. It was stressed that proper regulation and mitigation was vital throughout the process.

3.10.5 The representative highlighted the impact of Climate Change and the requirement of the target to reduce Co2 emissions by 80% by 2050. CPRE supported the Energy Hierarchy and felt it was important to reduce demand and meet supply via cleaner energy.

3.10.6 It was reported that for CPRE transparent planning was paramount. It was stated that irrespective of whether people like it or not, shale gas extraction was going to happen. The Group want the best outcomes for the local communities affected and for minimisation of impacts to the landscape and environment. It was reported that each well pad would require planning permission from the Minerals Planning Authority – Lancashire County Council (LCC), in view of the Localism Act and the greater emphasis of local decision making it was important for LCC to take into account local views. It was important that areas of natural beauty and nature reserves were protected. Movement of vehicles had to be carefully assessed to avoid rural lanes. Following the fracturing process the methods of decommissioning these sites was very important and as far as possible sites should be reinstated to original state.

3.10.7 CPRE were keen for the long term monitoring of the well integrity and stressed that these sites should not be considered Brownfield after gas extraction had ceased. In respect of community benefits – a method of allocating funds should be established and money should be reinvested to prioritise mitigation, replace habitat and development of green infrastructure.

3.10.8 In respect of Environmental Regulation CPRE identified the risks involved in the fracturing process, however, they were satisfied that if the recommendations of the Royal Society/Royal Academy of Engineering Report were followed through and complied with then the risks can be mitigated and the shale gas extraction could be undertaken safely. The key was for the recommendations to be rigorously implemented. The recommendations which include Environmental Impact Assessment (EIAs) were important to identify suitable locations during pre-application consultation. The EIAs would enable appropriate mitigation and CPRE felt that previously EIAs were avoided by applicants however, these were now mandatory. Planning conditions and restrictions on operations to minimise adverse impact would need to be imposed, such as hours of operation, limits to HGV movements, noise air and pollution.

3.10.9 CPRE were hoping that the infrastructure to be put in place would be kept to a minimum. The wells should be sited in locations that will minimise impacts on landscape character and ecological networks. The damage to or loss of important landscape features such as hedgerows and other historic field boundaries, trees and woodlands, watercourses and landform should be avoided. Local landscape character and the benefits of local ecological networks need to be preserved and it was important that public right of way and views are not adversely impacted.

3.10.10 In summary the CPRE wants the UK energy policy to be compatible with the Climate Change Act 2008 which should cover all types of energy not just shale gas. CRPE Lancashire believes that transparent planning with appropriate environment regulation and mitigation will secure sound planning decisions. It was reported that as applications go through the planning process CPRE will highlight significant landscape and wider environmental issues to support the decision making process to achieve sustainable development.

3.10.11 The representative of CPRE then responded to members' questions and concerns on the following:

- Confirmation that the earth tremor in Blackpool was accepted as being caused by the shale gas exploration.

- In relation to Climate Change the Panel was informed that 99% of professional academics studying the issue agreed that Climate Change is occurring. And all governments have also accepted that it is happening.

- It was pointed out that although Climate Change was not a new issue in respect of it occurring naturally however, due to man-made activity the rate of acceleration and the speed of the change has increased.

- In relation to landscape it was pointed out that the wind turbines that were being installed in many rural sites were also a blotch on the landscape and did not necessary help with the objective of protecting natural beauty. CPRE accepted that there were issues with the visual impact of wind turbines and it was a difficult issue for them to take a stance on. Ideally wind turbines should be located off-shore and those that are on-shore could be better screened.

- Also in relation to wind turbines and other developments such as these have to be considered carefully and it was important that the impact of proximity is assessed fully.

- Monitoring of abandoned site was raised as a concern. It was reported that the Environment Agency had a key role to monitor these sites however; the primary obligation was with the operator to ensure that abandoned sites were continuously monitored.

- It was acknowledged that there were concerns about how shale gas extraction was carried out in America and it was stressed that lessons had to be learnt right from the beginning. Also the Panel was reminded that the regulations and mitigations were far more controlled than those in America.

- In respect of countries that have banned fracking it was reported that these decisions were based on various factors that also includes the country's policy on energy and their energy programme.

- It was agreed that the impact on wildlife would need to be properly monitored.

- It was anticipated that any successful exploration would lead to full scale extraction.

The Chair thanked the CPRE representative for her attendance and presentation.

15 October 2013

3.11 **Representative from Lancashire County Council (LCC)**

3.11.1 The Group Head, Development Management, from Lancashire County Council attended the meeting to discuss with the Committee issues relating to the aims and objectives of the work plan study on Shale Gas Extraction. He also provided a presentation on the matter. LCC are the strategic planning authority for mineral and waste development. Traditionally the Authority dealt with coal and oil in West Lancashire. He provided details of the procedures relating to planning applications for mineral and waste development. He also reported on recent and potential future developments in the county.

3.11.2 It was acknowledged that any exploration for gas was not without drawbacks but there were sufficient measures in place to deal with potential risks. LCC had a key role in the planning process as the Authority who were responsible for determining any applications. All applications would require extensive work from the operators to provide necessary information including a Environmental Impact Assessment (EIA's) which was being carried out by Arup on behalf of proposed sites by Cuadrilla. The shale gas exploration was in its early stages in the UK and Cuadrilla had the licence to explore within the Lancashire area.

3.11.3 As part of the process LCC would undertake statutory consultation and there would be an opportunity for non-statutory bodies to comment on applications. He then outlined the main issues for consideration by the Planning Authority.

3.11.4 Members raised various issues including:-

- the use of Environmental Impact Statements which was to provide detailed site specific information for the Planning Authority;

- concerns regarding lateral drilling and seismic activity, the Panel Members were informed that the drilling activity was now being monitored by a traffic light system which gave an earlier indication if there was an issue with a well integrity;
- consultations on applications;
- community benefit, proposals.

3.12 **Representative from Ribble Estuary against Fracking (REAF)**

3.12.1 A representative from Ribble Estuary Against Fracking (REAF), attended the meeting to discuss with the Panel issues relating to the aims and objectives of the work plan study on Shale Gas Extraction. He reported that a report on Geomechanical Study of Bowland Shale Seismicity Synthesis stated that the subsurface engineering will always involve significant uncertainty since there is limited data of processes occurring at great depth. The negative impact on local people and their environment was highlighted to the Panel. It was suggested that there were a lot of unanswered questions in relation to shale gas extraction. The negative impact suggested included:

- Thousands of wells
- Thousands of heavy road tankers
- Radioactive waste
- Water supply and waste disposal
- Air Pollution
- Health and well being
- Damage and loss of value of property

3.12.2 Concerns were raised in relation to regulation and REAF were not satisfied that the industry would be adequately regulated. It was said that the regulations in place did not offer adequate control. Concerns in relation to Climate Change were also raised.

3.12.3 In conclusion it was stated that fracking for shale gas and other unconventional oil and gas operations are a local and national disaster for people their environment and their economy. Instead we need to invest in our existing economy and in renewable energy, which will give us real long term benefits and security.

3.12.4 A short film relating to shale gas extraction was shown to the Panel. Members raised various issues including:-

- the use of renewable energy;
- concerns regarding effect on wildlife;
- impact on employment;
- methods of dealing with contaminated waste products.

The Chair thanked the LCC and the Ribble Estuary Against Fracking representatives for their attendance and presentations.

28 November 2013

3.13 **Representative of the Centre for Local Economic Strategies (CLES)**

3.13.1 A representative from the Centre for Local Economic Strategies (CLES) was in attendance and gave a presentation to the Panel on the economic impact of shale gas extraction. He pointed out that primarily economics relate to people and places and when assessing economic benefits these are measured against benefits to many rather than single sectors. A key area to consider was the prospects of growth in particular three important factors are capital, labour and total sustainability. In relation to shale gas extraction it was stated that it was too early to say what will happen. The economic benefits could be short-term, the minerals available may not be as viable as anticipated, and there were social geography factors which influence the economics in this area. A number of other factors need to be considered such as the reasons for the extraction, the positives of the activity and the negatives of the operations.

3.13.2 When assessing the benefits it was suggested that how different people will benefit need to be explored, the benefits should be measured and externalities need to be taken into consideration. A positive of shale gas extraction could be increase in the job market but a negative could be that the skill base is not available locally. The energy supply market is a very complex world and it was very difficult to forecast the future of energy supply. Another consideration was the impact on tourism and the knock on effect shale gas extraction would have including the possibility of agriculture and house prices being adversely affected and other industries need to be considered. He felt that a lot more work was required to further understand the economics of shale gas extraction.

3.13.3 The CLES representative then responded to Members' questions and comments on the following:

- Shale Gas extraction would impact on climate change as it would mean reduction in the importation of gas from abroad.
- Shale Gas extraction industry was in its infancy in the UK the skills and knowledge base could be built up as was the case when the nuclear industry came to town.
- Local skills base is available such as drillers from Morecambe Bay. Operators need to be aware what skills are available and recruit accordingly.
- There was an opportunity for Preston to lead the way.
- If the operations started in this area there could be a ripple effect and other business could be rejuvenated.
- With the facilities such as the University and exciting projects like City Deal Preston was ready for a new industry.
- There were still a lot of unknowns and more research by other sectors was required.

- It would be wrong for Preston to do nothing the city needed to make a statement. Either by influencing decisions to be taken by others or be affected those decisions.

3.14 **Representative of the Health and Safety Executive (HSE)**

3.14.1 The Head of Offshore, Pipelines and Diving Policy from the Health and Safety Executive (HSE) was in attendance to explain the role of the HSE in the shale gas extraction process. He explained how the HSE were involved with the operators in managing and controlling risks. HSE had no input in the energy policy nor were they involved in the licensing or planning decision process related to shale gas, however, HSE does work closely with bodies responsible for overseeing these areas. HSE focussed mainly on well integrity.

3.14.2 The representative outlined the potential hazards of the shale gas operation process and how these could be managed. The health and safety regulatory regime was explained and the Panel were told about how HSE conducted its interventions. The lifecycle approach to well integrity was explained to the Members' this included weekly operational reports to be submitted to the HSE which provided assurance that the operator was constructing and operating the well as described in the notification. It was also confirmed that the wells were examined independently to confirm and verify the well integrity.

3.14.3 The HSE representative then responded to Members' questions and comments on the following:

- The HSE representative confirmed that operators would be obliged to report if there are problems with the well integrity.
- Regulatory regime in UK much more robust and controlled compared to the US.
- Stringent measures in place
- No other industry is as robustly regulated as the shale gas operations in the UK.

The Chair thanked the CLES and HSE representatives for their attendance and presentations.

3.15 **16 January 2014**

3.15.1 The Corporate Director Environment was in attendance and gave a presentation on Shale Gas Extraction. He explained that the purpose of his presentation was to sum up all the information and evidence the Panel

had received from various agencies, other authorities, pressure groups and a Shale Gas operator. The meeting gave the Panel Members an opportunity to draw their conclusions and formulate recommendations.

3.15.2 Mr Lovatt highlighted key points from each of the presentations that the Panel had received over the previous twelve months. The Panel was reminded about the role of each organisation that had made representations to the Panel. It was noted that most of the representations were from bodies that were involved in regulation and monitoring. In conclusions Mr Lovatt highlighted the pros and cons of current thinking regarding the Shale Gas Industry.

3.15.3 Members then debated and reviewed information received before formulating their conclusions and recommendations.

4. Findings

4.1 The Panel accepted that the Shale Gas industry is new and requires careful consideration.

4.2 The Panel agreed that security of energy supply was critical for the immediate future of all energy users in the UK and that shale gas could be seen as a transitional fuel on the way to a greener more sustainable future.

4.3 The Panel acknowledged that the Shale Gas industry is backed by UK Government.

4.4 Seismic activity in Blackpool in 2011 was attributed to the industry and accepted by the operator and the Panel acknowledged it.

4.5 The Panel accepted that continued use of fossil fuels is likely to impact on Climate Change however, it was not considered that this industry would exacerbate the issue as evidence suggests that shale gas could be lower carbon alternative to coal.

4.6 The Panel acknowledged that there are significant risks within the industry. However, controls are in place to, monitor, manage and where possible mitigate. However concerns remain over methane gas release which needs further investigation.

4.7 The Panel noted that there were emerging Community Benefits from future revenue.

4.8 Further investment in renewable energy was an option from any revenues received.

4.9 The Panel considers that the industry will be heavily regulated and tightly controlled.

4.10 The Panel acknowledged that the water supplies to domestic customers was a priority and would not be affected by the shale gas extraction process.

4.11 The Panel did not feel that the local tourism industry would be adversely affected long-term by shale gas extraction.

4.12 The Panel was satisfied that adequate site remediation work would be undertaken to ensure all decommissioned well pads would be reinstated to similar state as to it had been prior to the extraction work.

4.13 The Panel was satisfied that there were stringent measures in place to deal with waste water and its treatment.

4.14 The Panel did not believe that the radiation levels were high enough to be a cause for concern and were reassured with the monitoring processes in place.

4.15 The Panel acknowledged that there was much negative media coverage in relation to the shale gas industry.

4.16 The Panel acknowledged and noted the concerns raised by Pressure Groups and considered that further consultation by operators would assist in dealing with fears raised.

4.17 The Panel highlighted that there was insufficient information on the economic development potential of the shale gas industry.

4.18 The Panel considers that further independent clarification and evidence was required in respect the quantum and quality of jobs that will be available to the local jobs market.

4.19 The Panel was concerned that planning decisions relating to the industry may be removed from the local authority control and centralised at government level.

4.20 The Panel felt that further work was required to ascertain the impact of shale gas on the future cost of fuel.

4.21 The Panel concluded that Preston as a City with ambition for growth was ready for new industry.

5. Recommendations to Cabinet

Members of the Environmental Panel have given the subject due consideration and have received information from a number and variety of sources. Following careful consideration the Panel makes the following recommendations:

That;

5.1 the Authority does not declare itself to be a 'Frack-free' City;

5.2 the Authority cautiously accepts the industry so long as operators comply with all regulations and risk management processes; and government ensures that a strict enforcement regime will be deployed.

5.3 the Authority promotes the City as a potential regional and/or national administrative base for Operators within the industry;

5.4 the Authority makes representations to government seeking clarity on the community benefits scheme and to increase the share of revenue directed towards the scheme from the shale gas industry.

5.5 the Authority seeks assurances from government that the process of planning consents will remain in Local Authority control.

5.6 the Authority makes representations to government to make specific funds available from tax revenues gained from the shale gas industry to provide additional incentives to the renewables sector; and

5.7 the Authority recommends that an independent review of the economic development potential of the shale gas industry be undertaken. The review needs to be independently funded with particular reference to the quantity, quality and sustainability of jobs to be created.

Corporate Management Team Response

Corporate Management Team.

References

Notice of Motion to Full Council – December 2012

Minutes of Full Council – December 2012

Minutes of the Environmental Scrutiny Panel meetings held on:

24 January 2013
7 March 2013
5 April 2013
11 April 2013
6 June 2013
18 July 2013
19 September 2013
15 October 2013
28 November 2013
16 January 2014
3 March 2014

http://m.bbc.co.uk/news/uk-25695813

http://m.bbc.co.uk/news/uk-politics-25705550

http://www.lep.co.uk/news/business/cuadrilla-leaves-county-site-1-6320979

http://www.bbc.co.uk/go/em/fr/-/news/science-environment-22077230

http://www.bbc.co.uk/go/em/fr/-/news/science-environment-22300050

http://www.bbc.co.uk/go/em/fr/-/news/business-23069499

Environment Scrutiny Panel **APPENDIX A**

Scoping Document

'Shale Gas Hydraulic Fracturing'

1. Scrutiny Chair
   - Councillor Nick Pomfret

2. Scrutiny Support Officer
   - Zuber Bapu

3. Departmental Link Officer
   - Corporate Director Environment

Q1 Which of our Corporate Priorities does this topic address?

- Your City (?)

Q2 What are the overall aims and objectives of doing this work?

To undertake a proportionate and timely environmental impact assessment of the Hydraulic Fracturing process.

Q3 Possible outcomes to this review are:

(i) The Council will better understand the Hydraulic Fracturing process and the associated environmental impacts.

(ii) The Council may proclaim itself as a 'Frack Free City' and as a consequence prohibit fracking on all PCC land.

(iii) The Council may resolve to support the Hydraulic Fracking industry and positively welcome investigations on its land.

(iv) The Council may resolve to remain neutral on the matter of Hydraulic Fracturing and neither support or reject the developments within the industry.

Q4 What specific value can Scrutiny add to this work area?

To assist the Council in formulating its policy position in relation to this area of work and in response to the Notice of Motion by Council in December 2012.

Q5 Duration of the Review?

Council in December 2012 created a window of 12 months to conclude the review. However, this may be reduced should the Environmental Scrutiny Panel feel in a position to report sooner.

Q6 What category does the Review fall into?

Policy Development.

Q7 What information do we need to undertake the Review?

- An understanding of Shale Gas extraction processes and procedures.
- The regulatory framework including Planning.
- The Council's role in future Shale Gas exploration in Lancashire
- An understanding of the environmental imparts and investigations available to the Shale Gas operation.

Q8 Who can provide us with relevant evidence?

- Environmental Agency
- Lancashire County Council
- Shale Gas Industry operators
- PCC Planning
- Government representatives
- Pressure groups
- Neighbouring District Councils

Q9 What areas do we want them to cover when they give evidence?

- Scale of operations
- Key environmental issues
- Regulatory Framework
- Public Relations issues
- Health and Safety
- Technological advances
- Geological issues
- Community Benefits

Q10 What processes can we use to feed into the Review - Site visits/observations, face to face questioning, telephone surveys, written questions etc?

- Representations from all organisations listed at Q8 can be invited to be interviewed by the Environment Scrutiny Panel.
- A site visit to the Preese Hall Test Site can be arranged.

Q11 Diversity – How will we address the diversity standards in order to uphold the Council's Single Equality Scheme?

Dependent on the outcome of the review, an Equalities and Human Rights Impact Assessment may be appropriate.

APPENDIX B

TIMETABLE - ENVIRONMENTAL SCRUTINY PANEL – Shale Gas Extraction - WORK PLAN STUDY - Revised (18/09/2013)

Date	Department/Agency	Name/Job Title	Issue / Area of responsibility
7 March 2013	Environment Agency	Steve Molyneux	Environment Manager, EA
5 April 2013	SITE VISIT	Simon Greehalgh	Elswick site visit.
11 April 2013	Friends of the Earth	Helen Rimmer Dorothy Kelk	Pressure Group
6 June 2013	Government Rep	John Arnott	Department of Environment and Climate Change(DECC)
	Water Board	Phil Merrin	United Utilities, Groundwater Manager, Water Demand Team
18 July 2013	Cuadrilla	Francis Egan	A company currently operating in Shale Gas Extraction
	Arup	Gordon Richardson	Environmental Impact Assessments
19 September 2013	The Campaign to Protect Rural England	Jackie Copley	Pressure Group

Date	Department/Agency	Name/Job Title	Issue / Area of responsibility
15 October 2013	Lancashire County Council	Stuart Perigo	Mineral Extraction Regulars – Planning Authority
	Preston City Council	PCC Planning - Development Control	Planning criteria
	Ribble Estuary Against Fracking	Laurence Rankin	Pressure Group
28 November 2013	HSE	Dr Jim Neilson	Health and Safety Executive - Regulator
	CLES	Neil McInroy	Centre for Local Economic Strategies – Economic View
16 January 2014	Preston City Council – Lead Officer	Mick Lovatt Director	Overview and re-cap of information gathered to date
4 March 2014	Preston City Council – Lead Officer	Mick Lovatt Director	Draft Report, findings and Recommendations
22 April 2014	Preston City Council – Lead Officer	Mick Lovatt Director	Final Draft Report