



**Liquid Gas Ireland Submission
to the Department of Transport's Consultation on the Draft
Renewable Transport Fuel Policy Statement 2023-2025
26 May 2023**

***This document follows the format of the questions set out in the consultation document**

About you

Name: Liquid Gas Ireland (LGI)

LGI is the association representing companies operating in the LPG and BioLPG industry in Ireland. Members include LPG and BioLPG producers, distributors, equipment manufacturers, and service providers. Our mission is to ensure that policy makers continue to recognise LPG and BioLPG as the clean, versatile, and alternative lower carbon energy of choice for off natural gas 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 Transport's Public Consultation on the Renewable Fuels for Transport Policy, we wish to respond to the consultation questions as outlined below. LGI fully supports the Department's policy measure, via the Biofuels Obligation Scheme, to increase the share of renewable energy in the transport sector and to contribute to the reduction of Ireland's greenhouse gas emissions.

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Section 1: Review of The RTFO Scope

I. Rail Transport

N/A

II. Renewable electricity –in road and rail transport

N/A

III. Aviation & Maritime Fuels

N/A

IV. Non-Road Mobile Machinery

Do you agree with the inclusion of non-road mobile machinery (NRMM) within the RTFO?

Liquid Gas Ireland (LGI) agrees with the with the inclusion of non-road mobile machinery within the RTFO. This would provide more opportunities to deliver biofuels and provide new channels for innovation.

BioLPG (AKA: Hydrotreated Vegetable Oil Renewable Propane) can be blended up to 100% with Liquefied petroleum gas (LPG)¹ and can continue to make a significant contribution to the RTFO targets, in particular for NRMM widely used in Ireland through the forklift truck sector. Continuing innovation in the liquid gas industry has led to the development of Renewable Dimethyl Ether (rDME), a low carbon, sustainable, liquid gas, which is complimenting the advances being made by BioLPG. Made from a wide range of renewable and recycled carbon feedstock, including waste streams, it offers a versatile and flexible decarbonisation route for NRMMs and the transport sector.

There is a large range of hard to electrify machinery which should be prioritised for biofuel support. Forklift trucks, mini transporters and other NRMM can reduce carbon emissions and improve air quality by using BioLPG and rDME. One 18kg cylinder of LPG can power a forklift or similar vehicle for around eight hours, with no power loss, and they work just as well indoors as outside with fewer harmful emissions. A recent study by Ecuity found that stationary combustion and off-road mobile

¹ <https://www.lgi.ie/biolpg/>

machinery has a high decarbonisation potential with a greenhouse gas emission reduction of 33.9 Mt CO₂e by 2050. They found a strong opportunity for BioLPG in this sector, particularly for off-road mobile machinery such as in construction where a versatile and portable fuel is required. NRMM is used on construction sites to power important infrastructure projects.

The transition away from diesel systems, which currently dominate the mobile generator and welfare cabin market, will be game-changing for air quality whilst also lowering GHG emissions. This is an important consideration given the proximity of many construction sites to densely populated areas. rDME has already been proven to be effective in decarbonising HGVs as shown in trials in Sweden with a reduction in emissions of 90% compared to diesel². BioLPG used in NRMM can also be used in adapted road vehicles, as with LPG Autogas, which is a widely used alternative fuel for road transport in Europe. To meet our decarbonisation targets we should consider all machinery and transport that require fuels as a single market.

If this were introduced as a reduced RTFO rate initially what contribution would be appropriate – 75%, 50%, 25% or other?

The NRMM should be initially introduced at a reduced rate, increasing over time to match the main obligated rate by 2030.

In your view what should be the key considerations for this policy proposal?

Consideration must be given to the ability to produce the renewable fuels at the scale required to meet demand for NRMM. 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 is the appropriate balance of impacts including social, economic, and environmental considerations?

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.

BioLPG and rDME also 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 air¹⁵. As clean burning fuels with extremely low levels of air and particulate pollutant emissions (NO_x, SO_x and PM), using rDME and BioLPG in NRMM 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.

² <https://www.greencarcongress.com/2010/09/biodme-20100916.html>

Section 2: RTFO Rate Targets and Limits

I. The RTFO Rate

Given the proposed trajectory of increase in the RTFO to meet ambitious biofuel blending targets in the climate action plan, what steps can be taken within this policy to avoid future biofuel lock-in?

To avoid future biofuel lock-in, the Government must promote innovation in the energy sector and invest in research and development. 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. Short- and medium-term investment in the development of advanced biofuels will be crucial to meeting Ireland's ambitious biofuel blending targets, with additional incentives to explore other long-term transport fuel options.

What safeguards and mitigation could be included, within this policy or related Government policy, against possible socio-economic and distributional impacts, to ensure just transition?

The Programme for Government 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.

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. 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.

II. E10 Mandate

N/A

III. Advanced Biofuel Obligation

Do you agree with the proposal for a higher national advanced biofuel obligation rate, beyond EU requirements?

We do not support a higher national advanced biofuel obligation rate beyond EU requirements. Time is required for the biofuels sector to secure advanced biofuel feedstocks, a fact recognised by the European Union when setting the obligation rate. We strongly advocate for a similar rate to apply to Ireland to allow time for development of advanced feedstock and the successful delivery of these fuels to market.

What should the Department consider in setting the advanced biofuel obligation rate, including social, economic, and environmental impacts?

Investment in research and development is imperative to continue progressing the development of advanced feedstock options. BioLPG and rDME have the potential for development as an advanced biofuel in Ireland from biological sources in the coming years. The industry will need clear policy direction from Government on how advanced biofuels will be supported in the long term.

Currently, the LPG EU sector is investing in the research and development of second generation BioLPG, which as an advanced biofuel will place a stronger focus on advanced processes, using wastes and lignocellulosic feedstocks that typically achieve greater efficiencies and deliver greater Greenhouse Gas (GHG) savings. Our sector has demonstrated significant progress in feedstock development since the introduction of BioLPG to the Irish market in 2018, with 22.5% BioLPG made from Used Cooking Oil (UCO) in 2020. There is 90kt of category 3 tallow available in Ireland which is currently largely exported to European plants³. With investment, there could be an opportunity for domestic production of BioLPG using this abundant feedstock, either through gasification or transesterification, creating a sustainable, homegrown supply of biofuels.

Most DME currently in the market is produced via catalytic synthesis of methanol and so by switching to renewable methanol as the feedstock, plants can immediately start producing rDME. There is established production technology for rDME (catalytic synthesis from renewable methanol), which means rDME can be immediately produced to support decarbonisation. Additionally, it is produced using advanced technologies such as gasification and pyrolysis, and development can support the production of other fuels across all sectors. Gasification and pyrolysis can use a wider range of feedstocks, including those immediately available, which gives opportunity for low cost and low carbon DME production.

The industry needs financial support that helps innovation and development across the advanced biofuels sector. This includes stimulating supply and demand for products such as rDME and supporting R&D as well as the piloting of plants that use advanced biofuel feedstocks, whilst maintaining competition for current biofuels. This would help overcome the high production costs experienced with advanced biofuel production and support market growth.

IV. Renewable Fuels of Non-Biological Origin (RFNBO)

What should be the key considerations – social, economic, and environmental, in establishing in 2025 a sub-target for renewable fuels of non-biological origin (RFNBO) and associated buy-out?

LGI supports the move to develop the sub-target as an overreliance on biological feedstocks could lead to volatility in the supply of renewable fuels. However, these targets should not be met solely via green hydrogen. BioLPG and rDME can be effective routes to meet these targets owing to their versatility and variety of feedstock options. A 2025 start-date does not give sufficient time for the mass sourcing of renewable energy sources and green hydrogen required for power-to-x BioLPG and rDME and so the target should be calibrated accordingly with additional support considered to incentivise domestic production.

Both rDME and BioLPG can be produced via power-to-x technology, an attractive solution for meeting targets on renewable fuels of non-biological origin. Renewable power can supply energy for the electrolysis of low-carbon hydrogen and CO₂ to produce BioLPG or rDME.

This has two major advantages over other power-to-x routes such as the electrolysis of water to produce hydrogen. BioLPG and rDME can be used immediately in vehicles to reduce transport emissions whereas fuel cell technology is very expensive and requires major overhauls to charging infrastructure and the vehicle stock. Also, liquid rDME is an attractive hydrogen carrier. The volumetric energy density of rDME is higher than that of liquid hydrogen and so a litre of rDME contains more hydrogen. Liquid rDME is easily transportable and can be used directly in industrial settings or converted back to hydrogen through a simple process before use.

³ <https://assets.gov.ie/219662/45a45d3e-ee44-4a3f-917c-d86fc792b0bd.pdf>

V. Additional Certificates to Incentivise Certain Renewable Transport Fuel (RTF) Supply

What considerations should be included in this review – including possible social, economic, and environmental impacts?

The security of indigenous fuel supply and the economic impacts of fuel shortages should be key considerations for the review. LGI supports the Government's recent decision to incentivise certain renewable transport fuels such as HVO, which can contribute to further decarbonising the hard to abate HDV and road haulage sectors. By targeting production and supply by small indigenous biofuel companies and the agricultural waste feedstock supply chains supporting these businesses, we can ensure sustainable Irish production is not put at a competitive disadvantage and that we do not become overly reliant on imported biofuels over time.

BioLPG has the potential for development as an advanced biofuel in Ireland from biological sources in the coming years. The LPG EU sector is investing in the research and development of second generation BioLPG, which as an advanced biofuel, will place a stronger focus on advanced processes, using wastes and lignocellulosic feedstocks that typically achieve greater efficiencies and deliver greater GHG savings. BioLPG produced from the HVO process, where the feedstock is certified from non-high-ILUC sources should qualify for the new 'Development' status that was introduced on 1 April 2023. HVO renewable propane can be co-processed along with HVO (biodiesel/biogasoil) in the same production facility.

Section 3: Supporting Compliance

I. EU Greenhouse Gas (GHG) Intensity Reduction Target

Would overall compliance be better achieved if the renewable transport fuel obligation were solely based upon a greenhouse gas intensity reduction rather than the current renewable energy obligation?

LGI agrees that a renewable transport fuel obligation solely based upon a greenhouse gas intensity reduction may lead to better overall compliance. However, any changes made to the renewable transport fuel obligation should be focused on providing flexibility and long-term certainty to producers. The industry is highly susceptible to external shocks, such as volatile feedstock prices and producers may have to absorb or pass on costs unexpectedly. To ensure a smooth transition long-term policy certainty is required to allow the low-carbon biofuel market to develop. High fines and more stringent compliance could risk disrupting this transition through reduced revenue to invest in low carbon fuels (BioLPG and rDME) and production technology, such as pyrolysis and gasification. Also, if non-compliance costs are set at a value that cannot be met by industry, then there is a risk of passing on the higher costs to consumers.

Would you agree with introduction of a greenhouse gas intensity reduction basis for the 2025 obligation period?

LGI agrees with the introduction of a greenhouse gas intensity reduction basis for the 2025 obligation period. 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. This basis should open up consideration for more lower carbon and transition fuels which will help Ireland meet its short-term GHG reduction targets while investing in long-term solutions. BioLPG and rDME have been proven to be effective alternatives to petrol and diesel, with significant reductions in GHG and air pollution levels.

LGI member companies are invested in the low-carbon future for the Irish economy. The liquid gas industry has committed to 100% renewable fuels by 2040 and so will support Ireland with its carbon reduction targets, and demand for renewable fuels – which is expected to increase. LGI members are

committed to this target and invest significantly in R&D to ensure fuels which are successful in lowering carbon emissions, can be 'dropped in' with no or minimal adjustments on existing combustion infrastructure, and are competitively priced.

II. Sustainability and GHG Criteria Compliance –European (EU) Database & Supervision of Certified Bodies

From your perspective, where does the focus need to be over the next two years concerning the implementation of the EU measures for oversight of sustainability and GHG reduction for renewable energy in transport?

The industry is moving towards decarbonisation – the liquid gas industry has announced by 2040 all fuels will be from renewables. To ensure a smooth transition long-term policy certainty is required to allow the low-carbon biofuel market to develop. While the EU want to ensure that bodies such as NORA enhancing their audit beyond the Proof of Sustainability Certificates provided by the voluntary schemes and ensure that those providing biofuels in Ireland audit the supply chain and verify the associated emissions from biofuel production, a more stringent compliance could risk disrupting the transition to biofuels through reduced revenue to invest in production technology such as pyrolysis and gasification. If compliance costs are at level that cannot be met by industry, then there is a risk of passing on the higher costs to consumers and reducing uptake of new low-carbon fuels.

III. Safeguarding Against Risk of Fraud and Other Indirect Effects

Concerning the proposal to establish a working group and a voluntary vulnerability assessment concerning biofuel fraud risk:

Do you agree with this approach in addressing the recommendations of the biofuel study?

LGI supports the proposal to establish a working group to progress a voluntary vulnerability assessment of the current and projected future biofuels supply into Ireland, however we urge the Department to work closely with the biofuel industry in assessing these risks and potential impacts.

If so, what are your views concerning the scope of the assessment?

Advanced development fuel feedstocks, such as UCO and tallow are crucial to short- and medium-term decarbonisation of the economy. For example, rDME is an advanced biofuel which can be used as a replacement for diesel, producing up to 85% less greenhouse gas emissions, and less NO_x than diesel and oil⁴. Using feedstocks listed in Annex IX in the Renewable Energy Directive, rDME can deliver large GHG savings, e.g., producing rDME from cow manure prevents methane being released to the atmosphere meaning the carbon intensity can be negative at -278gCO₂e/MJ⁵. In Ireland, 42% of household waste is incinerated⁶. Producing rDME from municipal waste offers a saving of more than 70% compared to EfW incineration⁷.

Downgrading UCO will limit Ireland's largest biodiesel feedstock and disincentive HVO and BioLPG production. This restricts the advancement of these promising low-carbon fuels into the market. As suppliers seek to fill gaps in demand from the limit, there is a risk of increased uptake in fuels that contribute to higher ILUC in the interim meaning food supply may be disrupted. There is also

⁴https://www.aboutdme.org/aboutdme/files/cclibraryfiles/filename/00000004182/rDME_Fact_Sheet_Industry.pdf

⁵ <https://oberonfuels.com/about-dme/dme-basics/>

⁶ <https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/municipal/>

⁷ <https://kew-tech.com/>

opportunity to domestically supply tallow to support the development of a domestic bioenergy sector, specifically from agri-food waste and reduce ILUC dependence.

IV. High Indirect Land Use Change (ILUC) risk

Do you agree with the proposed trajectory of decrease in high ILUC-risk biofuels supply to 2030, as set out in the policy statement?

LGI agrees with the proposed trajectory of decrease in high ILUC-risk biofuels supply, however it's crucial that this transitional approach to low ILUC-risk feedstocks is supported by the Government. Too sharp a decrease would have a critical impact on the availability and supply of critical renewable fuels such as BioLPG, which continue to play a significant role in decarbonising Ireland's transport sector.

Implementing this decrease also presents practical concerns as there is currently no way to certify biofuels as 'low ILUC'. Compliance with EU criteria is audited by voluntary schemes that certify a fuel as 'sustainable' under the criteria set in the currently applicable Renewable Energy Directive for biofuels and bioliquids, rather than as high or low ILUC. Without specific certification available in line with the language used in this policy, it will be difficult for biofuel producers to confirm their products are compliant.

Should this be reduced annually, or every 2 or 3 years?

The indicative trajectory of annual reduction from 2023 to 2030 with an annual reduction would be acceptable.

Should the reduction to 0% be accelerated, e.g., by 2025 or earlier?

Placing an earlier ban on biofuels from high-risk ILUC would have an immediate and critical impact on the availability and supply of critical renewable fuels such as BioLPG, which continue to play a significant role in decarbonising Ireland's transport sector. Supply contracts are in currently in place and biofuel suppliers need time to ensure that any potential high ILUC feedstocks are exhausted. 2030 would provide a sufficient timeline for this, however a compromise of 2027-2028 would be acceptable.

LGI estimates that it needs 5 to 10 years to supply second generation/advanced biofuels in Ireland. This ambition involves a vertical integration strategy with producers to gain more control of the BioLPG supply-chain. This is happening in other European markets with an ambition for further investment across Europe. Ireland has an opportunity to secure indigenous production of rDME if it is able to offer the right commercial conditions for future plant location.

As outlined above, the Government should seek to incentivise the production of BioLPG and development fuels like rDME, by expanding the terms of reference for the Climate Action Fund to consider BioLPG and rDME to facilitate research and development funding for the sector. LGI seeks alignment with the EU position in order to mature, alongside the EU biodiesel market, advanced biofuel feedstocks in the medium term and to ensure stability and competitive prices for rural consumers in the transport and heat sectors as we strive to reach our 100% decarbonisation goal by 2040.

Across the European biofuel and feedstock market, palm oil contributed to just under a fifth of the feedstocks used to produce bio and renewable diesel (FAME and HVO) in 2021⁸. An early ban on high-ILUC feedstocks presents a supply problem for the European feedstock and biofuel market.

⁸ [USDA, 2021](#)

Whilst high-risk ILUC feedstocks contribute to a smaller percentage of the biofuels supplied in Ireland, we anticipate a tighter European biofuel market as producers and obligated suppliers across Europe accelerate their efforts to meet high ILUC-risk biofuels supply targets.

Section 4: Ongoing Review of Evidence and Research Supporting the Policy

Concerning the proposal for a working group to progress further examination and research, addressing the policy challenge of EU obligations and domestic targets:

Do you agree with this approach in addressing the conclusion in the Biofuel study?

LGI agrees with the approach of establishing a working group to address the challenge of achievement of EU renewable energy obligations and ambitious domestic targets for biofuels. We urge the Department to work closely with the biofuel industry in its ongoing research.

If so, what are your views concerning the scope of the examination and research needed?

The conflict between the national target for supply of biofuel under the Climate Action Plan and the EU Directive limits on biofuels from UCO and category 3 tallow is an important area for examination, as it presents a huge obstacle to the Irish biofuels market. There is approximately 90kt of category 3 tallow available in Ireland, which is currently exported to the Netherlands for HVO productions rather than processed domestically⁹. Advanced development fuel feedstocks such as UCO and tallow are crucial to short and medium-term decarbonisation of the economy. The limit on UCO and category 3 tallow to less than 1.7% of the energy content of transport fuel impedes the development of the low-carbon fuel market and restricts the advancement of these promising low-carbon fuels into the market.

There is inconsistent application of the measurement of feedstocks for different fuel types which is exacerbating this issue. Under a new x1.5 'Development' multiplier status introduced on April 1st, 2023; FAME (Fatty Acid Methyl Ester) biodiesel qualifies where the feedstocks are tallow. Category 1 and Category 2 tallow are double counted under this system, whereas at present Category 3 tallow is only single counted. BioLPG produced from the HVO process, where the feedstock is certified from sustainable sources should also qualify for this 'Development' status, as HVO renewable propane can be co-processed along with HVO (biodiesel/biogasoil) in the same production facility.

In addition to the policy indicators, evidence and research identified in this policy statement, are there other evidence-based inputs which need to be considered to support future policy development and implementation?

LGI welcomes the Government's long-term strategy to reduce the sectors reliance on oil by implementing policy measures that will encourage a switch to alternative fuels and technologies. However, the Government must seek to incentivise research, development, and investment in these new fuel technologies. LGI recommends three policy interventions, as set out below:

- Research and Development – Investment in R&D 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.

⁹ Ó Cléirigh, *A Review of Requirements and Constraints on Biofuels in Ireland Arising from RED II and National Targets*, 2022. Available at: <https://assets.gov.ie/236620/2bc87dee-edf4-45e6-a342-b74cf71d5e21.pdf>

- Indigenous Production – 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 but 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.
- Financial support – Financial incentives should be put in place to attract future investment for the construction of domestic plants, such as a contract for difference scheme, to give investors' confidence throughout a strong, stable carbon price. Increased investment will facilitate the longer-term development of plants for the domestic production of renewable fuels, which will in turn lead to the creation of green jobs, as well as securing supplies that will support Ireland meet its decarbonisation targets.

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