Department for Energy Security and Net Zero's call for evidence on future policy framework for biomethane production

25 April 2024

Summary

- The logistics sector must be considered an important end-use for biomethane in the transition to net zero and the framework must recognise this.
- Biomethane provides 80% (with and without ILUC) GHG savings on average when used as a fuel, and depending on the feedstocks used, can reach 92% (excluding LUC).
- Proposed changes to Greenhouse Gas Protocol (GGP) reporting must be halted to avoid removing the key benefit of running biomethane HGVs.
- The fixed fuel duty differential vs diesel, currently fixed to 2032, should be extended to maximise market certainty and confidence in biomethane.
- The logistics industry needs sites to be located where the highest demand is. For example, at depots or close to logistics hubs.

About Logistics UK

Logistics UK is one of the country's largest business groups, representing the entire logistics industry and supporting, shaping and standing up for safe and efficient logistics. Our membership of more than 20,000 includes global, national and regional businesses and SMEs spanning road, rail, inland waterways, sea and air as well as the buyers of freight services, such as retailers and manufacturers. As an organisation, we deliver services, representation and thought leadership, helping members and policy makers to seize new opportunities for the sector and the economy as a whole, right across the country.

What we represent

Logistics is a sector delivering an increasingly safe, sustainable and efficient system of national infrastructure – creating opportunities across the UK and linking the UK to the global trade network. Spanning land, water and air, it delivers for everyone, everywhere, every day.

- Logistics delivers big public value on small margins, ensuring the availability of the products households, businesses and public services rely on. It moves goods more than 200 billion tonne-km within the UK per year and enables the trade of more than £1 trillion of goods, while working hard to avoid adding pressure to the cost of living. This is a challenge with fuel and energy costs at a historic high and restrictions on logistics growing.
- The sector delivers smart, green, resilient growth and jobs. It contributes £163 billion to the economy each year (12% of UK non-financial GVA), employs 2.7 million people (8.2% of the UK workforce), pays £5 billion in revenue to Treasury through Vehicle Excise Duty (VED) and Fuel Duty, in addition to other taxes. It is becoming ever more innovative and integrated – within businesses and between logistics sites and transport modes. Its key hubs provide a catalyst for further growth and investment, helping places to thrive.

- Logistics delivers for the future, as an essential system for growth. It underpins the whole economy, with an economic footprint three times larger than its direct GVA contribution, with the public sector and other private sector businesses spending 15% of their total input-related spending on logistics services per year.

Consultation response

Chapter 1: Design and scope of a new framework

1. a) Do you agree with the principles as a basis on which to develop the policy framework? b) Are there any crucial factors missing?
Logistics UK agrees with the principles as a basis on which to develop the policy framework. The principle around sustainability is critical. We particularly support incentivisation around a life cycle assessment of carbon savings. This is important when it comes to road transport and greenhouse gas (GHG) emissions savings as part of the overarching picture.

2. Are there any other important current or future barriers to market growth not mentioned in Chapter 1 and what actions could the government or industry take to address them? Please provide supporting evidence, including any that highlights the scale of the impact.
Logistics UK agrees with the listed barriers to an improved investment environment.

It is important to add from a freight perspective that some logistics operators may choose not to bunker their fuel or are unable to due to site restrictions, such as environmental, landlord, and planning permissions. From a consumer perspective, confidence in supply and grid capacity is therefore very important and the framework should provide clarity on public infrastructure development to enable all potential consumers to have the option to benefit from biomethane.

Members are also deeply concerned that the business case for gas trucks is highly dependent on the fixed fuel duty differential vs diesel. This is currently fixed to 2032, and members believe there is a strong case to extend it further. With greater certainty on this, it could help provide better confidence in the industry and therefore lead to greater use and increased market growth.

Consumers of biomethane are influenced by the market price of renewable transport fuel certificates (RTFCs) and there is a need for clarity on whether these are going to be decoupled between biomethane the biodiesel market moving forward. Having this market certainty, would be commercially beneficial for transport operators. There must be measures in place to ensure the biomethane market is not a false economy. For logistics operators using biomethane to decarbonise, it would enable better predictability to be able to trade in the standard gas pricing and forward purchasing strategies.

Also, members are deeply concerned about the proposed changes to the *Greenhouse Gas Protocol Land Sector and Removals Guidance* and implications for the UK's biomethane sector. Whilst an issue wider than UK policy, it is causing great concern to members and could have a devastating impact on the logistics sector being able to use biomethane to reduce fleet emissions and reach net zero.

Proposed changes (Draft for Pilot Testing and Review, September 2022) would mean that biomethane fleet operators would no longer be able to report the benefit of using biomethane in their vehicles and would have to report as if they were using fossil natural gas, which has only a small carbon benefit over diesel. This is because the mechanism of sourcing biomethane and 'mass balancing' (ie, using the gas grid to transport the gas virtually under the Renewable Transport Fuels Obligation (RTFO) mechanism), would no longer be allowed. The proposed change is to address a perceived, but incorrect, scope for double counting, and fails to recognise the robustness, credibility and scale of the RTFO mechanism.

As members outlined in a recent letter to government, *"the Greenhouse Gas Protocol (GGP) does not recognise that the reported average biomethane content in the gas grid excludes gas supplied and reported through the RTFO. If this*

change proceeds, businesses which have invested millions into biomethane vehicles and infrastructure will no longer be able to claim the carbon reductions we have made, eliminating the value of our investment. This could also impact future investment into the sector, potentially reducing the UK's chances of meeting the Government's carbon reduction targets. We ask that the Government intervenes on this issue with the GGP to ensure that the RTFO continues to be recognised in carbon reporting by the GGP and other organisations, if the reported grid average excludes RTFO biomethane (as it does currently)."

Whilst this does not impact biomethane production, it will significantly impact market growth by directly disincentivising the use of biomethane in fleets. This would have significant consequences for the logistics sector's transition to decarbonise. The changes to reporting would remove the key benefit of running biomethane HGVs. Therefore, action must be taken to ensure this is prevented to maximise the success of market growth.

3. In your view, what are the most important barriers to market growth that need to be addressed and why? Please provide supporting evidence.

Our members are concerned that biomethane production will not keep pace with demand. Part of the problem is that RTFC prices have collapsed over the last year, which has created challenges for biomethane producers.

In addition, consumers of biomethane are influenced by the market price of RTFC's and there is a need for clarity on whether these are going to be decoupled between biomethane the biodiesel market moving forward. Having this certainty would be commercially beneficial for transport operators.

As outlined above, if implemented, changes to the GGP would be a significant barrier to update and roll-out.

Chapter 2: The role of biomethane in meeting net zero and energy security

6. What are the most important end-uses for biomethane in the transition to net zero by 2050, and what are the implications for the framework? Please provide supporting evidence where possible.
As outlined in the call for evidence, biomethane is helping to decarbonise transport – a hard-to-abate sector. Whilst zero emission technologies remain unsuitable for HGVs, low carbon fuels, and specifically biomethane, can fill a critical gap and reduce emissions immediately.

In the UK, domestic transport is the highest GHG emitting sector in the UK, a trend which has been established since 2014[1]. Of these emissions, HGVs contribute approximately 17%. Whilst the logistics sector is trying to decarbonise and work towards net zero ambitions, high costs, infrastructure shortcomings and lack of technology suitability remain barriers.

Biomethane provides 80% (with and without ILUC) GHG savings on average when used as a fuel, and depending on the feedstocks used, can reach 92% (excluding LUC)[2]. In addition, research from The Zemo Partnership outlines further GHG emissions saving opportunities for transport:

"Biomethane produced from wet manure (livestock slurry) can achieve a negative GHG emission intensity. When manure is stored in the open environment methane and nitrous oxide, two potent greenhouse gases, are released into the atmosphere. Methane is 25 times (by mass) more powerful as a greenhouse gas than carbon dioxide, whilst nitrous oxide is 298 times. Capturing these greenhouse gases and converting them into biomethane subsequently results in very high greenhouse gas emission savings. The GHG emissions savings of biomethane will vary depending on the proportion of wet manure in the biomass feedstock. For example, compressed biomethane produced entirely from wet manure is estimated to achieve GHG savings of 120% to 170%, depending on the supply chain.[3]"

[1] Final UK greenhouse gas emissions national statistics 2022, Department for Energy Security and Net Zero, 6 February 2024
[2] Low carbon fuels strategy: Call for ideas, Department for Transport, February 2022
[3] The Renewable Fuels Guide, Zemo Partnership, July 2023

Zemo has calculated that well-to-wheel GHG emission savings are 81 to 125% for compressed biomethane gas and 69-125% for liquid biomethane[4] versus retail diesel.

Therefore, the logistics sector, specifically HGVs, must be considered an important end-use for biomethane in the transition to net zero and the framework must reflect this.

9. To what extent will the framework described in Chapter 1 help support an industry that can attract investment and produce enough biomethane to meet the strategic aims in Chapter 2?
It is difficult to quantify how much investment would be attracted with the Chapter 1 framework, however, it is possible to look at multiple positions that should be taken that would maximise the potential for investment in biomethane. This is done by addressing the barriers industry repeatedly raises, it should be noted many of these barriers are not exclusive to this challenge.

The greatest barrier to any low or zero carbon investment is that it is not as sure bet as fossil fuels due to political uncertainty. Ambitions and plans are either not specific enough or timely, or they change and are downgraded. The lack of consistency hinders investment. Creating a fully supported long-term plan with benchmarks and commitments is the best way to ensure investment. With a long-term plan, coupled with focussed support, there is no reason the UK would not be able to meet the production aims for biomethane.

Chapter 3: Accelerating growth of the sector

13.What are the most significant barriers to store and transport the CO_2 to sequestration sites? Where possible, please answer with reference for a range of different sizes and types of biomethane plants.
The most significant barriers to the storage and transportation of carbon dioxide to sequestration sites include substantial infrastructure costs, technological challenges, regulatory and legal hurdles, and public acceptance issues. Developing the necessary infrastructure, such as pipelines and retrofitting facilities, with carbon capture technologies requires significant upfront investment, often necessitating government subsidies or incentives.

Technologically, scaling up carbon capture and storage (CCS) to a point that can meaningfully impact CO_2 levels in the atmosphere poses a huge challenge, most notably around the profitability and therefore commercial viability, of CCS. Currently, it is too expensive to sequester CO_2 at a significant scale.

Regulatory and legal frameworks for CCS are still evolving, leading to uncertainties around liability and long-term storage responsibilities. It is not yet clear who is liable should captured CO_2 leak either enroute to storage or whilst stored. Without that being cleared, companies will not invest, even if it is cleared if they are liable for 100s of years, as the CO_2 must be stored for. This will also limit investment.

Moreover, public acceptance is critical, as local communities often express concerns about the safety and environmental impact of CCS projects, potentially leading to delays or cancellations.

14.What is currently preventing the industry from maximising the revenue from selling CO_2, for example to the food and drinks industries? Do you expect opportunities for revenue from this bio-CO_2 market to change over time? If so, how?
The carbon capture industry's ability to maximise revenue from selling CO_2 is hindered by a combination of supply and demand mismatches, purity requirement challenges, high transportation and storage costs, and regulatory and certification barriers.

While the food and beverage industry, for example, has a stable and specific demand, the supply chain from carbon capture sources is often inconsistent and may exceed demand, leading to market saturation. Additionally, the stringent purity standards required for CO_2 used in food and beverage applications necessitate further processing, increasing costs. The logistical expenses associated with compressing, transporting, and storing CO_2 can significantly erode profit margins, especially when distances between CO_2 sources and users are substantial.

[4] Renewable Fuels Guide, Zemo Partnership, July 2023

Moreover, navigating the complex regulatory landscape and obtaining the necessary certifications to ensure CO_2 is suitable for use in the food and beverage industry can be both time-consuming and costly, further limiting the potential for revenue generation from CO_2 sales.

18. How could the UK ETS account for biomethane in the gas grid to make biomethane production more financially sustainable?
Logistics UK takes no position on how the EU ETS could account for biomethane in the gas grid, however, wants to highlight that making biomethane production more financially sustainable is crucial. Without long term stability, members are finding it difficult to present a business case on how to transition to biomethane and other low carbon fuels, when costs are significantly higher than conventional diesel.

The government must ensure that fiscal incentives are planned to provide certainty for business investment decisions, ideally to last for the useful lifetime of the vehicles.

20. Which mechanisms are most likely to ensure we meet our strategic aims in Chapter 2, and why?
To meet the strategic aim outlined in Chapter 2, having a financial incentive mechanism in place is essential to help the logistics sector cover increased costs to decarbonise.

A Contracts for Difference (CfD) or supplier obligation (SO) would be preferred over grants and loans. These mechanisms would be able to leverage market forces to drive down costs. Grants and loans would not be helpful in terms of meeting the logistics sector's needs, which require cost stability and security.

However, it is important to avoid what has happened with the CfD scheme for renewable electricity. Whilst the scheme has been key to raising investors' confidence and lowering the cost of capital, the last annual auction massively underdelivered and failed to secure any new offshore wind due to the Administrative Strike Prices being too low. To avoid this from being repeated, lessons must be learned and if a CfD scheme is to be adopted for biomethane, auction parameters must be implemented along with an ambitious budget to support success.

Chapter 4: Sustainability

23. a) What are your views on the criteria set out in Chapter 4 for assessing feedstocks? b) Are there any additional criteria that we should consider?
Logistics UK agrees that sustainability must be at the forefront of the framework.

Attention should also be bought to how different feedstocks can generate different GHG emission savings. As reference earlier, the Zemo Low Carbon Fuels Guide outlines how biomethane produced from wet manure (livestock slurry), can achieve 'a negative GHG emission intensity'. Due to methane's potency, when feedstocks are generated from entirely wet manure, GHG savings can be 120-170%, depending on the supply chain.

Therefore, criteria should also consider supply chains. Supply chains must be developed to maximise GHG emission savings.

34.Please provide any evidence you have on the benefits and costs of detecting, monitoring or repairing methane leakage from AD sites.
Logistics UK has no first-hand evidence on this subject, however, wants to emphasise that methane is much more potent than carbon dioxide and therefore detecting, monitoring and repairing methane leakages should be a priority when considering this policy framework.

We have recently witnessed "one of the worst methane leaks ever recorded," where a leak in Kazakhstan of 127,000 tonnes of methane had an environmental impact equivalent to that of driving more than 717,000 petrol cars for a year[5]. Improved precautions and monitoring instruments must be invested in to avoid an incident like this occurring again. In addition to the significant negative environmental impact, there are financial implications, with the company named responsible fined £614,000 by authorities for violating environmental legislation.

[5] Kazakhstan: Methane mega-leak went on for months, BBC News, February 2024

This money cannot be wasted on fines, but rather should be invested in green technologies and decarbonisation.

35. What challenges might the biomethane industry face if future government policy sets a limit on fugitive methane emissions from biomethane production?
The dominant production method route for biomethane used in road transport is anaerobic digestion.

Fugitive methane emissions must be avoided at all costs as these can have detrimental environmental impacts. Whilst industrial equipment and processes are established and used, leaks must be minimised and if occur, must be halted immediately.

36. What are the key sustainability considerations for any non-AD biomethane production technologies that could be in scope for the future framework? Please specify which technology your answer relates to.
Whilst non-anaerobic digestion methods are not commonly used in the logistics industry, sustainability considerations must be central to developing the future framework.

Chapter 5: Planning and standards

40. What are your views on the feasibility and usefulness of developing industry-wide guidance on design, maintenance and operation standards for AD plants?
When considering design, maintenance and operation standards for AD plants, it is essential to also consider location. In order to efficiently convert biomethane into a productive fuel used across logistics it must be easily connected to the grid for wider deployment.

41. What is the impact of grid capacity, now and in the future, on the development, operation and output of biomethane plants? Please outline where this differs between distribution and transmission level and between production technologies.
As outlined in Zemo's Renewable Fuels Guide[6], pressure and capacity of grid connections is important to meet required biomethane demands:

"Connecting to a relatively high pressure part of the gas network reduces the amount of compression needed and therefore lowers running costs and reduces the GHG emissions of the biomethane. However, installation costs rise with increasing distance from the gas main network to the compressor unit.

A lower pressure connection will require additional compression and potentially supply fewer vehicles or require additional gas cylinder storage. However, it may be suitable if vehicles are stationary for several hours, allowing gas to be compressed into tanks gradually."

45. What are you views on the best approach to enable optimal plant locations in the future framework? How might this differ across different production technologies?
The logistics industry needs sites to be located where the highest demand is. For example, at depots or close to logistics hubs. If plant locations are far away from depots, additional fuel will be required to transport the biomethane between the two sites with would counterbalance against emissions savings, as well as being unpractical and more costly.

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[6] The Renewable Fuels Guide, Zemo Partnership, July 2023