In recent years, the UK’s demand for energy has been rising while production has been falling due to depleting reserves in the North Sea fields. This has resulted in the UK becoming a net importer of fuel such as natural gas, with countries such as France, Russia (via Netherlands) and Middle Eastern states helping the UK meet demand through imports. In order to overcome this and become less reliant on outside sources for imports, the UK government is keen to develop the UK’s onshore gas industry.

From the unconventional hydrocarbons technologies available, shale gas extraction using hydraulic fracturing is proposed. The UK has four main areas where shale gas reserves are expected, which are the Bowland Shale Unit, Midland Valley, Weald Basin and the Welsh reserves. Out of these, the Bowland Shale has been elected as the preferred location for the proposed project. The main reasons for choosing this area are that the British Geological Survey estimate the Bowland Shale to contain up to 90% of the UK’s shale gas reserves, the area has had hydraulic fracking operations conducted within it by Cuadrilla Resources Ltd and they report that the initial explorations are promising; also the UK government are keen to promote the adoption of shale gas extraction and providing tax incentives to companies developing the industry. Although the Midland Valley in Scotland looked a promising candidate, the Scottish Government currently have a moratorium on fracking in place and therefore no projects will be approved until the consultation period has passed and the government make their decision.

The proposed site will be located in the north western corner of the Bowland Shale in the county of Lancashire. The area is well connected to major cities and towns such as Manchester, Liverpool and Preston for sourcing materials and labour for the construction phase. Regulation of the industry is rigorous and the proposed design has been chosen with these regulations in mind, to ensure the project gains the six permits necessary for operation. These permits ensure that the operation is carried out in a safe and environmentally conscious manner.

The specification chosen for the well is a single vertical well with four horizontal wells, this will give access to a potential 5.66 billion m3 of natural gas and with the current onshore gas technology; a recoverable volume of 1 billion m3 of natural gas. In order to ensure the safe operation of the well, current industry standards will be followed which includes ensuring that the construction of the well prevents possible contamination of groundwater sources, ensuring that surface activities reduce risk of contamination, following proper waste management procedures and monitoring seismicity at the well by following the traffic light system recommended by the Department for Energy & Climate Change.

The extracted gas will be treated on site before being shipped via a newly constructed 3km pipeline into the national transmission system operated by National Grid, in accordance with their connection requirements.

The construction of a shale gas exploitation site is likely to be inconvenient for the local population. Indeed, the construction of the site can quickly generate traffic jam and noise disturbance if it is to be in a high traffic and highly populated area. With the Bowland area presenting one of the lowest population rates for the whole of the UK, it seems to be a good location. Nevertheless, if the population were to be annoyed by the construction or the exploitation, different means would be implanted as explained in the environmental impact assessment.