Pwyllgor Newid Hinsawdd, yr Amgylchedd a Seilwaith /
Climate Change, Environment and Infrastructure Committee
Blaenoriaethau ar gyfer y Chweched Senedd / Priorities for the Sixth Senedd
PR86
Ymateb gan Liquid Gas UK / Evidence from Liquid Gas UK

About Us

1. Liquid Gas UK is the trade association for the Liquefied Petroleum Gas (LPG) and biopropane (bioLPG) industry in the UK, representing companies who are LPG producers, distributors, equipment and service providers, and vehicle convertors. It is dedicated to the safe and effective development of LPG and bioLPG. Member companies cover 99% of the total LPG distributed in the UK.
2. Across Wales, LPG and bioLPG provide a heating solution for the 270,000 off-grid properties in Wales and thousands of businesses from mobile caterers to rural manufacturers, B&Bs and farms who are reliant on off-grid fuel sources.

About LPG and bioLPG

3. LPG is the lowest carbon conventional energy source available to off-grid homes and businesses in the UK, which provides immediate, expedient and cost-effective heat and energy. As LPG emits more than 33% fewer carbon emissions than coal and 15-20% fewer carbon emissions than oil[1], LPG is a transitional solution in its own right. It also emits virtually no NOx, SOx and Particulate Matter, enabling immediate air quality improvements.
4. BioLPG, alternatively known as biopropane, is a versatile, 'drop-in' renewable solution which can provide up to 90% emissions reduction compared to fossil based LPG.[2] Already available on the market today, bioLPG is chemically indistinct from LPG and can be used as it is, just like conventional LPG. This means it can be 'dropped-in' to existing supply chains and can be used by consumers in their existing heating appliances, stored in existing bulk tanks and cylinders, and transported using today's infrastructure and skilled workforce.
5. LPG boilers offer a long-term, cost effective pathway to decarbonisation through the gradual introduction of bioLPG into the mix; this means over time carbon emissions will increasingly reduce. It is the industry's ambition to offer 100% renewable energy solutions by 2040[3].

Priority 1: Develop a heat decarbonisation policy that supports the Welsh Government's 2050 CO^2 95% reduction goal, but is based on what people can pay and want to install

6. Recommendation: We call on the Welsh Government to support a range of deliverable low carbon technologies for off the gas grid households, including LPG and bioLPG, enabling owner occupiers and landlords to choose what is best for them according to type of house, income and experience[4].

[1] UKLPG, Response to A Future Framework for Heat in Buildings (June 2018)
[2] NNFCC, Biopropane: Feedstocks, Feasibility & our Future Pathway (2019)
[3] Liquid Gas UK, 2040 Vision (July 2019)
[4] Additionally, any future change to Building Regulations should support such a mixed, flexible approach.

7. If Wales is to reach its target of a 95% reduction in carbon emissions by 2050, off-grid homeowners will need to switch to low carbon heating solutions. In order to support this, we advocate a mixed technology approach which can help rural households move away from high carbon fuels, such as coal and oil, and onto path with a locked in renewable solution that aligns with the Welsh Government's carbon reduction targets. LPG and bioLPG have a significant role to play in decarbonising rural Wales.
8. Recent research[5] conducted by Opinium on behalf of Liquid Gas UK shows that quarter (25%) of rural off-grid households said that they would not be able to afford a new heating system at any price. Only 11% of people said that they would be able to pay more than £6,000.
9. Welsh respondents were also largely against the following possible future policy levers: encouraging mortgage providers to deny or provide less preferential rates for mortgage applications for homes with an energy performance certificate (EPC) rating of below a C; restricting the sale of homes with EPC rating of below C. 54% of respondents felt the former was unfair compared to 23%; and 69% felt the latter was unfair compared to 13% who favoured restricting home sales in this way.
10. The research also found that 88% of respondents wanted the Government to take more account of people living in off-grid communities. 87% of people living off-grid in rural areas in Wales believe that the Government should support multiple low-carbon technologies and allow residents to choose the best solution for them.
11. And last, if people were to install an electrified heating system, 72% of Welsh respondents would still want a back-up boiler.
12. We believe that this feedback shows that a 'one size fits all approach' to off-grid heat decarbonisation through requiring heat pump installation and limiting sustainable alternatives is unlikely to be successful. Even if partial subsidies for heat pumps were provided, they would still be too costly for the majority.
13. We modelled the projected heat decarbonisation cost on a cottage in Conwy[6]. At around £2,000 installation, with £3,000 annual fuel costs, the fitting of a bioLPG boiler compares to an air source heating pump at £19,000, with similar annual running costs. The addition of solid wall insulation would add £13,000 to the air source heat pump insulation cost, though it would reduce running costs by nearly three times. The cost of installing a biomass boiler was £18,000, with estimated £2,300 yearly running costs.
14. Indeed, when one looks at the UK as a whole, independent analysis from energy consultancy Ecuity shows that progressing with an electrification-only route will cost £7bn more on a UK-wide level. This means that a typical pre-1918 detached off-grid family home would face levelised costs of 40% higher up to 2050, equating to £22,6000, between now and 2050, if forced to switch to a heat pump rather than to switching onto LPG/bioLPG.
15. In addition to the cost argument, purely electrified heat pumps will not provide consistently warm heating for all homes; nor will their retrofitting be viable for every homeowner or landlord.
16. BioLPG, and LPG as a transition fuel to bioLPG, should therefore be available for those living off the gas grid as one of a basket of sustainable options to choose from. As we note above, LPG is already the lowest carbon conventional fuel source available to homes and businesses off-grid,[7] and the industry has stated its ambition to transition toward a renewable solution and supply 100% bioLPG by 2040, reducing emissions by up to 90% against traditional fossil LPG.

Priority 2: The Welsh Government should take an approach to fuel poverty that aligns with Wales' long-term decarbonisation targets

[5] The cost of a heat pump can range between £11,000 (BEIS data stated by Minister of State for BEIS during Parliamentary Questions September 2020) and £18,000 (https://www.liquidgasuk.org/uploads/DOC5FB3DC4186E72.pdf).
[6] https://www.liquidgasuk.org/uploads/DOC5FB3DC703795E.pdf
[7] LPG offers up to 33% less CO2 than coal and 20% less than oil, with very low levels of NOx, SOx and Particulate Matter.

17. Recommendation: The Government should proactively promote the use of LPG / bioLPG as a fuel poverty solution that aligns with Wales' carbon reduction goals; and in the outstanding fuel poverty consultation, the Welsh Government should consider incentives, such as a scrappage scheme, for fuel poor households switching from oil heating to LPG / bioLPG boilers.
18. As evidenced above, LPG and bioLPG offer a dual win of being affordable while complementing Wales' decarbonisation targets. To this end, we welcomed the Welsh Government's announcement last year that it will fund the heating of 120 social housing dwellings with LPG hybrid heat pumps through its Optimised Retrofit Programme and we believe that there are further opportunities for LPG and bioLPG to play a role in decarbonising rural Wales.
19. This could be encouraged through a scrappage scheme targeted at the off-grid fuel poor. Oil infrastructure is owned by the homeowner, therefore, the cost of removing a tank and the value of the remaining fuel causes customer reluctance to move on to lower carbon solutions. A focused Welsh Government-backed conversion scheme will address a key barrier to customers switching from heating oil and alleviate reluctance of consumers who own their oil assets. This is a measure that off-grid consumers will understand and allow them to make carbon emissions savings now with LPG, in addition to locking in far deeper decarbonisation in the future with bioLPG.

Priority 3: Promote the use of LPG and bioLPG in non-domestic buildings and industrial processes as firms emerge from Covid-19

20. Recommendation: The Welsh Government should encourage LPG/bioLPG use in commercial, industrial, public sector and agricultural buildings and processes. Welsh Government grants and loans to business and public sector organisations should support the installation of LPG/bioLPG.
21. An independent report[8] commissioned by Liquid Gas UK on the opportunities for the non-domestic market to decarbonise highlighted how bioLPG can help decarbonise the estimated 62,000 UK non-domestic buildings off the gas grid that are currently being heated by oil, coal or LPG. The report details how replacing coal and oil in non-domestic buildings with LPG and bioLPG would save 3.5mt of CO2.
22. We estimate that the key industrial sectors where bioLPG could be deployed is in food & drink manufacturing, iron & steel production and mineral production. These are all important industries in Wales.
23. In the food & drink sector, around 0.2 TWh of bioLPG could be needed to enable steam and low-temperature heat processes. Around 1.5 TWh of bioLPG could be consumed in the mineral products sector to support the manufacturing of non-metallic mineral products where alternative fuels such as biomass may impact product quality. A further 1 TWh of bioLPG could be demanded by iron & steel producers to facilitate processes such as melting and sintering which require really high temperature (~2,000°C) heat in blast furnaces. There is also a significant switching potential to LPG and bioLPG to help decarbonise key end-processes such as space heating. It is estimated that switching potential to LPG and bioLPG is around 3.1 TWh or 231,000 tonnes.
24. Similar arguments around viability apply to both non-domestic and industrial settings as they do to domestic properties, only even more so given the wide range of uses and differing temperatures found in these sectors.
25. Costs are of course an issue as well. With thousands of businesses facing tough years ahead of them as they recover from the impact of Coronavirus, the cost of decarbonising their business will increasingly become a challenge. The report found that cost of a commercial air source heat pump would on average cost a business £14,000, while a commercial LPG boiler is around £4,300. For a rural pub, the cost of a biomass boiler or air source heat pump could be around double and treble this £14,000 cost. Businesses that do install a heat pump could

[8] Liquid Gas UK, Opportunities to Decarbonise the Non-Domestic Off-Grid Sector with LPG and bioLPG, November 2020

be faced with other critical costs such as solid wall insulation due to the fabric of their building and a heat pump not generating the temperature required.

Priority 4: Strategic support for indigenous low carbon fuel generation in hard to treat sectors

26. Recommendation: In supporting the investment and development of Sustainable Aviation Fuels (SAF), Welsh Government policy makers must not ignore the role for their co-products which enables best use of waste or biomass feedstocks.
27. One method of producing bioLPG is a co-product of sustainable aviation fuel. There are significant opportunities for production of SAF in the UK, but also importantly a market for and need to capture co-products of SAF. Considering there is not an unlimited availability for feedstocks for biofuels, it's vital that those producing SAF are incentivised to deliver bioLPG into the off-grid market, so that it can be used for heating hard-to-treat homes, businesses and industrial processes – where electrification isn't suitable and where they're not able to utilise hydrogen.
28. Analysis undertaken by NNFCC[9] found that there is significant potential for rapid scale-up of indigenous bioLPG production in the UK, as a co-product of sustainable aviation fuel production at new HVO plants or from establishing gasification and fischer tropsch synthesis facilities. Examples of feedstocks include used cooking oil, animal fat, vegetable oil, waste, plant dry matter, sugar and starch[10].
29. In addition, the establishment of bioLPG production units in oil UK refineries could be an immediately effective solution to boosting indigenous production. Refiners have higher flexibility to change feedstocks or vary product specifications in response to market movements. Six oil refineries are located in the UK (Including Pembroke), with capacity to co-process large quantities of bio-oils with petroleum intermediates, without reaching any blending limits. This option is particularly attractive because oil refineries already produce fossil LPG and are connected to the LPG distribution network.
30. Recommendation: The Welsh Government could explore the potential to support biofuels and therefore bioLPG production at existing refineries.

For more information, please contact Sophia Haywood, Director of Public Affairs at Liquid Gas UK on sophia.haywood@liquidgasuk.org

[9] NNFCC, Biopropane: Feedstock's, Feasibility & our Future Pathway (2019)
[10] NNFCC, Biopropane: Feedstock's, Feasibility & our Future Pathway (2019)