

Biomethane: A cost-effective path to a green gas grid

Great Britain’s gas grid plays an important role in powering homes and businesses. But to meet net zero targets by 2050, we need to consider strategies to help decarbonise it.

Biomethane is one such solution. It holds immense promise as a cost-effective and environmentally friendly solution for decarbonising our gas supply, paving the way for a sustainable energy future.

Biomethane explained

Biomethane is a clean and adaptable fuel, created through anaerobic digestion. This natural process breaks down organic materials like food scraps, agricultural waste and sewage in the absence of oxygen, and produces biogas. This biogas is then purified to create biomethane.

Because biomethane has the same chemical makeup as natural gas, it can be seamlessly integrated into the current gas network.

This is where biomethane’s cost advantages become clear.



Did you know?



The Anaerobic Digestion and Biore-sources Association projects the UK could generate 5.7 billion m3/year of biomethane by 2030 - enough to heat **4.5 million homes**.

3 ways biomethane drives energy efficiency



Instant impact with easy integration

Thanks to its chemical equivalence to natural gas, biomethane can be effortlessly injected into Great Britain’s gas network. This avoids expensive infrastructure changes, with no requirements to lay new pipelines or modify existing ones. Instead, biomethane can be directly introduced into the current network, offering a cost-effective and efficient way to decarbonise natural gas, without disrupting services to homes and businesses.



Tackles waste, reduces emissions

Biomethane production tackles two key challenges: waste and emissions. By using organic waste that would otherwise end up in landfills, it reduces landfill costs and environmental impact. Simultaneously, it significantly cuts greenhouse gas emissions compared to natural gas, helping meet emission reduction targets. Crucially, it potentially also generates financial benefits for businesses, through carbon credits or by avoiding carbon taxes.



Empowers new economic opportunities

On this front, biomethane delivers a triple benefit. Firstly, it creates rural employment in feedstock management, plant operations and other related fields, while integrating with sustainable agriculture. Secondly, it generates new income from organic matter, for businesses like waste management and food processing. Thirdly, it enhances energy independence, with domestically produced biomethane reducing the reliance on fossil fuel imports.

Comparing costs: biomethane vs. other options

While there are various routes to decarbonise Great Britain’s gas network, biomethane stands out for its economic viability. Compared to other low-carbon alternatives like hydrogen, biomethane offers a more accessible and affordable solution.

Hydrogen production - especially green hydrogen from renewable electricity - is still in its early stages, and faces significant cost hurdles.

These include:



Scaling up production



Developing distribution infrastructure



Addressing storage challenges



For now, all these contribute to hydrogen’s higher costs. And while the fuel holds long-term potential, its widespread adoption faces economic obstacles that biomethane largely bypasses.

In contrast, biomethane embraces existing infrastructure and proven technology. Anaerobic digestion is an established process, enabling direct injection into the current gas grid and avoiding costly upgrades. Using readily available organic waste as feedstock also offers significant cost savings when compared with alternatives like hydrogen, which often require dedicated fuel sources.

A Solution for Today

Biomethane provides a cost-effective and practical option that’s, crucially, readily available today. While other technologies will play a critical role in Great Britain’s decarbonisation journey, biomethane’s lower production costs and ease of integration mean it can reduce the gas network’s environmental impact - both immediately and significantly.

With the help of biomethane, we can advance climate goals without placing undue burden on consumers and businesses.

