

Shale and biomethane — do either represent the future of the gas industry?

At the 2017 Future Energy Scenarios event, it was speculated whether shale gas or biomethane will represent the future of the UK's gas supplies. Join [LPG storage tanks](#) supplier Flogas as they look at each of these sources of gas to find out just how they are being used currently, and if they indeed do have the potential to become the most used form of gas in the years to come...

The case for shale gas

Shale gas, and indeed the practice of hydraulic fracturing — or fracking as it's more commonly known — has been the topic of plenty of debate recently.

On one side, the UK government has argued that shale gas stands to deliver the nation with increased energy security, growth and jobs. However, there is a counter argument that the method for extracting shale gas — which involves water being injected into 'shale' rock formations at a high pressure to extract gas — runs the risk of having a ruinous impact on the environment. The process is also very expensive.

Critics have also pointed out that fracking is a technique that they believe needlessly prolongs fossil fuel use, heightens the risk of water being polluted, and has links to the number of earthquakes that take place.

Steve Mason, of cross-party pressure group Frack Free United, underlined: "This Tory government is backing fracking and forging on with a ludicrous dirty energy policy. It is time for them to wake up and listen to their own reports, the voice of the public in areas under threat and halt all fracking activity now."

The US is a case in point for those who back the production of shale gas in the UK. It wasn't too long ago that America was importing large amounts of oil and gas. That changed when the country discovered the effectiveness of extracting shale gas, with the nation is now self-sufficient and exporting gas.

The UK appears to be in a scenario not unlike the US before their shale gas boom, in that the nation imports over 50 per cent of the gas it requires from overseas sources. However, a report by the British Geology Society published in 2012 suggested that there is a resource estimate of around 1,327 trillion cubic feet found throughout the UK.

Ineos' CEO Jim Ratcliffe, whose company has licences to frack in the UK in an area measuring one million acres, was also keen to point out to The Guardian: "The future for manufacturing in the UK will look quite gloomy if we don't exploit shale. I can't see otherwise what is going to arrest the decline in British manufacturing."

The case for biomethane gas

Increasing the use of biomethane across the UK will put the nation in good stead to become greener. This is because the gas occurs naturally from the anaerobic digestion of organic matter, which can be sourced from manure, organic waste, sewage and both dead animal and plant matter.

Biomethane is also a sustainable method of sourcing gas that means those in the industry will not need to rely on extracting natural gas from the ground, as the two are the same type of gas.

Examples of success stories surrounding biomethane can already be seen throughout the UK. For instance, Severn Trent Water were successful in opening a facility at its Minworth Sewage Treatment Works in 2014, whereby biogas from the anaerobic digestion process is converted so that it can be used within the domestic gas supply.

The facility was the largest gas-to-grid plant found in the UK at the time of its opening, with 1,200 cubic metres of biogas able to be converted into 750 cubic metres of biomethane each hour. This biomethane can then be injected into the National Gas Grid.

Explaining the setup of the Minworth Sewage Treatment Works gas-to-grid plant, Severn Trent Water's renewable energy development manager told Water & Wastewater Treatment Online: "As part of the sewage treatment process, sewage sludge is produced. At Minworth we feed this to our 16 anaerobic digesters, or 'concrete cows', which work like giant cow's stomachs to digest the waste material to produce energy in the form of gas.

"Currently, we use 40 per cent of this energy to make electricity, but more can be done – that's where this new process comes in. With treatment, gas from sewage is made clean enough and at the right consistency to be injected into the gas supply network to power homes in the area. It's local gas produced from local people."

A year after the launch of the new Minworth Sewage Treatment Works gas-to-grid facility, well-known supermarket chain Sainsbury's made history by making its Cannock superstore the first to be powered entirely by the food waste created by the retailer.

Before the change to its Cannock store in 2015, Sainsbury's operated on the following principles based on its clear policy of zero operational waste to landfill:

- Any unsold food which was still suitable for human consumption would be given to charities.
- Any other unsold food was turned into animal feed.
- Any surplus unsold food was delivered to Biffa's advanced anaerobic digestion facility, located in Cannock.

When food is delivered to Biffa's advanced anaerobic digestion facility, it is broken down to create biomethane gas. This gas is then used to generate electricity.

However, Biffa and Sainsbury's realised that the Cannock superstore and the advanced anaerobic digestion facility were within close proximity. As a result, the two companies created and installed a 1.5km cable between the pair of buildings so that the plant can provide a direct supply of renewable electricity to the superstore.

Although around £280,000 of investment was required for the project to be completed — a cost covering the setup of power cables, switch gears and the covering of all legal fees — Sainsbury's estimated that it had the potential to save in the region of £140,000 in just one year due to relying less on the National Grid for day-to-day power supplies.

Statistics like these only go to highlight the potential that biomethane can have if used more throughout the UK.

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