

Public Consultation on the Biofuels Obligation Scheme (2021-2030)



Calor Gas

A champion for change in rural Ireland

Introduction

Calor welcomes the opportunity to respond to the consultation on the Biofuels Obligation Scheme for the period 2021 to 2030, including the level of renewable energy in the transport sector in 2030 and the introduction of an additional obligation for advanced biofuels.

Calor 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.

Calor has an important role to play in powering rural Ireland and providing innovative alternatives to carbon-intensive fuels. Calor is devoting significant resources to product innovation and diversification as part of the company's decarbonisation strategy. Sustainability is at the heart of Calor's business strategy in Ireland. By 2037, Calor's ambition is that all of its energy products will be from renewable sources, the company's centenary year. The company is over half way towards its ambition of 10% renewable energy supply by 2020.

Calor is a part of the SHV Energy Group, the world's largest distributor of LPG and one of the leading suppliers of LNG for industries and transport in Europe. SHV Energy operates in more than 20 countries and is proud to serve 30 million customers across three continents. The company has extensive experience delivering low carbon gas technology for the transport sector in Europe.

Calor's contribution to transport sector policy delivery

With responsibility for 20% of Irish emissions and as the third largest emitting sector, transport will have a significant role to play in Ireland's national decarbonisation agenda.

Ireland's transport system is currently highly fossil fuel dependent, which results in significant emissions of greenhouse gases (GHGs) and air pollutants that are contained in exhaust fumes. According to the EPA, air pollutants released from transport are a key public health issue. The EPA has highlighted that the transport sector accounted for 12% of all air pollutant emissions in 2015 and is one of the largest contributors to particulate matter pollution in cities.

Calor acknowledges the importance of the government's National Policy Framework on Alternative Fuels Infrastructure for Transport in Ireland: 2017 to 2030, which outlines a long term vision for the sector. Calor welcomes the Government's strategy to reduce the sectors reliance on oil by implementing policy measures that will encourage a switch to alternative fuels and technologies.

Calor can actively contribute to the government's policy goal to further reduce carbon intensity and increase renewable fuel use in the transport sector to 2030 and beyond. Liquified Natural Gas (LNG), Liquified Petroleum Gas (LPG) and biofuels like BioLPG are lower carbon emission technologies, proven as effective alternatives to petrol and diesel.

The role of biofuels and lower carbon fuels –LPG, BioLPG, LNG, BioLNG

LPG and BioLPG

Calor is the first company in Ireland supplying renewable fuel BioLPG to homes, businesses and transport users. Its initial launch in April 2018 was as a fuel for heat, but we have since expanded the range of applications for which BioLPG is being used. Calor has switched all of its 63 autogas stations in Ireland to BioLPG. BioLPG is recognised and eligible for the Biofuels Obligation Scheme (BOS) under the definition of 'road transport'. In 2019, the BOS scheme was extended to include 'non-road transport' widely used in Ireland through the fork lift truck sector. This sector currently uses diesel, electric and LPG engines, with fossil diesel being the prominent choice of fuel.

Some of Ireland's largest businesses depend on LPG for their forklift operations, quickly moving goods from storage to distribution. BioLPG offers even greater emissions benefits than conventional LPG, particularly in relation to CO₂ emissions. While the market in Ireland has been relatively small, LPG for transport is a significantly larger market in Europe. With the availability of BioLPG, there is the opportunity to switch non-road mobile machinery and commercial vehicles to a renewable fuel.

LPG and BioLPG powered forklifts offer Irish businesses unrivalled flexibility, offering the ability to work safely both indoors and outdoors and without a requirement for electric charging. Switching forklifts to BioLPG offers up to 32% lower emissions compared to conventional LPG and reduces fuel running costs by up to 24% when switching from diesel. The current BioLPG option for fork lift trucks offers a cost effective and affordable option to renewables.

With the recent inclusion of the fork lift truck sector in the Biofuels Obligation Scheme, the total disposal of BioLPG on the market can increase to 1.8% of the total disposals in 2020, representing an annual carbon saving of over 6,500 tonnes.

By supporting the development and adoption of renewable fuels like BioLPG, the government can ensure a multi technology approach to addressing the transport decarbonisation challenge to 2030 and support the LPG industry's ability to supply BioLPG from advanced feedstocks in the future.

LNG and BioLNG

Calor launched Ireland's first Liquefied Natural Gas (LNG) product in Ireland in 2019, bringing the economic and environmental benefits of natural gas to businesses off the natural gas network.

The new Aurivo milk drying facility in Roscommon, officially opened by Minister Creed, is the first facility of its kind in Ireland to be powered by LNG. Calor LNG is a cleaner, lower carbon energy solution that delivers for businesses located off the natural gas network. Calor LNG delivers a carbon emission saving of 25% when compared to heavy fuel oil. LNG also delivers significantly lower particulate emissions (-99%), NO_x (-70%) and SO_x (80%) – helping to improve air quality.

While Calor LNG is currently available to transition large industrial heat users from heavy fuel oil (e.g. co-operatives, food processors, pharmaceutical companies, data centres), it can also be used for transport. Calor and its parent company SHV Energy, brings extensive experience in low carbon gas technology for the transport sector from Ireland, the UK and across Europe.

With rising fuel costs and increasing focus on reducing emissions, the transport industry is under pressure to find alternative solutions.

Calor estimates that despite accounting for just 2-3% of Ireland's fleet, the heavy duty vehicle sector contributes about 20% of transport emissions. Shifting from diesel to LNG for transport could cut carbon emissions by 20%.

For decades diesel has been the default option for vehicle fleets, and heavy goods vehicles in particular, contributing substantially to harmful transport emissions. With the advent of commercial vehicles powered by LNG, that is changing. Mainstream manufacturers including Volvo, Scania and Iveco now offer a choice of LNG-powered trucks that have comparable performance to diesel vehicles in terms of power, acceleration, and cruising speed.

Diesel fuel contains more energy per litre than petrol and coupled with the fact that diesel engines are more efficient than petrol engines, diesel cars are more efficient to run. Diesel fuel contains no lead and emissions of the regulated pollutants (carbon monoxide, hydrocarbons and nitrogen oxides) are lower than those from petrol cars without a catalyst. However, when compared to petrol cars with a catalyst, diesels have higher emissions of NO_x and much higher emissions of particulate matter.

LNG is better than any other fossil fuel for the environment. The combustion of natural gas releases significantly less CO₂, NO_x and SO_x and virtually no ash or particulates. And as it evaporates rapidly when exposed to the air, it leaves no residue on water or soil.

LNG also powers large vehicles more efficiently than electricity, offering better ranges and lower maintenance requirements.

LNG stations can be implemented relatively quickly, in partnership with existing forecourt providers and do not require connections to the existing gas network. Once LNG stations are established in Ireland, the seamless transition to BioLNG will be a step away.

In addition to environmental benefits, LNG is significantly cheaper than diesel, even more so when the externality of carbon cost is accounted for. LNG is far simpler and more economical to produce than any other fossil fuel. Its price is more stable compared to other fuels, enabling businesses to forecast energy costs more accurately.

The process of cooling natural gas into a liquid form shrinks the volume so that it takes up around 600 times less space than when in its gaseous form. And it weighs even less than water. This makes it easier and cheaper to transport and store. LNG therefore has the benefit of being available anywhere in Ireland, meaning that rural haulage and fleet operators can play their part in the decarbonisation of their fleet and make a significant contribution to the country's 2030 transport emissions targets.

The introduction of LNG in the Irish transport sector would further enhance Ireland's diversity of energy supply and make a significant contribution to greenhouse emission reductions and air quality improvements in urban and rural areas.

In 2018 there were 4,000 HGVs operating on LNG on the roads of Europe and 955 of these vehicles are in France, Italy, Benelux and the UK to date. This number is expected to grow to 30,000 by 2023.

The successful roll out of LNG in Europe has been based on a collaborative approach between policy makers, vehicle manufacturers, energy companies, forecourt operators and customers. Barriers to adoption have been identified and where possible steps have been taken to promote adoption, with policy solutions provided by Government.

Transitioning to gas propelled technology will make a significant contribution to Ireland's efforts to reduce carbon and cut pollutants but it requires clear policy interventions to incentivise a move from petrol and diesel and to support investment in infrastructure delivery, in order to encourage freight companies and hauliers to invest in the technology, without compromising their operational efficiency.

The adoption of LNG as a lower carbon fuel opens the possibility to introduce renewable BioLNG in the future. BioLNG is biomethane which is liquefied in the same process as LNG, it emits negligible NO_x or particulate matters when burned and reduces CO₂ by up to 90%. Once LNG is established in Ireland, the transition to BioLNG will be seamless.

Calor welcomes the commitment by the government's Low Emissions Vehicle Taskforce to support the early transition to alternative fuels by maintaining and building upon existing tax and financial incentives and consideration of further policies and measures to support the uptake of low emission vehicles. The industry awaits the outcome of the Taskforce' review of the role of alternative fuels for transport

Consultation Questions Relating to the Biofuel Obligation

Question 1

The Climate Action Plan has identified that blending levels of 10% by volume in petrol and 12% by volume in diesel on average must be achieved by 2030 in order to contribute to meeting Ireland's emission reduction target.

The recast Renewable Energy Directive sets out a target of at least 14% renewable energy in transport sector by 2030. These blending levels, together with the expected growth in electric vehicles, will ensure that the 14% target is achieved.

It is intended that the biofuel obligation rate in the Biofuels Obligation Scheme will increase every two years (i.e. in 2022, 2024, 2026, 2028 and 2030). It is intended that the increases will ensure a relatively linear increase in the level of renewable energy used in the transport sector.

Relevant section of the recast Renewable Energy Directive: Article 25(1)

(a) Do you consider these blending levels to be a suitable balance of feasibility and ambition?

(b) Do you consider the approach to increasing the biofuel obligation rate appropriate?

Calor's BioLPG can be blended up to 100% and can continue to make a significant contribution to the Biofuels Obligation Scheme targets for 2030, in particular in "non-road transport" widely used in Ireland through the fork lift truck sector. Calor agrees that a clear biofuels obligation rate increase trajectory is required to ensure the required levels of renewable energy used in the transport sector are delivered.

Question 2 (a to f)

Increasing the biofuel obligation rate is likely to involve the introduction of fuels with higher concentrations of biofuel (such as petrol blended with 10% bioethanol and diesel blended with 12% biodiesel on average).

This may lead to compatibility issues with older vehicles, additional cost to the consumer, the necessity to inform consumers in order to ease its introduction, and potentially a need to develop forecourt infrastructure.

(a) What do you view as the technical and consumer challenges associated with a blending level of 10% by volume in petrol on average?

(b) What do you view as the technical and consumer challenges associated with a blending level of 12% by volume in diesel on average?

(c) What types of biofuel would you expect to be used to meet these increased blending levels?

(d) Are such fuels available in sufficient quantities to meet the needs of the Irish market?

(e) What actions are needed (outside of the Biofuels Obligation Scheme) to support the increase in blending levels (e.g. consumer communication)?

(f) What is the expected cost to consumers associated with increasing the blending levels?

Please refer to Question 1 above.

Question 3

The recast Renewable Energy Directive sets out that obligation schemes may operate on a volume, energy or greenhouse gas emissions basis. In order to better align the Biofuels Obligation Scheme with the recast Renewable Energy Directive (where targets, limits etc. are based on energy) and to ensure the operation of the scheme is not overly complex, it is intended to move from a volume-based obligation to an energy-based obligation.

The amount of fossil-based energy placed on the market in the transport sector by an obligated party (see below) will be multiplied by the biofuel obligation rate to determine the level of biofuel that must also be placed on the market.

When biofuel is placed on the market, a credit for the level of energy is created. Currently this takes the form of a certificate. When the scheme converts to an energy basis, it is proposed that this will take the form of a level of energy. The energy that is credited will be tradable between obligated parties as is currently the case.

Relevant section of the recast Renewable Energy Directive: Article 25(1)

(a) Do you consider the move to an energy-based obligation appropriate?

Calor supports the move to an energy based obligation based on the reasoning for alignment with the recast Renewable Energy Directive. However, the energy content per volume of biofuel is important here, we acknowledge Annex III in the recast Renewable Energy Directive provides the default values to be used by the Member State.

In line with amendments of Annex III, the new scheme should adopt any updates on the default values. An increase in the biofuel quality in the future will result in higher calorific values, the flexibility to recognise this is requested.

Question 4

The recast Renewable Energy Directive must be transposed into law by mid-2021. It is planned to develop and implement the necessary legislative changes in advance of the deadline.

It is important to provide certainty to fuel suppliers to allow them prepare for the changes including sourcing supplies of biofuel. It is also intended to continue to operate on a calendar year basis.

It is therefore intended that the Biofuels Obligation Scheme would continue to operate in its current form until the end of 2021 and the changes set out in this consultation would take place from the beginning of 2022.

It should be noted that some minor changes (such as the reduction of carryover to 15% in 2020) will take place in the period prior to 2022.

(a) Do you consider the timing of changes to the Biofuels Obligation Scheme appropriate?

Calor agrees in principle to the proposed timeline for the implementation of changes set out in the consultation to allow certainty to fuel suppliers. However, Calor does not consider the timing of changes in relation to the approach to biofuels produced from feedstocks that are considered a high risk (from indirect land use change perspective) appropriate and has set out its response and reasoning under Question 10.

Consultation Questions Relating to the Advanced Biofuel Obligation (including Biomethane)

Question 5

The recast Renewable Energy Directive sets out a target of at least 0.2% renewable energy in transport sector to come from advanced biofuels in 2022, increasing to 1% in 2025 and 3.5% in 2030.

It is intended to create a secondary obligation for advanced biofuels. This will operate similar to the biofuel obligation. The amount of energy placed on the market in the transport sector by an obligated party (see below) will be multiplied by the advanced biofuel obligation rate to determine the level of advanced biofuel that must also be placed on the market.

The advanced biofuel obligation will be a sub-obligation and therefore advanced biofuels will contribute to meeting both the advanced biofuel obligation and the biofuel obligation.

When advanced biofuel is placed on the market, a credit for the level of energy is created. This will be recorded separately and will contribute to meeting both the biofuel obligation and the advanced biofuel obligation. This energy will also be tradable between obligated parties.

The increases in the advanced biofuel obligation rate will be as set out in the recast Renewable Energy Directive – i.e. 0.2% from 2022, increasing to 1% in 2025 and 3.5% in 2030.

The implementation of an advanced biofuel obligation is considered a key incentive for the introduction of biomethane as a fuel in the transport sector. This could lead to the production of biomethane from relevant feedstocks (such as the biomass fraction of mixed municipal waste and animal manure) and its use in CNG/LNG vehicles. Meeting the advanced biofuel obligation in this way would provide a market support for the introduction and use of biomethane in the transport sector.

Relevant section of the recast Renewable Energy Directive: Article 25(1); Part A of Annex IX

(a) Do you consider the approach to introducing an advanced biofuel obligation appropriate?

An advanced biofuel obligation as a key incentive to promote research and innovation in this field is welcomed. The obligation rate should be based on a feasibility analysis of what is available in the global biofuels market, which will change dramatically within the next ten years. Ireland is currently importing a large percentage of biofuels and this is unlikely to change within 5 years by 2025, when the first increase is proposed. A data and statistics led proposal is recommended, taking account of future biofuel alternatives, in addition to biomethane. Calor is happy to support feasibility analysis input, working with the SHV Energy Biofuels team.

(b) What biofuels do you envisage contributing to meeting this obligation?

As a global decentralised energy supplier, Calor's parent, SHV Energy, welcomes and supports sustainable, high quality and safe renewable gas initiatives; particularly those that provide cleaner, lower carbon energy for consumers living or working beyond the natural gas grid.

SHV Energy is currently developing a strong pipeline of new opportunities in order to continually expand its ability to supply sustainable BioLPG to its customers across Europe.

The use of renewable and low carbon feedstocks such as biomass, agricultural, residential and industrial waste products are regarded as key opportunities for the SHV Energy group.

SHV Energy works with feedstock providers, technology suppliers and policy makers to ensure that bio-based gas innovation continues to prosper. Our selected technology and product providers will demonstrate their commitment to increasingly sustainable feedstocks as well as complying with officially recognised ethical and land use criteria.

SHV Energy has pioneered the global introduction of BioLPG (biopropane). SHV Energy has worked with Finnish biofuels producer Neste to develop the supply of biopropane into Ireland, the UK and other European markets. This biopropane is a by-product of a conventional hydrogenation process that mainly produces 'renewable' biodiesel. We continue to research and identify new ways to produce biopropane and Advanced Conversion Technologies (ACT's) are regarded as a credible route to high volumes of liquid biofuels. This is because they are the only way to process high volume feedstocks – namely residual waste, wood waste, dedicated energy crops, crop residues and agriculture residues.

In May 2019, SHV Energy, KLM and SkyNRG announced plans to build the first European sustainable aviation fuel (SAF) production facility in Delfzijl in the Netherlands. By 2022, the plant will produce 100,000 tonnes of SAF in addition to 15,000 tonnes of BioLPG as a by-product. In November 2019, SHV Energy announced its participation in the KLM Corporate Biofuel Programme which supports SHV Energy's strategic decision to actively contribute to the development and production of sustainable energy products.

A 2018 report by the World LPG Association and Atlantic Consulting "*BioLPG: The Renewable Future*" surveys the markets, feedstocks, process technologies, projects and environmental impacts for BioLPG.

A September 2019 report was launched by Liquid Gas UK on "*Biopropane: Feedstocks, Feasibility and our Future Pathway*" in conjunction with NNFCC, a leading international consultancy with expertise on the conversion of biomass to bioenergy, biofuels and biobased products.

There are several biomass-to-energy conversion processes in which BioLPG is produced as a co-product and there are a range of biomass feedstocks that can be used in those processes. These range from the hydro treating of vegetable oil to produce HVO biodiesel to the production of synthetic fuels through gasification, pyrolysis, Fischer-Tropsch and methanol-to-gasoline. Currently, the primary production route for biopropane is as a co-product of HVO biodiesel where the process yields are in the range of 5-8%. Due to the large amounts of HVO biodiesel produced, significant volumes of biopropane can be obtained, despite the yields being fairly low.

In terms of advanced feedstocks, there are also novel processes whereby biopropane can be produced as the main target product. These include the use of specialised microbes to ferment organic wastes to produce biopropane (rather than biomethane), and also the direct synthesis of propane from the syngas produced from the gasification of woody biomass.

According to the 2018 WLPGA report, the highest-volume feedstock, by far, is cellulose – residues from agriculture and forestry plus on-purpose energy crops. Another significant feedstock could be municipal waste. Its volumes are smaller and the technology more complex, but waste is readily available.

Figure 13 Extract, Page 31, *Biopropane: Feedstocks, Feasibility and our Future Pathway*, Prepared for Liquid Gas UK, September 2019

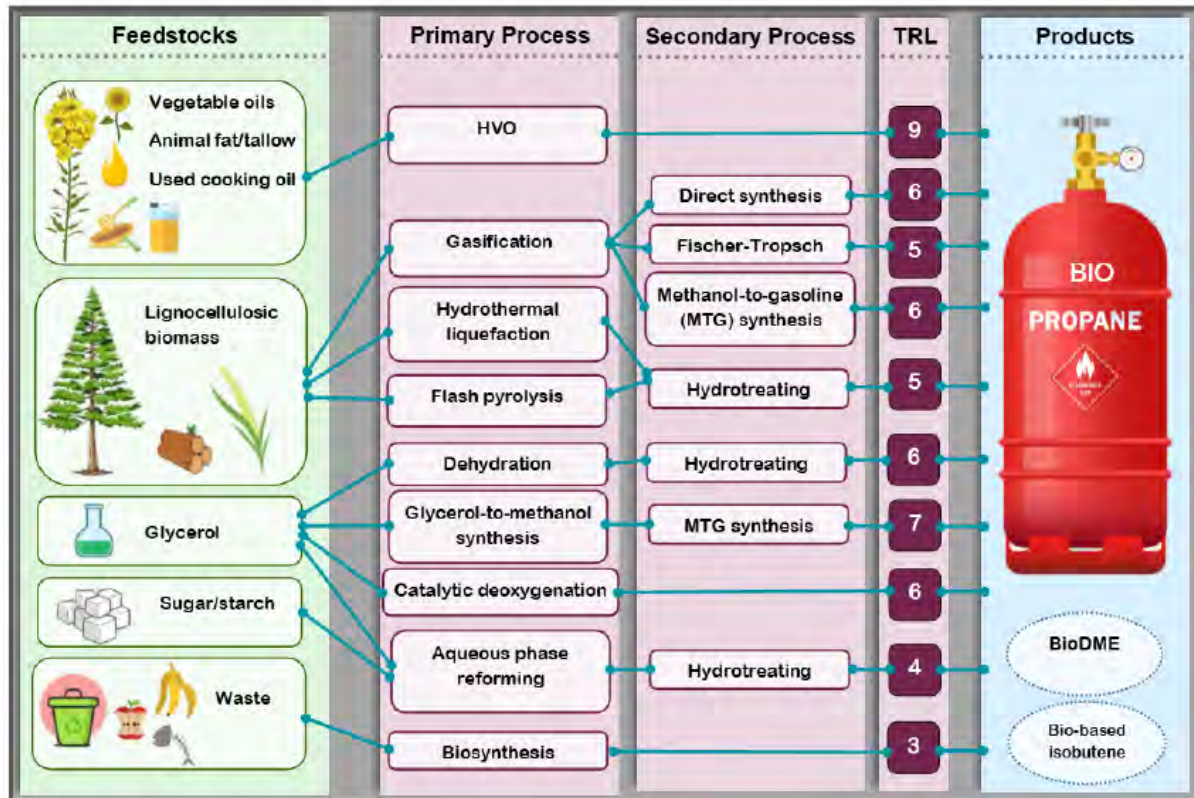


Figure 13. Overview of the feedstocks, processes and technology readiness levels (TRL) for biopropane production.

Research into the possibilities of advanced chemical processing and using the advanced feedstocks set out are at an early stage. They are, however, real possibilities recognised by numerous sources of research studies (available on request). The early stage maturity of advanced feedstocks is not only a challenge for BioLPG but across transport fuels.

Calor is calling on the government to support the research, development and adoption of biofuels such as BioLPG which are currently making an active contribution to the decarbonisation of Ireland’s transport sector in order to support the LPG industry’s ability to supply BioLPG from advanced feedstocks in the medium term.

Calor also regards LNG as a key transition fuel to BioLNG, a potential biofuel capable of being produced from advanced feedstocks set out in Part A of Annex IX of the recast Renewable Energy Directive. The exemption of LNG from the biofuels obligation as proposed in Question 7, is an essential tool to ensure that the LNG market develops so that a seamless transition can be made to BioLNG produced from advanced feedstocks.

Consultation Questions Relating to Obligated Parties

Question 6

The recast Renewable Energy Directive sets out that the target for renewable energy use in the transport sector includes road and rail transport. Currently, under the Biofuels Obligation Scheme, the obligation only applies to road transport. In order to align the scheme with the recast Renewable Energy Directive, it is intended to extend the scope of the obligation to include rail transport.

Relevant section of the recast Renewable Energy Directive: Article 27(1)(a)

(a) Do you consider the approach to include both the road and rail transport as obligated parties appropriate?

Calor supports the move to include both road and rail transport under the obligation based on the reasoning for alignment with the recast Renewable Energy Directive.

Question 7

The recast Renewable Energy Directive provides for Member States to exempt, or distinguish between, different fuel suppliers and different energy carriers when setting the obligation on the fuel suppliers, ensuring that the varying degrees of maturity and the cost of different technologies are taken into account. Member States may also exempt fuel suppliers in the form of electricity or renewable liquid and gaseous transport fuels of non-biological origin (e.g. hydrogen produced from renewable electricity) from the advanced biofuel obligation.

It is intended, in order to incentivise the use of alternative fuels, to apply a reduced or zero obligation to specific fuels. This means there would be no, or a reduced, biofuel obligation and advanced biofuel obligation on specific fuels.

It is intended to categorise fuels as follows:

- No obligation: CNG, LNG, hydrogen, electricity
- Half obligation (i.e. an obligation is generated based on half the energy content of fuels placed on the market): No fuels
- Full obligation: All other fossil-based transport fuels

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As technologies mature and costs reduce, fuels may have the level of obligation increased.

Relevant section of the recast Renewable Energy Directive: Article 25(1)

(a) Do you consider the approach to exempting certain fuels from the obligation to be appropriate?

Calor recognises and supports the exemption of alternative transport fuels, however notes that LPG has been omitted from the suggested no obligation fuels.

Under the 2014/94/EU Directive for the deployment of alternative fuels infrastructure, Liquefied Petroleum Gas (LPG) was identified as a principal alternative fuel with a potential for long-term oil substitution, also in light of its possible simultaneous and combined use by means of, for instance, dual-fuel technology systems.

As LPG is classified under the same definition in 2014/94/EU Article 2, it is requested that LPG is classified under the same conditions as CNG, LNG, hydrogen, electricity, with no obligation under the new Biofuel Obligation Scheme.

As set out in Question 5, both BioLPG and BioLNG have the potential to be produced using advanced feedstocks. In order to support this transition, LPG should be included as a principal alternative fuel alongside LNG.

Consultation Questions Relating to Meeting the Obligation

Question 8

The Biofuels Obligation Scheme currently operates by issuing certificates in respect of volumes of biofuel which are placed on the market. For each calendar year, an obligated party must hold sufficient biofuel obligation certificates to demonstrate compliance.

As set out above, it is intended to amend the scheme to operate on an energy basis. In place of issuing certificates, a credit will be provided corresponding to the level of renewable energy placed on the market. Each credit of energy will be categorised as one of the following based on the feedstock it was produced from:

- Advanced biofuel ([Annex IX Part A](#))
- Used cooking oil and animal fats ([Annex IX Part B](#))
- Food and feed crops
- All other

As biofuel (or biogas) is placed on the market, the total level of energy credited to each obligated party (or other entity that places such fuels on the market) will increase in the relevant category. Sufficient balances will be required across all four categories to meet the biofuel obligation and in the first category to meet the advanced biofuel obligation.

It should be noted that although some fuels may not generate an obligation (e.g. CNG, LNG etc.), suppliers who are placing biofuels (or biogas) on the market for use by such vehicles will be credited under the Biofuels Obligation Scheme.

To incentivise the use of renewable transport fuels in aviation and maritime, it is intended to credit biofuels supplied for use in the aviation and maritime sector.

To incentivise the use of alternative fuels, it is intended that renewable fuels of non-biological origin (including renewable hydrogen) and **recycled carbon fuels** will also be eligible for energy credits.

As the supply of electricity for suppliers will not generate an obligation and the measurement of such supplies would create a significant administrative burden, it is not intended to be obligated parties, it is not intended to provide any energy credit for the supply of renewable electricity to road or rail transport.

Relevant section of the recast Renewable Energy Directive: Article 25(1)

(b) Do you consider the approach to issuing energy credits appropriate?

Calor supports the approach to issue energy credits, it encourages non-obligated parties to supply sustainable renewable biofuels into the transport market.

The Department should avoid putting in place barriers to prevent innovation and future solutions and should ensure that all options are open to support Ireland meeting its challenging 2030 targets. This principle is previously mentioned in relation to BioLPG and feedstocks. It is also applicable to other recognised biofuels and sectors under the recast Renewable Energy Directive.

Question 9

The recast Renewable Energy Directive sets out that multipliers can be applied to biofuels produced from specific feedstocks. Multipliers can also be applied to renewable electricity supplied to road and rail transport when calculating compliance with the recast Renewable Energy Directive.

The multipliers allow biofuel from specific feedstock to be preferred. They also allow adjustment for the greater efficiency of electric road and rail vehicles compared to fossil fuel equivalents. There may be an increased risk of fraud in the market in assigning multipliers to biofuels from specific feedstock which needs to be considered.

It is considered appropriate that biofuels (and biogas) for transport produced from feedstock listed in Annex IX of the recast Renewable Energy Directive (i.e. advanced biofuels and those produced from used cooking oil and animal fats) shall be considered to be two times their energy content. This is intended to apply when credit is provided in the Biofuels Obligation Scheme and when calculating compliance with the recast Renewable Energy Directive.

It is intended that, with the exception of fuels produced from food and feed crops, biofuels supplied for use in the aviation and maritime sectors shall be considered to be 1.2 times their energy content. Where such fuels are produced from feedstock listed in Annex IX, the 2 times multiplier shall also apply (i.e. a 2.4 times multiplier would apply). This is intended to apply when credit is provided in the Biofuels Obligation Scheme and when calculating compliance with the recast Renewable Energy Directive.

It is intended to apply a multiplier of 4 times and 1.5 times the energy content for renewable electricity supplied to road and rail transport respectively when calculating compliance with the recast Renewable Energy Directive.

Relevant section of the recast Renewable Energy Directive: Article 27(2)

(a) Do you consider the approach to applying multipliers to be appropriate?

(b) Do you consider the approach to applying multipliers impacts the risk of fraud?

Calor would prefer to see the creation of actual biofuel volumes, without the use of multipliers. However it acknowledges these multipliers are required for non-obligated sectors like aviation to make viable investment and business models.

Consultation Questions Relating to Limits on Specific Biofuels

Question 10

Under the recast Renewable Energy Directive and the subsequent delegated act²³, biofuel produced from palm oil is classed as being high risk from an indirect land use change perspective. Further feedstocks may be similarly classed in future.

Until 2023, Member States should not exceed the level of consumption in 2019 of any biofuels considered to be high risk. From 31 December 2023 until 31 December 2030 at the latest, the limit is to be gradually decreased to 0%.

Given Ireland has very limited use of biofuels produced from palm oil and the impacts in relation to indirect land use change, it is intended that a limit of 0% will be implemented for all biofuels considered to be high risk from an indirect land use change perspective.

While it will still be permitted to supply these biofuels, no credit will be given in the Biofuels Obligation Scheme and therefore there will be no incentive for suppliers to provide such fuels.

It is proposed that this limit would take effect from 2022 along with the other intended changes to the Biofuels Obligation Scheme.

Relevant section of the recast Renewable Energy Directive: Article 26(2)

(a) Do you consider the approach to biofuels produced from feedstocks that are considered a high risk (from indirect land use change perspective) appropriate?

Calor has serious concerns about the proposal to introduce an early limit of 0% on biofuels considered to be high risk from an indirect land use change perspective, notably palm oil. In the context of developments at EU level and the delegated legislation adopted by the Commission on 13 March 2019 versus the position set out in the BOS consultation, Calor questions the 2022 proposal versus the EU position of a gradual phase out by 2030, starting in 2023. The EU decided not to terminate policy support to biodiesel after 2020, but gradually to phase out support to high emitting biofuels by 2030.

The proposal for a 100% phase out by 2022 will have a serious impact on the ability to continue to contribute to Ireland's transport emission targets and the vital transition to advanced biofuel feedstocks in the medium term. In particular, the proposal would have a detrimental impact on security of supply and the ability to offer consumers fossil alternatives at competitive prices.

Europe is currently the largest biodiesel producer and consumer in the world and the region's use of biodiesel in the transportation sector has expanded rapidly since the 1990s. After rapeseed oil and used cooking oil (UCO), palm oil is the third most important feedstock in current European biodiesel production. With the palm oil phase out, Europe will see both a change in the source of biodiesel imports and the feedstock used to produce biodiesel. Already, the EU is increasingly turning to imports from China, where UCO is a key feedstock. China's biodiesel exports to the EU increased by more than 70% to reach 311,000 tonnes during the first eight months of 2019. The EU is also importing more UCO from other countries in Asia such as Japan.

Calor's BioLPG is by-product of the Hydrotreated Vegetable Oil (HVO) process. BioLPG is made in a manner which is consistent with best practice for sustainable land use in accordance with European guidance. Importantly, it is certified in this regard. Produced by NESTE, a specialist in advanced biofuels, at a custom-built refinery in Rotterdam, feedstocks, including palm oil, are sourced from producers certified by the Roundtable on Sustainable Palm Oil (RPSO), meaning they act in accordance

with standards on labour standards, biodiversity conservation, land use change, pollution and more. BioLPG is also ISCC certified, a global standard to warrant the origin and sustainability of the feedstock. BioLPG is approved by the UK government as a sustainable renewable fuel and more recently by the Irish Government. Since the launch of BioLPG, 25 new facilities are in the planning stages for the production of BioLPG globally.

The contribution made by Calor's BioLPG to the transport market and targets will increase in the coming years since its introduction in 2018. The BOS 2018 annual report shows BioLPG accounted for 0.2% of the total biofuel volume placed on the market, representing six months' supply across our autogas forecourts.

In 2019, with the inclusion of the fork lift sector in the BOS scheme, Calor's contribution is forecast to increase to 0.8% of biofuel volume placed on the market. A greater volume contribution in 2020 is expected with further growth in the fork lift transport market. Provided BioLPG remains a viable and cost effective transport solution, the total disposal of BioLPG on the market will increase to 1.8% in 2020, representing an annual carbon saving of over 6,500 tonnes. Calor is committed to continuing to contribute to Ireland's transport targets, ensuring a viable alternative to LPG and the ability to reduce carbon emissions by up to 90%.

Calor is devoting significant resources to product innovation and diversification as part of the company's decarbonisation strategy. Sustainability is at the heart of Calor's business strategy in Ireland. By 2037, Calor's ambition is that all of its energy products will be from renewable sources, the company's centenary year. The company is over half way towards its ambition of 10% renewable energy supply by 2020.

Calor estimates that it needs 5 to 10 years to source BioLPG from non-palm oil HVO in Ireland. Calor's parent SHV Energy has a dedicated Biofuels team whose main goal is to secure sustainable sources of supply for the production of BioLPG. This ambition involves a vertical integration strategy with producers to gain more control of the BioLPG supply-chain. For example, together with KLM and SkyNRG, SHV Energy will invest in a new plant for sustainable aviation fuel (SAF) that will be developed by SkyNRG. SHV Energy will purchase the BioLPG that is produced. This is the first dedicated plant for the production of SAF in Europe, which will be located in the Netherlands. It will specialise in producing SAF, BioLPG and naphtha, primarily using regional waste and residue streams as feedstock. Apart from hydrogenation, ten other conversion technologies have been short-listed to source non-palm-oil-based BioLPG. These multiple production pathways include for instance the use of solid biomass and gasification of domestic or commercial municipal waste. However, these conversion technologies are still in pilot phase, and time is needed to develop these industrial processes at scale with affordable energy prices.

SHV Energy is currently investing significant funding with global research partners. One such highly promising and novel route has resulted from a joint-cooperation between research partners located in the Republic of Ireland and Northern Ireland.

Calor seeks alignment with the EU position in order to mature, alongside the EU biodiesel market, to advanced biofuel feedstocks in the medium term and to ensure stability and competitive prices for consumers in the transport and heat sectors as we strive to reach our 100% decarbonisation goal by 2037.

Question 11

The recast Renewable Energy Directive includes a limit on biofuels produced from food and feed crops. The maximum limit in energy terms which is likely to apply for Ireland for these biofuels is 2% based on current use of these biofuels.

The majority of biofuel currently supplied to petrol vehicles is produced from food and feed crops. It is intended that the level of biofuel use in petrol vehicles would double from 5% to 10% and therefore it is intended to set the limit at 2% to provide for this growth.

As the limit set will be five percentage points less than the maximum of 7%, the overall target that applies to Ireland of 14% will reduce to 9%. This reduction only applies when measuring compliance with the recast Renewable Energy Directive. As set out above, the obligation will be set to ensure the overall 14% target is achieved.

When a biofuel produced from food and feed crops is placed on the market, a credit for the level of energy is created. This will be recorded separately to other biofuels or advanced biofuels. While this energy will contribute to meeting the biofuel obligation, it will be limited to 2% of the energy placed on the market (i.e. the energy used to calculate the obligation).

The energy credit for biofuel produced from food and feed crops will be tradable between obligated parties. However, the classification will remain and it will be counted within the 2% limit for the purchaser of the credit.

Relevant section of the recast Renewable Energy Directive: Article 26(1)

(a) Do you consider the approach to biofuels produced from food and feed crops appropriate?

Calor acknowledges the benefits of setting the limit for food and feed crops at 2%. However in order for BioLPG to remain a contributor to the scheme it is requested that sustainably sourced and certified high risk feedstocks (from indirect land use change perspective) are included in the list of acceptable food and feed crops under this 2% limit. The case for aligning with the European phase out of high risk feedstocks is set out in full under Question 10.

Question 12

The recast Renewable Energy Directive includes a 1.7% limit on biofuels produced used cooking oil (UCO) and animal fats that can be counted for compliance with the target of at least 14% renewable energy in transport sector by 2030. A multiplier of 2 can apply to such biofuels (see below) which would lead to a maximum contribution of 3.4% towards the target of 14%.

It should be noted that the recast Renewable Energy Directive does not appear to place any restriction on the contribution such biofuels can make to the overall level of renewable energy in Ireland or emission reduction from the transport sector.

As set out above, Ireland can comply with the transport sector target in the recast Renewable Energy Directive by achieving a level of 9% by 2030. Advanced biofuels are expected to contribute 1.75% on an energy basis (equivalent to 3.5% with a multiplier of 2 applied), biofuels from food and feed crops could contribute up to 2%, and UCO and animal fats could contribute up to 1.7% (equivalent to 3.4% with a multiplier of 2 applied). That would lead to 8.9% of the 9% target before electric vehicles and electric rail are counted.

Given the restriction only applies to the transport sector target, how such a limit will be included in the Biofuels Obligation Scheme will need to be considered carefully.

In addition, Member States (where justified) can modify the 1.7% limit taking into account the availability of feedstock. Any such modification shall be subject to the approval of the European Commission.

In 2018, of the 216 million litres of biofuels placed on the Irish market, 162 million litres were biodiesel produced from UCO or animal fats. This represented over 3% in energy terms of the energy used in the transport sector in 2018 and thus is in excess of the 1.7% limit.

Given the level of biofuel used from these feedstocks in Ireland, consideration is being given to seeking the European Commission's approval for a higher limit. Such a request to the European Commission would need to be evidence-based and focus on the availability of feedstock.

Relevant section of the recast Renewable Energy Directive: Article 27(1)(b)

(a) What approach do you think should be adopted in relation to the 1.7% limit on biofuels produced from UCO and animal fats?

Ireland's prominent feedstock is used cooking oils, with a limit on food and feed crops also imposed. A limited supply of feedstocks will increase the cost of fuel to consumers in road transport.

Used cooking oil and animal fats are available and will be used to replace feed and food crops in HVO technologies to produce HVO biodiesel and BioLPG. This is the main source of liquid biofuels globally.

An analysis of what the surplus used cooking oils and animal fats would be used for instead is recommended. This could have an indirect impact on the agriculture sector, currently animal fats are sold to the biofuels industry at a high value. A restriction may reduce the overall business models for the Irish agriculture sector.

(b) Do you consider it appropriate to seek the European Commission's approval for a higher limit and, if so, what evidence would you suggest be used to support such a request?

Calor is not currently able to source BioLPG made from Used Cooking Oils at a cost effective and affordable rate for Irish consumers in the transport and heat sectors. Consequently, we are not currently in a position to advise on what figures to appoint to a higher limit. As mentioned in 12.a) an analysis of what the surplus used cooking oils and animal fats would be used for instead is recommended.

Consultation Questions Relating to the Carryover of Credits

Question 13

The Biofuels Obligation Scheme allows for up to 25% of the obligation in any one year to be met using certificates carried over from either of the previous two years. This limit is in the process of being reduced to 15% from 2020.

It is intended to retain this carryover system in order to provide suppliers with a level of

24 The biofuels are listed in Part B of Annex IX in the recast Renewable Energy Directive; animal fats are classified as categories 1 and 2 in accordance with Regulation (EC) No 1069/2009 flexibility, and support the creation of new supplies of biofuels. However, changes will be necessary due to the intention to move from a volume-based obligation to an energy-based obligation. The introduction of a target for advanced biofuels and limits on biofuels produced from food and feed crops will need to be catered for.

It is intended that where an obligated party has, after trades with other parties, an excess credit of energy over and above the level required to meet its obligation, it can be transferred to the following year provided that:

- the excess credit of energy does not include any energy in excess of the 2% limit on biofuels produced from food or feed based crops (i.e. if an obligated party exceeds the 2% limit, this credit of energy cannot be carried to the following year);
- the excess credit carried into the following year can only be used to meet the biofuels obligation and not the advanced biofuels obligation; and
- the excess credit carried from a given year cannot exceed 15% of the obligation for that year.

The treatment of carryover of energy from biofuels produced from used cooking oil and animal fats will need to be examined in the context of the 1.7% limit (see above).

At the end of 2021 it is intended that obligated parties will be permitted to carryover certificates as follows:

- a maximum of 15% of the certificates that a supplier was required to have in 2021 may be carried into 2022; and
- each certificate will be credited with 30 MJ energy²⁵.

(a) Do you consider the approach to carryover appropriate?

Yes, Calor agrees with the approach.

Consultation Questions Relating to Compliance

Question 14

There has been a very high level of compliance with the Biofuels Obligation Scheme. This is ensured through the requirement to pay a compliance fee (referred to as a 'buy-out charge' in legislation) when an obligated party does not meet its obligation. Currently, the fee paid by obligated parties who fail to meet the obligation is €0.45 for each certificate (equivalent to a litre of biofuel) below the required level. This is equivalent to €0.015 per MJ of energy (assuming an average of 30 MJ per litre/certificate as above). There have been very limited examples of this fee being paid to date due to the high level of compliance.

The level of the fee has been set to ensure it is more cost effective for an obligated party to increase the level of biofuels as opposed to paying the compliance fee. Given the future increases in the obligation rate, the marginal cost of supplying more biofuel to the market is expected to increase. It is therefore intended to increase the fee to €0.02 per MJ in 2022, €0.03 per MJ in 2025 and €0.04 in 2030.

The cost of supplying advanced biofuels is expected to be greater than that of other biofuels. Accordingly, it is intended to see the fee for non-compliance with the advanced biofuel obligation to be twice that for the biofuel obligation (i.e. two times the monetary levels set out

25 Based on a weighted average of 25% bioethanol (21 MJ/litre) and 75% biodiesel (33 MJ/litre) above for each MJ of energy).

(a) Do you consider the approach to setting the level of compliance fee (or 'buy out charge') to be appropriate?

Calor is not an obligated party. No comment.

Question 15

In the event of a significant oil/biofuel supply disruption, the requirements under the Biofuels Obligation Scheme continue to apply. If such a disruption lasted for a prolonged period, it is possible that obligated parties may not be able to meet the requirements of the scheme.

There is currently no scope for any adjustment to the Biofuels Obligation Scheme to take account of such a situation. Fuel suppliers would therefore be liable for compliance costs in not meeting the obligation.

Therefore, there is some merit in providing the Minister scope to adjust the obligation under the scheme in the exceptional circumstances. However, any such adjustment, while providing flexibility to obligated parties, should not impact the overall obligations of the scheme.

It is therefore considered appropriate that the Minister may, in the event of a significant disruption that prevents the supply of biofuels to the market, provide obligated parties flexibility in compliance. This would be achieved by allowing obligated parties the option to make up for any shortfall in a specified calendar year in the following calendar year in place of paying compliance costs.

(a) Do you consider the approach to dealing with a potential supply disruption appropriate?

Calor is not an obligated party. No comment.

Consultation Questions Relating to Heat Sector

Question 16

The Biofuels Obligation Scheme is currently limited to the transport sector. In the heating sector, there is a high use of fossil fuels, including oil and natural gas, which could potentially be blended with renewable fuels to reduce emissions in the heat sector.

Responses to the previous consultation of the Biofuels Obligation Scheme highlighted a number of technical challenges to using bioliquids in the heat sector (e.g. a large amount of oil used in the heat sector is stored in tanks outside homes and businesses over long periods of time which may cause issues).

Notwithstanding the input received to date, the introduction of such fuels in the heat sector can bring significant decarbonisation benefits and therefore continues to be kept under consideration.

(a) What is your opinion on the potential for an obligation scheme (similar to the Biofuels Obligation Scheme) in the heat sector?

Calor does not regard a renewable heat obligation as the optimum method to fund and deliver Ireland's 2030 renewable heat targets. Calor favours a consumer lead switch to renewables versus an industry obligation. More focus should be given to removing existing barriers to the adoption of renewable heat technologies, including addressing cost effectiveness for consumers.

The thermal heat sector already has a scheme in place called the Energy Efficiency Obligation Scheme (EEOS). The obligation scheme started in 2014 and will run until at least 2020. It currently places obligations on larger energy suppliers and distributors to deliver energy savings. This is true for all energy types, including electricity, gas, oil and solid fuel. The purpose of this system is to reduce the energy demand ultimately leading to a reduction in carbon footprint. If a biofuel obligation was also put in place the same customer base, it would effectively increase cost for consumers to meet two separate obligation schemes. We feel it unfair to burden our existing customer base with these increased costs.

(b) What do you see as the technical barriers to introducing such a scheme?

(c) If a heat obligation scheme was to be introduced, what level of obligation (e.g. in percentage or energy terms) would be appropriate?

Calor does not support the introduction of an obligation scheme for heat. However, if an obligation scheme was put in place, a fair and levelised carbon target across all fossil fuels including, coal, peat, oil, electricity and gas would be expected.

Clarity would be required on the proposed heat applications and heat users that would be included. A key consideration would include the identification of heat users with the challenge of shared fuel storage for transport, catering and heat (e.g. gasoline, electric, natural gas and LPG).

Consultation Questions Relating to Additional Input

Question 17

In addition to the specific questions asked in this consultation, your input is invited in relation to the development of the Biofuels Obligation Scheme for the period 2021 to 2030 including the implementation of the elements relating to renewable transport fuels in the recast Renewable Energy Directive.

Calor remains available to provide input to the development of the BOS scheme and to outline in more detail the supply pathways that it is developing and investing in to meet the needs of its LPG and LNG consumers in the transport sector.

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To find out more about Calor, please visit www.calorgas.ie



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