# Conditions for environmentally-sound UK shale gas development

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The research on which this brief paper draws was carried out by the UK Energy Research Centre (UKERC). The views expressed are those of the authors, rather than of any institution to which they may be affiliated.

Two recently published reports (McGlade & Ekins (2015), McGlade *et al.* (2014)) examine possible futures for fossil fuels, with a particular focus on the 'bridging' role that natural gas may be able to play during a transition to a global low-carbon energy system. A related report (Bradshaw *et al.* 2014) considers the UK's global gas challenge and places the development of shale gas in the wider context of the UK's energy security and climate change policies. These reports found that there is a good potential for gas to act as a transition fuel to a low-carbon future up to 2035 on a global level but with this potential varying significantly between different regions.

This is consistent with the views of the Intergovernmental Po

the context of a global effort to keep average global warming below 2ºC with a reasonable likelihood. This is again consistent with the views of the UK's Committee on Climate Change (CCC) who state that *'UK shale gas production could be compatible with meeting [its] emissions targets'* (CCC, 2013).

However, it is common for the conditions that are a necessary part of these conclusions, both for the global 'bridging' role of natural gas and more specifically shale gas development in the UK, not to be set out in full or given sufficient emphasis when communicating these findings. They may even be ignored entirely. This note therefore aims to discuss the ten caveats that we consider are fundamental to ensuring that any potential shale gas development in the UK is compatible with its required greenhouse gas emission reductions and environmental protection more broadly.

Before doing this, i

The first condition is that there must be both technically and economically recoverable volumes in the UK at costs that are below future gas prices[1], with these costs ideally including an appropriate charge for carbon emissions. As recognised by the British Geological Survey in the report on the Bowland shale, at present there are no UK shale gas reserves[2], and next-to-no information or data on volumes that could be considered to be recoverable resources. Whether any will be resources that are recoverable in an economically viable way is unknown, despite frequent claims to the contrary, and this is self-evidently necessary for there to be any development of UK shale gas. ly d nextl

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hold significant levels of 'unburnable' reserves, which will be increased by new UK production, if commitments to limit global warming are to be met. UK policy makers committed to global emissions reduction should recognise the implications of such new developments for the global climate negotiations.

Eighth, the level of fugitive emissions that occurs during production needs to be determined and managed. The literature on this issue is not yet at a mature enough stage to have any confidence on what a reasonable range for fugitive emissions might be. If they are non-negligible the usefulness of shale gas as a lower-carbon bridge fuel diminishes rapidly.

The Labour Party tabled a number of amendments as part of the Infrastructure Bill regarding UK shale gas development (HoC, 2015). These included a sensible requirement for UK shale gas companies to undertake 12 months' monitoring of existing fugitive emissions at a site before any hydraulic fracturing can take place, and further required them to monitor and disclose any fugitive emissions that occur during exploration or production. However, these requirements were subsequently amended before the Bill became an Act to require that: *'Appropriate arrangements have been made for the monitoring of emissions of methane into air.'* The 12-month requirement now only applies to methane in ground water. The amendments also require the government (in consultation with the CCC) to report on the impacts that fugitive emissions from the development of shale gas are having on the UK's ability to meet its required emissions reductions. This requirement remains in the Act (Infrastructure Act, 2015).

If fugitive emissions are negligible or are easily controlled, then as discussed by MacKay and Stone (2013), indigenous shale gas production is likely to have lower life cycle emissions than imported liquefied natural gas (LNG) or gas imported by pipeline from e.g. Russia. From a global emissions perspective, any gas that is required in the low-carbon UK energy system would therefore be better supplied from indigenous sources rather than by imports.

References

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