Department for the Economy
An Roinn Geilleagair
www.economy-ni.gov.uk

USING BIOFUELS TO TRANSITION AWAY FROM FOSSIL FUELS FOR HEATING

CALL FOR EVIDENCE

DECEMBER 2024

Foreword

I am pleased to launch this call for evidence on the use of Biofuels to transition away from fossil fuels for heating.

Research continues to highlight the detrimental impact our over reliance on fossil fuels has on our health and local environment. Our ongoing consumption of fossil fuels also generates problematic greenhouse gas (GHG) emissions and harms the planet. The Executive is committed to achieving net zero GHG emissions by 2050 compared to 1990 levels and fulfil the legislative requirements of The Climate Change Act (Northern Ireland) 2022.[1]

The Executive is actively responding to the climate emergency, collaborating to find solutions that reduce carbon emissions. I have been clear that decarbonisation is the cornerstone of my Economic Vision, it underpins and interlinks all of my key objectives: delivering more good jobs, addressing regional imbalance and increasing productivity.

My department is working hard to deliver the regional Energy Strategy, 'Path to Net Zero Energy,' published in December 2021. A primary goal of the strategy is to replace high-carbon heating sources with low and zero carbon alternatives in homes and businesses as part of the broader effort to decarbonise energy and achieve net zero by 2050.

Where other solutions such as heat pumps and district heating networks aren't currently suitable, renewable liquid biofuels like HVO and bioLPG could play a crucial transitional role in decarbonising our heating systems which relies heavily on heating oil compared to other neighbouring regions.

HVO and bioLPG have lower carbon footprints than fossil fuels and can be used in existing boilers, making them a less disruptive alternative for households and businesses transitioning to green energy.

1 The Climate Change Act (Northern Ireland) 2022 - Key elements | Department of Agriculture, Environment and Rural Affairs (daera-ni.gov.uk)

By working collaboratively across Government and in partnership with the private, sector, my department aims to raise consumer awareness of renewable heat alternatives like biofuels and develop innovative solutions to overcome potential challenges, paving the way for a sustainable future.

Biofuels could contribute to heating homes and commercial spaces while reducing our carbon footprint, assisting in the transition to a new era of cleaner, more efficient, and environmentally responsible heating solutions.

This Call for Evidence is seeking information, data and views from across the energy industry, public sector, business community, consumers and their representative groups. I would encourage you to have your say, your input will play a role in the policy process. Gaining a wide range of views will inform a comprehensive evidence base for the co-development of regional heating policy.

Conor Murphy MLA
Minister for the Economy

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Acronyms and Abbreviations

CO_2	Carbon Dioxide
CfE	Call for Evidence
DfE	Department for the Economy
DAERA	Department of Agriculture, Environment and Rural Affairs
GHG	Greenhouse Gas
HVO	Hydrotreated Vegetable Oil
LPG	Liquefied Petroleum Gas
NO_x	Nitrogen Oxides
PM	Particulate Matter
SO_x	Sulphur Oxides

Strategies considered in this Call for Evidence

- Northern Ireland Energy Strategy 'Path to Net Zero Energy'
- Circular Economy Strategy for Northern Ireland
- A Green Growth Strategy for Northern Ireland - Balancing our climate, environment and economy
- A Clean Air Strategy for Northern Ireland – Public Discussion Document

General Information and How to Respond

Publication dates

Opened from: **Tuesday 10 December 2024.**
Closing date: **Tuesday 4 March 2025 at 23:59.**

Purpose and Scope

This CfE focusses on gathering information on using HVO and bioLPG to decarbonise heating demand where low-carbon technologies, such as heat pumps and heat networks, are not yet suitable or feasible.

We will use the evidence provided to inform policy development ahead of more comprehensive public consultation on Northern Ireland's approach to the decarbonisation of heat.

Statutory Equality Screening (Section 75)

No policy or policy options are being proposed at this stage. The CfE is intended to collect evidence and information to inform the policy development. Any policy changes arising will be subject to further consultation and full equality screening where necessary.

Who Can Respond

We invite stakeholders from diverse backgrounds, including health, consumers and consumer advocates, academia and researchers, industry experts, policymakers, and environmental advocates, to contribute their knowledge and experiences.

DfE recognises the broad range of stakeholders, each of whom may have unique perspectives and insights to offer on specific topics.

Respondents are not required to answer all the questions we've asked and, to help readers to understand the specific areas or topics being addressed, we've broken down the CfE into five chapters to encourage respondents to provide focused and relevant information.

The five chapters are:

1. **Economic Considerations**
2. **Fuel Poverty and Affordability**
3. **Consumer Protections and Engagement**
4. **Ensuring Reliability and Security of Supply**
5. **Health, Environmental and Local Community Impacts**

When responding, please state whether you are doing so as an individual or representing the views of an organisation. If you are responding on behalf of an organisation, please make it clear who the organisation represents and, where applicable, how the views of members were assembled. We will acknowledge your response.

Submitting Your Response

- Where possible, please provide any examples, data or evidence to support your answers.
- You can respond to this consultation online through the link to Biofuels CfE - NI Direct - Citizen Space.
- You can also send your email or written responses to:

Email:
biofuels.cfe@economy-ni.gov.uk

Postal address:
Biofuels for Heating CfE
Heat Policy Team
Department for the Economy
6th Floor, Adelaide House
39-49 Adelaide Street
BELFAST
BT2 8FD

Please reference **"Biofuels for Heat Call for Evidence"** if submitting your response by email or written correspondence. Please use the question numbers to clearly indicate which questions your answer relates to.

Next Steps

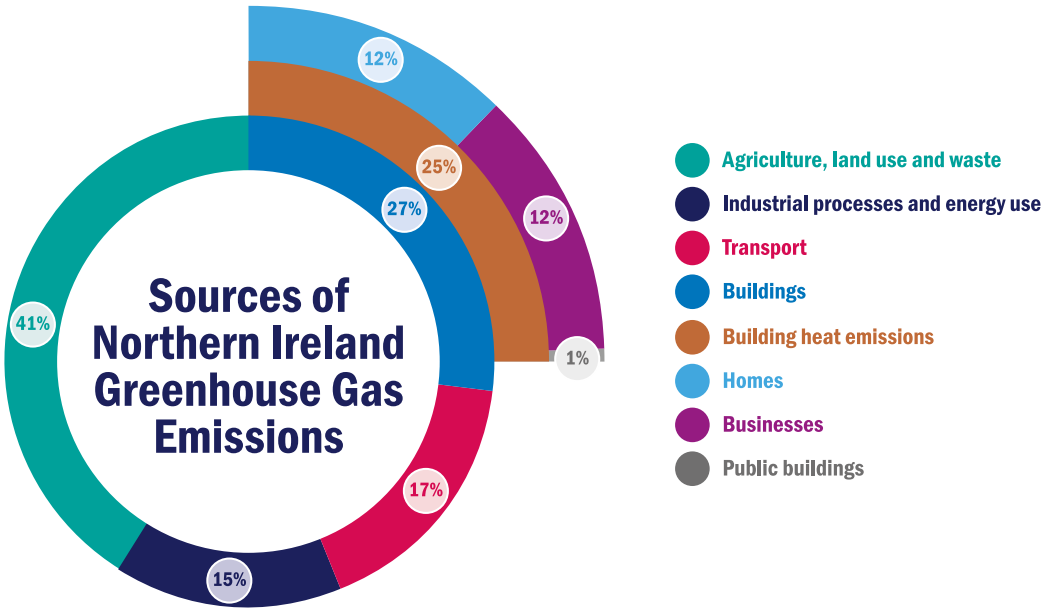
Following the closure and review of the CfE it is intended that responses and analysis will be published on our website.

Background

The most common type of central heating system fuel in Northern Ireland is heating oil (kerosene)[2], with almost 500,000 homes and businesses using oil for their heating needs. This includes properties that are located within one of the local gas grid networks and chooses not to connect, and properties located in areas where the gas grid does not reach (off gas grid).

Heating oil is considered one of the most highly polluting fuels that releases large amounts of CO_2 (33% of world's total) alongside other pollutants, causing global warming and impacting on human health.[3] Therefore a programme to replace fossil fuel heat with renewable energy and/or lower and zero carbon heat will need to be taken forward. The Climate Change Committee (CCC)[4] recommends that heat pumps will form an important part of this programme alongside exploring heat networks and district heating in appropriate areas with a high heat demand density, such as urban areas and industrial estates. However, those heating solutions might not always be suitable or currently available for every property or application of use.

In Northern Ireland, using fossil fuels for heating in our buildings and industry accounts for 25% of problematic carbon dioxide emissions.[5] It is therefore clear that we need to act and promote ways of transitioning towards greener, lower and zero carbon heat sources.



2 Census 2021 Main Statistics for Northern Ireland Phase 2 press release
3 Fossil fuels and climate change: the facts | ClientEarth
4 Advice report: The path to a Net Zero Northern Ireland - Climate Change Committee
5 Greenhouse Gas Inventories for England, Scotland, Wales & Northern Ireland: 1990-2021 | National Atmospheric Emissions Inventory

DfE has published this call for evidence (CfE) to explore sustainable alternatives to liquid fossil fuels, such as heating oil and liquified petroleum gas (LPG) and replacing them with liquid biofuels.[6] Biofuels are typically regarded as much cleaner than their fossil fuel equivalents and the role they play during our energy transition could be the vital accelerator we need to help Northern Ireland achieve net zero by 2050.

Biofuels are typically derived from bioenergy production processes using organic material from energy crops (specific fast-growing plants that are specifically grown for the primary purpose of producing biofuels).[7] However, other fuel production processes utilising waste streams are also being developed to produce fuels.

The optimal scenario is when the carbon emitted during combustion is offset by the carbon absorbed during the growth phase of the feedstock – the reason behind the carbon savings that can be achieved using biofuels.[8] However, there are also concerns that their wider deployment could lead to unintended environmental consequences, especially when their large-scale production necessities land use change.[9] In terms of costs, biofuels are considerably more expensive than their fossil equivalents.[10] They also still produce particulate matter (PM) Nitrogen Oxides (NOx) and Sulphur Oxides (SOx) emissions, which are still a concern insofar as human health and air quality.[11]

Our research and engagement with representatives from the local heating fuel distribution and supply sectors, alongside industry analysts, informs us that Hydrotreated Vegetable Oil (HVO) and bioLPG are potentially the most likely sources of replacing fossil fuels for heating requirements that can't currently be met by the gas grid, heat pumps or district heating networks.[12] They are low-carbon drop-in replacements to traditional fossil fuels that can be used to quickly decarbonise heating and hot water. Properties that use heating oil or LPG could make an immediate transition to low carbon heating using HVO* or bioLPG** respectively.[13] Ultimately, this could enable householders and business owners to plan their transition to a heat pump more constructively and take steps when their financial circumstances allow.

6 What are Biofuels? | Biofuels (learnbioenergy.org)
7 Bioenergy - IEA
8 Comparing renewable sources of energy - Energy resources - AQA Synergy - GCSE Combined Science Revision - AQA Synergy - BBC Bitesize
9 Environmental sustainability of biofuels: a review - PMC (nih.gov)
10 HVO Fuel Price Per Litre UK £1.50 To £3.00 Jerrycans Or IBCs
11 Air pollution effects on your lungs, including lung cancer | Asthma + Lung UK
12 Other fuels | Department for the Economy
13 Government conversion factors for company reporting of greenhouse gas emissions - GOV.UK
*90% reduction in carbon based on emission factors of 3.07 kgCO2e / litre for "burning oil" and 0.31 kgCO2e / litre for biodiesel HVO.
**85% reduction in carbon based on emission factors of 1.74 kgCO2e / litre for LPG and 0.26 kgCO2e / litre for biopropane (bioLPG).

This CfE is your chance to provide contributions in helping shape our understanding of biofuels and their role in transitioning away from fossil fuels. Your insights will play a valuable role in informing our policies and decisions in this important area. The outworking of this will ultimately feed into the strategic decarbonisation of heat throughout Northern Ireland, outlining pathways that are predictable and constructive in reducing our emissions and providing affordable energy.

Economic Considerations

Stable and affordable energy can provide consumers, both domestic and business, with greater financial security by allowing budgets to be planned and money set aside. But the current economic predictability of biofuel prices is subject to the same volatility of fossil fuel prices as they are traded the same way on open international markets.

According to the Organisation for Economic Cooperation and Development (OECD) international biofuel prices are projected to increase over an outlook period of 2021-30. They also say that "Over the medium term, global biofuel consumption is expected to increase, mainly driven by higher blending targets in developing countries. In developed countries, biofuel expansion will be limited due to decreasing fossil fuel demand and reduced policy incentives."[14]

Fossil fuels have benefited from many decades of subsidy, investment, research and development. By comparison, biofuel technologies are still evolving, and products are still in various stages of development and biofuels production often occurs at a smaller scale.

As research and innovation continues to make processes more cost effective, the cost of biofuel production may be driven down. This could have a lowering effect on retail prices; however, it is not possible to anticipate how and when that will occur. According to our engagement with stakeholders there is long-term investment in biofuel infrastructure planned across the UK, Europe and further afield.

Biofuels can also be produced domestically as production does not require any oil, gas or mineral extraction. Local production could lead to reducing our dependence on fuel imports (including fossil fuels and biofuels) and the vulnerability to international market price fluctuations. This could also enable consumers to benefit from a more predictable and stable energy landscape when transitioning to biofuels and supporting the biofuel industry could contribute to local economic growth, job creation, and community development. However, we understand that currently there is no large-scale production of HVO and BioLPG in Northern Ireland meaning we rely upon imports from GB and other markets for our current consumption.

14 OECD-FAO Agricultural Outlook 2021-2030 | OECD-FAO Agricultural Outlook | OECD iLibrary

Biofuel supplies are expected to increase but several different sectors already have a competing interest in using biofuels including aviation and maritime, transportation and other industrial and commercial users such as the bioplastics sector. Businesses can already take advantage of incentives and subsidies such as through rebate schemes for transport.[15] Businesses may wish to achieve the environmental sustainability goals set out in their corporate plans or they may need to take certain action to meet legislative goals in their sector.[16] This will undoubtedly lead to sustained competition for biofuels.

Blending Biofuels with Fossil Fuels

One of the central reasons for considering the adoption of biofuels for heating is the resultant reduction in carbon. As we noted earlier, biofuels are more expensive than their fossil fuels equivalents, however, HVO and bioLPG are functionally and chemically similar to heating oil and LPG, meaning they can be blended.

Blending biofuels with fossil fuels can provide short-term benefits to consumers, primarily in terms of price, fuel availability and achieving much needed carbon reductions. An example of blending would be a delivery of heating oil where 80% of the fuel is traditional heating oil with the remaining 20% made up of HVO. This would produce an approximate 18%* carbon-saving. Applying the same scenario to an LPG delivery would produce about 17%** carbon-savings.[17] This can make biofuel-blended fuels more affordable and attractive options in the short term and ensures that more households are able to access cleaner fuels more equitably.

15 The RTFO Explained - Action Renewables
16 Participating in the UK ETS - GOV.UK
17 Government conversion factors for company reporting of greenhouse gas emissions - GOV.UK
*18% reduction based on emission factors of 3.07 kgCO2e / litre for “burning oil” and 0.31 kgCO2e / litre for biodiesel HVO.
**17% reduction based on emission factors of 1.74 kgCO2e / litre for LPG and 0.26 kgCO2e / litre for biopropane (bioLPG).

Economic Considerations Questions

1. Can you provide information regarding the economic feasibility and competitiveness of HVO or bioLPG compared to heating oil or LPG?
2. Do you have any results of impact assessments or running costs analysis from HVO or bioLPG usage trials that can be compared to heating oil or LPG?
3. Can you provide information on what are the cost considerations for producing, distributing, and using HVO or bioLPG at scale?
4. Can you provide information on what the costs are to a consumer to modify a liquid boiler to use HVO instead of heating oil (kerosene)?
5. Can you provide information on innovations and emerging technologies that enhance HVO and bioLPG production, efficiency, and sustainability?
6. Can you provide information on the risks and benefits of blending biofuels with conventional fuels to mitigate price shocks or supply issues associated with HVO or bioLPG?
7. Can you provide information or modelling on how the production and use of HVO or bioLPG (or biofuels generally) can impact local and national economies?
8. Are there any specific business or industrial processes currently operational in Northern Ireland and using heating oil or LPG that is unable to decarbonise by using liquid biofuels?

Fuel Poverty and Affordability

Fuel poverty is a factor of three things: household income, energy use or needs, and energy costs. Modelled estimates suggest that fuel poverty levels in Northern Ireland rose from 18% in 2018 to 24% in 2019, 2020 and 2021.[18] However, energy affordability is complex and in the recent cost of living crisis many more households are having difficulties with paying energy bills.[19] Inadequate heating can also pose severe health risks especially during winter weather conditions.[20] Data from the 2016 House Condition Survey demonstrated that a much higher percentage of households with oil central heating were in fuel poverty (25%) compared to those households with mains gas central heating (9%).[21]

Energy efficiency measures can help reduce energy demand and thus heating bills, and improving the energy efficiency of homes remains a key focus across government. However, access to affordable heating sources is also essential. It directly impacts quality of life and helps prevent cold-related illnesses and fatalities, particularly among vulnerable members of society, such as the elderly or those with medical conditions. They are disproportionately affected by fuel poverty and face heightened risks when unable to adequately heat their homes.

More broadly, Northern Ireland also remains the poorest region in the UK with average families left with just £93 a week after paying for essentials.[22] The percentage of households receiving benefits is also higher than the UK average.[23] Therefore, considering fuel poverty and affordability is crucial for any plan or policy that can impact household bills and financial decisions.

Offering a broader choice of low carbon heating options during the transition away from fossil fuels helps ensure a smoother transition to decarbonised heat. Taking a flexible approach, especially when new technologies like heat pumps are currently costlier than traditional boilers, promotes inclusivity and can allow households to adopt cleaner alternatives gradually as technology advances and costs decrease.

18 Estimates of fuel poverty in Northern Ireland in 2020 and 2021 (nihe.gov.uk)
19 Fuel Poverty in Northern Ireland - National Energy Action (NEA)
20 Excess Winter Mortality in Northern Ireland 2020/21 | Northern Ireland Statistics and Research Agency
21 House Condition Survey Main Report 2016 (nihe.gov.uk)
22 Spending power falls in every UK region
23 UK state benefits by region 2022 | Statista

Affordability for Businesses and Industrial Processes

The business and industrial process sector will play a central role on the transition to a decarbonised economy in Northern Ireland. The local sector is dominated by small and medium-sized enterprises (SME's) with a total of around 80,000 VAT and/or PAYE registered businesses in operation. Around 90% of businesses in Northern Ireland are designated micro businesses with fewer than 10 employees. The policy focus in the sector is to support businesses and carbon intensive industries as we decouple emissions from economic development.

For larger industry the UK Industrial Decarbonisation Strategy aims to develop policy at addressing different market failures and barriers to entry that prevent investment needed for a low carbon transition from being secured, with the recognition that in the longer-term markets will be best placed to determine the most cost-effective pathways.

Affordability of biofuels is a crucial consideration for off-grid businesses relying on oil and LPG for heating purposes such as ambient building temperature or their manufacturing processes. Some businesses also have regulatory obligations to reduce their operational carbon emissions. Businesses also provide jobs, and higher energy costs places extra strain on budgets and impacting the ability to remain economically viable and invest in people and job creation.

Fuel Poverty and Affordability Questions

9. What can be done to make biofuels such as HVO and bioLPG more affordable for all households, particularly low income and vulnerable households? Please provide any examples, data or evidence to support.

10. What type of action or collaboration is needed between the private, public sectors and community sectors to assist low income and vulnerable households transitioning to biofuel alternatives such as HVO and bioLPG? Please provide any examples, data or evidence to support.

11. How can consumers, particularly vulnerable consumers, be protected against excessive costs and the variability of biofuel prices? Please provide any examples, data or evidence to support.

12. What incentivisation is needed for biofuel uptake by businesses and industry to reduce their operational emissions, while addressing concerns about affordability? Please provide any examples, data or evidence to support.

13. Do you have any data on the most cost-effective use and affordability of biofuels for domestic and non-domestic consumers?

Consumer Protections and Engagement

As consumers shift from fossil fuels to biofuels for heating, they need assurance that biofuels will provide a reliable source of energy. Robust consumer protections can help ensure that biofuels meet quality standards and are available when needed.

DfE recognises that consumers should have access to biofuels at fair and transparent prices and protection from price spikes to allow for budget planning and ensuring affordability. Confidence in the reliability and quality of biofuels is essential to the successful uptake of biofuels and in cases of disputes or problems with biofuel products or services, consumers should have access to fair and efficient dispute resolution mechanisms. This ensures that consumers have recourse if things go wrong.

Electricity supply is governed by a regulatory framework that offers a high degree of consumer protection ensuring that all individuals have access to essential services, in a fair and equitable manner. The framework provides clear mechanisms for resolution and redress when issues arise, such as billing disputes or service failures, ensuring that consumers have a straightforward path to address problems and seek redress when necessary. For vulnerable consumers (such as those on low incomes, the elderly, or individuals with disabilities), these protections can include safeguards, access to tailored support, and flexible payment options to prevent financial hardship.

DfE recognises that consumer protections should encourage innovation and competition in the biofuel market, leading to more choices and potentially lower prices for consumers. Regulation could also incur extra costs for the fuel supply sector, which could be passed onto consumers.

Consumer engagement initiatives could help raise awareness and education about the benefits of using low carbon heating sources in buildings and industry to reduce greenhouse gas emissions. Knowledgeable consumers can make informed choices about how they can help support the transition to renewable energy.

Engaged consumers can better influence policymakers to implement supportive policies and regulations and their voices can help shape a regulatory environment that encourages the transition to biofuels. Consumer engagement initiatives could also be an opportunity to promote additional steps that consumers can take to reduce an individual's carbon footprint, such as using energy-efficient appliances, or supporting renewable energy technologies alongside biofuels.

Consumer Protections and Engagement Questions

14. What would a regulatory support framework look like for HVO or bioLPG supply and distribution in Northern Ireland?

15. Are there successful policy models from other regions or countries that can be applied? Please provide examples of these.

16. Can you offer insights into government policies, incentives, and regulations that promote or hinder biofuel adoption, as well as potential policy recommendations?

17. What technical assistance and support is required for buildings and industry looking to upgrade their heating systems to be compatible with biofuels and how can the local Northern Ireland oil and gas sectors use their resources to help with this?

18. What is the most effective means for delivering domestic and non-domestic consumer education and awareness, on the benefits and availability of biofuels?

19. What are the potential barriers to regulating biofuels for heating, similar to electricity regulation, to achieve consumer benefits in terms of price controls, guaranteed standards of service and a sectoral wide consistent approach to handling consumer dispute resolutions?

Ensuring Reliability and Security of Supply

Reliability and security of heating fuel supply are paramount considerations in any modern-day society. Heating fuel is critical for homes, businesses, hospitals, and essential services that rely on uninterrupted supplies.

As we transition to cleaner and renewable biofuels, maintaining a secure and reliable supply is vital. Disruptions can also impact economic activities, leading to financial losses for individuals and businesses including the jobs they support.

It is difficult to estimate the typical amount of heating fuel used by households as no specific data is collected, however, we estimate an annual household consumption of heating oil to be around 1,300 litres.

According to the most recent statistics available from the Northern Ireland 2021 census records, 480,600 households use oil meaning that Northern Ireland is likely currently consuming around 630 million litres per year of heating oil for residential heating alone.

Reliable heating energy is essential for industries, including agriculture and manufacturing, contributing to economic stability and growth. Local production could contribute to reducing our dependence on fossil fuel imports, at the same time as enhancing our regional energy security.

Alternatives to HVO and BioLPG

Heat pump technologies and district heating networks are expected to play foundational roles in replacing the fossil fuel heating sources that we have committed to phasing out. We recognise however that the access to low carbon heating technologies can be financially prohibitive and that heat networks are in early stages of their development. The energy transition away from fossil fuels, alongside the diversity of our building types, age and condition mean that other low carbon technologies can also play a significant role.

When considering transitional liquid fuel alternatives to heating oil and LPG, it is important to explore all sustainable options rather than relying solely on one or two renewable liquid fuel sources such as HVO and bioLPG.

Providing diverse lower carbon and sustainable options that are affordable to consumer ensures a smoother transition, allowing households to adopt cleaner alternatives gradually as costs decrease and technology advances.

Ensuring Reliability and Security of Supply Questions

20. Do you have any information on what infrastructure investments are necessary to support the deployment and use of biofuels for use in Northern Ireland buildings and industry?

21. Can you provide any information or insights on what the risks or challenges are, related to supply chain and logistics for meeting the needs and distributing HVO and bioLPG to buildings and industry throughout Northern Ireland? Please detail any solutions.

22. Can you provide any information or insights on what the risks or challenges are, related to the long-term storage for HVO and bioLPG? Please detail any solutions.

23. Can you provide data on what the current total rate of HVO production is in Northern Ireland, Great Britain, Ireland and Europe?

24. Can you provide data on the what the current total rate of bioLPG production is in Northern Ireland, Great Britain, Ireland and Europe?

25. Can you provide data on Northern Ireland's respective total consumption of heating oil and LPG?

26. What actions are required to be taken by the Northern Ireland Government to guarantee HVO and BioLPG supplies to meet the region's total current and anticipated total consumption?

27. What conditions would make it possible for Northern Ireland's total consumption for HVO and bioLPG for buildings and industry heating to be met through local production or refinement?

28. If total volumes cannot be met what would be the most likely blend ratio achievable?

29. Are there any other emerging biofuels or synthetic fuels apart from HVO and bioLPG that could provide sustainable alternatives to traditional fossil fuels for heating use in buildings and industry? Please provide data or details.

Health, Environmental and Local Community Impacts

Biofuels offer the potential to significantly reduce GHG emissions when compared to fossil fuels. Assessing the impacts of using biofuels, on air quality, human health and the environment is crucial to the understanding of their full ability and potential to mitigate climate change.

Globally, there have been environmental concerns raised in relation to the resultant habitat loss, biodiversity reduction, and increased GHG emissions that can come with large-scale production of biofuel feedstocks. Growing biofuel crops requires significant resources, including water, fertilisers, and pesticides. These intensive agricultural practices can contribute to water pollution, soil degradation, and other negative environmental impacts such as widespread land-use change.

Deforestation and displacement of existing agricultural activities can harm local ecosystems, reducing biodiversity and disrupting natural ecological balances. Large-scale monoculture practices (growing one crop species only) is associated with biofuel feedstock cultivation. There can also be unintended consequences leading to competition with food production, potentially driving up food prices and contributing to food insecurity.

In terms of GHG specifically, while biofuels are often considered a cleaner alternative to traditional fossil fuels, the production process and land-use changes can still result in overall increased GHG. An example of this is converting otherwise ancient or long-established natural ecosystems into biofuel production areas that releases stored carbon and contributes to climate change.

Currently a framework of voluntary schemes that are approved by the EU Commission provides proof of sustainability needed for processing and refining biofuels in European refineries. However, as we consider effective pathways to decarbonising our heating demand, it is crucial to ascertain whether biofuel production adheres to sustainable practices, including crop rotation, responsible land and water resource management, and measures to prevent deforestation or habitat destruction.

Air quality and human health issues

In terms of air quality, the production and use of biofuels continue to generate emissions of GHGs and various air pollutants. They generally produce fewer air pollutants and particulate matter compared to fossil fuels during combustion. However, air quality modelling studies show that life cycle emissions of some pollutants may be higher for biofuels when compared to fossil fuels, largely resulting from the emissions associated with feedstock production and biofuel processing.[24] Therefore, consideration needs to be given at regulatory and senior commercial corporate level, that biofuel production does not further adversely impact on local air quality and public health standards.

Engaging local communities, where biofuel production exists, in decision-making processes and assessing their feedback and concerns, including perceptions regarding biofuel production is vital and must be demonstrated.

Health, Environmental and Local Community Impacts Questions

30. What are the health and environmental benefits and challenges associated with using HVO and bioLPG, including GHG emissions reductions, air quality, land and water use, and biodiversity considerations? Can you share any relevant evidence?

31. Specifically, what impact does local burning of HVO or bioLPG have on emissions and air quality? How can any negative impacts be mitigated?

32. Specifically, what impact does the production of HVO and bioLPG have on emissions and air quality? How can the negative impacts be mitigated?

33. What frameworks exist to guarantee that HVO and bioLPG production processes are environmentally sustainable and that any imports to Northern Ireland can verify the product origin?