

Briefing #1: INEOS and fracking

We won On 24th October The Scottish Parliament endorsed an indefinite moratorium on fracking and agreed to seek to strengthen the legislation in future. However, INEOS dominates the Scottish petrochemical landscape and continues to import US shale gas.

Prior to the June general election it looked certain that a new Tory government would further ease mineral planning regulations in order to 'liberalise' the exploration and extraction environment for prospective oil and/or gas shale fracturing activities. Ineos would have been a beneficiary of such a move. Over the past two years it has continued to add considerable gas and oil infrastructure and gas onshore as well as offshore deposits to its Scottish hydrocarbon monopoly portfolio. In fact no new legislation has been proposed but the situation in England and Wales remains one in which the companies holding Petroleum Exploration and Development Licences (PEDL's) continue to ride roughshod over local protests in parts of Central Lancashire and North Yorkshire; complete with court orders and heavy policing.



Does Ineos need onshore fracked gas?

Since its acquisition of the Grangemouth refinery and petrochemical plants in 2008, Ineos has benefitted from the largesse of the Westminster and Scottish governments. In December 2013 the company received at **£230 million** open-ended credit guarantee from the UK government backed

up with a **£9 million grant** from the Scottish government for a new jetty and 60,000 Cu metre cryogenic storage facility at Grangemouth. This development, completed in mid-2016 allows Ineos to import **Liquefied Natural Gas (LNG)** from dedicated bulk carriers. Ineos has commissioned a fleet of eight *Dragon class* LNG carriers each weighing in with a payload of **27,000 Cu metres**; these ships are currently the largest registered LNG bulk carriers in the world. The first Firth of Forth shipment was landed on 28th of September 2016 from the Ineos carrier *Ineos Intrepid*, which like the rest of the fleet has 'Shale Gas For Progress' emblazoned along its hull.

With some 300+ such crossings and off-loadings planned each year from what Ineos boasts to be a new 'Trans-Atlantic fracked gas pipeline', an annually delivered quantity of **8.1 million cubic metres** of LNG far exceeds the Grangemouth ethylene requirement. There is the prospect that around half of this load could go to the Ineos Norwegian plant at **Rafnes**- but as Ineos has recently acquired BP's onshore infrastructure as well as in 2014 obtaining full extraction rights from the offshore **Breagh** fields (with an annual output from 4 production platforms representing 10% of the entire UK domestic gas demand)- as well as a further 16 exploration licences, it seems unlikely that Ineos requires further UK gas resources to meet its needs.

Dirty gas

For its US shale gas supply Ineos has struck a long-term contract with the (mainly) Pennsylvania based company **Range Resources** who own considerable extraction licence blocks in the northern Appalachian region of West Pennsylvania. The fracked gas from the extraction platforms is transported via a 300 mile *Mariner East* dedicated pipeline to the *Marcus Hook* terminal near Philadelphia, and thereon via bulk carrier to Europe. Range Resources being fined from time to time for spillages and contamination. Indeed, last year the company was fined an almost record sum of **\$4.15 million** for the pollution and contamination of woodland and natural watercourses.

Shale gas galore?

In June 2013, the British Geological Survey in conjunction with the Oil and Gas Authority produced a third report on the status of shale gas reserves in the UK. The report

identified the Hodder-Bowland measures in the carboniferous series, which range intermittently from Sussex in the South through to the 'Midland Valley' (Central Belt) of Scotland. Unlike in parts of the US, the shale gas bearing strata in the UK tends to be thin, discontinuous and highly faulted. And unlike in the US where the gas (the Total Organic Content- TOC) in the seams might be as high as 7%, the UK seams tend to a TOC of less than 3%. Most gas bearing shales in the UK are deep at over an average depth of 2km.

US rates of extraction can be as high as 40% of gas in place; estimates for UK conditions put extraction levels as low as 10%. This means that at best, the UK shale gas resource is marginal compared with geological conditions obtaining in other regions. However, two factors over-rule these marked disadvantages. The UK government has ruled that shale gas extraction now constitutes a national energy security imperative, the negative economics case can be cancelled out through tax breaks and exploration and production subsidies. The other factor is the technical possibility of enhancing the extraction of low yield measures by adding more energy, pumping pressure, more water and more chemical solvents to release the reluctant gas. This adds negatively to the economics of extraction, but with a highly subsidised national energy security imperative, what the hell?

The Ineos gas empire

Ineos runs two separate operations. **Ineos Breagh** is a mainly offshore operation acquired after a Russian owned N Sea operation was forced out of business following EU sanctions on Russian over the Ukraine crisis. **Ineos Shale** is a UK onshore operation that oversees the company's licenced exploration and development blocks that cover over 1.2 million acres of the UK- with something like 1,200sq/km of that total in the Central Belt and the Solway areas of Scotland. Initially Ineos hedged its bets through joint venture bids with Delta and then more recently with the French gas major **Engie**. However in March 2017 Engie withdrew from the deal, selling its share to Ineos for an undisclosed sum. This also coincided with Ineos Shale announcing over **£1 billion** to be set aside for its forthcoming UK operations.

The Scottish government moratorium on shale gas fracking has been in place since late 2013 has not persuaded Ineos to relinquish its licenced blocks. Indeed the possession of a PEDL allows for a degree of surface geological survey work. ***If Ineos hangs on to its PEDL rights over swathes of open land there will be a long-term planning blight associated with areas ear-marked in perpetuity for industrial exploitation to the detriment of such land being restored to natural amenity.***

In England and Wales Ineos has quickly got to work at a site in North Derbyshire. At Eckington- a former mining village- borehole drilling to the depth of 2km began on 6th January 2017. The company has stated that with positive- but commercially confidential borehole results- a fracking licence for extraction would be a formality.

And there is every reason to expect that with a positive find in Derbyshire, Ineos will continue to agitate for the lifting of the Scottish moratorium.

Market factors

According to *Oil and Gas Price Insider* (14th July 2017) internationally traded natural gas prices were around \$2.99 per unit (MMbtu's). At the same time it was reported that the biggest natural gas exporters- Russia and Iran- were both setting up massive supply and storage/pipeline projects throughout Eurasia as well as flooding the market with LNG. World energy markets are awash with cheap gas- and gas that is set to remain cheap well into the next decade. US shale gas producers with far more favourable geological 'plays' are abandoning or mothballing reserves. This is in sharp contrast with the UK with significant unproven gas 'in place' but at TOC levels that by any reasonable standards are hopelessly uneconomic. The international Energy Agency estimated (Jan 2106) that the world traded gas price would have to rise to \$9.00 per unit for UK shale gas to break even.

In May 2017 a large LNG carrier was ordered to turn around mid-way through the Panama Canal and redirect its cargo to a European port. And for many energy analysts, this one event has been seen as the beginnings of a spot market in natural gas- and if the evidence with oil and coal is anything to go by, then such a development will only serve to act as a dampener on gas prices. It is within such a developing market environment of projected falling prices that UK shale gas at \$9 per unit will be expected to compete.

Finally

Whatever the economic inconsistencies of the case for UK shale gas, its future production would have to be measured by more than its market price. Tom Crotty of Ineos is quoted as saying that as much of Scotland's Central Belt has previously been extensively industrially exploited, its inhabitants will not feel uneasy with another period of environmental despoliation.

The crassness of such comments aside, the additional environmental downsides of shale gas fracking will be in the delay in Scotland developing a low or even zero carbon energy strategy and eschewing the regions massive and barely tapped renewable energy resources. That is a cost that Scotland can ill afford.

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