

All that glitters...

Is the regulation of unconventional gas and oil exploration in England really 'gold standard'?

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Executive Summary

Ministers and the fracking industry have made assurances that fracking in the UK will be safe because we have 'gold standard' regulation – avoiding the dangers of fracking experienced in other countries.

This report exposes that far from being 'gold standard', much of UK fracking regulation is inadequate, flawed or ineffectively applied and enforced. Some potential impacts are simply not considered at all. This exposes the country to unacceptable risks to the local environment and health and from rising carbon emissions.

Moratorium on fracking

The risks exposed in this document are serious. Because of this, there should be an immediate moratorium on further exploration for and production of unconventional fossil fuels such as shale gas and coal bed methane.

Serious concerns about fracking regulation

- The **climate change impacts** of extracting and burning unconventional gas and oil are not adequately assessed: this risks fracking releasing climate changing emissions undermining UK Climate Change Act commitments.
- The **risks of water contamination** are not adequately identified or considered: this risks unforeseen water contamination that could potentially have major impacts.
- Regulators have failed to set out a clear **water supply strategy** for fracking in water-stressed areas: this risks problems for local water supply, especially in times of drought.
- Decision makers fail to adequately address potential **impacts on protected species and habitats** or screen out protected areas from exploration and extraction altogether: this risks some of our most precious wildlife being harmed.
- There are problems with the application of Environmental Impact Assessment, which fails to address all the risks arising at unconventional oil and gas sites and is being inadequately applied: this means that **potential environmental risks are not being identified and mitigated**.
- There is a lack of dedicated regulation on unconventional gas and oil, despite expert body recommendations from bodies including the Royal Society: this means there are **few industry-specific checks and balances on fracking**.
- There are major shortcomings in planning practice guidance, this risks wrong decisions being taken because **local decision-makers have inadequate information about and understanding of proposed activities**.
- There is **inadequate monitoring and enforcement** by planning authorities and regulators leading to a culture of self-regulation: this means we may not know if fracking companies are complying with basic standards.
- The impact of regulation risks being reduced further through 'salami-slicing' whereby companies get permission from regulators in increments, rather than being open about their overall plans from the start: this undermines **scrutiny and the opportunity to object**.

- The Government has smoothed the path for the unconventional gas and oil industry, undermining democracy and public participation in decision-making through:
 - Removing the responsibility for companies to **notify individual landowners of their intention to frack.**
 - Proposing **changes to trespass laws** that would give fracking companies the right to drill under homes and businesses without permission.
 - Proposing to introduce “standard” environmental permits which will normally **remove the right of local people to be consulted.**
 - Failing to consult on planning practice guidance which means **planning rules override the interests of communities.**
- **Gas and oil companies have attempted to weaken** or circumvent regulation through direct lobbying of senior civil servants.
- The Government has cut regulators’ budgets and given some of them an economic growth duty which means they have to consider **economic growth alongside other factors** such as environmental pollution and impact on local residents and businesses.

Basic regulation missing

These failings demonstrate the risks the Government is prepared to take in pushing ahead with fracking without proper regulation, without full knowledge of the impacts, and while undermining the rights of communities. Fracking should be immediately suspended in order for these issues to be addressed.

Expert bodies in other countries have expressed concerns about gaps in knowledge about the environmental and human health risks posed by fracking, and whether these are controllable through technical means and increased regulation. **The United Nations Environment Program has said that fracking may result in “unavoidable environmental impacts”¹ even if done properly.**

The following regulations would be the minimum required to demonstrate that the serious risks posed by fracking are considered. However, even with regulation of this kind, risks would remain.

- Full public participation in decision-making in line with the Prime Minister's pledge to “*deep consultation with local communities*”¹² and the UK's responsibilities under the Aarhus Convention, including dropping proposals to change trespass law and introduce 'standard permits' that would limit public consultation. This would mean that local community concerns were fully taken into account, rather than sidelined in favour of smoothing the path for the development of the industry.
- The use of the precautionary approach in decision-making by all regulators and public decision makers: meaning a presumption against further activities until there has been a full evaluation of possible impacts and of potential mitigation measures.
- A full assessment of climate impacts – considering combustion impacts in the round - at all stages of regulation, namely licensing, minerals plans, planning permission and site-level permitting, and ensuring that this assessment is of primary importance in decision-making. This would mean emissions from fracking were known and could be taken into consideration as part

of plans to move to an almost carbon free energy by 2030 in line with Committee on Climate Change advice.

- Full baseline monitoring of water, air and soil before drilling, testing or fracking begin: this would allow the scale and impact of any fracking contamination to be measured and understood.
- Effective assessment of cumulative impacts in all cases: this would mean that, if fracking was proposed at several sites, decision-makers would have to consider the potential impacts at all sites, rather than one-by-one (which might lead to impacts being seen as lower).
- Making Environmental Impact Assessment mandatory for all unconventional gas and oil activities instead of the industry's voluntary commitment to undertake EIAs: this would mean the assessments apply to all unconventional gas and oil exploration and extraction, not just 'fracking' and it would ensure the assessments were undertaken in every case.
- The introduction of dedicated regulations for the industry, rather than using non-binding industry guidelines and regulations developed for the offshore industry: this would mean the industry would be required to comply with appropriate safeguards and could be held to account for any breaches.
- Ensuring full and independent monitoring and enforcement of regulations by all regulators: this would mean that any breaches of regulation would be identified and fracking companies forced to take action.

These changes would make the industry safer but not safe. And, for climate change reasons, fracking would still not be the answer to the UK's energy problems.

Fracking is incompatible with averting dangerous climate change

Fracking cannot be the solution to the UK's energy future because exploiting unconventional gas and oil will not help tackle climate change:

- It would just add to the world's stock of **unburnable carbon** – fossil fuels that we cannot burn if we want to avoid the worst impacts of climate change.
- We do not have a binding global climate deal to ensure that unconventional gas and oil would be used instead of rather than **as well as other fossil fuels** – use of coal for electricity generation in the US has fallen, but more coal has been exported.
- The prospect of unconventional gas in the UK risks driving a second 'dash for gas' – diverting resources and grid infrastructure to fossil fuels when the UK must have almost entirely carbon-free electricity by 2030 to meet the UK's binding climate change targets, according to the Government's independent climate advisors the Committee on Climate Change (CCC). The CCC has also said that pursuing a 'high gas' scenario to power Britain in the 2020s would be "completely incompatible" with our legally-binding climate change targets.

The UK's energy system must reduce our reliance on fossil fuels, basing our energy future on reducing energy waste and exploiting the UK's vast potential for renewables. Reducing our reliance on fossil fuels, rather than remaining dependent on them, is also a much better way of dealing with concerns about energy security.

1 Introduction

Much of the current debate about unconventional gas and oil in the UK focuses on the robustness of the regulatory regime which applies to exploration, development and production activities. The industry claims that the UK's regulatory regime is *recognised as the gold standard*³ and the Energy Secretary has said that the regulatory regime is *"the world's toughest"*⁴.

However, when subjected to closer inspection, it is clear that current regulation of unconventional gas and oil exploration in England is inadequate. Very little dedicated regulation has been introduced to cover unconventional gas and oil exploration and extraction to date, despite the process involved being largely untested in the UK, the impacts unassessed, and with techniques in some cases very different from conventional oil and gas production.

This report details concerns about the regulation of unconventional gas and oil (shale gas, shale oil and coal bed methane) in England, based on the record of the last three years. It looks only at regulation of the exploration for and appraisal of unconventional gas and oil, and not at possible production. This is because very little dedicated regulation has been brought forward for the production phase. However the proposed regulations for exploration do not inspire confidence in regulations for production.

After setting out the context and the risks associated with unconventional gas and oil, this report details concerns about the inadequacy and ineffectiveness of regulation, looking specifically at the treatment of climate change, water contamination, water supply and habitats. It also looks at key cross-cutting issues including poor monitoring and enforcement, problems with public participation and evidence of successful corporate lobbying of senior civil servants. It concludes that the UK regulatory regime cannot be described as 'gold standard' because much is inadequate, flawed or ineffectively applied and enforced.

2 Context

The UK Government has nailed its unconventional gas and oil colours firmly to the mast. David Cameron has said that the UK must go *"all out for shale"*⁵ and George Osborne, has said that *"shale gas is the future and we will make it happen"*⁶. Exploration for and appraisal of shale oil and coal bed methane is also taking place.

Members of the Government have assured the public that fracking will be safe because of our regulatory regime, which has been described as *"the world's toughest"*⁷ and *"gold standard"*⁸. Key recent studies of shale gas give it a clean bill of health on condition that regulation is effective, but do not state that this is currently the case:

- Public Health England (PHE) concluded that the risks to public health from shale gas are low if *"operations are properly run and regulated"*⁹. (It should be noted that PHE admit that there is little evidence – but, as US experts have stated *"lack of data is not an indication of an absence of harm"*¹⁰).
- Professor David Mackay, DECC's Chief Scientist, concluded that the local carbon footprint of shale gas extraction will be relatively low *"if adequately regulated"*¹¹.

Yet, as this report shows, it is clear that regulation is not adequate at present.

High volume hydraulic fracturing is a relatively new technology that has been developed over the last decade. There is solid evidence of impacts on the environment and on people's health, but much still remains unknown concerning impacts and whether they can be addressed by regulation, as international expert bodies have recognised:

- The Umweltbundesamt (Germany's main environmental protection agency) concluded in a report on fracking that *"basic knowledge and data are currently missing preventing a profound assessment of the risks and their technical controllability"*¹².
- The Council of Canadian Academies¹³, in a report on fracking for the federal Government, stated that *"knowledge of the potential environmental impacts [of fracking] has not kept pace with development, resulting in gaps in scientific knowledge about these impacts"*¹⁴.

Unconventional gas and oil and climate change

This report focuses on the adequacy of regulation around unconventional gas and oil, but it is vital to make clear that the production of unconventional gas and oil are not compatible with tackling climate change: they are fossil fuels, there is no guarantee that they will be burnt instead of, rather than as well as other fossil fuels, and the world already has more gas and oil than we can afford to burn to avoid catastrophic climate change.

If the world is to avoid the worst impacts of global climate change, then a global deal is needed setting limits on carbon emissions for all countries. If such a deal is not reached then, according to DECC's Chief Scientist, fracking is likely to increase global emissions and add to the risk of climate change¹⁵. Power-switching from coal to gas has helped cut emissions in the US power sector. However, analysis by the Tyndall Centre shows that as the price of coal fell, just over half of the emissions avoided in the US have been 'exported', as other nations (including the UK) took advantage of cheaper coal¹⁶.

Shale gas is higher carbon than pipeline gas, and higher than Liquefied Natural Gas under certain scenarios¹⁷. Research carried out by Friends of the Earth indicates that for the UK to play its fair part in ensuring a 50% of chance of keeping global average temperature rises to no more than 2 degrees, unconventional gas and oil in the UK simply cannot be exploited¹⁸. In addition, the United Nations Environment Programme has stated that *"increased extraction and use of unconventional gas is likely to be detrimental to efforts to curb climate change"*¹⁹.

In its recent report on the mitigation of climate change, the Intergovernmental Panel on Climate Change (IPCC) concluded that *"[greenhouse gas] emissions from energy supply can be reduced significantly by replacing current world average coal-fired power plants with modern, highly efficient natural gas combined-cycle power plants"*²⁰. This has been presented in some quarters as support for fracking and unconventional gas. However:

- As the IPCC say, any emissions benefit depends on the gas replacing coal, rather than being burned as well as coal. As has been explained above, there is no guarantee that this will happen
- The IPCC add that any emissions benefit also depends on the fact that *"fugitive emissions associated with extraction and supply are low or mitigated"*²¹. But recent evidence shows that

levels of these emissions at some sites in the US could be up to 1,000 times higher than previous estimates²².

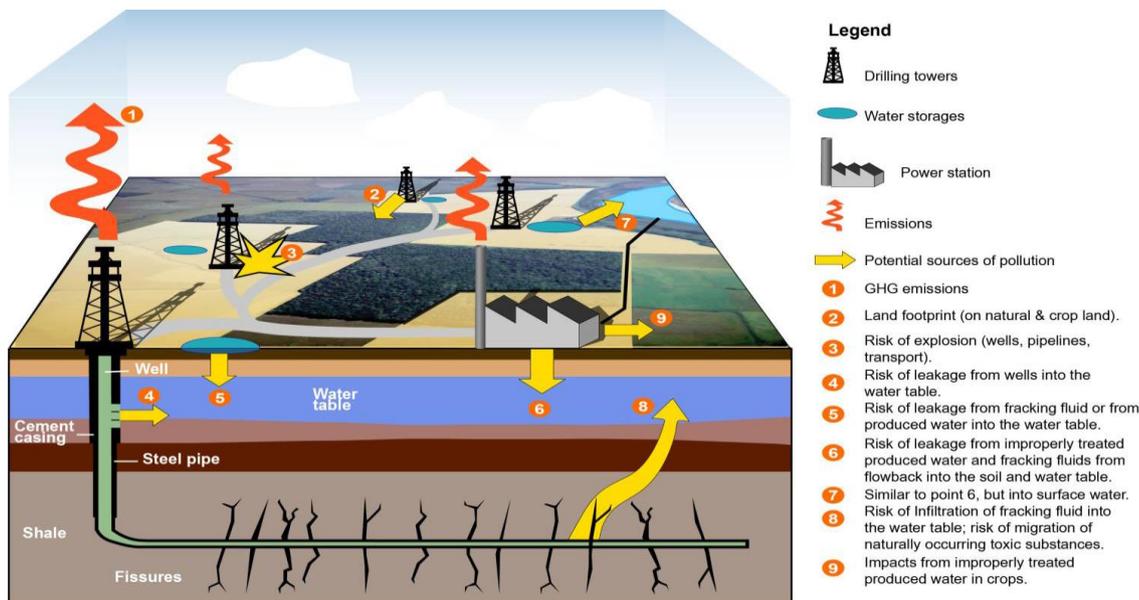
- The IPCC makes clear that this is, at best, a temporary direction of travel, and that a huge increase in renewable energy is needed.

Friends of the Earth’s involvement in regulation

Friends of the Earth has many years’ experience of planning and legal work and has worked with dozens of local communities to support them to protect their local environment and to exercise their democratic rights. As part of this work, over the last three years, we have been closely tracking the regulation of the unconventional gas and oil industry in the UK. At the national level we have had many meetings and discussions with regulators and responded to national consultations. At the local level we have advised and supported local communities in their dealings with a range of regulators and planning authorities. It is this experience that has demonstrated that, far from being gold standard, the current regulation of unconventional gas and oil exploration is inadequate, flawed or ineffectively applied and enforced. An earlier comprehensive review of the regulatory regime - ‘Are we fit to frack?’²³ by the RSPB, the National Trust and others also found serious failings.

Unconventional gas and oil: what are the risks?

The United Nations Environment Program has depicted the risks posed by fracking in the following diagram²⁴:



A report for the European Commission looking at the possible impacts of fracking on the environment and health “identified a number of issues as presenting a high risk for people and the environment”²⁵. It assessed the cumulative impact of fracking at multiple installations as ‘high risk’ in terms of

groundwater contamination, surface water contamination, water resources, release to air, land take, risk to biodiversity, noise impacts and traffic.

The regulatory process

The regulation of unconventional gas and oil in England²⁶ involves many different bodies and permissions. The process is explained in detail in the 'Regulatory Roadmap' produced by DECC²⁷. However in brief:

- Companies wishing to drill must first obtain a licence from DECC. These licences are offered in regular competitive licensing rounds. The licence grants a company exclusivity over exploration and production of all hydrocarbons (gas and oil, conventional and unconventional) in a defined area. Before launching a new licensing round, the Government must carry out a Strategic Environmental Assessment (SEA) of its plans.
- Once the company has a licence, in order to drill and to extract, it must obtain planning permission from the appropriate Minerals Planning Authority – the county or unitary council in England. Separate planning permissions are encouraged for exploration, appraisal and production.
- Then the company must obtain environmental permits from the Environment Agency. It grants any permits that it believes are needed for the activity, covering issues such as water abstraction and waste, gas flaring, risks to groundwater etc.
- The Health & Safety Executive, although not a statutory consultee on planning applications, must approve the design, construction and operation of the wells.
- The Minerals Planning Authority and the Environment Agency both have key monitoring roles in ensuring that planning conditions and permit conditions respectively are met.

Despite the multiple stages and many agencies involved in this process, regulation is failing.

3 How is regulation failing?

The current regulation of unconventional gas and oil exploration is inadequate, flawed or ineffectively applied and enforced. We consider this in detail with regard to climate change, water contamination, water supply and habitats. We also consider critical cross-cutting issues.

At the heart of the inadequacy of regulation is the failure to follow a precautionary approach. The precautionary principle in environmental law and policy derives from the Rio Declaration on Environment and Development in 1992 (signed by the UK). It is one of the fundamental principles of EU environmental policy²⁸ and is encapsulated in many key Directives²⁹. The precautionary principle states that "*where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation*"³⁰. Given clear evidence of problems associated with fracking (eg well failure³¹, pollution of groundwater³² and health impacts³³) and concerns expressed about the lack of full and up-to-date knowledge (outlined in the Introduction), it is clear that a precautionary approach should be applied by all public bodies concerned in relation to unconventional gas and oil exploration and production.

We believe this means a presumption against further activities until there has been a full evaluation of possible impacts and of potential mitigation measures.

Climate change

Regulation of climate change impacts is poor or absent at key stages of the process.

Licensing

Evidence shows that DECC's consideration of climate change in relation to licensing is inadequate. Specifically, DECC:

- Does not adequately assess impacts from combustion as well as extraction, thus relying on data which is incomplete;
- does not consider adequately low carbon alternatives such as biogas and renewables; and
- approves oil and gas extraction although there is no certainty that a binding and ambitious global deal to cut carbon emissions will be achieved in the near future.

It is also unclear from DECC's assessment whether shale will be burned in abated or unabated facilities - carbon capture and storage, at scale and at affordable cost, remains many years away.

As well as shale gas, there is considerable activity in the development of coal-bed methane. The SEA produced ahead of the imminent 14th onshore licensing round states *"it is considered unlikely that there will be any large increase in the current, relatively modest, levels of activity"*³⁴. DECC's failure to assess the environmental impacts of this kind of unconventional gas means that further exploration will take place but without proper assessment.

There is also progress in the development of underground coal gasification, which follows a separate licensing process and has not yet been the subject of any Strategic Environmental Assessment, meaning that there has been no thorough assessment of carbon and climate impacts. This must be undertaken as a matter of urgency and before further exploration takes place.

Minerals Plans and development management

The UK Government's online Planning Practice Guidance on Minerals for England does not reflect policy elsewhere in the same guidance on climate change and effectively promotes hydrocarbon extraction.

Local authorities have a responsibility in plan-making to contribute to the achievement of sustainable development³⁵ and to tackling climate change³⁶ within the context of the Climate Change Act 2008. The National Planning Policy Framework sets out the potential for planning, saying it *"has a key role to play in helping shape places to secure radical reductions in greenhouse gas emissions"*³⁷. National planning practice guidance for England adds that *"effective spatial planning is an important part of a successful response to climate change as it can influence the emissions of greenhouse gases. In doing so, local planning authorities should ensure that protecting the local environment is properly*

considered alongside the broader issues of protecting the global environment³⁸. The Government has made it clear that local authorities should take account of climate change in planning decisions³⁹.

However the online Planning Practice Guidance on Minerals for England is flawed in several respects:

- It effectively promotes hydrocarbon extraction. It requires councils to set criteria for the location and assessment of such extraction. It adds that “*mineral planning authorities may include specific locations should the onshore oil and gas industry wish to promote specific sites*” which assumes that the development is in principle acceptable⁴⁰ – in other words, allocate sites for development.
- It is confusing on the need to assess alternatives by referring to the need for a variety of energy sources including onshore oil and gas as set out in the Annual Energy Statement. This runs counter to the Government’s localism agenda, to the Environmental Impact Assessment Directive which requires the Environmental Statement submitted to the planning authority as part of EIA to set out the alternatives⁴¹ and their environmental impact, and to the Renewables Directive⁴².

This promotion, in effect, of hydrocarbon extraction conflicts with the responsibility on councils to mitigate climate change.

Environmental Impact Assessment

The consideration of carbon and climate impacts as part of Environmental Impact Assessment (EIA) is often inadequate:

- The EIA Directive only expressly applies to sites of a certain size, so in many cases there is no proper site-level assessment of climate impacts at all. For example, the area of some of Cuadrilla’s Lancashire sites is 0.99 hectares, seemingly deliberately set just below the 1ha threshold for screening for EIA. In other cases, although the site is smaller, it may still have significant environmental (including carbon) impacts which must be thoroughly assessed through EIA.
- Obligations to assess cumulative impacts are often not properly complied with. Although activities at individual sites may make only a marginal contribution to climate change, taken together with other similar sites in the area, the carbon impacts are liable to be much more significant. These are often overlooked by planning authorities or given inadequate weight despite their importance.
- Similarly to licensing mentioned above, there is inadequate consideration of low carbon alternatives to gas and oil such as biogas and renewables at the site level.

Failure to mitigate and minimise carbon impacts at site level

Steps to mitigate or minimise carbon and air quality impacts from fugitive emissions, flaring and venting are also inadequate.

Substantial evidence exists concerning fugitive emissions from shale gas activities during exploration⁴³ and production⁴⁴. Fugitive emissions are extremely important in carbon terms, given the potency of methane as a greenhouse gas. Draft guidance issued by regulators is very brief and inadequate on this subject, only requiring a description of how leaks are to be prevented and a

monitoring protocol⁴⁵. Unless the regulator can have full confidence that fugitive emissions are reduced to minimal levels, then it should adopt a precautionary approach and not permit exploration or extraction of shale gas.

Flaring (the burning at the drilling site of excess gas or gas produced during exploration) is regulated under the EU Mining Waste Directive at any level and under the Industrial Emissions Directive where more than 10 tonnes of gas is to be flared per day. Flaring above certain volumes is also regulated under the licence issued by DECC. However we remain concerned that:

- Regulators are under no obligation to consider less harmful alternatives such as storage. The fact that storage is now possible means that flaring may no longer reasonably be regarded as the Best Available Technique⁴⁶, meaning that operators who fail to adopt this technique may no longer comply with Article 4 of the Mining Waste Directive.
- There appears to be no upper limit on the amount of gas which may be flared.

Venting (the intentional release of gas into the atmosphere at the drilling site) is the most harmful means of disposing of gas from unconventional gas and oil activities in terms of carbon and air quality impacts. We believe it must only be used where necessary to avert serious and imminent harm to humans, or an accident likely to cause other serious harm.

We consider that regulators' proposals to permit venting where flaring is not "safe or practical"⁴⁷ sets too low a threshold given its impacts. It confers undue discretion on operators to determine when flaring is "practical" and implicitly may introduce cost as a key consideration. In practice, venting has been permitted by regulators at a number of sites, for example at the IGas site at Barton Moss in Salford and at the Dart site at Daneshill, Nottinghamshire. It is not clear that venting in these cases was needed on safety grounds, thus we are concerned that this process is not being regulated sufficiently tightly at site level.

Water contamination

There is substantial evidence of risks to surface and groundwater from unconventional gas and oil activities. Lord Smith, the Chair of the Environment Agency, said that "*groundwater contamination is the biggest environmental risk in this activity*"⁴⁸. Given this, regulators should be, but are not, taking a precautionary approach. Thus regulation of this critical area is fundamentally flawed.

EU water legislation imposes an absolute prohibition on input of hazardous substances to groundwater and obliges Member States to limit inputs of pollutants⁴⁹. Methane is classed by the Environment Agency as hazardous, as are the oil-based drilling muds as well as some of the additives they contain, such as oxirane. Given the risks which these substances pose to ground and surface water (leaving aside hazardous substances contained in mining wastes stored at, or disposed of from the site), we believe this legislation requires the Environment Agency to properly regulate the risks to water at unconventional oil or gas sites up and down the land, including by issuing groundwater permits. We are deeply concerned that the Agency is failing to have due regard to substantial evidence of risks to groundwater and placing undue reliance on technological 'solutions'. This failure is likely to intensify when the Agency receives applications to frack, rather than simply 'test'.

Lack of baseline monitoring

Baseline monitoring of water quality is not explicitly required as part of an Environmental Impact Assessment, nor routinely required by planning authorities. To date, regulatory practice has been inconsistent, with monitoring required at some sites but not at others without clear reasons for the variation in approach. This monitoring is essential to assess, prevent and, where necessary, attribute responsibility for possible contamination. In the USA, failure to do this has made it much more difficult to attribute responsibility for water pollution when this has occurred, as it is not possible to say if water quality was poor before shale gas activities began.

Failure to require groundwater permits

Groundwater permits are used to regulate activities which could involve the discharge of pollutants into groundwater. Despite the absolute prohibition on the input of hazardous substances to groundwater mentioned above, the Environment Agency has argued that fracking is no risk to groundwater and has not required a groundwater permit for an unconventional gas and oil site anywhere in the UK. For example:

- Groundwater permits were not required for coal bed methane drilling by Dart Energy at Daneshill, Nottinghamshire or for Rathlin Energy's proposed drilling at Crawberry Hill, near Walkington in East Yorkshire, despite both being in groundwater Source Protection Zones⁵⁰.
- There are streams running through Cuadrilla's drilling site at Balcombe and the headwaters of the River Ouse are close to the site; and a borehole bearing water for human consumption is located just over 2 kilometres from the site, but no permit was required in this case by the Environment Agency either.

Regulators generally argue that there is no need for a permit because the risk of well failure is low, but we believe this approach to be flawed:

- There is considerable evidence of wellhead failure in the USA⁵¹ and the consequences of pollution are severe;
- Methane is hazardous and drilling muds which are hazardous have been permitted for use by the Environment Agency at unconventional gas and oil sites (eg oil-based mud was used at Barton Moss, Salford). The Environment Agency has failed to clarify whether additives which are also hazardous may be used with drilling muds.
- Regulators do not have sufficient understanding of hydrogeology where no 3D seismic survey and/or EIA is undertaken;
- Inherent risks of pollution of groundwater through faults in shale rock which are much more common in western Europe than the USA⁵²;
- Fracking and related processes can create further routes within the rock potentially allowing contamination;

- The Environment Agency has failed to clarify how close to an aquifer drilling and testing (including fracking) may be undertaken⁵³.

The precautionary principle must be applied in relation to groundwater protection because of the evidence of wellhead failure abroad; because technology to be used in this country is unlikely to deliver significantly different outcomes; because of the nature of the geology in the UK (shale is more faulted than in the US) and because the applicable legislation is based on this principle.

Treatment of flowback water

After fracking, between 20% and 80% of the water used to fracture the rock remains underground. Flowback water may contain naturally occurring radioactive material mobilised from the surrounding rock by the testing / fracking process, as well as harmful metals. Disposal routes for the thousands of gallons of flowback water are not widely available, and in some cases not currently identified. It is clearly irresponsible (and contrary to the precautionary principle) for regulators and planning authorities to permit development or mining activity where they do not have a real clarity as to how certain wastes will be disposed of. In these circumstances, public bodies should take a precautionary approach and refuse to permit development (or to grant a permit) pending clear and coherent proposals from operators explaining how all of the wastes they will generate will be disposed of in a way which is safe and environmentally sustainable.

Risks to surface water

Pollution of surface water is also a real risk from the large volumes of flowback water (or produced water from coal bed methane extraction), chemicals and, in some cases, gas, stored on site. This could be as a result of an accident or extreme weather such as flooding. The Environmental Report produced as part of the SEA ahead of a proposed licensing round later this year concluded that if fracking sites are developed on flood plains, then if there was flooding there was the risk that *“storage tanks may become damaged or suffer a loss of power and release contaminants into the flood water”*⁵⁴.

Councils have given planning consent for unconventional gas and oil activities very near to surface water bodies including on-site streams, less than half a mile from rivers and in one case, within a mile of a drinking water reservoir⁵⁵.

Friends of the Earth is concerned that the risks to surface water are simply not being taken seriously enough, and that preventative steps may be inadequate particularly where some pollutants from the site are permitted to be disposed of in nearby ditches etc (see for example the Mining Waste permit granted to IGas for Barton Moss⁵⁶). Again, a precautionary approach must be adopted, requiring a full assessment of possible impacts and no discharges until the impacts are well understood.

Insufficient clarity on chemicals

There is insufficient clarity on the chemicals to be used in fracking and related activities. The Energy Secretary has said that, unlike in many parts of the USA, operators in the UK will have to disclose the chemicals to be used in fracking. But regulators need to go further:

- They must ensure that all chemicals to be used in drilling and fracking are properly registered for that use under the EU's REACH (Registration, Evaluation Authorisation & Restriction of Chemicals), legislation⁵⁷ It must also ensure that the Chemical Safety Assessments and Reports⁵⁸ are sufficiently rigorous and that the conditions for safe use are followed for every frack.
- The Environment Agency has told the industry that *"we expect you to propose only non-hazardous substances for use"*⁵⁹. This is unacceptably weak: the Environment Agency must make clear that it would not approve the use of hazardous substances.
- Companies should be required to publish REACH details and Material Safety Data Sheets (which provide standard information such as hazard data, toxicity details and potential health impacts) for any chemicals they propose to use, allowing the opportunity for public comment. This will allow local communities to know what is being used and the risks involved.
- We are also concerned that the Secretary of State's commitment about publicising chemicals may not be legally binding. For example, DECC has not made clear what steps it (or other regulators) would take if companies fail to disclose all the chemicals they intend to use.

Water supply

The Environment Agency is *"responsible for managing water resources in England and Wales on behalf of Government"*⁶⁰. However, its draft technical guidance for onshore oil and gas exploration passes the buck, saying that water supply in this area is the responsibility of the utility companies⁶¹.

Fracking requires significant volumes of water. Although unlikely to be a problem at the national level, Water UK (which represents the water utilities) has said that *"where water is in short supply there may not be enough available from public water supplies or the environment to meet the requirements for hydraulic fracturing"*⁶². This is liable to be an issue in water-stressed areas of the UK, such as the south east, where a number of drilling companies are currently active or seeking planning permission. The Chartered Institute of Water and Environmental Management has stated that *"there may be local consequences should a significantly sized [shale gas] production industry develop, particularly in some catchments in the south east which are already water stressed"*⁶³.

The Water Act 2014 makes provision for the purchase of water from the holders of water abstraction licences. The great majority of abstraction licences are permanent, with little or no scope for review. However *"the majority of licence holders use only 50% of their allotted volume of water, yet most of the rivers and groundwaters in England and Wales would be at serious risk of damage if these unused volumes were abstracted"*⁶⁴.

The Environment Agency must take responsibility for ensuring that unconventional gas and oil exploration does not prejudice public or other core water supply – its failure to do so is a key problem.

Habitats and biodiversity

The UK Government has failed to assess at the strategic level the potential impact of further gas and oil licensing on protected species and habitats such as National Parks and Sites of Special Scientific Interest (the UK's top wildlife designation).

Where the risk of significant harm to protected habitats and species cannot be ruled out, a Habitat Regulations Assessment should be a critical part of any Strategic Environmental Assessment such as that being carried out ahead of further onshore gas and oil licensing. We believe it is clear that case law requires this to be carried out at the strategic level (the level of the overall plan) but the Government has decided to defer the assessment to when individual licence applications are considered.

This approach fails to ensure that the cumulative impacts of activity at many different sites across the UK will be taken into account. Where the risk of significant impacts on protected habitats cannot be excluded, sites must be screened out of the licensing process at the strategic stage, an approach recommended by the UK's leading conservation groups⁶⁵.

Cross-cutting issues

In addition to the specific issue-based problems outlined above, there are also serious cross-cutting problems contributing to the inadequacy and ineffectiveness of regulation.

Lack of dedicated regulation

The United Nations Environment Program, referencing the European Commission, has said that unconventional gas will require dedicated regulations because existing regulations often do not address specific aspects of fracking⁶⁶. In their report to the Government, the Royal Society and the Royal Academy of Engineering recommended that "*regulators should work together to develop guidelines specific to shale gas extraction*"⁶⁷. However, this has not happened.

While the Government has provided specific planning practice guidance for onshore oil and gas, it has deliberately weakened the impact of planning regulation by making the guidance permissive rather than including detailed safeguards such as the precautionary principle and linking to other guidance on climate change.

Draft guidance produced by the Environment Agency relies on existing regulations, often developed for offshore or above-ground gas and oil activities (which are often inappropriate), and on non-binding industry guidelines. For example, the draft guidance on drilling a borehole refers operators to the technical guidance 'IPPC S1.02 Gasification, Liquefaction and Refining Sector' for understanding what measures the Environment Agency will be looking for to prevent fugitive emissions. The document referred to is about the refining sector which has mainly above-ground operations which are easy to inspect, verify and contain. As such it is not applicable to shale gas and coal bed methane exploration which take place respectively many metres underground, and reference to it for guidance is confusing and inappropriate.

The Environment Agency's guidance also refers operators to the 'UK Onshore Shale Gas Well Guidelines'⁶⁸ developed by the UK Onshore Operators' Group and to Oil & Gas UK guidelines. This raises major concerns:

- These documents are guidelines and non-binding, as the consultation points out;

- Oil & Gas UK describes itself as ‘The Voice of the Offshore Industry’. Its guidelines were developed for the offshore industry, which faces very different circumstances, making the guidelines inappropriate for onshore operations;
- By setting its own standards, there is a risk that the industry will effectively regulate itself, which is inappropriate for a relatively new industry involving high-risk activities which therefore requires independent regulation and inspection.

Problems with Environmental Impact Assessment (EIA)

Although we fully support EIA in principle, we have two key concerns in relation to the EIA Directive: not all the risks of unconventional gas and oil are adequately addressed and the EIA Directive is being inadequately applied.

EIA is critical to assessment of the environmental impacts of unconventional gas and oil activities. It is integral to decisions about planning permission because it provides crucial information about impacts which must be taken into account. It also generates key information which regulators require to regulate other aspects of these activities, principally through groundwater, mining waste and radioactive substances permits⁶⁹.

Firstly, in its current form, EIA does not adequately address the risks of unconventional gas and oil. As has been explained above, it does not explicitly require developers to carry out baseline monitoring of water, soil and air quality, which is critical to prevent and, if needed, attribute responsibility for, possible pollution.

Secondly, the EIA Directive is being inadequately applied by planning authorities, or avoidance tactics are being used by companies:

- Very few full EIAs have yet been completed in relation to unconventional gas and oil sites in the UK, despite planning permission having been granted in many cases over three years ago. This is due to the failure of local authorities to screen for or require EIA in many cases. The screening decisions adopted by councils (deciding whether or not a full EIA is required) have sometimes been inadequate, involving cursory consideration of impacts⁷⁰, sensitive areas⁷¹ and accepting information provided by developers with little challenge or scrutiny⁷²;
- The lack of completed EIAs can also be at least partly ascribed to developers making applications for sites with an area of 0.99 hectares⁷³ - the EIA Directive sets a threshold for the screening of ‘deep drilling’ applications at 1 hectare⁷⁴. Where (as in the case of several Cuadrilla sites in Lancashire) a number of sites are located close together, local authorities should still screen for EIA, as case law is clear that the Directive cannot be circumvented by “the splitting of projects”⁷⁵. When assessing the “area of the works” for the purposes of EIA, local authorities should take account of all activities carried out underground as well as at the surface. They must bear in mind that sites that are smaller than 1 hectare may have significant environmental impacts in any event.
- Decisions on scoping (assessing which issues should be dealt with in an EIA) have been based on inadequate evidence – for example:

- Lancashire County Council's reliance on "desk based study" to provide "environmental baseline for the geological and hydrogeological setting" in relation to Cuadrilla's application for shale gas exploration at the Beconsall site in Lancashire and
- Trafford Council's failure to consider climate change impacts in deciding that no EIA was needed for IGas's application for coal bed methane testing and production at Davyhulme.
- The Environment Agency lists in its draft guidance the information it believes should be included in an EIA, but this is incomplete. It does not include issues such as traffic management, road damage, noise, lighting, venting and flaring. Nor does it fully address potentially critical issues around water contamination: operators are not required to look at the potential for vertical migration up the outside of a well casing in the event of well failure.

EIA should be mandatory for all unconventional gas exploration and production – a view shared by Britain's leading conservation charities⁷⁶. The industry has offered to carry out EIAs for all operations involving fracking, but we believe this needs to go further, not least because this is a voluntary offer by the industry and therefore not legally binding. The commitment does not extend to a wide range of activities besides fracking which are undertaken in connection with underground gas and oil exploration and extraction and are also capable of causing environmental harm (eg: drilling, mud logging, coring, a variety of logs and various testing activities).

Major shortcomings in the online Planning Practice Guidance

As Minerals Planning Authorities, English county and unitary councils play a key role in consenting development of unconventional gas and oil and ensuring environmental impacts are minimised and mitigated through planning conditions. There are serious shortcomings with Government planning guidance and practice, in addition to concerns about climate change, the treatment of cumulative impacts and the lack of public consultation considered above.

There is a lack of clarity about site boundaries. Planning law defines development as "*the carrying out of building, engineering, mining or other operations in, on, over or under land*"⁷⁷. This must include not just activities on the surface but also *within the land*. Thus the boundary of the 'site' for consideration in planning should not be defined by the wellpad, but by the extent of drilling. The Government's planning guidance for England distinguishes between the surface area of a site and the likely extent of underground activities, including lateral drilling. This could cause confusion: do developers have permission to drill laterally beyond the surface boundaries? If not, they could be at risk of enforcement proceedings for breach of planning law. Also, if planning authorities fail to take into account the impacts of subsurface activities which go beyond the wellpad boundaries, planning permission could be flawed and unsound.

The online Planning Practice Guidance (PPG) directs planning authorities to 'use appropriate conditions' to mitigate against any adverse environmental impact. However risks to groundwater are proven, while the prevention of contamination is not. The precautionary principle encapsulated in the Water Framework Directive states that groundwater should not be polluted at all. Also, with knowledge of the industry and its impacts still evolving, and the industry at a very early stage in the UK, it is not yet possible to know for sure what all the adverse impacts will be, or to assume therefore that planning conditions set now will be adequate.

In several cases, the model planning conditions set out are inadequate:

- They do not properly address underground activity
- Key issues for planning authorities are omitted, such as air quality, traffic, land contamination, flood risk, land stability or subsidence
- The conditions are in some cases broadbrush (eg water⁷⁸) or are duties to monitor rather than abate or mitigate (eg noise)

There is also a lack of clarity about unconventional gas and oil terminology. Planning authorities may be misled or confused by supposed distinctions between 'conventional' and 'unconventional' drilling, 'fracking', 'stimulation' and 'testing'. For example, Cuadrilla's planning application for the Preese Hall site refers to 'drilling of exploratory borehole and testing of hydrocarbons' – no reference is made to hydraulic fracturing⁷⁹. Many of these terms are unclear and may obscure the true nature of the activities and their impacts. .

The online PPG seeks to limit the local authority's role by minimising its considerations of health, environmental or other impacts for which other bodies are also responsible⁸⁰. Planning authorities should consider all relevant issues: climate change is firmly part of their role, and 'control processes' must be put in place by the planning authority's use of conditions – hence the need for EIA to provide information on the environmental impacts and therefore to have pertinent conditions.

The section on restoration and aftercare is inconsistent with other national guidance. The National Planning Policy Framework requires restoration "*at the earliest opportunity*" and to the "*highest environmental standards*". The online guidance on onshore oil and gas simply refers to "*proper restoration and aftercare*"⁸¹. There are no financial guarantees to ensure restoration and aftercare, particularly as the online guidance refers to a 'voluntary agreement' rather than insisting on a planning obligation⁸². Conditions may be imposed but unless they are enforced, there is the risk that the restoration will not happen unless the finance is set aside at the outside to cover the costs.

Inadequate monitoring and enforcement

There are major concerns about the monitoring and enforcement of unconventional gas and oil activities by both planning authorities (through failure to enforce planning condition) and other regulators (through effectively allowing operators to 'mark their own homework').

Monitoring is key to ensuring enforcement, but it is already clear that planning authorities are struggling to fulfil their duties. There have already been instances where companies have failed to abide by planning and permit conditions, and no enforcement action has been taken:

- Conditions were applied to Cuadrilla's planning permission for its Becconsall site that it could only drill for 90 days and must stop drilling by 30th September 2011 in order to protect wintering birds at a nearby protected area. However, according to the Head of Planning at Lancashire County Council, Cuadrilla ignored these conditions and drilled for longer than 90 days and past the date stipulated. No enforcement action was taken by the council.
- IGas received planning permission in 2010 for coal bed methane exploration and production at a site in Barton Moss, Salford. Despite stating that it would be drilling to 1300m to the coal bed in

its planning application documents, the company has now stated it is exploring the shale gas layer and will be drilling to 3000m. Its permission applies only to coal bed methane yet no enforcement action has been taken by Salford Council.

The Environment Agency's draft guidance makes many references to what it will expect, but very little or none to what it will inspect. This is critical if the public is to have faith in its regulation. For example its draft guidance says *"You should keep us informed of the nature and quantities of the chemicals you propose to use"*⁸³ but does not say that it will check what is being used, even with occasional inspections. The nature of the Environment Agency's regulatory regime is that operators are left to 'mark their own homework', in other words, self-regulation. This approach fails to ensure that the policies and procedures are being followed in practice and remain fit for purpose.

Decommissioning and liability

Concerns about well integrity also extend to when unconventional gas and oil wells are decommissioned. The risk of problems continues and even grows, as more wells suffer integrity problems in the long-term. Cuadrilla has stopped work at its Preese Hall well in Lancashire and planning permission to close the well has been granted. But many unanswered questions remain:

- What monitoring of fractures has been undertaken? How far do they extend?
- What will happen to the water and pollutants which remain underground?
- What steps will be taken to prevent further seepage?
- What monitoring of water, air and soil impacts will be undertaken at the site?
- How long will monitoring be undertaken for?
- What sort of risk assessment is being carried out?

The Environment Agency says it *"would expect ... that plans to ensure anything was properly contained subsequently were very firmly in place"*⁸⁴ but the Office for Unconventional Gas & Oil is *"not aware of any independent monitoring"*⁸⁵ of decommissioned wells.

Planning guidance says that a financial guarantee to cover restoration and aftercare costs will normally only be justified in exceptional circumstances, and lists 'where a novel approach or technique is to be used' as one definition of exceptional⁸⁶. The unconventional gas and oil industry is untried and untested in the UK, and in light of nature the evidence of environmental impacts from other countries, every unconventional onshore gas and oil development should be regarded as 'exceptional'. If this approach is not adopted, the Government will be failing to protect the public purse or guard against long term and significant risks

Fracking companies should have to provide an upfront financial guarantee to cover clean-up costs for the lifetime of a well, including its decommissioning, as recommended by RSPB, National Trust and others⁸⁷. Where what are effectively 'shell' local companies are set up, these guarantees should be attached to the parent company.

‘Salami-slicing’ of regulation

The current regulatory regime is vulnerable to ‘salami-slicing’, through which operators obtain permission from planning authorities or regulators for operations in increments, rather than being open about their overall plans at the start of the process. This raises concerns about robustness and lack of transparency, and local authorities and regulators could grant permission on misleading terms. If salami-slicing leads regulators to set the bar at a low level in the exploration phase, it could preclude effective regulation of the production phase.

By splitting gas and oil activities into a series of smaller steps, there is a real risk that the planning authority will fail to assess the overall impacts of the project and look only at the impacts of the particular stage under consideration which may, taken on their own, be quite small.

4 Public participation and democracy: further failings

Public consultation as part of the regulation of unconventional gas and oil falls well short of what is required, with more of a tick-box approach which arguably fails to discharge the Government’s responsibilities under the Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters. Despite the Prime Minister’s statement to the House of Commons that *“any future shale gas production would have to follow ... deep consultation with local communities”*⁸⁸, the Government’s approach seems to be more about sidelining local communities rather than allowing them to engage fully with the issue. Given the strength of local opposition to fracking – 45% of those asked in a recent opinion poll were opposed to fracking in their local area⁸⁹ - as well as the local knowledge which communities can bring to bear, local engagement is critical.

The Aarhus Convention places duties on public authorities to ensure that the public are fully involved in decision making. These are reflected in relevant EU Directives, such as the Mining Waste Directive, and, to some degree, in the Environment Agency’s public engagement policy.

This section addresses changes in laws and regulations to benefit companies and reduce public involvement, failure to consult on planning guidance and poor practice in public engagement.

Removal of responsibility to notify directly

The Government has removed the requirement on onshore gas and oil companies to notify householders directly if drilling or fracking could take place beneath their property. This is a concession to the industry, prioritising removing regulation and safeguards rather than protection and involvement of local people.

Such notification would, according to the Government, involve notifying a *“disproportionately large number of individuals and businesses”* and would be *“unnecessarily excessive”*. Instead, companies will have to *“publish a notice in a local newspaper and put up site displays in local parishes”*⁹⁰.

The change has been roundly criticised by a number of bodies including the House of Lords Secondary Legislation Committee which concluded that the regulations *“imperfectly achieve their policy objectives”*. It found that *“streamlining procedures in relation to “fracking” might very well be*

seen as a new and contentious policy; given that the Government allowed only six weeks for this consultation, it is hard to imagine what policy considerations might lead them to allow 12 weeks or longer for a consultation". The Committee also made a number of procedural criticisms of the Department of Communities and Local Government and described its explanation of the order as *"both fragmentary and apparently inconsistent"*⁹¹.

Proposed amendment to the law of trespass

In the next session of Parliament, the Government is expected to propose changes to trespass laws to make it easier for gas and oil companies to drill under someone's land without their approval. Although, in the UK, the Crown rather than landowners 'own' the oil or gas under a property, the landowner still has to give permission, or not withhold it, for drilling to take place into the rock under their land. Companies can go to court to get permission to drill under the land, but they and the Government are concerned that this will further delay onshore gas and oil exploration and production.

Earlier this year solicitors for landowners in Sussex told Celtique Energy, which wants to drill beneath their land, that they were formally withholding permission. Celtique subsequently changed its plans⁹².

A change to the law would be a further significant concession to the industry at the expense of local peoples' rights and some time-honoured principles of English land law. It also removes independent adjudication (through the courts) from the process and enables government to decide whether a person's rights have been interfered with and how much compensation they should receive.

Failure to consult on Planning Practice Guidance

Last summer the Government issued Planning Practice Guidance (PPG) for Onshore Oil and Gas. In a significant departure from normal practice, there was no consultation on the PPG: it was simply issued. There has therefore been no public testing or independent expert submissions that have helped to inform the Government's policy. There has been no parliamentary scrutiny or examination by Select Committee. Subsequently this guidance was put into the planning practice guidance portal with some changes – again without specific public consultation or a Government response.

The Government's own Consultation Principles⁹³ explain why consultation is vital: *"increasing the level of transparency", "bringing to bear expertise and alternative perspectives", and "strengthening policy making and ... understanding the effects of the policy on those affected."*

This has not happened for the PPG for Onshore Oil and Gas. Affected communities, local authorities, and MPs as well as a myriad of other interests have not had an opportunity to contribute and provide robust testing of the Government's proposals. Friends of the Earth believes this failure to consult on the PPG is not consistent with the spirit of the Aarhus Convention.

Introduction of 'standard permits'

The Environment Agency has proposed to create 'standard permits' for some aspects of unconventional gas and oil operations. The principle and content of a standard permit has been

consulted on once, but (if adopted) thereafter there would be no public involvement, and decisions on whether an operation should be covered by a standard permit would be a matter for the regulator and the operator. This could contravene the Aarhus Convention (and potentially the public participation provisions of the Mining Waste Directive) and decreases transparency around unconventional gas and oil regulation and the accountability of public bodies and the industry to local people.

The use of standard permits in this area is inappropriate and potentially harmful. The Environment Agency has said that *“we only develop standard rules for operations with well understood risks and mitigation measures”*⁹⁴ but this is not the case with unconventional gas and oil which uses emerging technology most of which has never before been used in the UK, with environmental and safety impacts that are inadequately understood.

The Environment Agency has stated that it would consult on standard permits in cases of “high public interest”. Experience to date indicates that in practice this will only occur in a small proportion of cases, since the Agency concluded that horizontal drilling into shale rock at Balcombe last year was not “high public interest”, despite significant protest at the site and nationwide interest.

Problems with local consultation to date

There has been poor practice to date in local consultation in high-profile cases.

- Cuadrilla received planning permission to drill in Balcombe in 2010, but made no attempt to consult with either local residents or the Parish Council. Residents organised their own public meeting in 2012 once they heard about the permission. After reassuring residents that drilling in Balcombe was unlikely as they were concentrating on the North West, Cuadrilla wrote to residents in May 2013 to say they would be drilling in Balcombe after all. They would not speak at a public meeting, but instead held a ‘drop-in’ session. Further requests for public meetings were forwarded to the company’s then PR advisers Bell Pottinger.
- Celtique Energy, the company proposing to drill and frack near Fernhurst in Sussex, has reportedly set out ground rules for its community surgeries and discussions. These specify that recording is *“strictly prohibited”* and that no *“formal minutes or transcript of the meeting [may be] produced or published in the public domain”*⁹⁵. Local MP Andrew Tyrie suggested in a letter to Celtique Energy’s chief executive Geoff Davies that this might be because *“a number of my constituents allege that you have given different answers to the same question”*⁹⁶.
- DECC has recommended that an Environmental Risk Assessment (ERA)⁹⁷ should be carried out for all unconventional gas and oil applications. ERA guidance says that local interest based groups should be involved. But when an ERA took place at one of Cuadrilla’s sites in Lancashire, local community group Ribble Estuary against Fracking was not invited to take part. ‘Public Consultation meetings’ were arranged instead with twelve people invited. This, it was claimed, was the most effective way to cascade information down to the local community, but the company failed to explain to some of the invitees that this was their role.

5 Corporate lobbying and involvement

There is clear evidence of corporate lobbying of senior civil servants, calling for weaker regulation.

Freedom of Information requests have revealed that Lord Browne, chairman of Cuadrilla and a non-executive director in the Cabinet Office, intervened personally with the chair of the Environment Agency, Lord Smith, to try to exempt the company from compliance with regulations on the monitoring and disposal of waste products from drilling⁹⁸. This issue was also raised with the Environment Agency by Friends of the Earth in relation to Cuadrilla's drilling in Balcombe. Following Friends of the Earth's complaint, and despite Cuadrilla's lobbying, the Environment Agency decided that Cuadrilla did need a Mining Waste Permit.

Following a separate personal intervention by Lord Browne, Lord Smith *"offered to halve the consultation time for a waste permit, agreed to intervene with a county council over Cuadrilla's planning permission and to identify further risks to Cuadrilla's plans."*⁹⁹

Further close links between the industry and the Government came to light when details of emails between DECC and the UK Onshore Operators Group were revealed, showing that the two agreed 'lines to take' on regulation on the launch of Public Health England's review of the health effects of shale gas exploration and production¹⁰⁰.

6 The Government's role: pliant cheerleader?

In its enthusiasm for unconventional gas and oil, the Government has adopted an attitude described as *"pliant cheerleading"*¹⁰¹. Government statements such as *"all out for shale"* and *"shale gas is the future and we will make it happen"* apply strong political pressure on regulators, leading them to adopt a potentially over-permissive attitude and to over-streamline regulation. This can be seen in the statement in the Environment Agency's draft guidance that *"we avoid objecting where we can"*¹⁰². Other Government decisions also risk reducing the adequacy and effectiveness of regulation.

Office for Unconventional Gas and Oil: cheerleader and regulator?

Overall responsibility for the regulation of unconventional gas and oil in the UK lies with the Office for Unconventional Gas and Oil (OUGO). OUGO sits within the Department of Energy & Climate Change, which is also responsible for regulating some of the impacts of fracking by issuing licences to companies. OUGO's website refers to its roles as to *"ensure we make the best use of our natural resources by encouraging the development of the unconventional gas and oil industry in the UK"*; and to *"ensure regulation of the industry, including the planning and permitting processes, is as streamlined and simplified as possible through the exploration, appraisal and development phases to full production, while remaining sufficiently robust to safeguard public safety, the workforce, and the environment"*¹⁰³.

There is a conflict between OUGO's twin roles of 'cheerleader' and 'gamekeeper' (a dichotomy raised by Tim Yeo MP, chair of the Energy & Climate Change Select Committee¹⁰⁴), and between the streamlining of regulation and making it robust.

Cuts to regulators

Key regulators are facing staff and budget cuts, affecting their capacity to respond to the challenges posed by this new technology:

- The Environment Agency faces budget cuts and 15% staff cuts. At a time of heightened pressure on the Agency following the recent floods, this increases concerns about the permitting and inspection regime.
- Planning authorities are also facing budget cuts, meaning that planning officers are stretched and under-resourced. This compounds concerns that neither officers nor councillors on planning committees have sufficient knowledge about the issues.

Lobbying to water down EU action

The UK Government has led lobbying to water down possible European action on the regulation of unconventional gas and oil.

In January, the European Commission decided on its action in this area. An Impact Assessment showing that a new Directive setting specific binding provisions was the most effective of the options considered in terms of tackling the environmental risks, providing legal clarity and addressing public concerns. The same Impact Assessment showed that non-binding recommendations and guidance to member states was the least effective option but the European Commission took the latter course.

Letters obtained by Friends of the Earth show that the UK Government led the lobbying in favour of this weakest option¹⁰⁵. Thus, while the Government proclaims the benefit of regulation, behind the scenes in Europe it has manoeuvred to water down regulations.

Placing an 'economic growth duty' on regulators

The Government has proposed a duty on regulators including the Environment Agency and the Health & Safety Executive to have regard to economic growth and this creates further potential conflict. It adds to the pressure on regulators to approve activities such as unconventional gas and oil which are promoted by the Government as vital for the economy¹⁰⁶. Agencies whose role is to conserve and enhance the natural environment should be free from demands to boost short-term economic growth.

7 Conclusions

Unconventional gas and oil exploration and production present serious risks that the UK does not need to take.

This briefing shows that there are serious shortcomings with the regulatory regime for unconventional gas and oil in the UK. Public health, and safety risks are not adequately addressed by the current regulatory framework, and local decision-making is being weakened, despite the Government's commitment that communities should be consulted in full.

Far from being gold standard as claimed, the regulatory regime is inadequate, flawed or ineffectively applied and enforced:

- The climate change impacts of extracting and burning unconventional gas and oil are not adequately addressed.
- The risks of water contamination are not adequately regulated.
- Regulators have failed to set out a clear strategy in relation to water supply for fracking, which requires very large volumes of water.
- Decision makers fail to adequately address potential impacts on protected species and habitats or screen out protected areas from exploration and extraction altogether.
- There are problems with the application of Environmental Impact Assessment, which fails to address all the risks arising at unconventional oil and gas sites and is being inadequately applied.
- There is a lack of dedicated regulation, despite specific expert body recommendations that this is needed from, for example, the Royal Society.
- There are major shortcomings in planning practice guidance, such as a lack of clarity about site boundaries and inadequate model planning conditions.
- There is inadequate monitoring and enforcement by planning authorities and regulators leading to a culture of self-regulation.
- The impact of regulation risks being reduced further through 'salami-slicing' whereby companies get permission from regulators in increments, rather than being open about their overall plans from the start.
- The Government has smoothed the path for the industry, undermining democracy and public participation in decision making through:
 - the removal of the responsibility on companies to notify individual landowners,
 - proposed changes to trespass laws,
 - proposals to introduce "standard" environmental permits which would not normally be consulted on; and
 - failure to consult on planning practice guidance.
- Gas and oil companies have succeeded in weakening and in some cases circumventing regulation through direct lobbying of senior civil servants.

- The Government has cut regulators' budgets and given some of them an economic growth duty.

The UK Government and the industry repeatedly stress the strength of current regulations. This is far from being the case. The following changes would strengthen them:

- The use of the precautionary approach by all regulators and public decision makers;
- A full assessment of climate impacts – considering combustion impacts in the round - at all stages of regulation, namely licensing, minerals plans, planning permission and site-level permitting;
- Full baseline monitoring of water, air and soil before drilling, testing or fracking begin;
- Effective assessment of cumulative impacts in all cases;
- Making Environmental Impact Assessment mandatory for all unconventional gas and oil activities – the industry's voluntary commitment to undertake EIA is insufficient because it only applies to "fracking" (not drilling or other kinds of testing) and it is unclear if it is legally enforceable;
- The introduction of dedicated regulations for the industry, rather than using non-binding industry guidelines and regulations developed for the offshore industry; and
- Ensuring full and independent monitoring and enforcement of regulations by all regulators.

However, even if these were implemented, major doubts remain: can the unconventional oil and gas industry be regulated into safety, or will better regulation make it safer, but not safe? As the United Nations Environment Program has stated "*fracking may result in unavoidable environmental impacts even if [gas] is extracted properly*"¹⁰⁷.

In addition, unconventional gas and oil will not help tackle climate change:

- Exploiting the UK's unconventional gas and oil would just add to the world's stock of unburnable carbon – fossil fuels that we cannot burn if we want to avoid the worst impacts of climate change.
- We do not have a binding global climate deal which would give at least a 2 in 3 chance of avoiding global temperatures rising by more than 2°C. This deal would help ensure that unconventional gas and oil would be used instead of, rather than as well as, other fossil fuels.
- The prospect of unconventional gas, particularly shale gas, in the UK risks driving a second 'dash for gas' with the construction of a large number of new gas-fired power stations. The Chief Executive of the Committee for Climate Change has said that this would be "*completely incompatible*"¹⁰⁸ with the UK's binding climate change targets.

The UK's energy system must reduce our reliance on fossil fuels, basing our energy future on reducing energy waste and exploiting the UK's vast potential for renewables. Reducing our reliance on fossil fuels, rather than remaining dependent on them, is also a much better way of dealing with concerns about energy security.

Because of this, there should be a moratorium on further exploration for and production of unconventional fossil fuels such as shale gas and coal bed methane.

- 1 The Guardian, 4th December 2012, 'Gas strategy should be 'plan Z', government's climate adviser warns': <http://www.theguardian.com/environment/2012/dec/04/gas-strategy-plan-z-climate-adviser>
- 2 House of Commons 12 Sep 2012 : Column 282: <http://www.publications.parliament.uk/pa/cm/201213/cmhansrd/cm120912/debtext/120912-0001.htm>
- 3 Quoted in 'Kent outlined as key battleground for fracking at four sites in Tilmanstone, Guston Court Farm, Shepherdswell and Woodnesborough' http://www.kentonline.co.uk/east_kent_mercury/news/fracking-our-future-hope-or-8502/
- 4 Ed Davey, *Could shale gas help the climate change fight?*, <http://www.businessgreen.com/bg/opinion/2341708/could-shale-gas-help-the-climate-change-fight>
- 5 <http://www.independent.co.uk/news/uk/politics/david-cameron-promises-fracking-tax-boost-for-councils-willing-to-approve-projects-9055280.html>
- 6 Budget speech 20/03/13 <http://www.publications.parliament.uk/pa/cm/201213/cmhansrd/cm130320/debtext/130320-0001.htm#13032055000002> column 938
- 7 Ed Davey, *Could shale gas help the climate change fight?*, <http://www.businessgreen.com/bg/opinion/2341708/could-shale-gas-help-the-climate-change-fight>
- 8 Quoted in 'Kent outlined as key battleground for fracking at four sites in Tilmanstone, Guston Court Farm, Shepherdswell and Woodnesborough' http://www.kentonline.co.uk/east_kent_mercury/news/fracking-our-future-hope-or-8502/
- 9 Public Health England 'Review of the potential public health impacts of exposures to chemical and radioactive pollutants as a result of the shale gas extraction', p. iii: <http://www.hpa.org.uk/Publications/Environment/PHECRCEReportSeries/1310Reviewofthepotentialhealthimpacts shalegas/>
- 10 Physicians, Scientists & Engineers for Healthy Energy 'Impediments to Public Health Research on Shale (Tight) Oil and Gas Development' http://psehealthyenergy.org/data/PSE_ImpedimentsPublicHealth_May2013.pdf
- 11 DECC, 'Potential Greenhouse Gas Emissions Associated with Shale Gas Extraction and Use' para 4(a) http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/237330/MackKay_Stone_shale_study_report_09092013.pdf
- 12 Umweltbundesamt, "Environmental impacts of fracking related to exploration and exploitation of unconventional natural gas deposits", http://www.umweltbundesamt.de/sites/default/files/medien/378/publikationen/texte_83_2013_environmental_impacts_of_fracking.pdf
- 13 This is an independent organisation that "supports independent, authoritative and evidence-based assessments that inform public policy development". These assessments are conducted by multidisciplinary panels of experts from across Canada and abroad. Its members are the Royal Society of Canada, the Canadian Academy of Engineering and the Canadian Academy of Health Sciences - see <http://www.scienceadvice.ca/en/about.aspx>
- 14 Council of Canadian Academies, 'Environmental impacts of shale gas extraction in Canada' http://www.scienceadvice.ca/uploads/eng/assessments%20and%20publications%20and%20news%20releases/shale%20gas/shalegas_execsummen.pdf
- 15 DECC, 'Potential Greenhouse Gas Emissions Associated with Shale Gas Extraction and Use' op cit concluded that "*without global climate policies ... new fossil fuel exploitation is likely to lead to an increase in cumulative GHG [greenhouse gas] emissions and the risk of climate change*"
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- 24 UNEP, "Gas fracking: can we safely squeeze the rocks?" op cit
- 25 AEA Technology for the European Commission, "Support to the identification of potential risks for the environment and human health arising from hydrocarbons operations involving hydraulic fracturing in Europe", 2012
- 26 This briefing specifically only covers England, as Wales, Northern Ireland and Scotland have different regulatory regimes. However, many of the points made also apply to Wales, Northern Ireland and Scotland.
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- 33 For example National Toxics Network 'Toxic chemicals in the exploration and production of gas from unconventional sources'
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- 34 DECC, Strategic Environmental Assessment for Further Onshore Oil and Gas Licensing Environmental Report,
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- 35 Planning and Compulsory Purchase Act 2004 Section 39 (2)
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- 37 National Planning Policy Framework https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf para 93
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- 42 Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources
http://europa.eu/legislation_summaries/energy/renewable_energy/en0009_en.htm
- 43 AEA Technology for the European Commission 'Support to the identification of potential risks for the environment and human health arising from hydrocarbons operations involving hydraulic fracturing in Europe', 10 August 2012, p.vii
<http://ec.europa.eu/environment/integration/energy/pdf/fracking%20study.pdf>
- 44 See for example studies by the National Oceanic and Atmospheric Administration (USA) on gas leakage from a shale gas field in Uinta, Utah of up to 9% of total gas produced: <http://www.nature.com/news/methane-leaks-erode-green-credentials-of-natural-gas-1.12123#ref-link-5> and by Miller et al 'Anthropogenic emissions of methane in the United States'
<http://www.pnas.org/content/early/2013/11/20/1314392110.abstract> which found that methane emissions from natural gas operations in the US might be 50% higher than previous estimates. One recent study has found that methane emissions for some wells in the drilling phase are up to 1000 times estimates made by the US EPA 'Toward a better understanding and quantification of methane emissions from shale gas development' Caulton et al PNAS 2014 : 1316546111v1-201316546
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- 71 Ibid, which did not seem to recognise the significance of the fact that drilling would take place in an Area of Outstanding Natural Beauty.
- 72 Ibid.
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All that glitters...



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