

Statement by Lisa Hopkinson, Secretary, Transition Chesterfield

Transition Chesterfield is a local community group established in 2007, whose aims are to raise awareness of climate change and develop a resilient, low-carbon society.

While I understand that this Inquiry is to determine, in land use planning terms, the acceptability of an exploratory well at Bramley Moor Lane, INEOS has argued in its submission that energy security and other issues associated with fracking should be considered at this Inquiry. They also argue that exploration is an integral part of the gas production process. However when it comes to climate change they only consider the contribution from the exploratory well rather than from fracking itself.

The appellant cannot have it both ways. Either this application is a stand-alone proposal for an exploratory well – in which case the climate impacts are relatively minor but there can be no good justification for the project in view of the significant local impacts. Or, as INEOS argue, it is an integral part of the shale gas production process, in which case the wider climate and environmental impacts of fracking must be taken into account.

The Inspector at the Harthill inquiry gave significant weight to the issue of energy security associated with fracking and I assume this Inquiry may also do the same. In which case the potential impacts of climate change associated with fracking must also be considered

Climate change [eg Paras 7, 93, 156] and energy security are core planning principles in the National Planning Policy Framework (NPPF) and are both relevant issues for the Inquiry.

Energy Security

The NPPF states that “*It is important...that there is a sufficient supply of material to provide the...energy...that the country needs.*” [Para 142] However it does not state that that energy must be in the form of oil and gas. The NPPF has no explicit requirement for a sufficient supply of fossil fuels, but does make numerous references to renewables and low carbon energy.

The appellant argues that fracking is a bridge to a low carbon economy and will reduce our reliance on coal or imported natural gas.

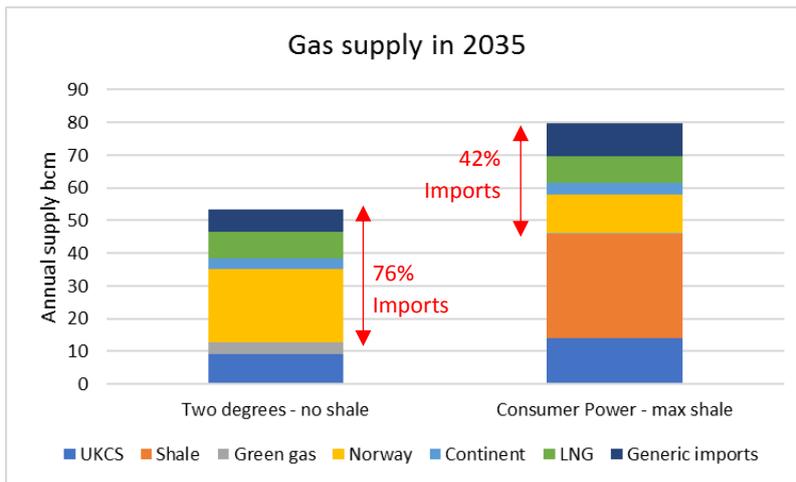
Firstly fracking is unlikely to reduce our reliance on coal, which accounts for less than 7% electricity generation and is being phased out by 2025 regardless.ⁱ A fall in coal generated electricity last year was offset by an increase in renewables.

Currently about half of the UK’s demand for gas is for electricity generation. Both the quantity and the proportion of gas used for electricity is likely to fall over time while the quantity of electricity generated by renewables will grow. By 2035 the government estimates renewables will be generating 4 times as much electricity as gas will be.ⁱⁱ

The appellant states that we currently import about 54% of our gas supply and this will increase to around 76% by 2035. This latter figure is taken from a National Grid

study which modelled four scenarios. One of these, 'Consumer Power' is where shale development is at its highest and another, 'Two Degrees', which has no support for shale gas. I will refer to these as the 'high shale' and 'no shale' scenarios respectively.

The 'high shale' scenario indeed shows a lower import dependency in percentage terms than the 'no shale' scenario in 2035. However because consumer energy demand is much greater in the 'high shale' scenario it means that, in absolute terms, the total amount of gas imported in 2035 is only slightly higher than in the 'no shale' scenario. Furthermore the absolute amount of gas from generic imports is greater in the 'high shale' scenario than in the 'no shale' scenario.



These are only scenarios rather than forecasts, but what they show is that even with high shale gas development, we could still be heavily reliant on imported gas in absolute and percentage terms, and possibly even more reliant on generic imports than without shale gas.

The 'high shale' scenario also assumes a total production of **313 billion cubic metres** shale gas between 2012 and 2035. Yet one peer-reviewed study estimated the amount of practically recoverable shale gas from the whole of the north of England (Lancashire, Cheshire, Yorkshire, Nottinghamshire and Derbyshire) taking into account infrastructure constraints is about **220 billion cubic metres**.ⁱⁱⁱ To practically extract this amount of shale gas would require developing over 3,000 well sites.^{iv} Is the wholesale industrialisation of the north a price worth paying for a small and uncertain reduction in the quantity of imported gas, most of which will come from Norway in any case?

By the time that this enormous investment in fracking infrastructure has taken place it is likely the cost of renewables will have fallen so much that the industry will be left with stranded assets^v, and thousands of blighted sites that they will be unable to restore. Local authorities will be forced to pick up the bill for restoration.

The National Grid study shows that only the 'no shale' scenario allows us to meet our legally binding 2050 carbon reduction target. National Grid suggests we need to move rapidly away from natural gas and towards electrification of heating.^{vi} This is not just some future prospect. Already in Chesterfield we have housing

developments that require no gas heating and actually produce more energy than they consume.

The alternative safer, cleaner and cheaper way of improving energy security is to invest in renewable energy and energy efficiency. At present, we waste about half of our energy in the UK. With decentralised renewable energy we will avoid the wasted heat in power stations and the electricity lost in transmission.^{vii} One study has shown that a combination of efficiency measures and renewables could halve the EU's imports of natural gas.^{viii} Another study has shown that the UK can be fully self-sufficient in renewable energy without fossil fuels in the next 20 years.^{ix}

We have shown that developing home-grown shale resources will not necessarily reduce, and may even increase, our dependency on gas imports in absolute terms. The Inspector should therefore place very little weight on any future shale gas supplies associated with this development improving energy security.

Climate Change

Just as for energy security, the climate impacts of fracking also need to be considered by this Inquiry.

The NPPF supports the transition to a low-carbon future as a core planning principle and cites the Climate Change Act 2008 as a material consideration [para 94]. Following the Paris Climate Agreement (2016) the Government has committed to enshrining in law a target of net zero carbon emissions by 2050. The Derbyshire Climate Change Charter, a key policy document, recognises the legal requirement placed on authorities to contribute towards the national targets.^x The emerging Derbyshire Minerals Plan has a separate Climate Change policy requiring developments to take climate impacts into account and avoid adverse climate impacts [Draft Policy SMP3].^{xi}

The climate impacts of fracking largely consist of the fugitive emissions of methane during production and the burning of the gas subsequently.

Methane is much more powerful as a greenhouse gas than carbon dioxide.^{xii} Therefore if fugitive emissions of methane are too high, it nullifies any advantage of gas over coal in reducing greenhouse gas emissions. Gas production leakage rates typically range from 0.6 to nine per cent.^{xiii} One study estimated that fugitive emissions from fracking were likely to be higher than from conventional gas extraction due to the greater probability of fractures in well casings.^{xiv}

There is great uncertainty in knowing what the fugitive methane emissions from fracking will be, particularly in old mining areas such as North East Derbyshire due to leakage of methane through the numerous old shafts and tunnels. The appellant acknowledges the potential for old coal workings to act as conduits for gas. If fracking were to go ahead at Bramley Moor Lane the area of underground lateral drilling would significantly intrude into coal mining high risk areas. There is thus a high risk of high levels of fugitive emissions.

Lastly the independent Committee on Climate Change have concluded that "*exploitation of shale gas on a significant scale would not be consistent with UK carbon budgets and the 2050 target unless three tests are met.*"^{xv}

The first of these tests is the control of fugitive emissions during production, which we have shown is uncertain.

The second of these tests is the need to ensure shale gas substitutes for imported gas, which we have also shown is uncertain.

The third test is a need for Carbon Capture and Storage (CCS), an expensive technology, the programme for which the Government cancelled in November 2015.

Since there is considerable uncertainty that the three tests can be met, the extraction of shale gas cannot be consistent with UK carbon budgets. Thus the extraction of shale gas locally or elsewhere in the UK is likely to compromise our legally binding climate change targets, and the Paris climate agreement. This legal imperative should be taken into account in any planning decision, otherwise it makes a nonsense of the law.

In conclusion, we consider that the appeal for this application should give no weight to energy security on the ground that there is no certainty future development can improve energy security and may even increase gas imports in absolute terms.

We also consider that the potential climate impacts of future development should be given significant weight in light of the NPPF policies and the fact it cannot be shown to be consistent with UK carbon budgets, in breach of the Climate Change Act.

Thank you.

ⁱ BEIS (2018). Updated energy and emissions projections. www.gov.uk/government/publications/updated-energy-and-emissions-projections-2017

ⁱⁱ BEIS (2018). As above.

ⁱⁱⁱ Clancy S. A. et al (2017) An assessment of the footprint and carrying capacity of oil and gas well sites: The implications for limiting hydrocarbon reserves. *Sci Total Environ.* doi: 10.1016/j.scitotenv.2017.02.160

^{iv} Clancy et al (2017) see above.

^v Bond K (2017) Revolution not evolution: Marginal change and the transformation of the fossil fuel industry. Discussion Paper, Smith School of Enterprise and the Environment, February 2017 www.smithschool.ox.ac.uk/research-programmes/stranded-assets/Revolution-not-evolution-SFP-Discussion-Paper-February-2017.pdf

^{vi} National Grid (2017) Future Energy Scenarios. <http://fes.nationalgrid.com/media/1253/final-fes-2017-updated-interactive-pdf-44-amended.pdf>

^{vii} Innovate UK (2018) Predictions – The future of energy. Blog 6 March 2018.

<https://innovateuk.blog.gov.uk/2018/03/06/predictions-the-future-of-energy/>

^{viii} Ecofys (2014) Increasing the EU's Energy Independence A no-regrets strategy for energy security and climate change. www.ecofys.com/en/publication/increasing-the-eus-energy-independence

^{ix} Centre for Alternative Technology (2013). Zero Carbon Britain. <http://zerocarbonbritain.org/>

^x Derbyshire County Council. Derbyshire Climate Change Charter 2014-2019. www.derbyshire.gov.uk/site-elements/documents/pdf/environment/climate-change/climate-change-charter.pdf

^{xi} Derbyshire County Council (2018). Minerals Local Plan Consultation.

<https://consultations.derbyshirepartnership.gov.uk/consult.ti/MLPWinter1718/consultationHome>

^{xii} Over a 100 year period the Global Warming Potential (GWP) of methane is 28-36 times more powerful and over a 20 year period it is 84-87 times more powerful than CO₂ due to its shorter lifetime in the atmosphere (it's impacts are discounted over the longer 100 year span). www.epa.gov/ghgemissions/understanding-global-warming-potentials

^{xiii} Carbon Brief (2014). Explained: fugitive methane emission from natural gas production. 3 July 2014.

www.carbonbrief.org/explained-fugitive-methane-emissions-from-natural-gas-production

^{xiv} Ingraffea A R, Wells M T, Santoro R L, and Shonkoff S B C (2014) Assessment and risk analysis of casing and cement impairment in oil and gas wells in Pennsylvania, 2000–2012. *PNAS* June 30, 2014.

www.pnas.org/content/early/2014/06/25/1323422111/suppl/DCSupplemental

^{xv} Committee on Climate Change (2016) Onshore Petroleum.

www.gov.uk/government/uploads/system/uploads/attachment_data/file/535207/Compatibility_of_onshore_petroleum_with_meeting_UK_carbon_budgets_-_Committee_on_Climate_Change_-_2016.pdf