

Unlocking the Potential of Shale Gas in the UK Energy Mix

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The UK is continuing to edge closer to realising the potential of its domestic shale gas resources. In mid-December 2013, the UK government published a report, known as the Strategic Environmental Assessment for Further Onshore Oil and Gas Licensing (the "SEA"), as part of the UK's procedure for assessing the environmental effects of future onshore oil and gas licensing. The SEA was commissioned by the UK government and carried out in preparation for the next licensing round for onshore oil and gas exploration and production (being the 14th such round) in the UK under a "Draft Licensing Plan." Pursuant to the Draft Licensing Plan, the UK government is considering a total area of 100,000 square kilometres for future licensing. The SEA sets out the potential environmental and economic effects of further onshore oil and gas exploration and production activity in the UK, including shale oil and gas production, by comparing a "low activity" and a "high activity" scenario. The "high activity scenario" assumes that a considerable amount of shale gas (4.32 to 8.64 trillion cubic feet) would be produced during the 2020s; a level of production which would satisfy around 25% of the UK's estimated demand for natural gas for the decade. Under this scenario, up to 2,880 wells would be drilled each year and the SEA envisages "likely significant positive effects" for the economy, jobs and communities, with boons for both employment (an estimated 16,000-32,000 full-time jobs may be created, representing an increase of 3.5 to 7% in employment supported by the UK oil and gas sector) and local economies (which will benefit from initial contributions of £100,000 per fracking site and a further 1% of the revenue from each well over its lifetime, meaning a total of £1 billion could be paid out to local communities across the UK). The SEA envisages "likely significant negative effects" under the high activity scenario, though there are potential mitigants for each of these. The negative effects include:

- **Contribution to climate change.** However, if an increase in the UK's domestic natural gas supply acted as a substitute for imported LNG there would be a negligible effect on overall greenhouse gas emissions.
- **Increased production of wastewater.** The SEA highlighted "flowback" as generating up to 108 million cubic metres of wastewater that will require treatment. The SEA suggests that this additional volume could place a significant burden on existing wastewater treatment infrastructure but that this pressure would be reduced if onsite treatment and recycling is employed. The SEA also makes specific reference to the Memorandum of Understanding

signed in November between UK Onshore Operators Group and Water UK (which provides for co-operation between licence operators and the water industry throughout the fracking process), pursuant to which the SEA assumes that such co-operation will ensure that these effects will not be unacceptable in a local context.

- **Local community disturbance and health.** This could include an increase in traffic congestion, noise and air pollution, increased pressure on water resources, clearance of vegetation and loss of soils. However the SEA also notes that existing regulatory controls, including the planning system, should ensure that any adverse impacts are minimised. Under the high activity scenario, fracking would require 9 million cubic metres of water annually, which would increase the current water consumption of the energy, water and waste sectors combined by 18.5% but still account for less than 1% of total UK water consumption.

In contrast, under a "low activity scenario" only 180 to 380 wells would be drilled each year. In this scenario the SEA envisages that the positive effects would be reduced, with just 2,500 to 5,000 jobs being created, and that the negative effects would also be reduced, although the SEA highlights that up to 13.5 million cubic metres of wastewater from flowback would be created and this is still expected to have "significant negative effects." Other alternatives to the Draft Licensing Plan were also considered by the SEA, being scenarios under which (i) limited areas were licensed and (ii) no areas were licensed. The SEA found that the former is expected to reduce the magnitude of both positive and negative effects such that they would be insignificant in relation to existing oil and gas activities, and the latter is expected to have no effects on the environment, although the SEA notes that exploration and production activities would still take place as licences have already been granted under the 13th licensing round in 2008. The UK government has hailed the SEA as "the next step in unlocking the potential of shale gas in our energy mix" and industry reaction has generally been positive, with the report being described as "the biggest step in the right direction that we could have for the shale industry." Nonetheless, green groups and environmental campaigners were quick to highlight the negative impacts detailed in the SEA and point out that the Draft Licensing Plan does not exclude environmentally-sensitive areas. Although the 13th onshore licensing round in 2008 failed to generate high levels of interest, with only 55 licences being awarded out of a potential 182, the subsequent "shale boom" in the US and the acquisition of interests in onshore UK licences by a number of major players (in October GDF Suez acquired a 25% interest in 13 licences throughout the Bowland shale basin in Lancashire from Dart Energy, and in June Centrica acquired a 25% interest in a licence within the Bowland basin from Cuadrilla and AJ Lucas) may stimulate increased interest in the next onshore licensing round. This increased deal activity is concurrent with expressions of interest in UK shale from other majors, including Total. Accordingly, the UK's Energy Minister has stated that the government expects strong demand for the 14th onshore licensing round and to issue up to 150 licences, likely to occur in mid-2014. A public consultation with interested bodies is now taking place until 28 March 2014 to consider the findings of the SEA and how these affect shale gas production in the UK. The UK government has said that it will consider all responses to the SEA before any decision is made on further onshore licensing. After the consultation, the UK government will summarise the responses received and how these have been taken into account in making decisions relating to

future onshore licensing.