British biogas can cushion gas supply issue in the wake of the War in Iran

Summary

As the war in Iran continues to impact global oil, gas and fertiliser prices, British biogas production - particularly of purified biomethane which is a near substitute for fossil gas - has the potential to cushion the impact on living standards and jobs this winter. British output could rise quickly by nearly a third without any time-consuming investment before peak winter gas demand. Further out, biomethane can also protect us ahead of future shocks in the winter of 2026/2027 if we accelerate building biogas plants. Though our thoughts are with the tragic loss of life across the region, policymakers at home are now turning to the war's potential impact on both energy costs and security of supply. Decisions taken in the next few weeks will determine next winter's comfort.

Context

The UK still produces roughly a third of its gas needs from the UK North Sea. However, the gradual decline of these gas fields means that we now rely on international Liquified Natural Gas (LNG) imports to meet demand, especially during the winter months.

Although the UK has dramatically reduced its reliance on Qatari gas that arrives through the Straits of Hormuz, we are not insulated from the impact of world gas prices. Additionally, presenting a risk to UK gas supply, LNG carriers destined for UK terminals can be easily re-routed to the markets of the highest bidders, whether Asia or Europe[1].

The Straits may remain closed for a prolonged period, leading to a sustained hike in global gas prices where the impact is likely to be even more severe than on oil prices. Saudi Arabia has a east-west pipeline that can probably export 70 per cent of its normal crude oil exports via a Red Sea terminal. However, there is no such workaround for Qatari gas, and shipowners and insurers are likely to take fewer risks as LNG carriers are three times as expensive as crude oil tankers due to their super-cooling technology.

The UK imports 453 Twh in 2024, of which three quarters came via pipeline from Norwegian fields in the North Sea. The remainder was mainly taken in the form of LNG imports from the USA (17 per cent) and Qatar (1.9 per cent). Taking account of exports of gas by pipeline (notably to Ireland), imports net of exports - net imports - amounted to 335 Twh or a little less than half of total gas consumption.

As we head into spring, gas demand will drop and we will have a chance to replenish our gas stores. However, the UK's only gas storage either involves compression in the gas grid or in the Rough storage facility, an old natural gas field off the coast of Hull. With overall gas storage capacity much lower than similar European countries, the UK would be wise to invest in more gas storage.

The role of biomethane

British-made biomethane can play an increasing role in assuring security of supply. Currently UK biomethane accounts for roughly 7 Twh of gas in the UK gas grid, supplying the equivalent of approximately a million homes. With key policy actions, including minor secondary legislation, this could grow rapidly with little to no impact on public finances and government budgets. We believe that we could ramp up British biomethane production grow to 9 Twh within months, increasing gas security for a hundreds of thousands of homes.

Most importantly, policymakers must not repeat the mistakes made by government in 2022, which ignored biogas as a potential source of secure energy, failing even to mention it in its white paper. By contrast, the EU made biogas and biomethane one of the

[1] There have already been international arbitration cases won by BP and Shell which claimed that their contracted supply was diverted by the US Calcasieu Pass LNG export facility to the spot market during the Russian 2022 crisis.

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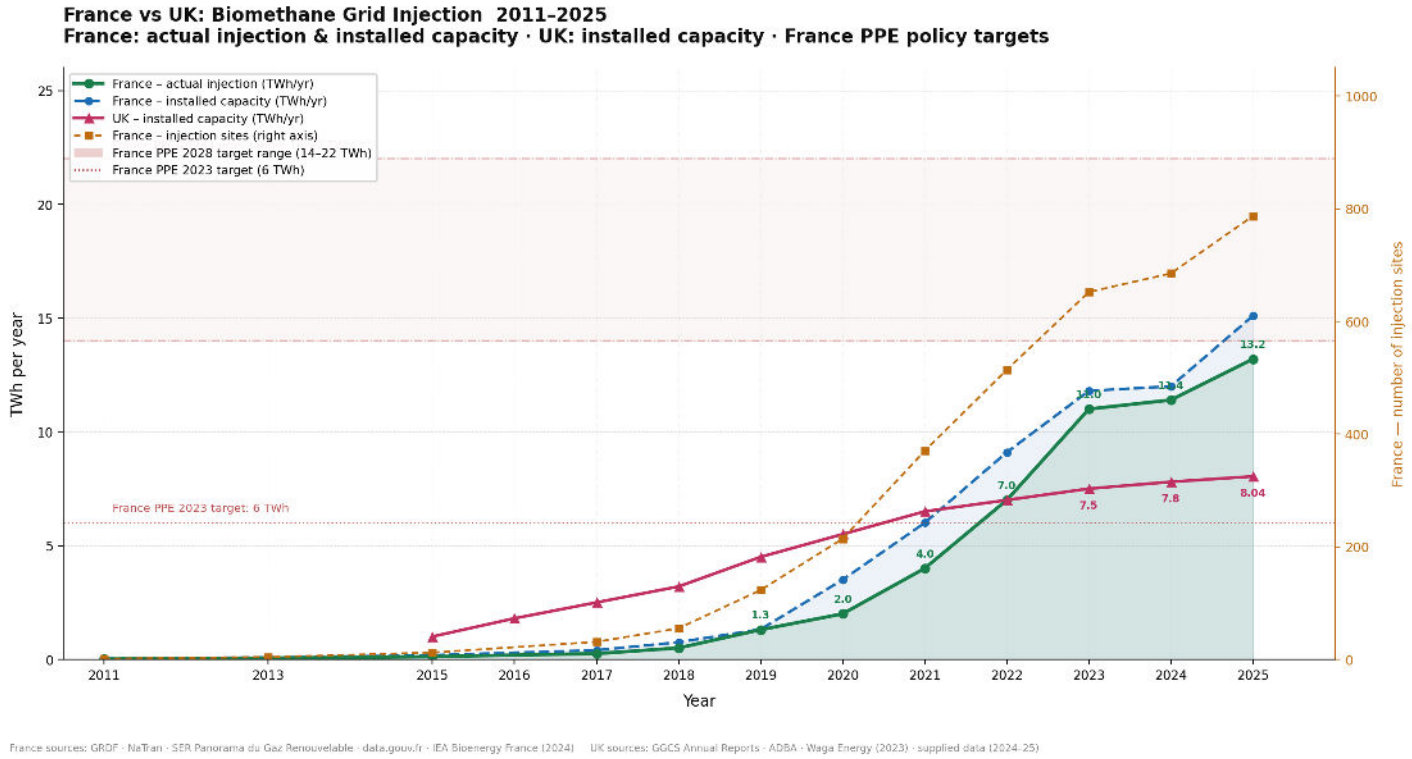
three key pillars of its response to the Russian gas crisis, along with energy saving and diversified LNG gas imports. Denmark now meets 40 per cent of its overall gas demand from biomethane, and even France, with its exceptionally high nuclear power output, has accelerated biomethane output dramatically.

The graph below shows that France's 20 per cent a year growth rates for the sector saw output overtake the UK, and head on much higher.



A short-term ramp up would have a significant impact in reducing imports. With a 2 TWh increase in output, the current biomethane sector would displace all the imports recorded from Qatar by the official figures in 2024[2].

Looking further ahead than this winter, biomethane can reach 120TWh by 2050[3], which would be nearly half of likely gas demand and almost a full replacement for current total LNG imports – helping to further isolate British businesses and consumers from international supply and price shocks.

To give a sense of the potential, this amount of feedstock would make the biomethane sector a more important contributor to British energy than nuclear power.

There is also a potential benefit from using the co-product of the biomethane process, which is bio-fertiliser. Given the very high recent prices for synthetic fertiliser – mainly made from natural gas – bio-fertiliser from biogas plants could underpin and secure the economics of British farming – a full separate briefing on the sectors potential to support farmers can be found here.

[2] The Qatari imports were 1.9 per cent of 453 TWh of imports in 2024, according to the Government's DUKES publication.

[3] This is the key result of an Alder Bioinsights study of the potential feedstocks including food waste (from homes, supermarkets and restaurants; food and drink industry waste and co-products such as distillery mash from whisky-making); wastewater effluent; manures and slurries from livestock farming and crops grown to replenish soil nutrients in rotations of farmland.

Policy action needed to boost output this year

Problem: Support Schemes Limit production

Explanation: *Currently, the UK biomethane market is supported mostly by the Green Gas Support Scheme (GGSS). Unfortunately, this support schemes limit the amount of injection possible from each green gas site. This results in a perverse situation where some producers find it more profitable to dial back production.*

Policy Action needed: *Remove production caps from the Green Gas Support Scheme (GGSS) and expand production, maximizing gas production. Fix payments to biomethane plants at pre-crisis north sea gas prices plus the GGSS tier 1 tariff (linked to inflation) for 2 years.*

Explanation: *With costs of LNG becoming comparable with tier 1 GGSS costs, if we can increase production with little cost to the treasury, we would be able to increase UK based green gas production, not only beginning to insulate our energy market but keeping our energy investment in the UK.*

This would require a simple ministerial decision through a statutory Instrument.

This is the key change to unlock increased production up to 2 TWh.

Problem: gas injection agreements limits

Explanation: currently, gas injection agreements limit the amount of gas that producers can inject, even if there is potential for more capacity in the local network. This is to ensure that there is room for LNG when injected into the grid at ports around the UK or from the North Sea.

Policy Action needed: Remove unnecessary caps on gas injection agreements allowing injection to the maximum safe level possible in the local area.

Explanation: Removal of these caps will ensure that UK Green Gas production is put at the front of the queue and that it is prioritized In front of foreign exports. This will support the businesses investing in UK Green Gas production and their entire supply chain, including those who will feel the impact of the ongoing crisis the hardest.

Problem: Gas Grid has limited capacity at lower pressures

Explanation: Currently the UK gas grid only allows gas to travel in one direction, from injection at high pressure to consumers at a lower pressure. Some biomethane plants are on the medium pressure gas grid, limiting the amount they can inject into to the grid to what can be absorbed by local demand.

Policy Action needed: Invest in pumps to push green gas into the whole grid known as “reverse compression”

Explanation: Investment in reverse compression will allow the maximum injection of green gas by tactically reversing the flow of gas, recompressing it into the medium pressure gas grid, and allowing for more storage capacity across the grid. It could even include recompressing into the National Gas Transmission (NTS) network allowing for vast storage and transportation across the UK.

Problem: Planning and permitting wait times

Explanation: Currently, all anaerobic digestion and related green gas infrastructure is considered under local planning procedures despite its importance to national energy security. However, bigger proposed plants may be able to apply to be considered under the Nationally Significant Infrastructure Projects regime.

This currently results in long delays in local planning processes due to extensive consultations, reports from consultancies and often multiple appeals and reviews as local councils with active nimby (not in my back yard) groups re-open long-settled issues such as whether biogas reduces climate emissions. This can see delays of more than 3 years in some cases. In contrast, NSIP processes usually last 18months at most.

Policy Action needed: Bring large biomethane plants into NSIP regime and Issue Ministry guidance to local councils planning teams explaining the public benefits of safe, well-planned plants.

Explanation: Plants need to be built quickly and safely, but the current planning regime costs investors lots of time and lots of money to get through as they often have to repeat over and over again arguments already won elsewhere. This is only slowing down our potential to absorb international gas price shocks, it is also limiting our potential to hit net zero and greenhouse gas removal targets.

Problem: Biomethane injected to grid is required to have propane - a fossil gas added into the mix

Explanation: Under the Gas Safety (Management) Regulations 1996, biomethane injected into the gas grid must have propane added to increase its calorific value. This requirement is based on outdated assumptions about gas composition and grid operation. In practice, once biomethane is blended with natural gas in the wider network, the overall calorific value remains within acceptable limits and end users experience no difference in performance or cost. No other European country insists on added propane.

This requirement therefore creates an unnecessary barrier to biomethane deployment. It increases operational costs for producers and can constrain the amount of gas that can be injected into the grid. With ongoing geopolitical tensions in the Middle East placing pressure on global gas markets, propane prices are also likely to rise, further increasing costs for producers.

Policy Action needed: Remove the requirement to propanate biomethane injection

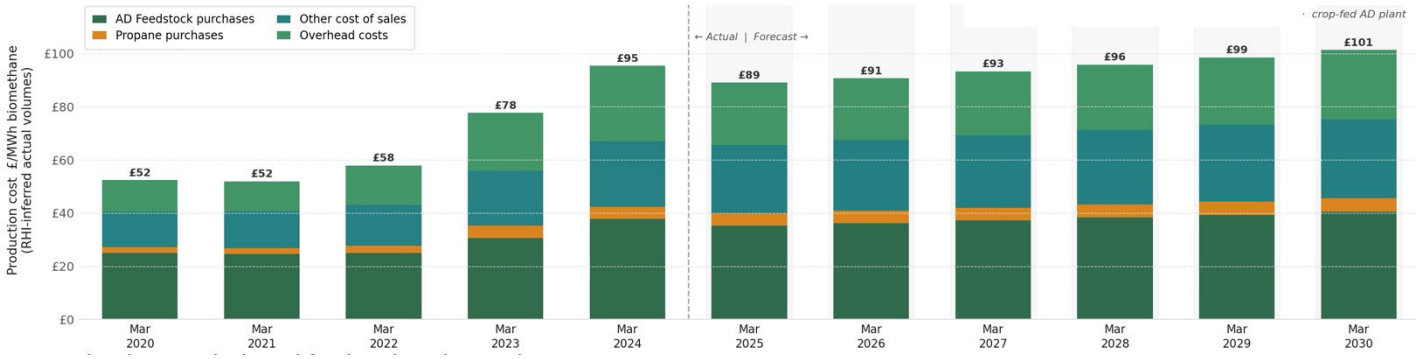
Explanation: Removing the mandatory propanation requirement would eliminate a counter-productive regulatory barrier that slows grid connections and limits injection capacity. Reforming this rule would reduce operational costs for biomethane producers, improve the economics of projects, and allow producers to maximise biomethane output into the gas grid while maintaining safe and reliable network operation.

Economics: costs and prices

During the last gas crisis sparked by the Russian invasion of Ukraine in 2022, the Treasury was forced to underwrite consumer bills in order to shield the impact on living standards. Although some consumer support may still ultimately be necessary during this crisis, encouraging UK biomethane output would retain spending within the UK instead of boosting foreign producers and subsidising their energy prices and therefore preserve employment and UK tax revenue.

It is important to note that any increased exchequer cost from extending the Green Gas Support Scheme to maximise domestic biomethane output would be offset by savings from abolishing propanation - in line with European countries. Operational prices for

biomethane are pushed up by the requirement to purchase propane, which adds £5/MWh to biomethane costs. With the gas crisis this is likely to rise more as it is linked to natural gas production.

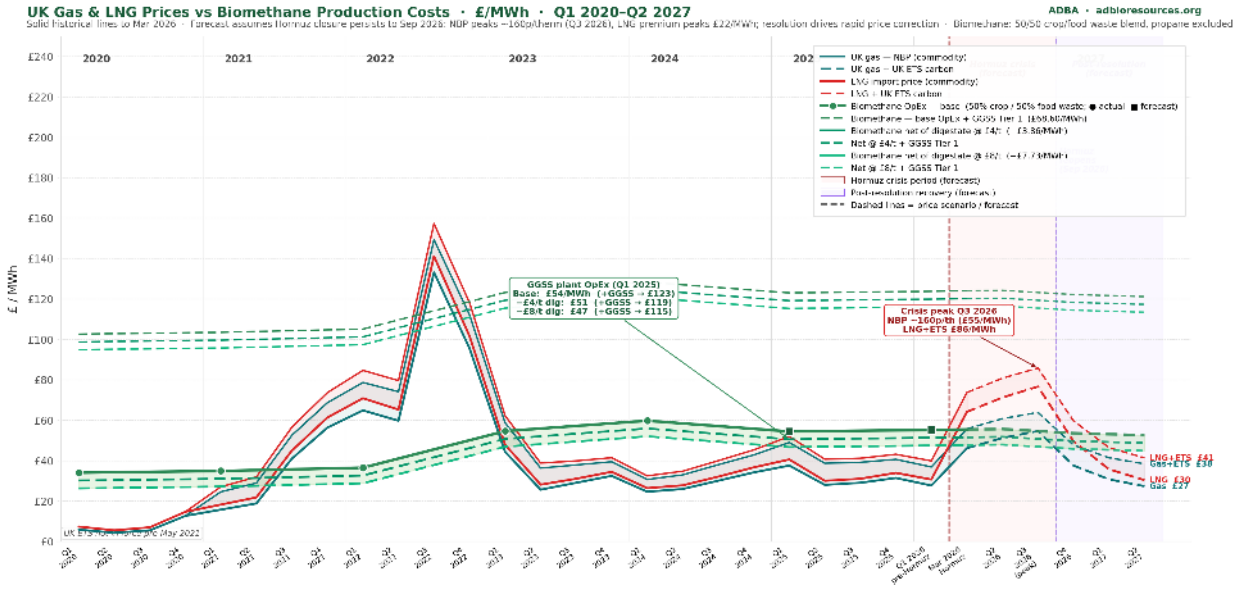


Biomethane is currently competitive with imported natural gas costs, with the Green Gas Support Scheme (GGSS) tariff covering the capital investment costs spread over 15 years. Removing the cap on GGSS and - in particular on the low output Tier 1 tariff - would sharply increase output and help to stabilise UK gas prices and ensure that there is a no radical price shock, it would also reduce the impact on gas buyers, who pay the gas price not the tariff and so reduce the impact on consumer bills. Enable the raising of the RHI injection ceiling to support the expansion of volumes from existing RHI plants without needing equipment changes.

The use of GGSS to support higher biomethane output will ensure that there is no extra cost to the UK, as the extra domestic output would automatically displace around £600m of LNG imports. The GGSS expenditure is almost identical to the LNG import costs but is retained in the UK economy, supporting jobs and tax revenue.

Additionally, if the Government supported the use of bio-fertiliser produced as a co-product of the green process, the additional revenue would allow a further reduction in official support without compromising the growth of the sector. A price comparable to £350/tonne of nitrogen could reduce the cost of biomethane by £4/MWh.

The same considerations apply to the UK Emissions Trading Scheme, which currently treats biomethane as if it were fossil gas, an anomaly that the Government has admitted it wrong but has yet to remedy. Fair ETS inclusion would resolve the £10/MWh disadvantage UK biomethane has relative to fossil gas.



Speed of delivery

A new biomethane plant can go from planning to gas grid injection far more quickly than any alternative way of increasing UK gas supply. For a plant using food waste, the period from planning to injection is just 18–24 months. For a plant fed by agricultural rotation and sequential crops on rotation, the time taken is between 24–36 months. Even if the government fast-tracked a new North Sea gas discovery today, it would not produce a single molecule of gas until the early 2030s at the earliest — and that assumes no legal challenges, which currently add at least another year to consenting following the Finch ruling on Rosebank.

The existing fleet of permitted-but-uncapped biomethane plants could be injecting gas within weeks of an emergency GGSS budget cap removal.

A new gas field in the best case would cost around £14/MWh in CAPEX (more than GGSS) and cost £1-2bn to build depending on depth of sea and complexity. A large biomethane plant can be built in ½ the time, Moreover, it is a distributed localised asset and costs £20-40m, so can expand faster than North Sea gas and spread its benefits more widely in the local economy.

Explanatory note: biomethane

Biomethane is a produced by upgrading biogas produced from anaerobic digestion – which works by breaking down organic matter such as farm and food waste, and crops grown for energy. This biomethane is molecularly identical to the natural gas running through our pipes but is a carbon neutral (sometimes even negative).

Biomethane can decarbonise our gas supply, reducing the need for consumer led industrial and household transformation to green power. By 2050 it could make up more than 70% of predicted UK gas demand.

Biomethane offers a chance to use the UK's world class gas infrastructure to meet our net zero targets.

About the UK biogas sector

There are currently over 750 biogas plants operational in the UK. The entire industry digests approximately 36 million tonnes of organic material each year - organic material that would otherwise emit greenhouse gases including highly potent methane, if left untreated in landfill.

Fully deployed, by 2050, the UK AD and biogas industry is expected to:

- Produce over 120TWh of biomethane
- Provide around 50% of predicted UK gas demand
- Create 30,000 direct and 30,000 indirect jobs.
- Save the UK 27 million tonnes of CO2, equivalent to taking 1/3rd of all cars off the road
- heat 6.8 million UK homes with the 8 billion m3 of biomethane generated

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