24/03/2022 between Liberty One Communications Ltd and Patrick Harvie

Initial Contact

Patrick Harvie MSP
Minister for Zero Carbon Buildings, Active Travel & Tenants' Rights
By email

28th January 2022

Dear Minister,

I am writing on behalf of Liquid Gas UK, the voice of the LPG and bioLPG industry in the UK, representing 98% of LPG supplied in the Scottish market.

Following the Local Government, Housing and Planning debate last week on retrofitting homes for Net Zero, we would appreciate the opportunity to meet with you to discuss the challenges with heat decarbonisation in off-gas grid homes, as well as the role that LPG through the transition to bioLPG can play in supporting these households to switch to low carbon heating. We are already in discussions with the Scottish Government's Bioenergy Team.

If Scotland is to reach net-zero, it is essential that we decarbonise heat, which is responsible for a third of all emissions in the UK. Whilst hydrogen on the gas grid and heat pumps offer potential routes to decarbonisation for many homes, they are not viable options for all, especially rural off-gas grid households.

Currently, many off-gas grid households use oil boilers to heat their properties but moving these properties to low-carbon technologies can be costly. Our analysis indicates that for an off-gas grid home to install a heat pump with appropriate insulation or a biomass boiler, the upfront cost could be as much as £32,000 and £18,000, respectively. For the same property to transfer to a bioLPG boiler the upfront costs are far less at just £2,000 to £3,000.

It is therefore unsurprising that a poll, commissioned by Liquid Gas UK, of over 1,000 rural off-grid homes in the UK found that more than 9-in-10 (93%) of off-grid homeowners would not be able to afford to decarbonise their heating system via heat pumps. BioLPG offers a route to decarbonising heating in these hard to tackle properties.

Available on the market today, bioLPG is an affordable, convenient and non-intrusive 'drop-in' solution to decarbonisation for a variety of rural off-grid homes and businesses. Made from a diverse mix of biological feedstocks and processes, bioLPG is a renewable technology that offers up to 90% carbon emissions reduction compared to conventional LPG and has the same air quality benefits. As bioLPG is a 'drop-in' fuel, LPG infrastructure is ready for the future - this means no retrofit costs and low consumer disruption. It is able to provide immediate and expedient heat or hot water.

Producing bioLPG in Scotland provides opportunities for local jobs, economic growth and supporting a circular economy in rural areas. Our analysis indicates that Scotland is the most attractive location in the UK for the development of wood-based biorefineries, which could supply the domestic bioLPG market. Building 3 standard-sized plants in the strategic locations for the production of around 180,000 tonnes of bioLPG, utilizing currently available woody biomass after competing uses (mostly forestry residues), and diversifying certain sawmill residues volumes from existing uses, is feasible. Following conversations with Zero Waste Scotland, we are also aware of opportunities from using tallow and used cooking oil.

In Scotland, 18% of households are off-grid. There is a clear opportunity to move many of these households, particularly those already using oil heating systems, onto LPG and subsequently bioLPG, to help Scotland meet its net-zero targets where electrification of heat will not be possible.

I would welcome the opportunity to discuss this with you in more depth and answer any questions you may have. If you are interested in meeting, please email [redacted]@libertyone.co.uk or call [redacted].

Yours sincerely,
[redacted]
Director of Public Affairs

Invitation Acceptance

Our Reference: 202200277278
25 February 2022

Dear [redacted],

Thank you for your letter of 28 January inviting Patrick Harvie MSP, Minister for Zero Carbon Buildings, Active Travel and Tenants' Rights, to discuss the challenges of decarbonising off-gas grid homes.

Mr Harvie would be delighted to accept your invitation subject to Parliamentary business. I would be grateful if you could contact the Minister's Assistant Private Secretary, [redacted], via email at MinisterZCBATTR@gov.scot to arrange a mutually convenient date/make the necessary arrangements.

Yours sincerely,
[redacted]
Private Secretary

Briefing pack

What	Meeting with external stakeholder to gain further understanding of potential options for heating rural and island homes. Liquid Gas UK will present details of the role that they feel bioLPG could play in decarbonising heat and on their analysis of the potential to locate biorefineries in Scotland.
Where	Microsoft Teams meeting **Join on your computer or mobile app** [redacted] **Or call in (audio only)** [redacted]
When	Thurs 24th March 2022 9:00 – 9:45
Key Message(s)	• The CCC in their 6th Carbon Budget, recommend that with no CCS available the best use of biomass is With no CCS available in 2020, the best use of biomass is currently either locking up biogenic CO2 as wood in construction, or displacing coal in industrial applications. • As set out in the Heat in Buildings Strategy we agree with the CCC that there might still be a small niche for bioliquids/bioLPG for home heating if still displacing fossil fuels off-gas-grid, although these opportunities will be very limited due to efficiency and electrification. • The Scottish Government's aim is to see bioenergy used where it has the greatest value in reducing emissions. We are currently working to review the availability of sustainable biomass and the most appropriate use of these finite resources across the whole energy system in Scotland. We intend to publish a Bioenergy Action Plan in 2023.
Who	• [redacted] – Director of Public Affairs, Liquid Gas UK • [redacted] – Public Affairs Manager, Liquid Gas UK • [redacted] – Account Director, Liberty One
Why	There has been significant interest in how Scottish Government intends rural and island homes to decarbonise if unsuitable for a heat pump, with many questions around support for biofuels.
Expected outcome	At the meeting we would want to encourage Liquid Gas UK to provide the evidence that BioLPG can be a traceable, cost

	effective solution to heating off gas grid properties and that there is sufficient sustainable bio-resources to meet this demand without compromising the ability to decarbonise other sectors that may have more limited options.
Supporting official	[redacted] [redacted] [redacted]
Briefing contents	[**Annex A:** Agenda **Annex B:** Guest List/Attendees **Annex C:** Summary Page / Top Brief **Annex D:** Notes from discussion between UK administrations on biomass heating options for off-gas grid homes.
Media Handling	Comms advised attendance not required
Social Media	None required.
Any Planned Industrial Action (Y/N)	No

Annex A

Agenda

1. Introduction to Liquid Gas UK

2. About LPG and bioLPG
    a. LPG and bioLPG's role in transitioning to Net Zero
    b. Domestic production of sustainable feedstock

3. The impact of heat decarbonisation policy on off gas grid householders
    a. The Heat in Buildings Strategy
    b. The Bioenergy Policy Working Group and the Bioenergy Strategy

4. Discussion/Questions

Annex B

Liquid Gas UK is the Trade Association for bioLPG and LPG in the UK with over 100 members from across the energy sector including established bioLPG and LPG suppliers, new start-ups in the technology and biofuel space, training organisations, equipment manufacturers and suppliers, installers including plumbers and heating engineers. They state that their members provide over 999% of the LPG distributed in the UK.

Their purpose is to promote growth and sustainability, influence Government policy, promote industry safety and best practice, and provide an excellent service and clear point of reference to all of their members.

[redacted] – Director of Public Affairs, Liquid Gas UK

[redacted] is the lead on all public policy and lobbying activity. She is responsible for building relationships with policy makers and influencers across the four UK nations, in order to effectively inform policy and regulation on behalf of the LPG Industry

[redacted] developed and launched the 2040 Vision to demonstrate the industry's ambition to meet Net Zero, and raise the profile of LPG and bioLPG among the media and policy makers.

[redacted] – Public Affairs Manager, Liquid Gas UK

[redacted] is responsible for Liquid Gas UK parliamentary engagement across the four nations, helping to build relationships with parliamentarians and policy makers, briefing and engaging stakeholders and responding to relevant consultations.

[redacted] – Account Director, Liberty One

[redacted] has worked in public affairs since completing a MA in Political Communication in 2015 and has extensive experience of engaging political stakeholders at a parliamentary level.

Annex C

Background:

- As set out in the Heat in Buildings Strategy, we see a limited role for bioenergy in heating, in line with advice from the UK's Climate Change Committee.

- We recognise there may be a small number of buildings for which bioenergy, in particular bio heating oil, bioLPG and biomass, may represent the only practicable option for heat decarbonisation.

- Estimates are that for around 1200 homes, bioenergy might offer the only feasible way to reduce emissions from heating to displacing fossil fuels in off-gas-grid areas, especially where electric heating or heat pumps are unsuitable. Estimates also show that there are 37,000 homes where electric resistive (storage heaters or direct electric) or bioenergy may be the only suitable option.

- The main production method for BioLPG is a by-product of upgrading HVO (Hydrogenated Vegetable Oil) to biodiesel. For every tonne of biodiesel, 50 kg of BioLPG is generated from the off gas stream. This co-product is then purified to make it identical to conventional propane. We could expect demand for biodiesel to likely decrease in the future through the process of producing Sustainable Aviation Fuel (SAF), which is likely to increase, will also produce BioLPG as a by-product.

- Technologies for utilisation of biofuels for heat are well established and would only require minimum or change for HVO or BioLPG , at little or no cost, to be used in situations where electrification or other zero emissions options are unsuitable. However, the cost of importing these fuels also means they are currently unlikely to meet with requirements to tackle fuel poverty.

- BioPLG is chemically identical to LPG and therefore credible sourcing is essential.

- The Scottish Government does not currently support the installations of these technologies within its current Heat in Buildings Delivery Schemes which focus on capital installation for renewable energy technologies.

Top Lines

- The Scottish Government's aim is to see bioenergy used where it has the greatest value in reducing emissions. We are currently working to review the availability of sustainable biomass and the most appropriate use of these finite resources across the whole energy system in Scotland. We intend to publish a Bioenergy Action Plan in 2023.

- In 2021 we established a Bioenergy Policy Working Group and during 2022, as we develop the Bioenergy Action Plan, we will engage further with key stakeholders and continue work with the sector.
- The Heat in Buildings Strategy also set out the Scottish Government's approach to strategic technologies: highlighting heat pumps, heat network connections or energy efficiency upgrades as no- or low-regrets choices, suitable across all plausible energy system pathways.
- Home Energy Scotland (HES), who are funded by Scottish Government, act as a gateway to all Scottish Government domestic energy efficiency schemes. They offer free information and advice on how to improve heat in the home and the funding available. Interest free loans are available for both energy efficiency measures and renewables measures of up to £15,000 (includes up to £6,000 cashback) and £17,500 (includes up to £7,500 cashback) respectively.

Heat in Buildings

- We will continue to prioritise action on energy efficiency. To deliver regulations to support the installation of cost-effective energy efficiency first improvements in all buildings (e.g. roof, windows, wall and floor insulation); both the retrofit of existing buildings and increased energy performance of new buildings.
- Deployment of individual building heat pumps in buildings off the gas network which currently use high carbon heating fuels.
- These are the technological solutions where cost uncertainty is low and we already understand (a) the costs of installation and (b) running costs for consumers. They are no and low-regrets as, across all plausible pathways to net zero, they are likely the most cost effective zero emissions options in the buildings identified.

Bioenergy

- We are committed to understanding the scope of bioenergy in Scotland, this includes competing feedstock uses, and long term availability of supply. We intend to work closely with stakeholders to better understand the opportunities and the challenges of the sector. We will publish a Bioenergy Action Plan in 2023.
- Biomass production is part of a land system with finite assets that provide multi-functional uses and benefits for all of Scotland. We need to better understand these relationships and interdependencies, to ensure that the land and resulting biomass are used in the most effective way.

Cost of living

- Legal powers relating to the retail energy market and its regulation are reserved to the UK Government.
- This means that the Scottish Government does not have control of how levies are set and charged to consumers in regards to their energy bills. Within this context, we are pushing for changes to ensure that energy is made more affordable for consumers in Scotland, this includes a reduction in VAT on energy bills, targeted support for those on low incomes and four-nations discussions to develop an effective response to energy bill increases.

- Scottish Ministers have allocated £290 million to help tackle the cost of living crisis and are going further to ensure those hardest hit have support. New measures announced include:

- £280 million to provide £150 to every household in receipt of Council Tax Reduction in any Band and to provide £150 to all other occupied households in Bands A to D. This means 1.85 million households, or 73% of all households, will receive financial support through their council tax bill or a direct payment.
- £10 million in 2022-23 to continue the Fuel Insecurity Fund to help households from rationing their energy use.

Industrial Biotechnology (IB)

- Our **National Plan for Industrial Biotechnology** sets out how we will make the most of the economic opportunities presented by IB in Scotland and aims to transform the competitiveness and sustainability of multiple industries in Scotland.
- When managed carefully, renewable resources can be harnessed to transform manufacturing in Scotland away from fossils fuels and towards a sustainable, bio-based economy.
- IBioIC was launched in 2014, one of seven innovation centres joint funded by the Scottish Funding Council, SE and HIE with an aim to establish and develop transformational collaborations between industry and academia across the life and chemical sciences and renewable energy sectors.
- In November 2021 a new three-year partnership between IBioIC and Zero Waste Scotland was announced. This partnership will drive innovation and growth in Scotland's circular bioeconomy by identifying opportunities based on sector focussed research; supporting innovators with resources and funding; and bringing stakeholders together to network and collaborate.
- Officials have previously met with Liquid Gas UK and representatives from Calor. Following that meeting we introduced Calor to IBioIC.

Annex D

Biomass for Off-gas grid Heating – Meeting with BEIS and Devolved Administrations – Note of meeting - 09 March 2022

Attendees
- [redacted] – BEIS
- [redacted] – Northern Ireland
- [redacted] – Northern Ireland
- [redacted] – Wales
- [redacted – Scotland
- [redacted] – Scotland

Agenda
- Policy updates
- Summary of engagement with industry and latest findings (focussing on HVO and also bioLPG)
- Discussion of evidence around HVO costs
- Discussion of evidence around HVO supply
- Discussion of evidence around emissions from HVO and bioLPG

BEIS have received around 1200 responses to their off-gas grid heating consultation, mostly from domestic consumers, which they are still reviewing. However, initial findings are that a number of replies state 2026 transition date is too soon, it will be too expensive or that properties are not suitable for heat pumps.

The consultation suggests a' heat pump first approach' noting that where reasonably practicable a heat pump will be preferred option, but acknowledge that heat loss, electrical connection, space constraints or heritage buildings may cause properties not to be suitable.

2nd consultation on off gas grid heating regulation expected 2024/25. Expected that legislation for type of heating will be included in building regulations.

Existing guidance from MCS suggests standards for assessing suitability of properties for heat pumps, as well as specifics on design and installation of heat pumps. It's likely that some form of this guidance may inform the eventual regulations/any exemptions.

If ASHP, high temp heat pump or hybrid heat pump are not possible then a solid biomass boiler would be preferred option due to concerns about availability of feedstock for liquid biofuels and lack of clarity on costs. Rough estimate that 100K/10% of English 1 million off gas grid homes (=half of hard to treat homes) may opt for biomass boilers, although still have concerns over high up front cost and air quality. Acknowledged solid biomass also feedstock for bio-electricity plants (Drax) and this was in their view a higher priority use of solid biomass resources.

Bioliquids (HVO and BioLPG)– have asked the sector to provide evidence on scaling, potential challenges with levels of waste cooking oil that would then rely on import to meet any growing market. Noted that sustainability criteria will be key and

these are being developed as part of BEIS Biomass Strategy. Strategy will also provide an update on status of evidence and thinking on Bioliquids (HVO and BioLPG) but unlikely to provide anything definitive as ongoing. Will set out evidence and how to work with sector moving forward.

BEIS team receiving 5-10 instances of correspondence per day lobbying for HVO/via Ukifda/Oftec template.

Biomass Strategy later this year (September) to set out priorities for use of biomass, with transport likely to be favoured above heat. It is likely that there is not much feedstock left for heat after transport.

PQ has been received from Kenny MacAskill asking for regulation to cap prices for heating oil as currently unregulated. Electricity may be becoming more expensive but is regulated.

Northern Ireland are working on some research to consider most suitable heating system when considering comfort of occupant and costs. Around 2/3 of NI homes are currently using oil due to limited gas grid and will need to find alternative solution. Increase cost of kerosene has caused a strong reaction but it is likely that these costs are now only matching the costs of HVO with recent price rises.

Planning permission could be used to enforce heating systems on new builds.

When they have been engaging with the oil sector they did not feel that heating was a priority and pressure to support HVO is coming more from distribution side rather than producers, possibly linked to distribution side not having an alternative business model, noting that producers can also sell into transport market with higher incentives to do so.

Wales have been speaking with BEIS regarding energy resilience and the availability of HVO as this would be reliant on imports. They do not yet have numbers for homes unsuitable for heat pumps but are currently working on archetypes and considering options to end reliance on fossil fuels.

Overall there was concern about availability, sustainability and costs for liquid biofuels. There is still opportunity for the industry to provide evidence base which would encourage support.

Agreement to keep in touch as policy progresses.

Minutes of Meeting

Liquid Gas UK Meeting – 24 March 2022
Attendees

- Patrick Harvie – Minister for Zero Carbon Buildings, Active Travel and Tenants' Rights
- [redacted] – Director of Public Affairs, Liquid Gas UK
- [redacted] – Public Affairs Manager, Liquid Gas UK
- [redacted] – Account Director, Liberty One
- [redacted] – SG Heat Strategy
- [redacted] – SG Bioenergy
- [redacted] – SG Bioenergy

Liquid Gas UK provided an introduction to bio Liquefied Petroleum Gas (LPG), which they consider to be a drop in renewable solution which can be used to provide low carbon heating. The fuel can be used in existing heating appliances, use existing infrastructure and be transported by an existing workforce.
They see use of bioLPG as complimentary to SG objectives as it can be used in hybrid systems alongside heat pump technology, particularly for off-gas grid homes or non-domestic properties with high heat demands.
Research which they have commissioned identified Scotland as a potential location for bioLPG and renewable Dimethyl-ether (rDME) production.
Gasification-based pathways appear have the highest potential with the capabilities to result in a 100% BioLPG transition in Scotland using nationally available resources.

- This is the result of the relatively high volumes of available domestic sustainable woody biomass and the relatively high BioLPG energy conversion yields.
- Refuse Derived Fuel (RDF) volumes currently available in Scotland are also significant and can potentially support indigenous production.
- Opportunity for 3 dedicated bio-refineries utilising sustainable woody biomass, producing circa 180,000 tonnes of bioLPG.

Gasification and Pyrolysis pathways also have high potential to produce significant volumes of renewable DME from residual waste. Opportunities also exist in utilizing existing capacity of the Grangemouth Refinery, which is the only refinery in Scotland with a refining capacity of around 28,000 tonnes per day.

- This available capacity suggests that very large volumes of bio-oils can be co-processed with petroleum intermediates, without reaching any blending limits.

Liquid Gas UK stated that they were not in favour of direct pricing measures to remove the incentive to use fossil fuels as both LPG and bioLPG are chemically identical. They feel sustainable controls would encourage use of bioLPG.

Liquid Gas UK are currently working on a report which should be due in May and will provide comparison of biofuel against hydrogen.

Scottish Government consulted on our Heat in Buildings Strategy last year and will move forward with focus on developing regulations and targeting early movers and those in or at risk of fuel poverty through current heat in buildings recovery programmes . In the lead up to the development of a Bioenergy Action Plan, Scottish government will consult with the industry and will include Liquid Gas in this process.