

HBF INFORMATION & ADVISORY NOTE

ON-SHORE SHALE GAS/COAL BED METHANE (CBM) INVESTIGATION & RECOVERY: 'FRACKING'

[Issue 1 - May 2015]

1. Background to this Advisory Note

HBF members will be fully aware of the Government's policy in terms of evaluating and pursuing alternative sources of energy. The commitment to shale gas recovery, colloquially known as 'fracking', remains an integral part of the UK's future energy policy (Ref: Infrastructure Act 2015) but conversely, we have witnessed an emotive and negative response to this particular concept, in particular at the local level. That said, until recently HBF members had reported little if indeed anything of material concern associated with this alternative energy source. However, the landscape in this regard is changing and not necessarily for the better. Since January 2015 at least two HBF members operating in the North of England have encountered sales resistance on residential development sites located in areas designated by the Department of Energy & Climate Change (DECC) for shale gas and/or CBM exploration/recovery. Given the potential impact and underlying importance of such matters HBF believe that an initial advisory note would be a timely and worthwhile means of informing/alerting members.

2. Introduction

A key part of the UK's medium to long-term energy policy is to assess the possible contribution to our future energy needs from shale gas and coal-bed methane (CBM). Based on the latest data from DECC these combined reserves are estimated to underlie over 65% of the UK land mass. For those involved in land and property transactions this has potential repercussions and matters are not helped by the negative spin that has become synonymous with anti-fracking lobbyists. Indeed, HBF members operating in the Fylde Coast area, where 'fracking' proposals have become more established, have already experienced sales resistance from potential buyers of new homes. In addition to informing HBF members this note also fulfils a further purpose by seeking informed comment/evidence members as to whether or not 'fracking' is having an adverse effect on their business and/or influencing land acquisition investment decisions.

3. Impact of the Infrastructure Act 2015

An important legislative change earlier this year resulted in the Infrastructure Act 2015 receiving Royal Assent on the 12th February 2015. Part 6 of the 'Act' (Energy) contained more relaxed provisions to encourage the investigation and recovery of alternative energy resources from shale gas/CBM. Sections 43-48 (inclusive) are particularly noteworthy as they authorise the use of deep-level land (at least 300 metres below the surface) for the exploitation of petroleum (notably shale gas and oil) and for deep thermal energy. These sections of the 'Act' came into force on 12th April 2015. Moreover, these new provisions remove the requirement for an operator to have to seek rights of access from every individual landowner whose land is subjected to investigation and possible recovery of shale gas/CBM. The rights to use the land do not succumb to the usual laws of trespass and the exercise of such rights includes drilling, boring and hydraulic fracturing. Furthermore, infrastructure or substances may be left in-situ after the exercise of the right of use. Importantly, there is no right of compensation for the individual (affected) landowner.

Fracking/CBM operators have consented to a voluntary commitment to notify local communities of drilling works and to make payments of £20,000 for each lateral well which extends by more than 200 metres from any drilling head. If this is not adhered to then the Secretary of State has reserved powers to introduce specific legislation in this regard. There are also repeal provisions if the powers available under the 'Act' have not been exercised within 7 years.

Section 50 of the Infrastructure Act 2015 (which is not yet in force) introduces new sections 4A and 4B into the Petroleum Act 1998. This section creates 11 pre-conditions that have to be complied with before the Secretary of State will issue a consent authorising the drilling of a well for onshore hydraulic fracturing. In addition to these 11 pre-conditions the Secretary of State must be satisfied that it is appropriate to issue any consent. Secondary legislation in this regard remains to be drafted and it is likely that this will be laid before Parliament before 31st July 2015.

In summary, whilst the exploration and exploitation of alternative energy resources has taken a significant step forward it is reasonable to assume that any potential impact on the development community will be long-term and therefore, it should be minimal in the short term. That said, this advisory note goes on to provide HBF members with a little more detail and information that they will hopefully find useful.

4. **Shale Gas & Coal Bed Methane**

There are subtle but important distinctions between respective alternative energy resources but more importantly, how they are assessed and subsequently recovered - a distinction often misapplied and/or misreported by anti-fracking lobbyists either for propaganda purposes or in support of wider anti-development objections.

4.1 **Coal-bed Methane (CBM)**

As the name suggests this is a form of natural gas adsorbed within coal seams - it is well known/documented from its occurrence in underground coal mining throughout the UK. Importantly, the exploration for and the recovery of CBM does not normally involve hydraulic rock fracture, colloquially known as 'fracking'. The recent spate of DECC exploration licenses (PEDLs – Petroleum Exploration & Development Licence) has more to do with determining CBM reserves rather than shale gas recovery. Whilst it is estimated that 2.9 billion cubic metres of CBM may exist in UK coal fields it may be that as little as 1% might be economically recoverable – the reasons for this are explained later.

4.2 **Shale Gas**

As the name suggests Shale Gas is natural gas that is trapped within deeply lying shale based rock formations. In terms of geological stratigraphy, these rock formations are more often than not considerably deeper (up to 5000m below ground level) than potential CBM deposits. Consequently, they require more sophisticated exploration and recovery techniques.

Fracking has been in existence since 1947 - on-shore hydraulic fracturing in the UK (the issue that has spawned the anti-fracking lobbyists) began around 1970 – a fact often overlooked by those opposed to 'fracking'. However, since 2007 several exploratory wells have been drilled across the UK but as of May 2015 there has been no commercial production of shale gas.

DECC originally identified large areas of eastern and southern England as having the best shale gas potential but British Geological Survey (BGS), who are retained by Government to provide completely independent advice, have suggested that original estimates may have been overly conservative.

Further afield shale gas has been effectively exploited in the United States but unlike the UK, where we have far more stringent environmental legislation and regulatory control, there have been a number of reported pollution incidents. Anti-fracking lobbyists in the UK, have relied upon such incidents to portray a vision of 'fracking' in a UK context that is far from reality.

5. The Extent of Respective Reserves

There is considerable and acclaimed documentary evidence commenting on the extent of respective reserves in the UK and how current estimates of resource potential have been determined. Satellite technology supplemented with geophysical investigations has been used to provide the equivalent of geotechnical desk study information.

What the PEDLs issued by UK Government are now allowing is the physical investigation to determine the accuracy of earlier predictions and more importantly perhaps, whether CBM and/or shale gas recovery is economically viable. (Low oil prices, if sustained in the long term will have a dramatic and adverse effect on the cost of CBM/shale gas exploration and recovery. However, since the late 1960's we been accustomed to oil price volatility so this cannot be relied upon to provide any degree of confidence that exploration and potential long term recovery will dramatically reduce from hereon). If anything, we can expect further traction in terms of resource exploration.

For the development community there are two important strands of evidence that need to be considered. The first is the predicted extent of respective reserves; secondly the likely timescale before those granted exploration licenses will have sufficient robust evidence capable of confirming to UK Government whether or not CBM and shale gas recovery is a realistic/economic proposition. A period of up to 10 years has been suggested before sufficient evidence in this regard will have been accumulated. No major strategic decisions relating to the recovery of these alternative energy resources are therefore likely to be made in the short term.

Included at the end of this note are links to two useful and current sources of reference - the first is a map produced by DECC that identifies the extent of potential CBM reserves in the UK and the current extent of PEDL licensed areas. The second link takes the reader to a further DECC publication identifying those parts of the UK where shale gas reserves are predicted to exist. It is noteworthy that 'fracking' potential on the western half of the UK and in Scotland is quite limited. This may be a consequence of the more complex geology associated with this part of the British Isles. From these references one can easily deduce that around 65% of the UK land mass is affected, with three core areas for exploration being readily identifiable. It is therefore reasonable to assume that most if not all HBF members will be active in those areas allocated for exploratory drilling/investigation either for CBM and/or shale gas.

6. Credible References/Evidence

Amongst the many papers that have been written three organisations have provided completely independent reviews of 'fracking'. (Both CBM and shale gas hydraulic rock fracture have been included under this heading).

British Geological Survey has produced a series of geology-based resource maps, extending these to include a series of related, information papers.

In addition, in June 2012 and at the request of Government, The Royal Academy of Engineering, in conjunction with the Royal Society, published a report on hydraulic fracturing - "Shale Gas Extraction in the UK: A Review of Hydraulic Fracturing". This report included a number of recommendations but concluded that with appropriate environmental controls in place the risks associated with 'fracking' were relatively low. The reports and recommendations from such eminent bodies and institutions are far more credible for decision making purposes rather than emotive and misleading statements made by anti-fracking lobbyists. Moreover, DECC have produced a series of guidance documents that provide fact-based evidence that can be relied upon by corporate organisations to inform both land use and new development investment decisions.

7. Factors that can Influence the Effectiveness of 'Fracking' and or CBM Recovery

In simple terms the prevailing geology and hydrogeology of an area can have a significant effect in determining whether or not reserves of CBM or shale gas are economically viable. The presence of geological faults and sensitive aquifers/groundwater assets can render potential recovery a non-starter. Moreover, the Environment Agency is unlikely to grant an environmental permit for fracking/CBM investigation/recovery under the Environmental Permitting Regime (EPR) if there is a potential risk to controlled waters in terms of compromised quality and integrity – see EA guidance covering ground water protection. It is also worthwhile reflecting upon the stringent groundwater risk assessments that we as house builders have to undertake when piled and/or 'vibro' foundations are being advocated. In comparison to those required as part of the EPR covering CBM and shale gas recovery these are comparatively simple.

8. Additional Information That May be Helpful to HBF Members

- Land/Property Envirocheck searches – At present these do not appear to consider or include the existence of any licence(s) issued for shale gas/CBM exploration and/or recovery. HBF suspects that this may well change in the not too distant future.
- Mining searches – nothing is being revealed at present.
- HSE Register of Hazardous Installations – as yet no records/information pertinent to fracking/CBM recovery appear to be provided at the land acquisition stage despite the HSE being one of the main approval bodies when it comes to licensing and abstraction.
- Local Authority Planning Register – little if indeed any pertinent information recorded. Mineral Plans may need to be accessed as a first step to check what, if any, information pertinent to fracking may exist.
- Local Authority Charges Register – No evidence/information appears to be available at this source.
- Land Acquisition Legal Searches – It would be useful to know from HBF members if 'fracking' issues are starting to appear. First indications suggest that few if indeed any HBF member are instructing their acquisition solicitors to extend their searches, beyond conventional mines and minerals rights, to include 'fracking'.
- Law Society – Nothing revealed to date in terms of conveyancing guidance.

- Ground Investigation Reports – of those that have been seen more recently, none make reference to fracking/CBM recovery and any potential impact on the land/property under consideration. To date, most geotechnical consultants do not appear to be aware of the existence of the DECC maps referred to earlier in this note.
- Environment Agency – an import source of reference and whilst the EA do comment on groundwater quality/vulnerability the fact that they are custodians of all Environmental Permits under the Environmental Permitting Regime (EPR) no references to the existence of permits specific to fracking appear to be forthcoming and/or disclosed.
- Council of Mortgage Lenders – As yet they do not appear to have a policy in place in respect of 'fracking'.
- RICS Valuations – at present, fracking implications do not feature as part of the 'red book' valuation process. This may well change in the short term.

9. **Summary**

Whilst 'fracking' continues to attract the attention of anti-fracking lobbyists, there is little evidence beyond the examples cited earlier to suggest that it is an issue that is beginning to have a notable effect on the provision of new homes. More importantly perhaps, the scientific community do not view fracking and/or the recovery of coal bed methane as being any more threatening than established deep mining techniques for the recovery of coal, or for that matter brine extraction in central Cheshire. Put into context, both CBM and shale gas reserves remain best guess estimates and will do so until such time as physical investigations are concluded to such an extent that they will allow UK Government to make informed decisions – this likely to be a long-term issue. That said, the negative and emotive comments that are being made by anti-fracking lobbyists are beginning to influence purchaser decisions in parts of the UK and for this reason, the HBF is calling upon its members to provide more robust evidence as to the potential consequences to their business and future attitudes towards land purchase. Based on whatever is received in due course, this could become an issue that may need to be taken up with H M Treasury. Any comments/evidence should be returned to Dave Mitchell at HBF London. Finally, HBF will keep members further informed through subsequent revisions to this advisory note. In the meantime this is clearly a matter to keep on the Industry's radar.

HBF London
14th May 2015

Web-links/references

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/425247/Landfields_Lics.pdf

<https://www.og.decc.gov.uk/upstream/licensing/shalegas.pdf>