Written evidence submitted by The Green Gas Taskforce (MAN0042)

Managing the future of UK oil and gas: The role for biomethane in the GB energy system

The Green Gas Taskforce is a campaign group representing the 14 largest biomethane generators, shippers and traders in GB, as well as all of the GB gas networks and key sector groups. The Taskforce is campaigning to increase the profile of green gas and improve the policy environment in order to unlock growth in the sector. We welcome the opportunity to submit evidence to the ESNZ committee call for evidence on *Managing the Future of UK oil and gas.*

Summary

Biomethane is renewable, low carbon methane (CH_4) produced from feedstocks including agricultural residues and distillery waste. Today, there are 130 biomethane plants with over 11 TWh in generation capacity. Greater biomethane plant deployment offers a huge opportunity to decarbonsise a range of end users seamlessly, driving capital into the rural heartlands of the country and providing a stable revenue stream for British Famers. Greater biomethane generation also means reductions in pollution to air and water. The Taskforce has commissioned a series of reports which have shown that biomethane can meet a large share of future gas demand, deliver around £174bn in Net Zero cost savings, achieve the lowest cost means of removing CO_2 from the atmosphere and reduce the UK's reliance on natural gas imports.

Question 2: How can the UK continue to make best use of its oil and gas infrastructure as an asset while delivering the transition

As the UK transitions to a low carbon economy, the assets in place will remain essential to unlock the growth of biomethane and other low carbon gases, as well as to deliver net negative emissions.

The Green Gas Taskforce commissioned Baringa[1] to assess the onsite opportunities for cost reduction from biomethane generation and to assess the macroeconomic implications from the greater use of green gas.

This analysis concluded that the optimal means of reducing the cost of biomethane generation was three fold:

- Larger plants have lower generation costs
- Valorising the byproducts of biomethane (bio CO_2, which can be used across a variety of sectors including food production, and digestate, which can be used as a low carbon form of fertiliser) would reduce the cost of gas generation
- Removing or reducing the need for enrichment in order to meet grid injected gas quality grid specifications

The macroeconomic analysis concluded that achieving greater levels of green gas generation would deliver a reduction on the cost of the Net Zero transition of between £156bn and £218bn,

[1] https://greengastaskforce.co.uk/wp-content/uploads/2025/10/Cadent-GGT_Biomethane_Study.pdf

with a central forecast of £174bn. For context, the OBR forecast the net cost of Net Zero to be around £800bn.

The cost savings are the result of two factors. Firstly, the value of green gas is high compared to the much more expensive options envisaging almost total electrification of our energy demand and secondly because biomethane offers not only a gaseous fuel but the opportunity to deliver net negative carbon emissions by capturing bio-CO_2 during the generation process.

It will not be possible to deliver this level of cost reduction without the existence of an expansive gas grid.

The Taskforce commissioned expert consultancy GHD to assess the opportunity to deliver Greenhouse Gas Removals (GGRs) from biomethane. Biomethane offers a unique double chance for greenhouse gas removals, firstly from the biogas to biomethane upgrading process where a pure stream of bio CO_2 is produced and captured and secondly where biomethane burned in power stations is captured. **The analysis from GHD concluded that biomethane GGRs alone could meet and exceed the 7th carbon budget's greenhouse gas removal requirements.** Delivering these levels of greenhouse gas removals takes the pressure off more expensive forms of decarbonisation. **In essence, biomethane GGRs is one of the cheapest means of putting the net in net zero.**

It will not be possible to deliver negative emissions from biomethane without access to offshore CCUS infrastructure.

Question 3: How can the UK ensure that critical services that currently rely on a reliable fuel supply chain can transition to low carbon alternatives without any disruption?

Biomethane is a renewable low carbon gas, and therefore increases in its generation will reduce the UK's significant reliance on natural gas imports, which are set to hit at least 70% by 2030. Boosting domestic biomethane generation will improve our energy security. Biomethane also offers the opportunity to decarbonise a broad range of end users, to include power generation, home heating, industry and transport.

On power generation, biomethane is a drop in fuel which can be used in existing gas fired power stations to deliver low carbon dispatchable electricity generation. The research from Alder BioInsights concluded that up to 50 TWh of low carbon biomethane could be generated in 2030, which if utilised in gas fired power stations could deliver around 28 TWh of low carbon power to households and businesses, helping to meet the UK's clean power 2030 target. For context, solar power generation in 2024 was 14.8 TWh. Gas is and will continue to be essential in keeping the lights on.

For transport, there is a great opportunity for biomethane to decarbonise Heavy Goods Vehicles (HGVs). The taskforce commissioned the Low Carbon Truck Consultancy to assess the opportunities from the greater use of biomethane in HGVs[2]. This analysis concluded that biomethane could be used to fuel and decarbonise 50% of the 44 tonne market by 2050 (80,000

[2] https://greengastaskforce.co.uk/wp-content/uploads/2025/10/Biomethane_in_HGVs_report.pdf

vehicles). Doing so would deliver up to 206 million tonnes CO_2e of emissions savings by 2050 and has a lower lifecycle cost of ownership than diesel vehicles – meaning clear economic and environmental benefits. Today there are around 3250 biomethane HGVs on the road with around 40 refuelling stations which are not constrained by capacity to deliver an energy dense fuel to customers. Fuelling 80,000 HGV vehicles in 2050 would require around 40 TWh of biomethane, compared to the 120 TWh of generation potential by 2050. If 25% of the 2050 44 tonne HGV market is fuelled by biomethane, that would require less than 20 TWh.

On industry, there is a huge opportunity for biomethane to decarbonise recognised gas demand in industrial processes, especially those which require high grade heat. A case study of this is the deal between Future Biogas and Astra Zeneca[3]. Astra Zeneca decided to reduce its emissions firstly by reducing its energy demand and secondly by electrifying where possible, and in this process they concluded there would still be a requirement for gas. Astra Zeneca's R&D and manufacturing gas demand is now decarbonised via the use of domestically produced biomethane.

For home heating, today 84% of GB homes heat with natural gas. There is a recognised need to decarbonise these emissions, which account for approximately 15% of 2024 greenhouse gas emissions. There is sufficient biomethane generation capacity in GB to heat and decarbonise 1 million homes, around twice the number of homes heated with heat pumps. The Taskforce is not making the case that biomethane can be scaled up to meet all of existing home heating gas demand, however there is a great opportunity for hybrid heating systems. A study by Intergas, appended to this submission, concluded that the use of a heat pump and gas boiler (a hybrid heating system) would reduce gas demand and therefore emissions by 75% compared to sole gas boiler use, and would deliver the equivalent of £650 in savings per year.

Biomethane, a renewable low carbon methane gas, can be integrated seamlessly into existing infrastructure with little to no changes or upgrading required. Biomethane is already injected into the existing GB gas grid and can be used in power stations, homes and factories without any changes. This compares favourably to other options which can come with significant disruption or assume significant behavioural change on the part of the consumer.

Modelling by other groups such as the CCC must predict major changes in the ways consumers behave and consume energy which is exceptionally challenging. Maxing out biomethane generation de-risks this modelling to an extend if it later transpires that consumers are not changing in the ways presumed by groups such as the CCC. Consumers priority in home heating is being able to have a choice about the solution that is right for them[4], and biomethane as a drop in fuel allows households that option. It is of relevance that the existing uptake by consumers of heat pumps is far below that forecast on the pathways which would keep full electrification on track, and it is also the case that the households which do install heat pumps are disproportionately wealthier than those who do not.

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[3] https://www.futurebiogas.com/about/content-hub/news/future-biogas-and-astrazeneca-bring-the-uk-s-first-unsubsidised-biomethane-plant-online/

[4] https://cadentgas.com/getmedia/8edd50f8-39ac-4c02-8bf7-9fcbb69cc9de/Savanta-Cadent-Consumer-Choice.pdf

Question 4. What does the Government need to do to ensure that the transition from oil and gas does not simply de-industrialise areas and damage the communities that currently benefit from the fossil fuel industry?

As the UK transitions to a low carbon economy, there is an increased risk of offshoring of industry, and resulting 'carbon leakage'. There are only two ways of reducing the risk of this occurring;

- Ensure that energy vectors available to industry are the least cost from an OPEX and CAPEX perspective
- Introduce protections to ensure that the UK competes on a level playing field, such as Carbon Border Adjustment Mechanisms.

Question 5. How should the UK manage a declining domestic market in gas, including how the gas infrastructure can be partially, or completely, decommissioned without putting a burden on a shrinking number of customers?

The work of the Taskforce strongly challenges any assumptions that the UK gas grid should and will be decommissioned, not least because evidence shows that a pathway with more green gas transported via the GB gas grid is a cheaper alternative to achieving net zero than that proposed by the CCC.

The Taskforce and its partners are engaging with government and stakeholders to demonstrate the evidence base we have built up which showcases the opportunity from biomethane. A report commissioned by the Green Gas Taskforce produced by expert consultancy Alder BioInsights concluded that:

- There is sufficient sustainable feedstock in GB to generate 120 TWh of biomethane by 2050[5] - this is a four fold increase over existing DESNZ forecasts for 2050 and a ten-fold increase from existing generation capacity.
- Modelling conducted by NESO[6], which showed that biomethane can meet 38% of GB primary gas demand by 2050.
- The expansion of the domestic biomethane industry will provide a stable and reliable income stream for farmers over a 15+ year period, while also delivering significant reductions in agricultural emissions.
- The utilisation of waste feedstocks and rotational crops for biomethane will reduce agricultural pollution to air and water, improve soil health, and provide energy security.
- The modelled scenario for cropland does not have a negative impact on food production, and could help increase food yields. By increasing land utilisation rates over a 5 year period, the landbank would be 20% more productive because of the integration of rotational and sequential crops, delivering both food and energy security.
- The GB gas grid is an essential enabler of the growth of biomethane, as it makes a broad range of feedstocks from all across farms in GB accessible and economically viable.

[5] https://greengastaskforce.co.uk/wp-content/uploads/2025/09/GGT-Unlocking-the-Potential-of-Biomethane.pdf
[6] https://www.neso.energy/document/364541/download

The CCC's 7th carbon budget did not model any material growth in the GB generation of biomethane out to 2050. This is inconsistent with research commissioned by the taskforce as well as the modelling conducted by NESO[7], which showed that biomethane can meet 38% of GB primary gas demand by 2050. Whilst we are not able to say with certainty as to why the CCC have excluded biomethane from its modelling, it is likely linked to comments the CCC have made about the uncertain future of the gas grid and historic government underestimates around feedstock availability.

Policy Asks

- Government should set a national target for biomethane generation in 2030 and 2050
- ESNZ committee examine the steps that DEFRA can take to unlock greater biomethane generation in GB, with particular reference to the integration of new revenue streams driven by green gas into agricultural systems.
- Biomethane is zero rated on the ETS, recognising its low carbon credentials.
- The bi-products of biomethane generation are recognised and valorised; Bio-CO_2 and renewable fertiliser. In both instances, DEFRA has policy responsibility for schemes that could drive the uptake of lower carbon products, such as obligations on the use of biogenic CO2 in manufacturing and mandates on the use of a proportion of fertiliser supply being from renewable sources.

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[7] https://www.neso.energy/document/364541/download