

Position Statement on Onshore Shale Gas Extraction in Sussex

This position statement is set within the context of The Wildlife Trusts national policies on UK energy generation and climate change which are summarised as follows:

Summary of The Wildlife Trusts' View (UK)¹

- The use of finite energy resources such as fossil fuels cannot meet the energy needs of a growing population without contributing to the unacceptable impacts of climate change on biodiversity
- Climate change is one of the most serious threats facing biodiversity. We therefore support the development of renewable energies and the phasing out of fossil fuels
- We support the UK Government's legally binding commitments to reduce carbon emissions enshrined in the Climate Change Act 2008
- The Wildlife Trusts recognise that all forms of energy generation will entail some environmental costs and that the risks and benefits associated with each must be weighed against each other and considered in the context of location and scale
- We believe that the UK Government should retain its focus on sustainable energy production and energy conservation, and ensure that funding is prioritised for the development and implementation of renewable energy technologies

Introduction

Advances in technology appear to have made the extraction of shale gas commercially viable in the UK. Shale gas is seen by some as a way of bridging the gap between fossil fuels and low carbon energy and by others as a way of putting off serious investment in renewable energy.

The gas held within shale beds is accessed through a technique called hydraulic fracturing or "fracking". This process involves drilling a borehole vertically for about 2km which is lined with a steel and concrete casing. Horizontal drilling then stretches the well along the gas bearing shale layer and explosive charges are used to perforate the casing here. A mixture of water, sand and chemicals is pumped down through the borehole at high pressure. This mixture is forced through the perforations in the casing, causing the shale outside to fracture and so release the gas.

A commercial scale shale gas operation will require a number of well-pads, each around 2 hectares in size, where the pipes are brought to the surface. Each well-pad can contain up to 10 wells and well-pads may be spaced about 1 km apart. Estimates of the likely number of wells in Sussex vary widely. The typical lifespan of a well is 20 years, but fracking may need to be repeated at intervals to maintain production levels.

¹ **The Wildlife Trusts Policy based upon the following statements and briefings:**

Draft position statement on UK energy generation and use (2007)
Energy Review and the Importance of Climate Change (2006)
Responding to Climate Change (2005)
Windfarms on Land (2005)

Role responsible for policy:	Conservation Officer	Approved by Council:	19 th March 2014
		Review frequency	As required

Estimates of the amount of fresh water needed per frack vary widely, but an entire multi-stage fracking operation for a single well may require between 9 and 29 million litres of water. This is equivalent to more than 3.5 Olympic swimming pools or the total water consumption for a single Sussex resident for 154 years. About a third of the 'waste' water, containing treatments, sands and other chemicals is returned to the surface and requires safe disposal. The remainder stays underground within the rock. Naturally occurring pollutants such as NORMS (Naturally Occurring Radioactive Materials) are likely to be displaced during the process.

The situation in Sussex

The geology of parts of Sussex is suitable for conventional oil and gas extraction. There are several sites where planning permission is sought for exploratory drilling and this may lead to unconventional methods of extraction once core samples are tested. At this point, further planning permission will be needed if fracking is considered to be the best option for extraction.

Planning permission is currently sought from the County Council, but the Growth and Infrastructure Act, passed in Westminster at the end of April 2013, contains secondary legislation which if enacted, could move energy-related planning decisions out of local government hands and into those of the Secretary of State. There is concern locally that this "fast-tracking" could result in the local community being denied the opportunity to get involved in the decision making process with respect to fracking proposals.

Environmental risks

There is still significant uncertainty about how serious the impact of fracking may be in the context of Sussex. However various concerns have been raised about the potential environmental risks associated with the fracking process. These include:

- surface and groundwater contamination linked with chemicals used in the fracking process
- mobilisation of sub-surface contaminants such as heavy metals, organic chemicals, and NORMS (naturally occurring radioactive materials including radon, radium and uranium)
- atmospheric pollution from substances such as polycyclic aromatic hydrocarbons from gas flaring impacting on wildlife. In particular sensitive plant groups such as mosses, liverworts and lichens.
- generation and disposal of hazardous waste
- effect of seismic testing on groundwater hydrology
- availability of resources, including abstraction of enormous quantities of water
- adverse impacts on landscape and land use
- increased contribution to climate change from the process of abstraction and burning of gas
- reduced investment in low carbon and zero emission technologies as money is spent on developing shale gas extraction
- light and noise pollution impacts on wildlife

The Committee on Climate Change (CCC) found that shale gas has roughly the same greenhouse gas emissions as conventional gas, with the exception of any leaked methane emissions and any methane that is deliberately vented or flared to produce carbon dioxide emissions instead. Given the potential leakage of methane, shale gas extraction may have a significantly larger carbon footprint than conventional gas extraction. This is a serious concern as methane is a far more damaging greenhouse gas than carbon dioxide.

We must limit the amount of carbon we burn if we are to avoid dangerous levels of climate change. Whilst there is evidence that shale gas could be cleaner than coal, its extraction still threatens to increase emissions. In the US, for example, the switch from coal to gas has reduced domestic emissions, but the coal is still being extracted and exported, increasing emissions elsewhere. There is concern that in the absence of any kind of global cap on emissions, shale gas extraction in the UK will be in addition to and not instead of existing fossil fuel use.

The Sussex Wildlife Trust's View

We consider that the most significant local issues for biodiversity are:

- The impact of the footprint of the physical development e.g. buildings, parking areas, waste water storage tanks and well-heads
- The impact from flaring off of gasses and light pollution
- The impact of the transport footprint on the landscape, wildlife sites and noteworthy habitats and species
- The safe disposal of waste
- The use and management of water resources
- The climate change implications

Recommendations

- Any proposal for shale gas extraction should go through the full planning process including public consultation, compliance with EU Directives and a full Environmental Impact Assessment (EIA)
- The EIA should be undertaken, prior to the submission of a planning application and cover the lifetime of the project through to decommissioning of the site. It should:
 - include baseline ecological data and baseline data for air and water quality
 - public disclosure of all chemicals involved in the process
 - identify the least damaging disposal route for the waste water
 - fully assess the effects on the local hydrological regime and water supplies
 - set out how the abandoned wells will be monitored to ensure well integrity is maintained in the long term
 - include current and future operation proposals to ensure that the total ecological footprint of the development and phased future wells is accounted for

- The government should focus on renewable energy and ensure funding is prioritised to the implementation and development of renewable energy technologies, removing subsidies and tax relief for fossil fuel extraction.
- An abstraction licence should be refused where there is likely to be a significant impact on the local hydrological regime and water supplies
- Air quality (including methane emissions) and the water environment (for methane and other contaminants), should be monitored and funded by the operator during production operations and all findings should be regularly reported to the appropriate regulating body
- Given the lack of data on the potential impacts on groundwater reserves, we consider that Government should adopt the precautionary principle as recommended by the European Union until adequate scientific evidence exists with regards to the immediate and long-term environmental impacts.

The three preliminary conditions indicate that this should be the case:

- Identification of potentially adverse effects
- Evaluation of the scientific data available
- The extent of scientific uncertainty
- The Sussex Wildlife Trust will treat each planning application for energy generation, be it wind turbine, fracking, gas powered station etc, on its own merits and would expect there to be a net gain in biodiversity in line with current legislation, local planning policies and the National Planning Policy Framework
- The Trust will also consider the cumulative effect of multiple extraction sites, bearing in mind the possibility that there could be a large exploitable shale gas reserve in Sussex.

The Government published targets to reduce greenhouse gas emissions by at least 80% (from 1990 levels) by 2050. The pursuance of shale gas may remove political drivers for renewable energy schemes and energy efficiency initiatives, both further frustrate efforts to limit global temperature rises at 2°, as agreed in Copenhagen. The impacts on the environment are poorly understood, but potentially significant. Furthermore, the current environmental regulatory framework may not provide adequate protection for the environment, especially as regulators are under pressure to speed up permitting processes.

This position statement will be subject to ongoing review as further information comes to light.

References

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