

## Fracking – A briefing for our churches

### 1. Background

1.1 In recent years the Joint Public Issues Team has engaged with parliamentarians, church members and the wider public concerning the Climate Change Act and the UK's energy policy. In the course of this work our Churches have considered carefully the implications of developing shale gas resources in the UK. In addition, the Church of Scotland General Assembly received a report on fracking in 2015.

1.2 There has been a significant involvement of churches in regions potentially affected by fracking, with studies undertaken by Lancashire Churches Together, the Church of Scotland, and the Dioceses of Blackburn and Chichester and the Catholic National Peace and Justice Network amongst others. Some of these studies offer biblical insights, complementing the national churches' reflection on climate change provided by *Hope in God's Future* and other publications.

1.3 This briefing draws on these and other resources to outline the environmental and climate change considerations of fracking. It argues that a policy that seeks to incentivise investment in fracking could divert attention from the need to accelerate investment in clean affordable alternatives to fossil fuels. It would be feasible to satisfy the temporary increase in gas demand with imported gas. This might be appropriate if it enables a better focus on securing investment for the necessary upgrade of infrastructure<sup>1</sup> to support a transition away from fossil fuels.<sup>2</sup>

### 2. Fracking – the process

2.1 The process of 'hydraulic fracturing', or 'fracking' as it is more often known, enables the recovery of deposits of gas in shale rock that were previously unobtainable. The process involves injecting fracturing fluid at high pressure down a borehole into a shale formation. The pressure causes fractures in the rock formation which are propped open by sand in the fracturing fluid, enabling gas to flow into the borehole. Each well has a relatively short lifespan compared to a conventional gas field, so developers will drill at several points covering a large area of land/countryside in order to sustain production. A commercial scale shale gas project will involve a number of 'well-pads', of up to two hectares in size, each containing around ten wells. Well-pads may be spaced approximately one to two miles apart and each will need associated infrastructure such as roads and storage facilities.

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<sup>1</sup> (such as low-carbon heat networks for example) <https://www.eonenergy.com/for-your-business/community-energy/Community-energy-casestudies/cranbrook>

<sup>2</sup> See 6.4 below

### **3. UK Government support for fracking**

3.1 Energy security is high on the UK Government's agenda and includes a desire to reduce gas and oil imports from Russia and the Middle East. This was a key aspect of the UK Government's April 2016 report on shale gas extraction, which states that "the government believes that shale gas has the potential to provide the UK with greater energy security, growth and jobs."<sup>3</sup>

3.2 The Government points to analysis from EY<sup>4</sup> that a rapid investment in shale gas in the UK involving 4,000 wells between 2016 and 2032 would, at its peak, create employment for 64,000 people.

3.3 Over the next decade the UK faces a potential crisis in the electricity supply sector as a result of the retirement of the majority of the country's ageing nuclear power stations and the commitment to phase out coal-fired power by 2025. One means of addressing the shortfall is the construction of gas-fired power stations that are relatively easy to bring on-line. This least-cost option is seen as the easiest approach, but there could be alternatives.

3.4 Permission to proceed with fracking has so far be granted in two sites in the UK; in Lancashire and North Yorkshire. In 2014 Lancashire County Council refused planning permission for fracking at two locations. The energy company, Caudrilla appealed and after a planning inquiry the Secretary of State for Communities and Local Government upheld this appeal enabling this project to go ahead. In North Yorkshire, the County Council approved a planning application for fracking at Kirby Misperton, Ryedale District. Friends of the Earth and Frack Free Ryedale appealed against this approval but this appeal was rejected by the High Court in December 2016. In North Yorkshire proposals have been made regarding cash payments to owners of land, including local residents living over the area where drilling will take place. This has raised questions regarding the principles that should determine compensation payments.<sup>5</sup>

### **4. Scottish Government policy on fracking**

4.1 In 2015 the Scottish Government imposed a moratorium on fracking after a sustained campaign led by Friends of the Earth Scotland, a development welcomed by the General Assembly of the Church of Scotland. In June 2016 the Scottish Parliament, in a non-binding vote, narrowly passed a resolution calling for a permanent ban. At the same time Ineos, the company that owns the Grangemouth refinery, is now importing ethane to Grangemouth from fracking wells in the USA and has acquired fracking rights for much of central Scotland. It is lobbying for the moratorium to be lifted arguing that "shale gas is a once in a lifetime opportunity that the UK cannot afford to miss."<sup>6</sup>

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<sup>3</sup> <https://www.gov.uk/government/publications/about-shale-gas-and-hydraulic-fracturing-fracking/developing-shale-oil-and-gas-in-the-uk>

<sup>4</sup> Formerly known as Ernst and Young

<sup>5</sup> <https://drillordrop.com/2016/09/08/money-cannot-compensate-for-fracking-politicians-told/>

<sup>6</sup> <http://www.ineos.com/inch-magazine/articles/issue-9/ineos-gets-a-licence-to-explore-the-uk-for-shale-gas/>

In January 2017 the Scottish Government launched a new website *Talking "Fracking": A Consultation on Unconventional Oil and Gas*<sup>7</sup> and published supporting research studies on fracking and its impacts. The consultation closes on 31 May 2017 after which time the Scottish Government will have to come to a decision on whether to ban fracking or accede to industry pressure for it to go ahead.

## **5. Fracked gas and consumer electricity prices**

5.1 It is sometimes suggested that a national 'dash for gas' will lower household electricity and gas bills. However, as the UK is part of a highly connected gas network across Europe this is unlikely to be the case.<sup>8</sup> Gas producers will sell gas not at the cost of production but at a price that is competitive with the wholesale market price in Europe. Even if UK fracked gas were to be developed to such a scale that it accounted for as much as 10% of Europe's gas production, its introduction to the market would probably still have at best only a marginal impact on consumer gas prices, although some large industrial users of gas could see some benefit.

5.2 Fuel poverty in the UK is a significant problem and is likely to increase. However, large scale exploitation of the UK's shale gas resource is not the solution. As we have argued elsewhere, tackling fuel poverty requires a range of well-targeted policy measures including attention to the UK's energy-inefficient housing stock.<sup>9</sup> Furthermore, the costs of wind and solar generation have dropped dramatically and, as the technology develops further, they are likely to become cheaper than shale gas as a source of energy to the benefit of all consumers.

## **6. Environmental concerns**

6.1 A number of concerns have been raised about the safety of fracking and its impact on the local environment, although there has been insufficient use of the technique in the UK to assess the degree of potential threat.

6.2 *Earthquakes:* A small earthquake was associated with a test drilling rig in the Fylde near Blackpool in May 2011. A subsequent report into the event confirmed "it is highly probable that the hydraulic fracturing of Cuadrilla's 'Preese Hall 1' well did trigger a number of minor seismic events, although none of the events recorded had any structural impact on the surface above".<sup>10</sup> Although this remains a concern for some local people and organisations campaigning against fracking, the report suggests that the circumstances were unusual and that fracking is unlikely to be the cause of damaging earthquakes in the UK. However, one of the report's recommendations was that national

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<sup>7</sup> <https://consult.scotland.gov.uk/energy-and-climate-change-directorate/fracking-unconventional-oil-and-gas/>

<sup>8</sup> <https://www.theguardian.com/environment/2013/nov/29/browne-fracking-not-reduce-uk-gas-prices-shale-energy-bills>

<sup>9</sup> *Fuel poverty and the role of green, affordable clean low carbon energy*  
<http://www.jointpublicissues.org.uk/fuel-poverty-and-the-role-of-green-affordable-clean-low-carbon-energy/>

<sup>10</sup> <https://cuadrillaresources.com/media-resources/press-releases/press-release-geomechanical-study/>

surveys should be completed to characterise stresses and identify faults in UK shale, and that seismicity should be monitored during and after hydraulic fracturing.

6.3 *Water pollution:* Huge quantities of water are required in the fracking process. Local communities are concerned over the possible contamination of underground water courses, following media reports of problems experienced in other countries. The management of waste water and contaminants is an also area in which local communities typically require assurance.

6.4 *Fugitive emissions:* Methane, a highly potent greenhouse gas, can leak from gas wells and would contribute to overall greenhouse gas emissions. There is limited research available that is specific to the UK context, but some research suggests that these emissions may be considerable. Relative to imported gas, fracked gas production creates additional emissions that count towards UK carbon budgets. This is because emissions from the extraction of gas, as distinct from its use, are accounted for in the country of production. As a consequence, the emissions related to gas production would need to be offset by further reduced emissions in other sectors of the economy.

6.5 *Other environmental concerns:* The intrusion and nuisance associated with the construction of fracking rigs has been an issue for affected communities in North Yorkshire and Lancashire. Churches Together in Lancashire caution that in shale gas exploration and fracking operations, there are societal challenges connected to property rights and values, investment and recompense, planning procedures and the cohesion of communities. Their report, *The Challenges of Fracking*, observes that “a biblical perspective allows us to see the land itself as a gift and ourselves as tenants. The Scriptures also challenge us to be mindful of those who do not immediately benefit from the harvest of its goods or who are effectively dispossessed of something in which they might have a rightful share. Such concerns carry weight wherever and whenever we threaten to damage our environment.”

## 7. **Climate change and energy policy concerns**

7.1 At the COP21 Paris Summit in December 2015, governments reviewed the latest climate science and stressed that climate change represents an urgent and potentially irreversible threat to human societies. They committed to “holding the increase in the global average temperature to well below 2 °C” and “to pursue efforts to limit the temperature increase to 1.5 °C”. In contrast the basis for the UK’s existing five-year carbon budgets is the intention stated in the Climate Change Act that seeks to avoid a warming of “around 2 °C”. The independent Committee on Climate Change has the duty to advise the government on climate targets and states that, at this stage, the UK’s Paris commitment does not require revision of the carbon targets defined within the UK Climate Change Act. However, it is reasonable to assume that if governments are to ratchet up commitments to achieve the intention of limiting increase in global average temperature rise to well below 2 °C (or 1.5 °C), the UK’s 2030 carbon target and the budgets (including those described below) would need to be strengthened.

7.2 The Committee on Climate Change also states that investment in shale gas is not compatible with our national carbon targets unless fracked gas is used to replace gas imports. Fracking must not have the knock-on effect of increasing gas consumption in the UK. While it is feasible for fracked gas to act as a substitute for imported gas, constraining overall UK gas consumption will require strong

policy interventions by government across a number of areas. The UK Government recognises that current policies are insufficient to meet the requirements of the fourth and fifth carbon budgets and keep us on a cost-effective path to the 2050 target.<sup>11</sup> Limiting the role of fracked gas will require a clearly defined and resourced national emissions reduction strategy.

7.3 Increased use of gas for production of electricity will be necessary in the short-term to replace high carbon-emitting coal-fired power stations and to make up for the drop-off in supply from nuclear. The Committee on Climate Change estimates that gas-fired generation will reach 38% by the mid-2020s but will need to drop to 22% of supply by 2030. The consumption of unabated<sup>12</sup> gas must tail off further in the 2030s if the UK is to remain on track with carbon targets. This rapid decarbonisation of the power sector is essential to meet overall carbon targets. Our Churches have argued that at least 60% of power generation should come from clean affordable renewable sources of energy by 2030 and that the government must plan and invest appropriately to bring this about.<sup>13</sup>

7.4 The Committee on Climate Change warns that unless decisions on energy infrastructure are made in the timeframe of the current Parliament there is a danger that we may be 'locked-in' to high carbon pathways. A range of infrastructure decisions would have positive impact including support for low-carbon heat networks, electric vehicles and the development of carbon capture and storage (CCS). By greatly gearing up gas production and investing in the construction of new gas infrastructure in the UK, there is a danger that we divert attention, incentives and government resources away from renewables and energy conservation. As the need for increased gas consumption in the UK is only temporary, the Committee on Climate Change suggests that the increased demand could be covered by imports while the nation focuses on infrastructure change to bring about decarbonisation and more efficient use of energy.<sup>14</sup>

## 8. Questions for churches to consider

- What do these and other Bible passages suggest to you about our responsibility to care for creation?
  - So God created humankind in his image, in the image of God he created them; male and female he created them. (Genesis 1:27)
  - The Lord God took the man and put him in the garden of Eden to till it and keep it. (Genesis 2:15)
  - We know that the whole creation has been groaning in labour pains until now; and not only the creation, but we ourselves, who have the first fruits of the Spirit, groan inwardly while we wait for adoption, the redemption of our bodies. (Romans 8:22-23)

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<sup>11</sup> "Meeting Carbon Budgets – 2016 Progress Report to Parliament", Committee on Climate Change.

<sup>12</sup> i.e. gas used in power stations that do not have a capacity to capture and store carbon emissions

<sup>13</sup> <http://www.jointpublicissues.org.uk/policy-briefing-a-renewables-based-uk-energy-system-by-2030/>

<sup>14</sup> Page 37 "Onshore Petroleum: The compatibility of UK onshore petroleum with meeting the UK's carbon budgets Committee on Climate Change" <https://www.theccc.org.uk/wp-content/uploads/2016/07/CCC-Compatibility-of-onshore-petroleum-with-meeting-UK-carbon-budgets.pdf>

- If we see land as a 'gift' and ourselves as 'tenants', what do you feel should be our top environmental priorities?
- Are you or others in your community concerned about fracking, and if so what are your concerns? Do you also share the Government's concern about energy security? Where should priorities lie?
- Will the development of fracked gas in the UK mean that the government will inevitably take its 'eye off the ball' with regard to renewable energy?
- What can you do to reduce your reliance on fossil fuels? What is your local church doing around action on climate change?
- How can our Churches influence local or national decision-makers on these issues?

## 9. Resources

### 9.1 From Churches

*"Fracking and the Development of on shore oil and gas in Scotland"* – A report of the Church and Society Council to the Church of Scotland General Assembly, May 2015

[http://www.churchofscotland.org.uk/\\_data/assets/pdf\\_file/0017/27125/Church\\_and\\_Society\\_Council.pdf](http://www.churchofscotland.org.uk/_data/assets/pdf_file/0017/27125/Church_and_Society_Council.pdf)

*"Shale Gas and Fracking"* – A Briefing Paper from the Mission and Public Affairs Council and the Environment Working Group of the Church of England

<https://www.churchofengland.org/media/3856131/shale-gas-and-fracking.pdf>

*"The Challenges of Fracking: Shale Gas Exploration & Proposed Extraction in Lancashire"* –

A discussion document from the Churches Together in Lancashire

<http://www.ctlancashire.org.uk/data/uploads/documents/issues/fracking/the-challenges-of-fracking-discussion-document-january-2015-final.pdf>

*"Fracking – What is a Christian Response"* – The Diocese of Blackburn

<http://www.blackburn.anglican.org/images/Fracking%20leaflet%20revised.pdf>

Report of the Ecology and Energy Roadshow on Fracking Saturday 22 March 2014, Cadzow Church Hall, Hamilton – Appendix 3

[http://www.churchofscotland.org.uk/\\_data/assets/pdf\\_file/0004/27166/Church\\_and\\_Society\\_Report\\_Appendices.pdf](http://www.churchofscotland.org.uk/_data/assets/pdf_file/0004/27166/Church_and_Society_Report_Appendices.pdf)

*"Hope in God's Future: Christian Discipleship in the Context of Climate Change"* – The Baptist Union of Great Britain, the Methodist Church and the United Reformed Church

<http://www.jointpublicissues.org.uk/wp-content/uploads/2013/01/higf-studyguide-100909.pdf>

*"Fracking: time for balance and sanity"* – The Revd Dr John Weaver, The John Ray Institute

<http://www.jri.org.uk/blog/fracking-time-for-balance-and-sanity-rev-dr-john-weaver/>

## 9.2 Other Resources

*“Onshore Petroleum: The compatibility of UK onshore petroleum with meeting the UK’s carbon budgets Committee on Climate Change”*

<https://www.theccc.org.uk/wp-content/uploads/2016/07/CCC-Compatibility-of-onshore-petroleum-with-meeting-UK-carbon-budgets.pdf>

*Scottish unconventional oil and gas: Compatibility with Scottish emissions targets*

<https://www.theccc.org.uk/publication/scottish-unconventional-oil-and-gas-compatibility-with-scottish-emissions-targets/>

*“Shale gas in the UK” – RSPB Policy Briefing, August 2013*

[https://www.rspb.org.uk/Images/Shale\\_gas\\_in\\_the\\_UK\\_RSPB\\_full\\_policy\\_briefing\\_tcm9-351566.pdf](https://www.rspb.org.uk/Images/Shale_gas_in_the_UK_RSPB_full_policy_briefing_tcm9-351566.pdf)

*“Shale gas: an updated assessment of environmental and climate change impacts” – Tyndall Centre for Climate Change Research*

<https://www.escholar.manchester.ac.uk/api/datastream?publicationPid=uk-ac-man-scw:156730&datastreamId=FULL-TEXT.PDF>

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