

IN THE COURT OF SESSION

WRITTEN INTERVENTION OF FRIENDS OF THE EARTH SCOTLAND

In the cause
(First) INEOS UPSTREAM LIMITED
(Second) REACH COAL SEAM GAS LIMITED
Petitioners

for
Judicial review of acts and decisions of the Scottish Government in relation to
unconventional oil and gas in Scotland

1. INTRODUCTION

1.1 Friends of the Earth Scotland (FoES) is grateful to the court for allowing it the opportunity to intervene in this case by way of written submissions. It submits, in summary, that the Scottish Government was wholly justified in imposing a moratorium on unconventional oil and gas (UOG) exploitation. Indeed, given the current domestic regulatory framework, FoES would submit that the Scottish Government is *required* by its obligations under international, EU, UK and Scots law (which will be developed in the intervention) to impose such a moratorium.

1.2 The Scottish position reflects the approach already taken in other parts of the British Isles and in the European Union, for example:

- (1) In October 2011, France became the first country in Europe to ban hydraulic fracturing, passing [Law No. 2011-835](#), *aimed at prohibiting the exploration and exploitation of liquid or gas hydrocarbon mines using hydraulic fracturing and repealing exclusive exploration permits including projects involving such technique*.
- (2) In February 2015, the Welsh Government issued [The Town and Country Planning \(Notification\) \(Unconventional Oil and Gas\) \(Wales\) Direction 2015](#) requiring planning applications for “Unconventional Oil and Gas Development” to be referred to Welsh Ministers, where the local planning authority does not propose to refuse them.
- (3) on 28 September 2015, the [Strategic Planning Policy Statement for Northern Ireland](#) published by the NI Government provided in para 6.157 “a presumption against [UOG] exploitation until there is sufficient and robust evidence on all environmental impacts”.

Ireland enacted the [Petroleum and Other Minerals Development \(Prohibition of Onshore Hydraulic Fracturing\) Act 2017](#) on 6 July 2017 banning fracking.

- (4) The European Commission published a report in December 2016 [On the effectiveness of Recommendation 2014/70/EU on minimum principles for the exploration and production of hydrocarbons \(such as shale gas\) using high-volume hydraulic fracturing \(HVHF\)](#) which noted (page 2) that only eleven of the twenty eight Member States authorised the use of HVHF. The remaining seventeen Member States either have no known resources or have introduced moratoria or bans or other restrictions on fracking, including the Czech Republic, [the Netherlands](#), [Bulgaria](#) and [Germany](#).

2. FRACKING: THE FACTS

- 2.1 ‘Fracking’, industry slang for hydraulic fracturing, involves the creation of artificial fractures in source rocks with low porosity, such as shale, by injecting wells at high pressure with: water; tracers (that allow the fracturing fluids to be tracked); chemical additives (such as friction reducers); and proppants (which keep the created fractures open allowing the gas/oil released to flow).
- 2.2 Shale formations (rocks) contain radionuclides of “Naturally Occurring Radioactive Materials” (NORM) at relatively higher concentrations than conventional oil and gas formations, as well as the known carcinogenic ‘BTEX’ chemicals – Benzene, Toluene, Ethylbenzene and Xylenes. The shale fracking process and associated activities, i.e. the drilling stage; the fracturing phase; the production stage; storage, treatment and disposal of effluents (wastewaters); and disposal of solid wastes all normally give rise to the release of radioactive NORM and numerous other harmful substances – both naturally occurring and introduced during drilling and fracking processes – into the environment.
- 2.3 Unlike shale gas, coalbed methane (CBM) is a gas formed as part of the process of coal formation, and is physically adsorbed by the coal. It can be released when the pressure surrounding the coal is decreased. Extraction of CBM uses similar techniques to those used for shale gas (e.g. horizontal/directional drilling), though it differs in that it typically involves removal of water from the coal seams (‘de-watering’). Many of the environmental and public health risks of CBM are similar to those of shale gas extraction, whether or not fracking takes place, e.g. the mobilisation of naturally occurring radioactive materials and BTEX chemicals, air and noise pollution and landscape impacts from multiple drilling sites

and related infrastructure. Fracking is additionally used for CBM recovery activities where seams are thicker or at deeper levels, to further stimulate gas production.

2.4 There is a growing body of evidence that links UOG extraction to adverse environmental and public health impacts of in the short and longer term, though considerable gaps remain. See for example:

- Elliot, Trinh et al “[Unconventional oil and gas development and risk of childhood leukemia: Assessing the evidence](#)” (2016) 576 *Science of the Total Environment* 138-147
- McKenzie et al “[Birth Outcomes and Maternal Residential Proximity to Natural Gas Development in Rural Colorado](#)” (2014) *Environmental Health Perspectives* 122
- Colburn et al “[An Exploratory Study of Air Quality near Natural Gas Operations](#)” (2012) *Human and Ecological Risk Assessment: An International Journal* 86-105

3. FUNDAMENTAL RIGHTS AND ENVIRONMENTAL PROTECTION

3.1 The protection of health and the protection of the environment are essential objectives of the European Union: Case C-28/09 [Commission v. Austria \[2011\] ECR I-13525](#) at paras 120-2.

3.2 Articles 35 and 37 of the [EU Charter of Fundamental Rights](#) provide, so far as relevant as follows:

“A high level of human health protection shall be ensure in the definition and implementation of all the Union’s polices and activities.”

...

“A high level of environmental protection and the improvement of the quality of the environment must be integrated into the policies of the Union and ensured in accordance with the principle of sustainable development”.

3.3 The European Convention of Human Rights contains no explicit reference to rights in relation to protection of the environment but in [S.C. Fiercolect Impex S.R.L. v. Romania \[2016\] ECtHR 26429/07](#) (13 December 2016) at §65 the ECtHR observed that:

“[I]n today’s society the protection of the environment is an increasingly important consideration. The environment is a cause whose defence arouses the constant and sustained interest of the public, and consequently the public authorities. *Financial imperatives should not be afforded priority over environmental protection considerations, in particular when the State has legislated in this regard.*”

3.4 The ECtHR has held that the State's permitting environmental hazards may contravene Article 8 ECHR where the hazard at issue attains a level of severity resulting in significant impairment of the applicant's ability to enjoy their homes, private or family life, even without, however, seriously endangering their health. The assessment of that minimum level is relative and depends on all the circumstances of the case, such as the intensity and duration of the nuisance: [Taşkın v Turkey \(2006\) 42 EHRR 50](#) at §§113-7.

3.5 Positive duties may also be imposed on the State under Article 8 ECHR in the context of possible environmental hazards. In particular, States have an obligation to set in place regulations geared to the special features of the activity in question, particularly with regard to the level of risk potentially involved. They must govern the licensing, setting-up, operation, security and supervision of the activity and must make it compulsory for all those concerned to take practical measures to ensure the effective protection of citizens whose well-being might be endangered by the inherent risks: [Öneriyıldız v Turkey \(2005\) 41 EHRR 20](#) (Grand Chamber) §90.

3.6 Because of fracking's negative impacts on human health and on the environment, any failure to impose a ban or moratorium on unconventional oil and gas development may constitute a breach of individuals' fundamental rights.

4. CLIMATE CHANGE OBLIGATIONS OF THE SCOTTISH GOVERNMENT

Factual background

4.1 The primary driver of human-induced climate change is the burning of coal, oil and natural gas - all are hydrocarbons whose combustion produces carbon dioxide (CO₂) which has a greenhouse effect when released into the atmosphere. The major component of natural gas is methane (CH₄). Not only does methane produce CO₂ when combusted, but it is itself a greenhouse gas (GHG) which, when emitted in an uncombusted state, traps more heat in the atmosphere molecule-for-molecule than CO₂. Methane has a stronger immediate effect on the climate, with a global warming impact 86 times that of CO₂ over 20 years, and 34 over 100 years. It decays much more quickly than CO₂ which retains around a fifth of its greenhouse effect even after 1,000 years. Under accounting for UK carbon budgets and Scottish emissions targets, as well as UN-agreed international emissions reporting, a tonne of methane emitted is equal to 25 tonnes of CO₂.

4.2 The Environment Agency has published a report [Monitoring and control of fugitive methane from unconventional gas operations](#) which warns that fracking may lead to ‘fugitive emissions’ into the atmosphere through leakage and methane migration through high permeability strata, faults and old coal mine working. In addition to flaring and venting this has led scientists to argue that the climate impact of unconventional gas extraction is greater than that of conventional natural gas, and some to suggest it could be as bad as coal.

4.3 According to the Department of Energy and Climate Change [Strategic Environmental Assessment for Further Onshore Oil and Gas Licensing](#) (December 2013):

"Unconventional oil and gas exploration and production activities have been assessed as having a significant negative effect on climate change ... at the sectoral level (i.e. as compared to the effects from the existing oil and gas sector)."

4.4 And in its November 2012 report [Gas fracking: can we safely squeeze the rocks ?](#) the UNEP Global Environmental Alert System observed:

‘Unconventional gas (UG) exploitation and production may have unavoidable environmental impacts. Some risks result if the technology is not used adequately, but others will occur despite proper use of technology. UG production has the potential to generate considerable GHG emissions, can strain water resources, result in water contamination, may have negative impacts on public health (through air and soil contaminants; noise pollution), on biodiversity (through land clearance), food supply (through competition for land and water resources), as well as on soil (pollution, crusting).’

4.5 Shale gas, shale oil and coal bed methane are all found in Scotland, concentrated in the most densely populated parts of the country, across the central belt: see the British Geological Survey (BGS) report on [“Midland Valley Scotland”](#).

4.6 Research published in 2015 (by [Christophe McGlade & Paul Ekins in 517 \(2015\) Nature 187](#)) underlines the need to leave significant reserves of fossil fuels unexploited if catastrophic climate change is to be avoided, noting:

“It has been estimated that to have at least a 50 per cent chance of keeping warming below 2°C throughout the twenty-first century, the cumulative carbon emissions between 2011 and 2050 need to be limited to around 1,100 gigatonnes of carbon dioxide (Gt CO₂).

However, the greenhouse gas emissions contained in present estimates of global fossil fuel reserves are around three times higher than this, and so the unabated use of all current fossil fuel reserves is incompatible with a warming limit of 2°C.

Our results suggest that, globally, a third of oil reserves, half of gas reserves and over 80 per cent of current coal reserves should remain unused from 2010 to 2050 in order to meet the target of 2°C.”

4.7 Fossil fuel resources, that is, the estimated amount of oil, gas or coal believed to be present, but not necessarily recoverable, whether due to technology or economic conditions, are estimated at nearly 11,000 Gt CO₂ – ten times the amount of carbon that can ‘safely’ be emitted to have even a 50:50 chance of avoiding catastrophic warming. Most of the world’s UOG, including Scotland’s, are classified as resources rather than reserves.

International law

4.8 The [UN Framework Climate Change Convention \(UNFCCC\)](#) entered into force on 21 March 1994 and has been ratified by 197 countries. Its ultimate aim is to prevent "dangerous" human interference with the climate system caused by GHG emissions. In 1997 the [Kyoto Protocol](#) to the UNFCCC set binding targets for 37 industrialised countries and the European Union for reducing GHG emissions up to 2020. In December 2015 196 nations committed to the [Paris Agreement on GHG reduction](#) with a view to limiting global warming to “well below 2°C” (and ideally no more than 1.5°C) to avoid catastrophic climate, which means getting to "net zero emissions" between 2050 and 2100. The language of “well below” equates to at least a 66% probability of avoiding 2°C – more robust than the 50:50 approach reflected in previous UNFCCC targets. The Paris Agreement incorporates the principle of Common But Differentiated Responsibility, enshrined in the UNFCCC, which requires developed countries as historical polluters to act sooner and do more to tackle the climate crisis.

4.9 All Parties to the Paris Agreement have a legally binding obligation to prepare, communicate and maintain a nationally determined mitigation contribution. And each Party is legally bound to pursue domestic mitigation measures, with the aim of achieving the objectives of their contributions. The Paris agreement opened for signature for one year on 22 April 2016 and [entered into force](#) on 4 November 2016. The agreement recognises the role of non-Party stakeholders in addressing climate change, including cities, other subnational authorities, civil society, the private sector and others and inviting them to scale up their efforts and support actions to reduce emissions.

EU law

4.10 The main Treaty provisions concerning environmental protection are now contained in Articles 191 to 193 of the [Treaty on the Functioning of the European Union](#) (TFEU), which sets out the objectives of and principles to be followed by the EU in the area of environmental protection. These objectives include preserving, protecting and improving

the quality of the environment; encouraging prudent and rational utilisation of natural resources; and protecting human life and promoting international measures where appropriate to deal with transnational environmental problems. The principles to be applied by the EU in this area include the following:

- a) the precautionary principle (*Vorsorgeprinzip*), which is to say that there is a presumption in favour of precautions against risk of environmental degradation;
- b) that a preventive strategy is to be preferred to a remedial one;
- c) that environmental damage should be rectified at source;
- d) that the polluter should pay; and
- e) that the requirements of environmental protection should be wholly integrated into the definition and implementation of other Community policies.

4.11 At EU level, a comprehensive package of policy measures to reduce GHG emissions has been initiated through the European Climate Change Programme (ECCP). This introduces progressive reductions in the number of emission allowances granted under the EU Emissions Trading System under the GHG Emissions Directive 2009/29. [The Renewable Energy Directive 2009/28](#) also set binding national targets for Member States for the usage of renewable energy sources by 2020. The UK target is to supply 15% of energy from renewable sources by 2020, while Scotland's target is 20% by 2020. Measures for the 20% improvement in energy efficiency were set out in the [Energy Efficiency Directive 2012/27](#). New targets of a 40% cut in GHGs, 27% renewable energy consumption and 27% energy savings are set out in the EU's [2030 Energy Strategy](#).

4.12 Article 194 TFEU leaves it to each Member State "to determine the conditions for exploiting its energy sources, its choice between different energy sources and the general structure of its energy supply". In January 2014 the Commission issued (the non-legally binding) [Recommendation 2014/70/EU on minimum principles for the exploration and production of hydrocarbons \(such as shale gas\) using high-volume hydraulic fracturing](#).

UK law

4.13 The [Climate Change Act 2008](#) sets out emissions budgets for the UK for successive five-year periods, each imposing a target for further reductions to the UK's net greenhouse

gas emissions. The 2008 Act originally set out a target of a 26% reduction in greenhouse gas emissions by 2020 from 1990 levels, which was increased to 34% by the [Climate Change Act 2008 \(2020 Target, Credit Limit and Definitions\) Order 2009/1258](#). There is a final target of reducing emissions by at least 80% by 2050.

4.14 Part 2 of the 2008 Act establishes the Committee on Climate Change (the CCC), a non-departmental public body with operational independence from Government. The CCC is jointly sponsored by the Department for Business, Energy and Industrial Strategy (BEIS), the Northern Ireland Executive, the Scottish Government and the Welsh Government. The Minister of State for Energy and Clean Growth [recently announced](#) that the Government would ask the CCC for advice on the implications of the Paris Agreement for GHG targets.

Scots law and policy

4.15 The [Climate Change \(Scotland\) Act 2009](#) is an Act of the Scottish Parliament which sets targets for the reduction of greenhouse gas emissions and makes further provision about mitigation of and adaptation to climate change. There is a clear imperative that Scotland, as a developed nation and birthplace of the industrial revolution, not only has a strong historical responsibility to act under the principle of CBDR, but also the capacity to do so – additionally having an abundance of renewable energy resources. Scotland is committed to a 42% reduction in emissions by 2020 and an 80% reduction target for 2050. Scotland has also begun setting out annual reduction targets between 2010 and 2050 under s.3 of the 2009 Act.

4.16 In 2016, the Scottish Government announced its intention to enact new climate change legislation, including changing the way that emissions are accounted for within legislated targets and increasing the ambition of the targets following the Paris Agreement. The Scottish Government requested advice from the CCC on the design of the new targets and on their levels, which the Committee provided in its March 2017 [Advice on the Scottish Climate Change Bill](#). The new Climate Change Bill has not been published and will not become law until 2019, however in June 2017, the [Scottish Government announced its intention to adopt a more ambitious 2050 target for a reduction of 90% on 1990 levels, and a 2030 target of 66%](#).

4.17 Under section 44(1) of the current CCSA 2009, a public body (meaning a Scottish public authority within the meaning of section 3(1)(a) of the [Freedom of Information](#)

[\(Scotland\) Act 2002](#)) must, in exercising its functions, act in the way best calculated to contribute to the delivery of the targets set in or under Pt 1 of the CCSA 2009. Scottish Ministers are explicitly covered by this duty. The Act's climate change duties cover not only 'direct' GHG emissions from the public body's own sources (e.g. energy used in local authority buildings), but also 'indirect' emissions arising from the effect of public decision-making on external sources. Thus the Scottish Government [statutory guidance](#) observes (at page 26) that:

“spatial planning policies may impact on greenhouse gas emissions associated with waste, transport and energy in a particular local area. Spatial planning policies may also affect the resilience of natural systems to the changing climate and the vital resources they provide, such as food and water.... Energy policy can also influence greenhouse gas emissions and the resilience of energy infrastructure to the impacts of the changing climate.”

5. FRACKING: THE CURRENT REGULATORY FRAMEWORK

5.1 In its 2016 report on [Scottish Unconventional Oil and Gas: compatibility with Scottish greenhouse gas emission targets](#) the CCC advised as follows:

“Our assessment is that exploiting unconventional oil and gas by fracking on a significant scale is *not* compatible with Scottish climate targets *unless* three tests are met:

Test 1: Well development, production and decommissioning emissions must be strictly limited.

Test 2: Consumption – fossil fuel consumption must remain in line with the requirements of Scottish emissions targets.

Test 3: Accommodating unconventional oil and gas production emissions within Scottish emissions targets.”

5.2 The CCC noted that even if fossil fuel consumption does not increase as a result of UOG development, and even if production emissions are strictly regulated, “domestic production of unconventional oil and gas will lead to some additional Scottish emissions.” Further, the Committee emphasised that “the high level of ambition embodied in Scottish annual emissions targets means that finding offsetting elsewhere in order to accommodate even moderate additional emissions from UOG production...would be challenging.”

5.3 Lax regulation may have been one of the preconditions for the economic viability of shale gas in the United States. Shale gas extraction was exempted from a number of environmental protection acts there. US experience also indicates that an important contributor to methane emissions has been so-called ‘super-emitters’: large methane leaks

left unchecked for extended periods of time. As a consequence, a small number of wells have been found to contribute disproportionately to emissions.

- 5.4 As a corollary, any claims made that shale gas and fracking activities presents a low risk to existing or anticipated climate emission targets are based on the assumption that a robust regulatory system is in place. But the present regulatory regime in Scotland does *not* fit the technology and processes it is trying to control and it is *not* adequate to the purpose of permitting the development while keeping to existing and anticipated climate change obligations.
- 5.5 Ownership of oil and gas resources in the UK is vested in the Crown. Developers looking to extract shale gas or oil can only do so under a Petroleum Exploration and Development Licence (PEDL). But obtaining a PEDL licence is simply the start. The consent of the Coal Authority in the UK under the [Coal Industry Act 1994](#) is required for any well entering into or passing through a coal seam. Drilling activities are also regulated by the Health and Safety Executive (HSE). Under regulation 6 of the [Borehole Site and Operations Regulations 1995](#), operators must notify the HSE of the well design and operation plans at least 21 days before drilling is planned to ensure likely impacts on well integrity and major accident risks can be addressed.
- 5.6 The PEDL and Coal Authority Licensing stages are economically rather than environmentally focused, with a preference for resource maximisation rather than environmental protection. The HSE inspections are aimed at health and safety (especially of workers) and not at safeguarding broader public health or the environment. And none of these authorities are subject in the exercise of their functions to the climate change duties imposed on Scottish public authorities by the Climate Change Scotland Act 2009.
- 5.7 Regimes which are environmentally and public health focused and subject to these Scottish climate change duties only come into the fracking authorisation process with: an application for planning permissions submitted to the relevant Scottish planning authority accompanied by any necessary Environmental Impact Assessment.
- 5.8 In order to be granted planning consent a proposal would need to be in line with the relevant development plan and wider Scottish Planning Policy, as well as be compatible with the Scottish GHG emissions targets.

- 5.9 Separately environmental and climate change issues also figure in the involvement of the Scottish Environment Protection Agency (SEPA) to whom well operators have a duty to advise of their intention to drill. But as SEPA does not have power to directly regulate the fracturing of rocks, fracturing activities would largely be managed through water pollution controls under the [Water Environment \(Controlled Activities\) \(Scotland\) Regulations 2011](#) (CAR). The production of flow-back fluid from hydraulic fracturing is a mining waste activity and would require an agreed waste management plan approved by SEPA.
- 5.10 Under the [Management of Extractive Waste \(Scotland\) Regulations 2010](#), operations will need to have a waste management plan in place and be able to demonstrate to planning authorities how they will store and dispose of waste materials safely. In addition, a pollution and prevention and control (PPC) permit is required under the [Pollution Prevention and Control \(Scotland\) Regulations 2012](#) for the processing of gas on site. However, a PPC permit would not apply to initial exploratory drilling operations associated with shale gas development. The PPC regime applies to activities involving refining of gas, gasification or other heat treatments, combustion, or disposal of solid and liquid wastes.
- 5.11 Under the [Environmental Liability \(Scotland\) Regulations 2009](#), SEPA must be notified where operators have caused, or are likely to cause, land or water damage as a result of shale gas development. Further, Scottish Natural Heritage should be notified if damage is caused, or likely to be caused, to protected species and natural habitats.
- 5.12 Even where the regulatory regimes are environmentally and public health focused, there remain considerable uncertainties regarding the interconnection between them (and also between the economic and environmental regimes). It is not clear, for example, which regulatory agency, if any, might have responsibility in respect of possible emissions occurring outside any well or production site (e.g. from supporting infrastructure such as pipelines, processing facilities and gathering stations) and more generally in relation to emissions to the atmosphere, especially fugitive methane emissions. Venting and flaring (which have both global climate and local air pollution implications), though subject to economic regulation via PEDL, are only caught in Scotland at the *production* stage through the PPC controls (as are fugitive emissions). The uncertainty of the regime applicable to waste gases arising from shale fracking applies equally in relation to waste produced water

from CBM dewatering. It is not clear whether this falls within CAR, the mining waste regime, PPC, the radioactive substances regime or a combination of these.

5.13 Finally in Scots law it is an established principle that, save for reservations to the Crown or others, the owner of the surface also owned everything to the centre of the earth below the property: [Bocado SA v Star Energy UK Onshore Ltd \[2010\] UKSC 35](#) [2011] AC 380 per Lord Hope at para 16. Holders of a PEDL in Scotland still need to reach agreement with landowners before underground access beneath their land would be permitted. If agreement cannot be reached then there is an application process, under section 7 of the [Mines \(Working Facilities and Support\) Act 1966](#), to the Secretary of State and to courts for access rights to be granted to allow development: *BP Petroleum Developments Ltd v Ryder* [1987] 2 EGLR 233, Ch D. But under Section 3(1) of the 1966 “No right shall be granted under section 1 of this Act unless the court is satisfied that the grant is expedient in the national interest”. This clearly means that such an order could only properly be granted where the decision maker was satisfied about the safety and environmental impact of hydraulic fracturing and separately its compatibility with climate change obligations.

5.14 In sum, the regulatory framework applicable to onshore UOG development in Scotland remains notably unclear. If not properly regulated, the emissions footprint of UOG production in Scotland would be substantial and wholly inconsistent with maintaining its emissions targets; even if robustly regulated, it would be challenging to accommodate the additional emissions from this sector within existing Scottish climate targets, to say nothing of the more ambitious targets proposed in response to the Paris Agreement. Attainment of the Scottish emissions targets require that the unabated net consumption of all fossil fuels (i.e. without any carbon capture and storage (CCS)) decline over time. Should effective CCS not be developed and deployed, meeting the 2050 emissions reduction target will require elimination of almost all fossil fuel use in power generation, transport and buildings.

6. CONCLUSION

6.1 It is clearly within the powers of a Scottish public body exercising planning related functions, to adopt a general policy stance against granting permission in Scotland for unconventional oil and gas development on climate change grounds, in fulfilment of its duties under Section 44 CCSA 2009.

- 6.2 Equally, a planning authority may decide that the climate impacts of unconventional gas arising from a particular planning application (whether through fugitive emissions and/or the eventual anticipated usage of the gas for heating or power generation) are such that denying planning permission is the way best calculated to contribute to the delivery of Scotland's GHG targets.
- 6.3 Against scientific uncertainty as to the extent of the increased impact on climate change targets which unconventional oil and gas might represent (for example in relation to fugitive emission) the precautionary principle may also properly be prayed in aid against permitting such development in Scotland (or imposing a moratorium pending further scientific research). As the 1992 Rio [*UN Declaration on Environment and Development*](#) notes:
- “In order to protect the environment, the precautionary approach shall be widely applied by States ... 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.”
- 6.4 Any ban, or moratorium, on fracking in Scotland is to be seen in the context of an overall shift away from reliance on fossil fuels in order to meet climate change obligations as per the 2017 [*Scottish Government Energy Strategy*](#) which sets a goal for half of all energy needs to be met by renewable sources by 2030, and decarbonisation by 2050. This includes homes and heating which are currently heavily reliant on gas. These targets and the Energy Strategy are supported by additional new strategies for Local Heat, Energy Efficiency and District Heating, the Scottish Energy Efficiency Programme, the designation of energy efficiency as a National Infrastructure Priority, and proposals for an increased energy efficiency target.
- 6.5 The economic and practical viability of CCS, a technology which might theoretically enable the exploitation of fossil fuel reserves whilst achieving carbon reductions targets is highly doubtful following [*years of failed attempts to get the industry off the ground*](#). The Scottish Government is a champion of CCS technology, however its [*current approach*](#) would see a single demonstrator project reach commercialization only in the 2040s.
- 6.6 Production scenarios outlined by KPMG in a [*study commissioned by the Scottish Government*](#) in 2016 on the economic impacts and scenario development for UOG, have UOG production starting to come on stream gradually from 2026, with peak production not commencing until 2044, a mere 6 years before Scotland's energy system is supposed

to be completely decarbonised. Meanwhile the present Scottish Government remains committed to “continuing to support the recovery of North Sea oil and gas”, while the UK Government is committed to “[maximising economic recovery of UK petroleum](#)” – goals that are clearly incompatible with pursuing UOG and meeting climate change targets.

6.7 Against that background FoES submits that a ban or moratorium on any unconventional oil and gas exploitation in Scotland is not only lawful but may be said positively to be required to ensure compliance with Scotland’s climate change obligations.

AIDAN O’NEILL QC

25 April 2018