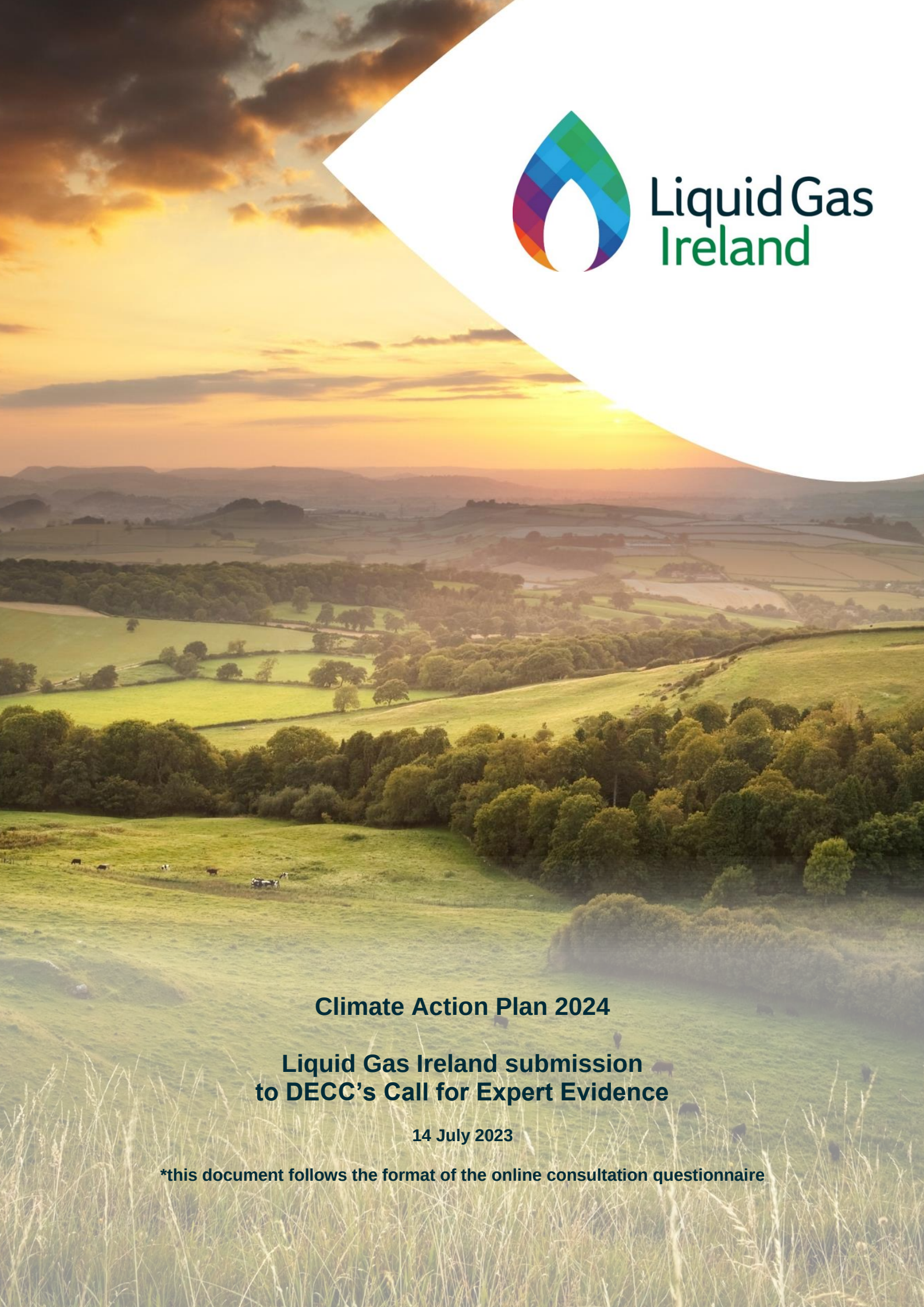

Liquid Gas Ireland

Climate Action Plan 2024

Liquid Gas Ireland submission to DECC's Call for Expert Evidence

14 July 2023

***this document follows the format of the online consultation questionnaire**

Table of Contents

Introduction to Liquid Gas Ireland 3
Section 1: Sectoral Emission Ceilings 4
Section 2: Carbon Pricing and Cross-Cutting Issues 5
Section 3: Electricity 6
Section 4: Industry 7
Section 5: Built Environment 9
Section 6: Transport 12
Section 7: Agriculture 14
Section 8: Public Sector Leading by Example 14
Section 9: Just Transition 15
Section 10: Research and Innovation 116

Introduction to Liquid Gas Ireland

Liquid Gas Ireland (LGI) is the association representing companies operating in the LPG and BioLPG industry in Ireland. Members include LPG and BioLPG distributors, equipment manufacturers, and service providers. Our mission is to ensure that policy makers continue to recognise LPG and BioLPG as the cleaner, versatile, and alternative lower carbon energy of choice for off-grid energy users in the residential, commercial, industrial, agriculture, leisure, and transport sectors in Ireland. Liquid Gas Ireland is committed to working with consumers, stakeholders, and policymakers to support Ireland's goal to tackle air quality, drive decarbonisation and achieve net zero emissions by 2050.

As part of Liquid Gas Ireland's response to the Department of Environment, Climate and Communication's Call for Expert Evidence - Climate Action Plan 2024, we wish to respond to the consultation questions posed under the following sections:

- Sectoral Emission Ceilings
- Carbon Pricing and Cross-Cutting Issues
- Electricity
- Industry
- Built Environment
- Transport
- Agriculture
- Public Sector Leading by Example
- Just Transition
- Research and Innovation

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Section 1: Sectoral Emission Ceilings

What do you view as the key actions required to ensure the emission reduction targets set out in the Sectoral Emission Ceilings are met?

Liquid Gas Ireland (LGI) believes a 'mixed technology' approach can significantly help emission reduction targets being met, especially in the built environment. By 'mixed technology' we mean a wider suite of options beyond the current 'one size fits all' approach of heat pumps to help homes and businesses reduce emissions.[1]

This 'mixed technology' approach, using LPG and BioLPG along with improved building energy efficiency measures, is a more effective and fairer way to move rural homes and businesses away from oil and solid fuels to lower carbon emitting options. Not only is this a cheaper option to install, but it will also improve energy efficiency and air quality.

LPG and BioLPG have an important role to play in helping tackle air pollution particularly in rural areas. Poor air quality is a significant challenge in rural towns where households traditionally use high carbon solid fuels like coal and turf for home heating.

There are an estimated 1,300 premature deaths in Ireland per year caused by fine particulate matter in our air. The Environmental Protection Agency's (EPA) Air Quality in Ireland 2020 report noted that any movement towards cleaner home heating choices and less smoky solid fuel choices will result in a subsequent improvement in air quality.

As clean burning fuels with extremely low levels of air and particulate pollutant emissions (NOx, SOx and PM), LPG and BioLPG give households an option to contribute to improving local air quality by switching away from high carbon solid fuels.

A switch to LPG or BioLPG would have an immediate and lasting impact on regional air quality in Ireland, supporting the objectives of the Government's Clean Air Strategy, thereby helping to ensure the emission reduction targets set out in the Sectoral Emission Ceilings are met.

What do you view as the main challenges/obstacles to the Sectoral Emission Ceilings being met?

Meeting sectoral emission ceilings is undoubtedly a challenge across all sectors. All stakeholders and energy providers must play their part. For the built environment, meeting these targets must follow a 'just transition' pathway away from high carbon fossil-based fuels that are accessible and affordable for all homes and businesses, especially in rural Ireland.

When it comes to energy supply there is huge scope to expand the focus beyond the narrow set of options currently being put forward to help homes and businesses decarbonise. This is particularly impacting owners of rural dwellings, most of which aren't on the national gas grid and traditionally rely on high carbon fossil fuels like oil for energy.

This narrowly focused current approach on heat pumps, is LGI believes an obstacle to sectoral emission ceilings being met. A mixed technology approach allowing for the installation of a renewable ready gas boiler running on LPG, BioLPG, or a blend of both, would undoubtedly contribute to reduction targets being met.

[1] Liquid Gas Ireland: Liquid Gas – Making the 'Just Transition' more sustainable for rural Ireland (2023)

Section 2: Carbon Pricing and Cross-Cutting Issues

What regulatory or administrative supports can be provided to ensure bioeconomy activities accelerate across all sectors?

Affordability of cleaner, lower carbon energy solutions will be key for the economic recovery of rural households and businesses now and in the future. This can be promoted through appropriate supports for LPG and BioLPG renewable ready gas boilers that are the most cost-effective lower carbon option for many households, especially older properties that are less energy efficient.

Retrofitting rural homes for heat pump installation to improve energy efficiency is proving to be costly and impractical for older more traditional dwellings. Yet the Irish Government continues to pursue this 'one-size fits all' approach to decarbonisation with a real risk of rural Ireland being left behind on Ireland's decarbonisation journey.

For an average household, the upfront cost of an electric heat pump can be up to €12,000.[2] This compares to €5,000 for a new renewable ready gas boiler. The SEAI indicate that the average total capital cost to upgrade a home from an average BER rating of F to an average A3 rating is over €60,000 - beyond the financial reach of most rural households.

LPG and BioLPG enabled boilers offer a long-term, cost-effective pathway to decarbonisation through the use of LPG and gradual introduction of BioLPG into the mix, over time, carbon emissions will reduce. LPG and BioLPG can also be used seamlessly in cutting edge heating systems, such as gas driven heat pumps and hybrid heat pumps.

Ireland can achieve its retrofitting target, but only if it embraces all low-carbon technologies in the transition. By including and supporting LPG, BioLPG and in time renewable Dimethyl Ether (rDME) in this exercise, the target can be met whilst reducing the unsustainable financial burden on rural consumers. In getting to this place consumers must have the necessary supports to install and utilise this sustainable technology, rather than the sole current focus on heat pumps and its accompanying deep retrofitting.

What further opportunities exist within our taxation system, beyond measures already implemented and planned, to promote emissions reductions, either on an economy-wide basis, or in specific sectors?

BioLPG (AKA: HVO Renewable Propane) supplied on the market today is compliant with EU-RED II, is a fully traceable renewable fuel and is certified under the International Sustainable Carbon Certification (ISCC) scheme. The EU Commission's Implementing Decision on ISCC (April 2022) reconfirms that the ISCC voluntary scheme demonstrates compliance of BioLPG with the requirements set in EU-RED for biofuels, bioliquids, biomass fuels, renewable liquid and gaseous fuels of non-biological origin and recycled carbon fuels.

BioLPG can be blended up to 100% and can continue to make a significant contribution to Ireland's renewable heat and transport decarbonisation goals to 2030 and beyond.

The LPG sector's development product, rDME is largely like LPG in the manner it is handled and can be blended into LPG. It can be produced in a variety of manners and from numerous feedstocks, with the potential of reduced carbon emissions. The LPG industry is constantly innovating when given the correct incentives and time. rDME is evidence of this.

[2] Sustainable Energy Authority of Ireland (SEAI): National Heat Study

BioLPG, as a renewable fuel, is exempt from carbon tax, meaning it is a great investment for the future. Accepting BioLPG as part of the solution to reducing emissions and embracing it as part of the renewable mix in Government policy will drive the transition to BioLPG without requiring changes to the taxation system. The legislation underpinning the Carbon Tax system has shown itself to be flexible in terms of helping to promote a switch from higher carbon fuels like solid fuels and oil, to cleaner, lower carbon alternative fuels including LPG and renewable BioLPG.

Section 3: Electricity

What role does renewable gas have in the power generation sector?

Renewable gases such as rDME have an important role to play in decarbonising power generation by replacing diesel used in off-grid generators. The transition away from diesel systems will be game-changing for air quality whilst also lowering GHG emissions.

The wide range of available feedstocks and production methods available to produce rDME make it a versatile and flexible decarbonisation route. It can be produced via gasification and catalytic synthesis, using feedstocks such as municipal solid waste, forest residues, animal waste, sewage/industrial sludge, and energy crops. Producing from cow manure is especially attractive as it prevents its high methane content being directly released to the atmosphere.

Therefore, rDME produced from dairy gas (cow manure) has the potential for negative carbon emissions of -278gCO2e/MJ, meaning the carbon emissions of an LPG: rDME blend can be close to 0.[3] Producing from municipal waste will reduce Ireland's reliance on EfW incineration, with 46% of Ireland's municipal waste currently being incinerated.[4] Incineration and landfill result in air pollution causing detrimental societal health impacts, such as asthma.

Furthermore, producing rDME is a far more efficient use of waste, reducing emissions by more than 80% compared to incineration.[5] Most DME (chemically identical to rDME but not made from renewable feedstocks) on the market is produced via catalytic synthesis of methanol. By switching to renewable methanol, plants can immediately start producing rDME. Finally, power-to-x technology can be used to produce rDME from low-carbon hydrogen and carbon dioxide.

Section 4: Industry

What measures can be taken to facilitate the achievement of carbon-neutral low temperature heating targets set out in CAP24 in the manufacturing sector?

LPG and BioLPG is used across a range of sectors in Ireland today, especially in areas not connected to the national gas grid or centralised heating systems. In time this will be supplemented by rDME. As well as homes, businesses in the agriculture, hospitality, leisure and transportation sectors meet their heat and power needs met through these low carbon energy solutions.

LPG is a clean-burning, smoke-free fuel that cuts carbon emissions from heating oil by 11% and 33% less carbon than coal.[6] BioLPG is a chemically indistinct but renewable version of LPG, made from sustainably sourced renewable vegetable oils, wastes, and residues.

[3] Oberon Fuels: Making rDME fuel from waste
[4] Environmental Protection Agency (EPA): Municipal waste statistics for Ireland
[5] Kew Technology: Delivering a world beyond fossil fuels – Re-inventing waste to energy
[6] Sustainable Energy Authority of Ireland (SEAI): Conversion Factors

BioLPG reduces greenhouse gas emissions by at least 50% and up to 90% against set values of fossil fuels, in accordance with the European Union Renewable Energy Directive and is certified under the International Sustainable Carbon Certification (ISCC) scheme. Exempt from carbon tax, BioLPG is currently used in Ireland providing the same heating and fuel properties as LPG.

As BioLPG can be used in existing LPG infrastructure, it increases the speed at which renewable fuels can be used by industry across Ireland without the need for capital investment. LPG and BioLPG offer sensible and accessible solutions for industries moving to carbon neutrality. There is huge potential to accelerate the transition to carbon neutral energy for these industries in rural areas and off the natural gas network.

A 'mixed technology' approach is required to incentivises a switch from Heavy Fuel Oil (HFO), which is the historical fuel of choice for large industrial steam boilers with significantly elevated carbon, NOx, Sox. Switching kerosene and coal energy systems to renewable ready gas boilers makes sense for homeowners, businesses, as well as all engaged in enterprise and industry in rural areas. The switch is easy and affordable and the environmental benefits immediate. This switch should be incentivised and supported by Government.

As a sector, LGI supports the principle of energy efficiency and delivers energy saving measures for our rural consumers. We support the deployment of highly efficient renewable ready gas boilers, which are supporting rural business customers further along on their energy efficiency and decarbonisation journey.

What measures can be taken to decarbonise high temperature heating in industry?

LGI member companies are well positioned to transition tens of thousands of businesses away from oil boilers to lower carbon solutions. As an industry, we are committed to 100% BioLPG coverage as set out in our Vision 2040 document, and in time rDME.[7]

Consumers at all levels would benefit from the Climate Action Plan 2024 supporting a 'mixed technology' approach which offers a choice of heat decarbonisation solutions. This should include the lower carbon options provided through renewable ready gas boilers which will significantly benefit businesses in rural off grid areas. This switch is easy and affordable to make, and the environmental benefits are immediate.

The EPA has recently demonstrated in its analysis on greenhouse gas emissions that industry needs to do more in meeting its targets under our climate action commitments.[8] Both LPG and BioLPG offer significant potential to assist industry in its decarbonisation journey. Both fuels can and are playing a key role in helping rural Ireland in particular meet its energy needs while lowering carbon emissions. This must be embraced as part of Ireland's policy approach to achieving emissions targets.

A prime example of the decarbonisation of a high temperature application would be thermal oxidisers, used commonly within the pharmaceutical sector. A switch from gas oil/kerosene to BioLPG would achieve up to 90% carbon emission savings.

What other opportunities exist to drive the decarbonisation of the industry sector?

LGI member companies can and are playing a very significant role in helping to reduce the dependence on oil heating for major industrial and commercial facilities across Ireland. They continue to work with enterprise across a variety of sectors including hospitality, food

[7] Liquid Gas Ireland: LPG and BioLPG: A Greener Deal for Rural Ireland

[8] Environmental Protection Agency (EPA): Greenhouse gas emissions and projections

processing, healthcare, sports and leisure, industry, and education on their journey to decarbonise their onsite heating systems. In the last decade, liquid gas has helped transition very significant oil dependent businesses to cleaner, lower carbon energy efficient solutions.

Going a step further, transitioning from LPG to renewable BioLPG for such commercial and industrial facilities requires no further capital investment for individual businesses as there is no change to infrastructure required for this switch. As an industry, we aim to transition to 100% BioLPG by 2040 and in doing so, can act as a huge support for the Irish enterprise sector, while simultaneously helping to reduce greenhouse gas emissions and dramatically improve air quality all over Ireland. The next step in the process will be a move to rDME as a renewable drop-in complementary fuel of the future and innovative alternative energy of choice.

What measures should be taken to address the risks that climate change poses for industry?

The impact of climate change is undeniable, and it is no exaggeration to say that it is perhaps the greatest existential threat facing humanity as LGI argues in its *Liquid Gas-making the 'Just Transition' more sustainable for rural Ireland.*

LGI strongly argues that the increased use of LPG, BioLPG and in time rDME, offers industry options which help address the challenges brought by climate change and the increase in greenhouse gas emissions. It offers a very effective decarbonisation pathway for industries off the national gas grid and traditionally rely on high carbon fossil fuels like oil for energy.

Central to the Programme for Government is the commitment to an equitable Just Transition. This is especially relevant for business including those who have had significant capital expenditure over last decade in their transition away from oil. A 'mixed technology' approach is a key measure to help reduce the risk that climate change poses for industry.

Are there measures that can be taken to assist businesses sustain the additional operating costs associated with moving to new, low-carbon technology?

The Irish Government should support the transition away from oil heating for all consumers, especially industry in adopting a 'mixed technology' approach, as advocated strongly by LGI in its *Just Transition* document. The current 'one size fits all' approach, which prioritises the installation of heat pumps, is straightjacketing the options open to consumers in rural areas seeking to decarbonise. While the environmental impact of heat pumps is obvious, a sole focus on this alone is blunt an instrument.

Grants for renewable heating technologies should be expanded to other technology options for businesses, particularly renewable ready gas boilers. Such modern boilers have efficiencies of more than 90% compared with 70%-80% with conventional designs (based on the higher heating value fuels). This position has received industry consensus, as published by Renewable Energy Ireland in its 40by30 report (2021).[9] There is potential to combine a flue gas economiser with a gas fired boiler to maximise the efficiency. This is not possible with oil systems.

In addition to this, financial incentives can be directed at the fuels themselves or the technologies that use them. Fuel incentives can take the form of a lower rate of excise duty and/or sales or value-added tax (VAT) or a complete exemption. In some cases, businesses may enjoy a rebate on fuel taxes.

[9] Renewable Energy Ireland: Renewable Heat Plan (2021)

Section 5: Built Environment

What further supports can be put in place to address the split incentive when retrofitting rental properties (residential and commercial)?

It is understood that in most cases, private renters do no not have the authority, or access to grants to make changes to their homes to ensure greater energy efficiency. Those on low incomes are placed under the financial burden of heating often inefficient homes and often don't have access to incentives such as retrofitting.

Landlords in both the residential and commercial sector should be incentivised through the SEAI to install renewable ready gas boilers which to be effective would require relatively minor retrofitting and allow for a significant reduction in carbon emissions. For a fraction of the cost of installing a heat pump with supporting deep retrofitting, landlords could create an environment for their tenants which is just as efficient. This 'mixed technology' approach centred on LPG and BioLPG has a significant role to play in making all buildings, whether private or rented, more environmentally friendly.

How can we encourage SMEs to upgrade the energy efficiency of the buildings they own?

LPG and BioLPG. are already widely deployed by SMEs in the industrial, hospitality, leisure, and transportation sectors, particularly in areas not connected to the national gas grid. They offer viable and lower carbon solutions to such businesses wanting to move away from heavy duty fossil fuel such as kerosene.

A 'mixed technology' option for the SME sector as they move to steer their energy needs towards decarbonisation, should be supported and incentivised. This can be done by extending grants to cover the installation of renewable ready gas boilers and the accompanying light retrofitting. This offers an effective and more affordable choice than the 'one size fits all' heat pump approach.

What immediate actions can we take to address the skills shortage in the construction sector, to facilitate meeting our annual retrofitting targets?

By incentivising a 'mixed technology' approach that supports options beyond the 'one size fits all' strategy currently being deployed by the SEAI, there would be less pressure on the construction sector, as the level of retrofitting required would not be as extensive. Renewable ready gas boilers using LPG and BioLPG, or a blend of both, require far less accompanying retrofitting to be at least as efficient as a heat pump, as LGI has demonstrated in its own research.[10]

In supporting the greater use of renewable ready gas boilers as a replacement of inefficient fossil fuel oil boilers, consumers would benefit from the technical capacity of those already working in the renewable boiler installation sector.

How can we further support local authorities to deliver on social housing retrofit targets?

Local authorities should be incentivised and supported to embrace a 'mixed technology' approach which is not fixated on the single solution of heat pump installation. Not only will this

[10] Liquid Gas Ireland: Liquid Gas – Making the 'Just Transition' more sustainable for rural Ireland (2023)

approach significantly lower carbon emissions in older local authority housing stock, but it will also do so in a more economic and cost-effective way.

In addition to the existing financial supports and policy measures, are there any other incentives/assistance needed to help homeowners upgrade the energy efficiency of their homes?

As outlined earlier in this section and repeatedly stated throughout this submission, homeowners need more options than the current 'one size fits all' approach which underpins the National Retrofit Programme. Heat pumps are undoubtedly an effective way of reducing carbon emissions. However, they are only one option and not the most appropriate for many rural homes and businesses. The 'mixed technology' approach as championed by LGI should be a viable option and should be incentivised by Government.

What specific actions can the public sector take to improve the efficiency of its building stock?

See answer given in Section 8, **Public Sector Leading by Example**.

Further to the existing supports financed by carbon tax revenues, how can we protect those who are currently experiencing fuel poverty and those who are at risk?

The Russian conflict with Ukraine has had a profound effect on the price of energy and contributed to a significant increase in fuel poverty. The Government is restricted in what it can do to control prices, however it has responded in a significant way through direct payments to consumers to soften the impact of spiralling domestic bills appears. It has also moved to introduce several support schemes for business. Unfortunately, despite a very significant fall in wholesale prices, the utility companies have yet failed to pass these on to consumers, this is especially so for the price of natural gas. It is hoped that this will change later in the year to a more favourable position for hard pressed consumers.

LGI member companies can help to combat energy poverty by supplying cleaner, lower carbon and more affordable energy to homes and communities that are not connected to the natural gas grid. This can be done by encouraging a switch from oil heating systems to renewable ready gas boilers which cater for LPG and BioLPG. The 'one size fits all' option which favours heat pumps is an expensive exercise when compared to the installation of such boilers as we have already demonstrated.

In extending incentives to encourage the installation of renewable ready gas boilers, the Government can provide choice and better affordability to homes and businesses particularly across rural Ireland who are under pressure to decarbonise their heating systems. This can help to stave off the societal and health impacts of energy poverty as well as ensuring BER improvements.

What specific measures can be implemented to improve the efficiency of rolling out the National Retrofit Programme?

LGI recognises that the National Retrofitting Programme is benefitting many consumers seeking to upgrade the energy efficiency of their homes and reducing carbon emissions. However, we are strongly of the view that the one 'size fits all' approach does not suit many homes, especially in rural Ireland. Some properties are markedly more difficult to treat, being unsuitable for a deep fabric insulation retrofit which is required for a heat pump to be effective.

Despite allocating considerable resources to the plan through the SEAI, the National Retrofitting Programme appears to be considerably behind target. Not only does there appear

to be considerable challenges in accessing the labour required to carry out the programme, as previously stated in this submission, the costs involved, even with SEAI grants are prohibitive for many householders.

Unless alternative, more accessible, versatile, and affordable options are encouraged by Government to help a broader national cohort of homeowners decarbonise Ireland remains at serious risk of missing its 2050 net zero emissions target.

LGI strongly argues that the Government should move to a 'mixed technology' approach that would support homeowners with the installation of LPG and BioLPG renewable ready gas boilers, along with the necessary light retrofitting. This can be done at a fraction of the cost of fitting a heat pump and undertaking the necessary fabric upgrades. This will require a broader policy vision as it is becoming increasingly clear that the current narrow options aren't securing the national buy-in required, particularly from homeowners in rural Ireland.

Further to those technologies identified in previous iterations of the Climate Action Plan, what other additional measures could be used to reach our emission reduction target in this sector?

While LPG already offers significant reductions in carbon and air pollutant emissions, BioLPG should be recognised as a fuel for now and for the future, providing up to 90% certified carbon emission savings compared to conventional LPG.

Already available on the market today, BioLPG allows off-grid homes and businesses to significantly reduce their carbon footprint without expensive retrofitting or changes to heating systems.

BioLPG is certified as renewable by the EU and Irish Government and is exempt from carbon tax, meaning it is a great investment for the future. As BioLPG is a 'drop-in' fuel, LPG infrastructure is already prepared for the future, so no new equipment is required.

What specific measures would incentivise a greater rate of oil boiler replacement

LGI strongly advocates throughout this submission for a 'mixed technology' approach to decarbonising rural homes and businesses in Ireland. The days are clearly numbered for heavy fossil producing systems run on oil.

Over two million houses and apartments account for Ireland's housing stock. With just over 700,000 homes and businesses connected to the national gas grid, most properties across Ireland are dependent on other energy sources, especially oil[11]. 65% of properties located off the natural gas grid rely on oil as the energy source of choice for home heating while others rely on high carbon traditional fuels like coal and turf. 40% of rural buildings in Ireland were built before 1980, meaning they are typically less energy efficient and more costly to heat.

LGI feels that the argument in favour of relacing an oil boiler heating system, with a renewable ready gas boiler is compelling. It ticks all the boxes regarding energy efficiency, decarbonisation, and affordability. The 'one size fits all' approach being so vigorously promoted by the Government is skewed heavily in favour of heat pumps, which are an effective means of decarbonisation, but not the most appropriate option for many consumers, especially for those in who are not connected to the natural gas grid and mostly in rural areas.

This can be a very expensive exercise when compared to the installation of a biofuel-ready LPG boiler. The Government, through SEAI should broaden its approach and embrace a

[11] Government of Ireland: Policy Information – Gas

'mixed technology' approach which incentivises the replacement of oil boilers with renewable ready gas versions.

Section 6: Transport

What specific measures should be applied to deliver additional emissions reduction and improved energy efficiency in the transition of our vehicle fleet from fossil-fuels?

Ireland has a high dependence on fossil fuels for transport, which results in significant GHG and air pollution and so causes negative societal health impacts. This is recognised as a key public health issue by the Environmental Protection Agency. BioLPG (AKA: Hydrotreated Vegetable Oil Renewable Propane) and rDME have an important role to play in helping tackle air pollution. There are an estimated 1,300 premature deaths in Ireland per year caused by fine particulate matter in our air. As clean burning fuels with extremely low levels of air and particulate pollutant emissions (NOx, SOx and PMx), using rDME and BioLPG can contribute to improving local air quality, supporting the objectives of the Government's Clean Air Strategy, helping to deliver on Ireland's air quality targets.

As set out in LGI's Vision 2040, BioLPG currently used in Ireland is a by-product of a conventional hydrotreated vegetable oil (HVO) process that mainly produces renewable biodiesel. Similarly, rDME is a gaseous fuel produced from a wide range of renewable feedstock, including waste streams and residues. Chemically similar to LPG, it can be blended with LPG and used in existing vehicles.[12] It is a sustainable gaseous fuel that can reduce greenhouse gas (GHG) emissions by more than 80% and it significantly improves local air quality when substituting diesel across the transport sector.

To ensure rapid uptake of renewable fuels in the EU market across all sectors, including BioLPG and rDME, it is important to signal to the industry and energy citizens that production and use of renewable fuels will be supported in the long term by coherent legislation and policies. This can only be achieved if measures and incentives are consistent across legislative files.

What specific measures should be applied in the commercial transport sector to encourage or accelerate a change to EVs or to other zero carbon alternatives?

BioLPG can be blended up to 100% with LPG and can continue to make a significant contribution reducing transport emissions. There is a large range of hard to electrify transport cases which will require alternative fuels at scale in the long term. Biofuels such as rDME and BioLPG can provide an instant fossil fuel replacement to areas which require alternative solutions to electrification.

However, to meet the additional demand, support towards the development of these fuels is required and incentives put in place for domestic production of BioLPG and rDME. A contracts-for-difference scheme should be considered to encourage domestic production of fuels like rDME and BioLPG or increased credit incentives for fuels which can feed these new markets.

The use of LPG to fuel forklifts is an example of how alternative fuels, such as LPG and BioLPG can support significant emissions reductions across the sector. Some of the largest businesses in Ireland depend on LPG for their forklift operations. This means a stable and secure supply will be needed to support their timely movement of goods from storage to distribution, through indoor and outdoor environments. Using LPG and BioLPG, results in improved air quality when compared to other fossil fuel alternative technologies and reduces the need for additional infrastructure (charging points) when compared with electric.

[12] Liquid Gas Europe: Position on the Proposal for an Alternative Fuels Infrastructure Regulation

Therefore, a restrictive policy on LPG and BioLPG can lead to higher costs and impede business operations, which can result in inflationary pressures in an already precarious economic situation.

Consideration must be given to the ability to produce the renewable fuels at the scale required to meet demand. To ensure rapid uptake of renewable fuels in the EU market across all sectors, including BioLPG and rDME, it is important to signal to industry and the energy sector that production and use of renewable fuels will be supported in the long term by coherent legislation and policies. This can only be achieved if measures and incentives are consistent across legislative files.

What are the key elements of a just transition in transport? Are there certain cohorts that should be insulated from potential increased costs or how best can we address distributional impacts in a more equitable manner?

The Programme for Government commits to ensuring that increases in carbon tax are progressive and investment is made to prevent fuel poverty to ensure a just transition. LGI believes that targeted interventions by the Government can meet the principles of the Just Transition Framework.

To ensure a just transition the Government must incentivise the production of BioLPG and newer renewable liquid gas development fuels like rDME to ensure indigenous supply meets demand and that essential fuels remain affordable. The Government should also consider a reduction in the carbon component 'B' of the Mineral Oil Tax when BioLPG is used as a propellent to make it even more attractive for road vehicles.

By facilitating research and development funding for the sector, Ireland can provide a platform for those entities intending to support domestic production to do so.

What other opportunities exist to support the decarbonisation of the Transport sector?

HVO production is increasing in Europe, driven by the revised EU-RED and renewable transport fuel targets. The Irish market is likely to be dependent on imports in the short-medium term without investment in domestic production. There is significant potential, however, for investment in indigenous production facilities in Ireland. Opportunities include new HVO plants, coprocessing at existing refineries and commercialising new and novel processes for bio-propane synthesis.

Section 7: Agriculture

What can be done to maximise the use of grass, manure, and silage as feedstock for biomethane generation or for processing through biorefineries?

Sustainable feedstocks including plant waste, municipal solid waste, vegetable oils and biogas are used in the production of BioLPG and rDME. This also includes animal waste, which is constituted through biomethane. A low carbon, sustainable, liquid gas, which is complimenting the advances being made by BioLPG, a key component in the production of rDME is animal waste.

rDME can be produced via gasification and catalytic synthesis, using feedstocks such as municipal solid waste, forest residues, animal waste, sewage/industrial sludge, and energy crops. Of relevance is the fact that producing rDME from cow manure is especially attractive as it prevents its high methane content being directly released to the atmosphere.

The current Climate Action plan commits to the completion of a National Biomethane Strategy in 2023.[13] LGI believes that the development of biomethane production in Ireland must be supported by capital investment from Government in biorefineries. Likewise, the production of rDME in Ireland which has plentiful access to sustainable feedstock, must be supported.

What other opportunities exist to support the decarbonisation of the agriculture sector?

Low carbon LPG and BioLPG is already widely used in the agriculture sector providing sustainable heating solutions in many farms. As well as offering a more affordable energy transition option for homes in rural Ireland who are moving away from heavy fossil kerosene, liquid gas deployment though renewable ready gas boilers play a key role in milking parlours where a reliable hot water system is essential. Likewise, there is great potential to use BioLPG in the grain drying sector.

Mirroring LGI's call for a 'mixed technology' approach to decarbonising homes and businesses in rural Ireland, Government should incentivise and support the installation of such boilers in the agriculture sector, particularly for dairying. Greater use of LPG, BioLPG or a blend of both undoubtedly expands decarbonisation options for the agriculture sector.

Section 8: Public Sector Leading by Example

How would you recommend approaching the retrofitting and decarbonisation of the public sector's building stock?

Retrofitting older buildings, which account for much of the public sector's building stock, for heat pump installation to improve energy efficiency is proving to be costly and impractical, particularly for buildings in rural areas. The Government 'one-size fits all' approach to retrofitting and decarbonisation runs a real risk of rural Ireland being left behind on the decarbonisation journey.

A variety of cleaner, lower carbon energy options will be crucial in allowing older building stock to become more energy efficient. As lower carbon, convenient and cost-effective energy solutions, LPG and BioLPG can allow off-gas grid buildings to switch from oil, coal, and other solid fuels and significantly reduce their emissions, without a deep retrofit of the property. Renewable ready gas boilers offer a long-term, cost-effective pathway to decarbonisation, through the gradual introduction of renewable LPG, including BioLPG and rDME, into the fuel mix over time.

Section 9: Just Transition

Are there are any emerging areas of vulnerability in specific sectors of the economy as a direct result of the implementation of Ireland's climate action policies?

Climate change policy must be equitable for all families and all businesses. The 'one size fits all' approach as set out in the National Retrofit Plan is not a good fit for rural off gas grid Ireland.

The 'Just Transition' away from heavy fossil fuels needs to follow a path that is fair for all. LGI argues that this can be done through a 'mixed technology' approach which supports the installation of a renewable ready gas boiler that caters for lower carbon LPG, BioLPG, or a blend of both.

[13] Department of the Environment, Climate and Communications: Climate Action Plan 2023

Current policy is too narrow for the 500,000 homes who have no access to the natural gas network, most of which rely on oil for central heating. Even with the grants on offer from SEAI, a deep retrofitting initiative to include a heat pump, can cost over €60,000 to roll out in an existing home due to the amount of work required. This is simply too expensive an option for many.

In contrast, LGI has demonstrated how a transition from oil to a renewable ready gas boiler, with moderate fabric upgrades to a home is achievable for just over €11,000 and can deliver a BER uplift from D1 to B1.[14]

As BioLPG and in time rDME, become increasingly available to the market in Ireland, LGI wants to work in partnership with the Government to drive consumer behaviour in rural areas towards cleaner, more efficient, lower carbon solutions, thereby making the 'Just Transition' a fairer one for all.

What additional supporting interventions should be considered by the Government to address the four principles of our Just Transition Framework within individual sectors?

As outlined in the answer above, the just transition as set out in the revised Climate Action Plan must be implemented in a way that is fair to all sectors of society. Climate change policy must be equitable for all families and all businesses. The 'one size fits all' retrofit scheme, as currently operated, is not equitable and clearly not a fair deal for rural off gas grid Ireland.

The Programme for Government (2020) commits the Government to ensuring that the increases in the carbon tax are progressive and investment is made to prevent fuel poverty to ensure a just transition. LGI believes that targeted interventions by the Government can meet the principles of the Just Transition Framework.

The 'mixed technology' approach that supports both heat pumps and lower carbon options through liquid gas is a compelling one. The heat pump only solution envisions most of Ireland's older households undergoing very extensive retrofitting to be effective. However, this approach does not consider the unique needs and economic and infrastructural challenges of rural Ireland. 500,000 homes, mostly in rural areas have no connection to the natural gas distribution network. Two-thirds of these currently rely on oil boilers for heating. Connecting these less energy-efficient properties to the natural gas grid is not a viable option. Likewise, the installing of new heat pump technology is prohibitively expensive, despite Government grants.

The principles of the Just Transition Framework will be well served LGI believes through the incentivisation for consumers to install renewable ready gas boilers and not just heat pumps. LPG boilers offer a long-term, cost-effective pathway to decarbonisation through the gradual introduction of BioLPG into the mix. It should be noted that LPG and BioLPG can also be used seamlessly in cutting edge heating systems, such as hybrid heat pump installations. This 'mixed technology' approach can be operated in familiar ways for consumers and offers a more equitable option for rural consumers looking to meet climate change targets while reducing the financial burden of a deep retrofit.

How should Local Authorities seek to integrate just transition considerations into the preparation of their statutory Climate Action Plans?

Local Authorities have a key part to play in addressing carbon emissions. Significant analysis has been done on the local authority development plans of the country's 31 city and county councils to consider how the plans have integrated measures to tackle climate change in their

[14] Liquid Gas Ireland: Liquid Gas – Making the 'Just Transition' more sustainable for rural Ireland (2023)

respective areas.[15] While progress has been significant across the various regions, there is scope for more progress. The implementation of evidence-based and realistic climate mitigation measures into their development plans should be followed and these should be informed by just transition considerations.

LGI believes that these 'Just Transition' considerations can be best reflected by local authorities in the provision of social housing. Supports and targets should be adopted at a local level to encourage a 'mixed technology' approach to upgrading heating systems in older homes, especially in rural off grid areas. This should involve incentivising a switch from oil boilers to lower emission renewable ready gas boilers, using LPG, BioLPG or a blend of both.

Are the proposed functions for the Just Transition Commission appropriate?

LGI believes that the proposed functions of the Just Transition Commission are well positioned and appropriate. It must not have a narrow remit and needs to adopt an approach that considers the social and economic requirements of all citizens, especially those in rural Ireland. It should give a fair hearing to a 'mixed technology' approach as advocated by LGI and that any stakeholder involvement should involve representatives from the energy providers, including those who produce LPG and BioLPG.

Section 10: Research and Innovation

Have you identified any research and innovation gaps which need to be addressed? If so, how can these gaps best be addressed?

LGI has identified a particular need to address research and innovation requirements in the heat and transport sectors. State investment in research and development is imperative to continue progressing the development of advanced feedstock options. This will act to further promote the sustainability of biofuels supply. Our sector has demonstrated significant progress in feedstock development since the introduction of BioLPG to the Irish market in 2018 and would like to see the Government investing in further research to support Ireland's climate ambitions.

Liquid Gas Ireland also believes that there is significant potential for the State to develop the indigenous production of HVO. This is increasing in Europe, due to the revised EU-RED and renewable heat and transport targets. We are likely to be dependent on imports in the short-medium term. However, with the necessary investment in indigenous production facilities in Ireland, real inroads could be made into the development of new HVO plants, coprocessing at existing refineries and commercialising new and novel processes for bio-propane synthesis. This will require a more imaginative approach from Government and could yield significant dividends in terms of employment, enterprise, and innovation.

ENDS
14.07.23

[15] Office of the Planning Regulator: Climate Action and the Local Authority Development Plan (2022)