

Written evidence submitted by the UK Green Party Members of the European Parliament

Introduction

1. The environmental and climate impacts of fossil fuels are significant. Exploration, extraction, pollution of the local environment, disposal of waste products and byproducts, transportation, and the burning of fossil fuel to generate power all have an environmental impact. There is also a monetary impact associated with the costs of remedial action and clean up costs which are often borne by public funds.
2. The scientific consensus on climate change has never been greater. With the Intergovernmental Panel on Climate Change's Fifth Assessment reportⁱ stipulating a limited global carbon budget, it is now accepted that we must leave the majority of known fossil fuel reserves unextracted and unburnt if we are to keep within 2 degrees of warming.
3. We must also take full account of climate impacts of greenhouse gases beyond carbon. In the current context this means a precautionary approach should be taken to fugitive methane emissions, which are associated with shale gas extraction.
4. The following submission highlights our concerns in relation to fracking. In our view plans for hydraulic fracturing in the UK will cause multiple negative environmental impacts. These relate to water supplies, water quality, air pollution emissions, habitats and biodiversity, impacts from chemicals and geological integrity. Many of these areas relate to important environmental obligations the UK has under EU law.
5. The UK Government has an important role to play reducing the UK's carbon and other greenhouse gas emissions by agreeing and delivering on ambitious climate change obligations. As we explain, shale gas will not help meet these objectives. UK shale gas production is not needed to reduce or end coal use, nor will it deliver that. Instead it will distract from a much-needed increased commitment to renewable energy. As many other EU countries are demonstrating, an increased focus on, and investment in, renewables is the best way to accelerate greenhouse gas emission reductions and thereby tackle climate change.
6. We find no environmental or climate arguments to recommend fracking in the UK, and urge the Government to rethink its policy fundamentally.

A. The risks from fracking operations in the UK, including potential risks to water supplies and water quality, emissions, habitats and biodiversity, and geological integrity

7. Fracking poses unacceptable environmental risks, including to our water supplies and water quality, emissions, habitats and biodiversity and geological integrity

(1) Water supplies

8. The process of hydraulic fracturing requires vast volumes of water, potentially putting pressure on water supplies in drilling areas. It is difficult to estimate exactly how much water is required, as it varies per well and depends on a number of variables including the geology and density of the rock, the depth and horizontal distance of the well, as well as the number of times the well is fracked. The most recent estimate by Department for Energy and Climate Change (DECC) puts the amount of water required per well between 10,000 and 30,000 cubic metres.ⁱⁱ According to Friends of the Earth (FOE), the water used for one single well could supply almost 10,000 Europeans for a year.ⁱⁱⁱ
9. It is particularly worrying that exploration is already taking place in the UK in water stressed areas, such as one of our constituencies – South East England – which is classified by the Environment Agency (EA) as an area of 'serious water stress'.^{iv}
10. The EA has predicted a 'medium probability' that acquiring water for fracking will impact on water supplies for the natural environment as well as increasing competition for the resource.^v A report by the United Nations Environment Programme (UNEP) also states that "the needs of water for exploitation and the depletion of

aquifers has (and will) create conflicts in water usages. Notably, competition with agricultural users is likely to be a serious issue.”^{vi}

11. Although fracking is generally considered less water intensive than coal or nuclear, it is unlikely that it will simply substitute either energy source. (We assess the contention that shale gas will replace coal in section C.) Instead fracking is likely to create an additional demand for water, especially when the cumulative effects of multiple installations are taken in consideration.

12. There are proposals to use recycled wastewater to reduce water demand, but even this only goes so far in reducing the total amount of water needed and will need to increase considerably to make a significant impact. The sheer volume of wastewater produced is likely to increase as production increases despite recycling efforts, due to the number of wells required for economically viable extraction. And, according to sustainability charity Ceres, “recycling can only go so far in solving water sourcing problems since much of the water injected remains in the formation.”^{vii}

13. Furthermore, as highlighted in a report by Public Health England (PHE), there is even less potential to recycle flowback waters in Europe due to their high salinity.^{viii}

14. It has also been suggested that waterless fracking fluids such as gels or gases could be an effective method in reducing water usage. However, such techniques remain at the testing stage and concerns remain surrounding the safety and cost of such technology.^{ix}

(2) Water quality

15. There is increasing evidence from the U.S. linking fracking-related activities to water contamination.^x The highly toxic chemicals associated with fracking operations makes leaks and spills even more troubling, and there is growing concern about high levels of naturally occurring radiation in wastewater.^{xi} A recent study released by Duke University demonstrates a link between fracking and elevated levels of methane, ethane, and propane in nearby groundwater.^{xii}

16. There have also been a number of water contamination related accidents in fracking operations in Europe, including the incident at Söhligen in Germany in 2007 when groundwater sources were contaminated with benzene and mercury after waste water pipes leaked.^{xiii}

Flowback wastewater

17. Fracking operated on a commercial scale generates a high volume of waste water, which typically includes more chemicals and radioactive particles brought up from underground,^{xiv} and there is currently no satisfactory solution to its safe containment.^{xv}

18. Flowback water is characterised as a mining waste and requires a permit for safe disposal. If the wastewater is improperly treated then it risks entering and contaminating the surface waters and/or the groundwater. The risk of a surface spill of flowback water - which could occur due to defective pipes or storage tanks, or the transfer of fluids from storage to tanker for example - is classified as medium according to the EA.^{xvi}

Underground leaks

19. There is a risk of contamination from leaks underground, either through natural or through artificial fractures or pathways. Most of the fracking fluid remains underground (up to 80% of the input), and studies now show that it can migrate towards natural drinking water supplies (such as aquifers and springs) often in the course of just a few years.^{xvii} According to the Cuadrilla Resources website, in the UK between 20-40% of the water used during the fracturing process flows back to the surface during the first few weeks. The rest of the water remains underground, some of which resurfaces during the well's overall lifetime.

(3) Emissions – air pollution impacts

20. The UK is currently failing to meet EU air quality standards, with major public health implications. At least 29,000 UK deaths are caused by air pollution each year. It particularly impacts children, older people, asthma sufferers, people living near busy roads and low income groups.^{xviii}

21. The UK is facing legal proceedings from the EU as a result of this health and policy failure. The health impacts of air pollution will only be exacerbated by fracking and will make it harder for the UK to meet EU air quality standards.

22. The European Commission recently carried out a detailed assessment^{xxix} of the health risks of hydraulic fracturing. On air quality, it gave the following assessment: *“Emissions from numerous well developments in a local area or wider region could have potentially significant effect on air quality. Emissions from wide scale development of a shale gas reservoir could have a significant effect on ozone levels. Exposure to ozone could have an adverse effect on respiratory health and this is considered to be a risk of potentially high significance.”* (page viii).

23. Crucially, the study found that the cumulative overall risk to the environment and health from releases to air were high.

24. The EU study also concluded that traffic associated with hydraulic fracturing operations posed a high risk to health and the environment (page vi, table ES1).

25. It expressed concern about the impact of the significant increase in truck movements during the construction and development phases of a well on local traffic flows, road safety issues and “increased risk of spillages and accidents involving hazardous materials” (page x1).

26. Traffic increases, especially involving large or diesel vehicles, will have additional air pollution impacts – especially for NO₂ and PM.

(4) Habitats and biodiversity

27. A major study recently conducted for six countryside groups – ‘Are we fit to frack?’ – warned that fracking has the potential to “devastate” wildlife habitats across the UK because of the risk of polluting rivers and fragmenting many of Britain’s most valuable sites.^{xx}

Fracking chemicals and contamination

28. The industry tends to downplay the risks related to the chemicals used in the extractive process, referring to them as substances that are regularly used in domestic cleaning products, in cosmetics and food, and that they do not pose a threat if ingested or inhaled. However, according to chemical experts, fracking fluid can contain as many as 300 chemicals, out of which 40% are endocrine disruptors, known to interfere with the hormone system in animals and humans, and a third of which are suspected carcinogens.^{xxi} Over 60% of the chemicals used can harm the brain and nervous system.^{xxii} In addition, further research needs to be done on the ‘cocktail effect’ of these several chemicals mixed together, making their effects more potent.^{xxiii}

29. In other countries, including the US, the exact chemicals used in fracking have been covered by commercial confidentiality and are not disclosed fully. It is difficult therefore to see how their risks can be fully assessed and cleared for UK use.

30. Water is vital for wildlife and humans. The risks fracking poses to our water quality through such toxic contamination, and to our water supplies as described above, could be detrimental to wildlife and people.

31. Such chemicals can also have a pollutant effect upon soil composition, potentially entering ecosystems and the food chain. These pollution risks need thorough research and assessment.

Fragmentation of habitats

32. Fracking operations require land for the construction of well pads and associated infrastructure, which could cause the loss or fragmentation of important habitats for wildlife.

33. Furthermore, according to the report ‘Are we fit to frack?’ drilling activity, construction noise and the increased movements of vehicles and people are all likely to have adverse impacts on our wildlife.

(5) Geological integrity

34. There are several methods for disposing of flowback water. One method – injecting these fluids into porous bedrock via deep disposal wells – is commonly practised. However it should be noted that DECC has stated that “large scale re-injection of frac disposal fluids poses a recognised earthquake risk”.^{xxiv}

35. A recent study by Columbia University demonstrated that deep-well injection of fracking waste can stress geological faults in ways that make them vulnerable to slipping.^{xxv} Evidence from the US causally links a number of earthquakes with the use of underground wells to dispose of waste water produced by fracking.^{xxvi}

36. In April and May 2011, Cuadrilla Resources, the company carrying out fracking at Preese Hall, Lancashire, suspended exploration following two earthquakes with magnitudes of 1.5 and 2.3. An independent scientific report commissioned by the British government confirmed that “the earthquake activity was caused by direct fluid injection” during the fracking process and conceded that it was not possible “to categorically reject the possibility of further quakes”.^{xxvii} However it concluded that operators could resume fracking operations, as long as they were effectively regulated, despite the obvious understatement of the risks generated by the earthquakes (such as the impacts on wells’ integrity, deformation of well casings, likely to create leakages).

B. Necessary environmental safeguards, including through the planning/permitting system

37. The Precautionary Principle should be employed and, in our view, fracking should not proceed in the UK or anywhere in the EU.

38. We have serious concerns as to whether the regulatory system is robust or transparent enough to instill public confidence should permission be granted to the industry to proceed with fracking. The Chartered Institute of Water and Environmental Management has warned against encouraging fracking as a part of the energy in the UK “until there is more evidence that operations can be delivered safely, that environmental impacts are acceptable and that monitoring, reporting and mitigation requirements are comprehensive and effective”.^{xxviii}

39. Moreover, while regulation can make fracking safer, it cannot make it safe. As the UNEP has concluded “Hydrologic fracking may result in unavoidable environmental impacts even if UG [unconventional gas such as shale gas] is extracted properly, and more so if done inadequately. Even if risk can be reduced theoretically, in practice many accidents from leaky or malfunctioning equipment as well as from bad practices are regularly occurring”.^{xxix}

40. In the absence of a UK ban or moratorium we favour stringent controls with comprehensive impact assessment of the health and environmental effects.

41. The UNEP have pointed out that “Existing laws and regulations of the mining activities often do not address specific aspects of hydraulic fracturing” and as such, for governments who decide to pursue fracking, dedicated regulations will be required.^{xxx} We support the 10 policy proposals for a robust regulatory framework put forward by 6 UK countryside organisations in their recent report ‘Are we fit to frack?’.^{xxxi}

42. In addition, we would like to highlight a number of gaps in the EU regulatory framework which must be addressed and transposed into Member State legislation before any shale gas extraction is permitted in the UK.

EU regulatory framework

43. A study by the European Commission points to a number of gaps in the current EU regulatory framework concerning hydraulic fracturing, most importantly relating to the Environmental Impact Assessment (EIA) Directive, the Water Framework Directive and REACH.^{xxxii}

44. Experience shows that shale gas activities can generate serious environmental cross-border issues that cannot be solved with inconsistent and potentially conflicting legislation at the national level. While the EU may not have the authority to set an EU-wide ban on shale gas activities, it is the institutions’ duty to take a leading role in this legislative process and make sure the precautionary principle is applied properly. It is crucial not to repeat the mistakes made in the US – legislating only once the environmental impacts have been felt – and to ensure that every European country uses consistent adequate standards to regulate, prevent and monitor these risky industrial activities.^{xxxiii}

EIA Directive

45. In our view, mandatory EIAs would be the single most effective way for fracking projects to be rigorously assessed in compliance with the standards required of other fossil fuel operations under EU law. Unfortunately fracking and other UFF projects are not yet subject to mandatory EIAs. However, Green Party MEPs are pressing for this to be the case, and this is also the recommendation of the European Parliament Environment and Health Committee.

Water Framework Directive

46. Water contamination from all stages of the fracking operations presents a significant threat to public health. We believe it is necessary to have baseline monitoring of water supplies as well as testing throughout and after operations for water contamination. We also stress the need for the necessary revision of the EU Water Framework Directive, to consider the protection of water resources from accidents due to fracking and related activities, to be complete before any shale gas operations are allowed to go ahead in the UK.

47. There is also a clear need to await proposals on the revision of European Waste Directive (EWD) and Mining Waste Directive (MWD). Permits for mining waste management and other waste from drilling for shale gas should be integrated into the main authorisation procedures under the EWD and the MWD. The components of fracking fluids are not explicitly recognised as 'hazardous waste' by the EWD as it currently stands. Their inclusion would help to ensure that stricter waste regulation was applied to fracking fluids so as to guarantee safe and controlled disposal. Treating fracking fluids as hazardous waste can both help to limit unsafe disposal and ensure that all fracking fluids are treated at specialised wastewater disposal plants.

REACH (Registration Evaluation, Authorisation and Restriction of Chemicals)

48. Due to the hazardous nature of the chemicals used in fracking operations, monitoring should take place before, during and after operations.

49. EU REACH legislation, which applies to the use of chemical substances in any industrial process, does not oblige companies to disclose the substances used for fracking. Operators who want to keep their chemical use confidential, as in the case of most fracking operators, are required to conduct their own assessment of the chemicals and report this to the European Chemicals Agency. However, as companies involved in fracking have not disclosed an exhaustive and detailed list of the chemicals used for each project, it is impossible to assess the environmental and health risks from exploitation and exploration (including full life cycle impacts).

50. In September 2011, an official from the Commission said that no company had registered any of the 10 chemicals typically used for shale gas extraction for that use under the EU's REACH legislation.^{xxxiv}

51. The different deadlines and requirements in the REACH legislation mean that the information about chemicals is not automatically available to the public. In order for proper independent assessments to be carried out companies must therefore be required to disclose the full list of chemicals used in their operations.

Regulatory environment in the UK

52. We warn against the assumption that the health and environment risks from fracking and UFF exploration will be sufficiently minimised through robust regulation in the UK as this fails to take account of the Government's deregulatory agenda. Further, the very notion that regulations concerning drilling remotely, thousands of feet underground using infrastructure which is time-limited in its efficiency, is an assurance which is nonsensical and dangerous.

53. Michael Fallon, former Energy Minister, hailed the UK as having "the most robust regulatory regime in the world for shale gas."^{xxxv} But far from carrying forward a strict regulatory regime, the Government seems determined to deregulate the shale gas industry as far as possible.

54. A recent report by FOE found over 60 gaps or problems with the current regulatory framework and that recommendations by the Royal Society, Public Health England and others to ensure fracking is properly regulated were being largely ignored.^{xxxvi}

55. Particularly concerning are the amendments the Government is making to the UK's infrastructure bill which, if passed, would further deregulate fracking by changing trespass law to allow fracking companies to drill under homes without notifying the landowner. This is despite the fact that this measure is opposed by 74% of people in opinion polls^{xxxvii} and by 99% of respondents to the Government's consultation.^{xxxviii}

56. It is difficult to see how a government committed to a deregulatory agenda will be capable of guaranteeing that fracking companies operate safely.

C. The implications for our carbon emissions reduction obligations

57. An argument has been made that shale gas extraction in the UK should be seen as part of the UK's carbon reduction strategy as a response to meeting climate change objectives. We wholly reject this argument. Since this argument was first made the urgency of the climate change threat has intensified and the case against investing in future fossil fuel extraction has been further strengthened.

The latest climate change context

58. In 2012 the International Energy Agency assessed the situation of unburnable fossil fuel reserves. It concluded that, given projected technologies, 'no more than one-third of proven reserves of fossil fuels can be consumed prior to 2050 if the world is to achieve the 2°C goal'.^{xxxix}

59. In 2013 the Intergovernmental Panel on Climate Change calculated a maximum global carbon budget which must be met if the world is to keep within 2°C of warming. This global carbon budget stipulates that the world cannot emit more than around 1000 gigatonnes of carbon and half of that budget has already been used up.^{xl}

60. In November 2014 the IEA latest World Energy Outlook report gave an even starker assessment in light of the latest IPCC analysis. In order to meet the goal of restricting warming to 2°C, the IEA concluded that their central global energy use scenario for fossil fuels would be entirely used up by 2040^{xli}. *'The Intergovernmental Panel on Climate Change estimates that in order to limit this temperature increase to 2°C – the internationally agreed goal to avert the most severe and widespread implications of climate change – the world cannot emit more than around 1000 gigatonnes of CO₂ from 2014 onwards. This entire budget will be used up by 2040 in our central scenario. Since emissions are not going to drop suddenly to zero once this point is reached, it is clear that the 2°C objective requires urgent action to steer the energy system on to a safer path.'*

61. In December 2014 the COP20 climate talks in Lima reaffirmed the objective of staying within 2°C of warming by delivering a viable global climate deal in 2015 which must be consistent with IPCC climate science.^{xlii}

62. Whilst the fossil fuel industry is obviously orientated towards further investment in exploration and extraction of burnable carbon, it is the role of government to plan an energy investment framework that is consistent with the latest science and global politics of climate change. Pursuing fossil fuel extraction through fracking is inconsistent with these urgent demands.

Fugitive methane emissions

63. When coal is burnt it generates approximately twice the carbon emissions of gas. This is why gas-fired power stations emit much less carbon than coal-fired power stations. However, the question of whether shale gas is comparable to other forms of gas in terms of greenhouse gas impacts remains highly contested. This is because the hydraulic fracturing process leads to fugitive methane emissions. As widely acknowledged and evidenced by the IPCC, methane is a far more problematic and powerful greenhouse gas than carbon dioxide, and its climate impacts are approximately 25 times that of CO₂ over a 100 year period.^{xliii}

64. Some fugitive methane emissions occur in the drilling, extraction and transportation of natural gas. However the process of hydraulic fracturing to extract shale gas is such that larger volumes of fugitive methane emissions occur in the process. The precise level of these fugitive methane emissions remains contested, with studies revealing different levels of such emissions. The evidence regarding the scale of these fugitive emissions varies significantly. Analysis in 2014 of 15 different scientific studies from 2011 to 2013 shows that there are extremely diverse conclusions regarding the scale of methane emissions from shale gas. This includes different views on the best methodology for assessing fugitive methane levels. There are also differing views as to which studies are more reliable.^{xliv} One study proposes that fugitive methane emissions would need to be below 3.2% for shale gas to be a better fuel than coal^{xlv}, and a number of studies show methane emissions well above that level. One study demonstrates leakage levels of 9%.^{xlvi}

65. It is clear that fugitive methane emissions from hydraulic fracturing remains a live and contested issue, with some studies showing that, once fugitive methane emissions are fully taken into account, shale gas offers no

improvement on coal in terms of greenhouse gas impacts. Given that irreversible impacts upon the climate offer no second chances, it is imperative that the precautionary principle should be applied when assessing further development of any fossil fuel. In that context studies demonstrating negligible or no GHG emissions improvements compared to coal should be given significant weight.

Shale gas does not offer a 'bridging fuel to displace coal'

66. Evidence on fugitive methane emissions seriously undermines the climate case for shale gas outperforming coal. However, even if it were possible to address the fugitive emissions issue, fundamental problems remain with the argument that UK shale gas production is needed to displace coal and therefore assist the UK in meeting its climate change-related emissions reduction objectives.

67. The main climate-related argument for the development of fracking in the UK has been based on the claim that shale gas has lower emissions than coal and can displace its use as part of a strategy to lower the UK's carbon emissions. We wholly reject this argument.

68. This argument fails to take account of the specific drivers which are causing the current levels of coal-fired electricity generation. The latest (third) quarter 2014 figures show that coal accounted for 20.1% of UK electricity generation. This is roughly the same as nuclear (20.8%) and only slightly higher than renewables, which accounted for 17.8%. Gas accounted for 38.6%.^{xlvii} This is a drop compared to the previous (second) quarter, when coal accounted for 27% or when compared to the same quarter in 2013, when it accounted for over 33%. In fact comparison of annual and quarter-for-quarter Government figures show that recent coal electricity generation peaked in 2012 and has been falling ever since. Although still too high, the latest figures are the lowest for some years.^{xlviii}

69. The UK needs a policy to reduce (and ultimately end) coal use. But this policy needs to counteract the specific drivers causing high levels of coal use. The two main drivers are the low market price of coal relative to other fuel options and the low price of carbon. The latest relative drop in coal use is therefore attributable to the falling price in wholesale gas.

70. Policies which increase the carbon price and/or the coal price or policies which close coal-fired power stations would be effective in reducing or ending coal use. One way to increase the price of coal relative to gas would be to increase the Carbon Floor Price. The Chancellor has rejected this option, deciding in his March 2014 Budget to freeze the Carbon Floor Price at £18 for the rest of the decade. It has been argued that lobbying against the Carbon Floor Price amounts to a lobby for coal.^{xlix} With many EU Member States not setting their own Carbon Floor Price it is essential that the EU ETS permit price for carbon is increased and that at least two billion carbon allowances are retired, as Green MEPs have argued.^l

71. The development of fracking will not counter the economic incentives driving coal use. The current market-based regulatory framework is not geared to deliver systemic large-scale switching from coal use to shale gas use, and one of the few tools able to increase the differential price between coal and gas – increasing the Carbon Floor Price - has been rejected by the Government.

UK shale gas is not required in order to replace coal

72. A related argument is that we somehow 'need' UK shale gas to replace coal. Most coal that is burnt in the UK is imported not mined in the UK. If the market price differential between coal and gas were significant – for example, arising from a much higher carbon price – then imported coal could simply be substituted with imported gas. Again there is no climate-related advantage to be derived from UK-produced shale gas.

UK shale gas will not reduce fuel prices

73. Under the current market-based system the prices for gas and coal are determined by EU-wide and international market conditions. In April 2014 the UK Government's own Committee on Climate Change rightly highlighted the fact that UK shale gas production on the scale envisaged would have a negligible effect on fuel prices: *'But we wouldn't expect the volumes of shale gas produced in the UK or elsewhere in Europe to have a large impact on natural gas prices, given that we're part of a highly interconnected gas network spanning almost the whole of Europe.'*ⁱⁱ

74. Furthermore, UK-extracted shale gas may not even be used for energy in the UK. Given the market framework for energy sales, UK shale gas would simply be sold on the market to the highest bidder, and possibly for export. This is not implausible given that the UK currently exports as well as imports natural gas.

Solar set to outperform gas in the next Parliament

75. A November 2014 report from the Solar Trade Association has assessed the Levelised Cost of Electricity (LCOE) of solar power from 2014-2030. The report includes analysis of data provided by STA members. STA will share this data with DECC.ⁱⁱⁱ

76. The report demonstrates that large scale solar will see a price drop of 33% by 2020 and a further 11% reduction from 2020 to 2030. These price reductions will see solar PV beat gas on price by 2018, which is five years earlier than DECC modelling has suggested. Whilst this still means the Government should provide subsidies to solar (and other renewables) at the current time, it shows that on a like-for-like basis solar will be cheaper than gas and much sooner than the Government had predicted.

77. The relevance of this is clear for issues relating to shale gas. With solar – a zero carbon energy source – due to outperform gas within the next Parliament it would be ludicrous to focus investment in a carbon intensive fossil fuel like shale gas, even if it were less intensive than coal. In terms of the UK response and policy on climate change, investing in shale gas distracts from a focus on zero carbon fuels like solar, wind and other renewables. Current Government policy needs to facilitate their success, not obfuscate with a new phase fossil fuel investment.

We do not need to wait for lower carbon technologies

78. Just as future price predictions indicate that we do not need to wait for zero carbon technologies to be cost-effective, the scale of current renewable use demonstrates the technology has fully arrived.

79. Latest Eurostat figures show that Sweden produced 51% of its total energy (not just electricity) from renewables in 2012. The figure for Latvia was 35.8% and for Finland 34.3%. In contrast the UK was third from bottom, with 4.2%.ⁱⁱⁱ On 11 May 2014 Germany generated 74% of its total electricity needs from renewables.^{iv}

80. In October 2014 Scottish wind power generated 126% of Scotland's total household electricity needs.^{iv} Scotland has set its own target of 100% renewable electricity by 2020 with an interim target of 50% by 2015.^{vi}

81. These examples illustrate that countries are planning and delivering high levels of renewable energy performance. There is no technological argument that we need to wait: failure to deliver on renewables is simply a political choice.

82. The UK's position as the third poorest performer of all EU Member States in terms of percentage of renewable energy indicates a failure of political will to prioritise and maximise zero carbon opportunities. This is further demonstrated by the UK Government's opposition to binding EU renewable targets for 2030.

83. Recent developments in climate science and politics mean the time has come for a significant policy shift – to prioritise renewable energy and plan accordingly, not build an energy future which remains stuck with carbon-generating fossil fuels, such as shale gas.

84. Given this context, it is not appropriate for the Government to be subsidising environmentally damaging energy like fossil fuels, including shale gas - or nuclear power.

Conclusion

85. The potential negative environmental impacts of fracking in the UK are manifold.

86. We have outlined our specific concerns in relation to water supplies, water quality, air pollution emissions, habitats and biodiversity, impacts from chemicals and geological integrity. Many of these areas relate to important environmental obligations the UK has under EU law.

87. There is no viable climate change case for UK shale gas production. The claim that it outperforms coal in terms of reduced greenhouse gas emissions is highly contested when the impacts of fugitive methane emissions are taken into account.

88. Arguments that UK shale gas will play a part of a bridging energy, displacing coal in the move towards low-to-zero carbon energy is flawed. Renewable energy technologies are already mature (or set to mature in the life

of the next Parliament), as evidenced by the high and increasing levels of renewable energy now in use by many countries. Coal use is determined by market price signals, the level of the Carbon Floor Price and the EU ETS carbon permit price. UK shale extraction on the scale envisaged will have a negligible effect on wholesale gas prices and will play virtually no part in determining the proportion of UK electricity generated by either coal or gas.

89. The globally recognised imperative of climate change means that the time has long passed for investment in new fossil fuels.

90. Hydraulic fracturing has significant environmental and climate impacts. In dealing with such impacts the precautionary principle must be applied. It will also fail to make a positive contribution in reducing UK greenhouse gas emissions and will distract from increasing UK investment in zero carbon renewable technologies at a time when the UK is already far behind many other EU countries on renewable energy.

91. As Green MEPs we have called for a frack-free Europe and as a step towards that we urge the Government to cease plans to develop fracking in the UK.

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i Intergovernmental Panel on Climate Change (IPCC), Fifth Assessment Report, 2013 -
<http://www.ipcc.ch/report/ar5/index.shtml>

ii https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/225826/About_Shale_gas_and_hydraulic_fracking.pdf

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xii http://catskillcitizens.org/learnmore/dukedocument_ew_01.pdf

xiii <http://europeecologie.eu/IMG/pdf/shale-gas-pe-464-425-final.pdf>

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