



An Roinn Iompair  
Department of Transport

# Renewable Fuels for Transport Policy Consultation 2022

## Summary Report



## Background and Introduction

The Renewable Fuels for Transport Policy 2021-2023 sets out the pathway for the supply and use of renewable fuels in transport to deliver significant CO2 emissions abatement to 2030. It is a key component within Ireland's Climate Action Plan for the transport sector as well as the implementation of transport elements of the recast Renewable Energy Directive (RED II) and consideration of the EU Fit for 55 proposals.

The Policy contains proposals under 19 headings signalling the direction of ambition for renewable fuels in transport to 2030, thereby facilitating industry and stakeholders in future planning for compliance. The Policy also includes a commitment to undertake a consultation to seek views on implementation and future direction.

As part of the 2022 consultation on the Policy, several stakeholder workshops and a webinar were held in March and April.

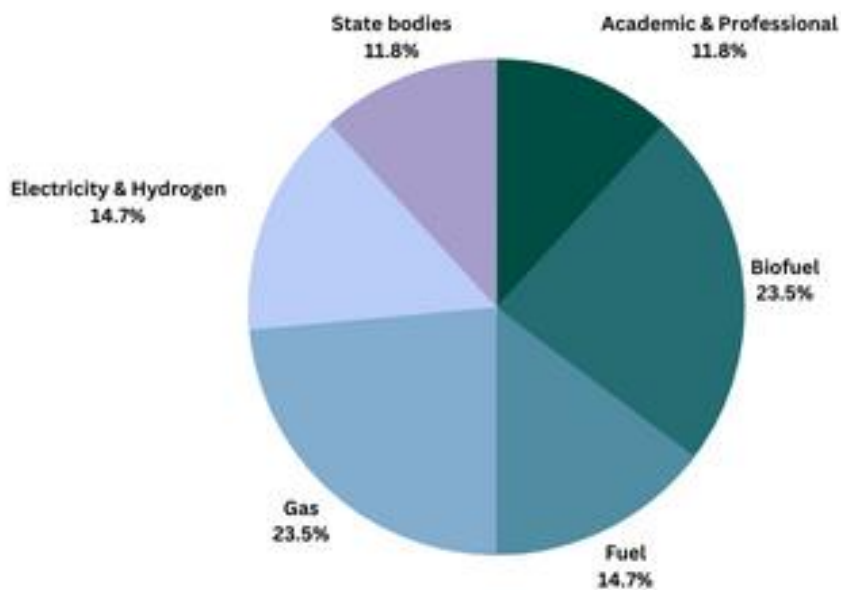
The Department of Transport launched a call for written submissions throughout May. Thirty-six submissions were received from a range of stakeholders, including fossil fuel and renewable energy suppliers, state bodies and transportation companies. The written submissions are available on the Department of Transport website.

The written consultation was structured around four key themes, as follows:

- Theme 1: Climate Action Plan – achieving ambitious targets, Q1-Q7
- Theme 2: The EU Approach – setting limits and safeguarding sustainability, Q8-Q14
- Theme 3: Focus on future advanced and development renewable fuels, Q15-Q20
- Theme 4: Aligning administration of the biofuel obligation with the policy on renewable fuels, Q21-Q26

This report contains a summary of the responses from the written consultation under each of the four consultation themes, as well as the Department response under each thematic section considering the written submissions and all other policy and stakeholder inputs to the consultation process in 2022.

### Renewable Fuel for Transport Policy - Consultation 2022: % Respondents by Category



## Theme 1: Climate Action Plan – achieving ambitious targets

Q1 The proposed indicative annual trajectory of the biofuel obligation rate to 2030, and the corresponding buy-out charge.

Stakeholders (21) held a range of views on the indicative annual trajectory of the obligation rate and on the buy-out charge. There was broad consensus on the benefit of the clearly set-out trajectories for the biofuel obligation rate increase set out in the policy and the related buy-out charge. Also, the benefit of policy and regulatory certainty as a means of signalling support for the ongoing development of renewable transport fuels and noting the challenges in achieving this.

Many fuel supplier (6) responses commented on the proposed obligation rate increase to 2030, which should be considered in accordance with the availability and supply of biofuels and technological advancement of the biofuels industry; and, that possible future trajectory of increase in the buy-out charge should be kept under review.

Among the biofuel producers (6) who responded was a shared view that there was scope for ongoing ambition in, the blending obligation increase set out in the policy statement, the utilisation of feedstocks to achieve the increase in the obligation, and in the level of the buy-out charge to support the obligation increase.

Many stakeholder responses noted that the target for the blending obligation by 2030 is effectively above the rate set out in the EU Fit for 55 proposals for a 13% reduction in the greenhouse gas intensity of transport fuels by 2030.

Q2 With reference to increased European ambition under the Fit for 55 proposals or further measures under the Climate Action Plan, the potential for even higher national targets for 2030, for example, to support a blending target or biodiesel/HVO of B25 or B30, or an option for supplying an E85 blend by 2030.

Stakeholders (8) regarded that focus should remain on achieving current targets given their ambitious and challenging nature, including achieving an E10/B20 blend, before Ireland considers adopting a greater level of ambition. This view was expressed by several biofuel producers as well as fuel suppliers.

An equally large number of responses (7), mainly biofuel and renewable fuel producers and representative groups, expressed views relating to the need for higher levels of ambition to support renewable transport fuels, including deployment of advanced renewable fuels.

Among the challenges for higher biofuel targets, expressed in the responses, were the security and availability of biofuel supply to meet current blending targets, the limits on the supply of biofuels from used cooking oil and waste animal fats, and the impact of the crop-cap (e.g., for blending of bioethanol in petrol at levels of up to E85).

Among the measures considered in some responses as supporting achievement of renewable fuel targets were, the use of multiple credits/certificates to incentivise certain renewable fuel supplies – including HVO, renewable electricity and hydrogen, policy, and financial supports, transitioning to alternative fuels across the transport modes, and higher national targets for modal shift to advanced fuel and vehicle technologies, and implementation of sustainable mobility.

Q3 The challenges and opportunities presented by these ambitious targets – with reference to achievability, technical implementation considerations, and availability of sustainable supply whether imported or indigenous.

Increasing the blending obligation was seen by most stakeholders (22) to produce both opportunities and challenges.

The use of biofuels to decarbonise transport and non-road machinery such as forklift trucks was referenced in several responses (7).

Among the challenges identified by respondents (12) were the availability of sustainable biofuels and feedstocks in achieving the renewable fuel targets and requirements set out in the Policy and the Climate Action Plan. Biofuels are a limited resource and there is increased demand for biofuels internationally creating competition for biofuel feedstocks and impacting availability, in particular of HVO. Security of supply was also raised as a concern, as was the rising cost of biofuels.

Higher blending rates for ethanol and biodiesel/ FAME, in addition to increased supply of HVO, was proposed by some respondents, citing higher blend rates in other European countries - the UK and USA. Others cautioned concerning the technical challenge for engine performance and maintenance associated with higher blends of biodiesel/FAME. Compatibility with older vehicles, impact on fuel cost, and possible vehicle maintenance costs being passed on to consumers, were also raised as concerns.

Several respondents (6) saw the opportunity for indigenous production of low carbon or renewable gas and biofuels, including biofuels from feedstocks not included on the EU list (Category 3 tallow), noting higher collection rates for tallow, used cooking oil and food chain waste in other European countries.

Q4 Consideration of other fuels, such as gasoil, which if included within the biofuel blending obligation could assist in meeting the ambitious targets for decarbonising transport.

A good number of responses (17) to this question were in favour of expanding the biofuel obligation through the inclusion of more diverse fuels within its scope - including Sulphur Free Gasoil (SFGO)<sup>1</sup> used for non-road mobile machinery (NRMM)<sup>2</sup>, biomethane and renewable natural gas and bioLNG and rDME<sup>3</sup>.

Of these many responses (8) supported the extension of the biofuel obligation to include Sulphur Free Gasoil (SFGO) used for non-road mobile machinery (NRMM) - noting the inclusion of SFGO in the UK's Renewable Transport Fuel Obligation.

A few respondents (4) noted the potential for biomethane produced from waste<sup>4</sup> as a transport fuel to support the development of anaerobic digestion in Ireland for transport and in other sectors of the economy. However, also noting the potential costs associated with this and the need for supports.

A few (3) responses proposed bioLNG and rDME as low carbon alternative fuel, which can have applications in non-road mobile machinery (as a drop in fuel) and in industry, domestic heating, and cooking appliances.

Q5 Specifically, regarding a legal mandate for the implementation of E10, subject to an appropriate legal instrument being settled by Government, technical considerations for implementation, for example, lead-in time and alignment to the seasonal changeover of petrol supplies, i.e., potentially in September 2022 or May 2023, or other key considerations.

A good number of responses (12) supported the transition to E10 as the standard grade for petrol. Fuel suppliers stated that mandating the move to E10 was necessary to ensure industry transition together, recognising the need for early certainty on lead-in times, legislation, infrastructure challenges, and communication with customers.

Biofuel industry responses (6) also support the move to E10, noting the need for E10 labelling at petrol pumps.

Regarding the implementation date, one fuel supplier response noted the UK's intention to legislate for E10 in Northern Ireland in November 2022, suggesting Ireland align to this. Two other

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<sup>1</sup> Lower Sulphur gasoil

<sup>2</sup> The European Commission defines non-road mobile machinery as including a wide variety of machinery, typically used off the road in many ways including small garden and handheld equipment, construction machinery, agricultural and farm machinery, and railcars, locomotives, and inland waterway vessels.

Source: [https://ec.europa.eu/growth/sectors/automotive-industry/environmental-protection/non-road-mobile-machinery\\_en](https://ec.europa.eu/growth/sectors/automotive-industry/environmental-protection/non-road-mobile-machinery_en)

<sup>3</sup> Dimethyl ether produced from renewable or recycled carbon feedstock

<sup>4</sup> Using RED II Annex IX Part A feedstocks

submissions commented on a preferred implementation date, with one preferring a September 2022 commencement, and another preferring May 2023 to allow sufficient time for consumer awareness.

Q6 Considering the incentive within the increased biofuel obligation rate, your view on the support for HVO through multiple credits under the scheme in 2023 and beyond.

Opinion on supporting HVO through multiple credits was split between respondents to this question. Of the submissions received (15), equal numbers were in favour or opposed to the application of multiple credits to HVO, with one respondent (fuel supplier representative body) providing a summary of the equally mixed views of its members.

Some fuel suppliers (3) welcomed the proposal as a way of providing a support to industry, and a few others (2) as a means of incentivising the use of renewable fuels across transport.

Among biofuel suppliers, there was a view that multiple credits be reserved for novel development fuels with scalable feedstocks, based on concerns that the same waste feedstocks used to produce HVO are also used to produce FAME/biodiesel/UCOME, and these resources are limited. Also, that multiple credit supports be given to the indigenous production of renewable fuels such as green hydrogen and biomethane.

There was some support in responses (2) for an increased B10 blend wall to be implemented in Ireland for biodiesel supply.

Q7 Inclusion of renewable electricity under the obligation, how this can be achieved in practice and the appropriate lead-in time for implementation in 2023 or later.

A significant number of responses (12) were received which supported the inclusion of renewable electricity under the obligation.

However, a few responses referred to a need to consult further on how this might be administered in practice:

- to consider who would be eligible for credits<sup>5</sup>, the owners/operators of recharging infrastructure rather than electricity providers.
- to ensure that its inclusion within the obligation would require proof it is from renewable sources, and it would be subject to clear rules.
- consideration of the implications for self-generated or stored renewable electricity.
- the extent of knock-on investment support this would have for progressing policy, planning, grid connections and renewable deployment.

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<sup>5</sup> Fuel Quality Directive GHG reduction credits

- how renewable electricity in transport could be counted separately to other schemes or supports to ensure its use is accounted for only once.
- how renewable electricity under the obligation could meet CO2 intensity reduction in line with the requirements of the Fuel Quality Directive.
- whether the use of renewable energy in transport should be supported under a separate scheme, rather than within the obligation.



## **Theme 1: Climate Action Plan – achieving ambitious targets**

### **Department of Transport Response**

It is clear from the consultation responses that stakeholders are concerned that the policy on renewable fuels gets the balance right. Assessing the right level of ambition concerning renewable transport fuels will be an ongoing deliberative process with consideration to wider transport sector considerations under the Government Climate Action Plan.

While Ireland's biofuel blending targets under the Climate Action Plan are considered by respondents to be higher than EU targets to 2030, the European requirements and limitations on biofuels from certain feedstocks make achieving these targets challenging.

The transposition of the Renewable Energy Directive in the European Union (Renewable Energy) (Amendment) Regulations (2) 2022 (S.I. 350 of 2022) ensures that in the calculation of the renewable energy share in transport (the RES-T), seeks to ensure that European requirements are adhered to. In particular, regarding the 1.7 limit on UCO and waste-based biofuels, which applies from 2021. Appendix A contains an illustration of the RES-T obligation as it applies to Ireland – based upon the current supply of renewable transport fuel.

The 2022 Regulations give the Minister powers to prescribe the contribution of biofuels from certain feedstocks towards the renewable transport fuel obligation. The exercise of these powers includes consultation on any proposed Regulations.

Regarding the sustainability and availability of biofuel supply to meet future transport demand, the findings and conclusion of a department-commissioned study in 2022 confirms there are risks posed by the profile of Ireland's current biofuel supply, which is heavily dependent on UCO-derived biofuels. The level of risk will increase with the anticipated growth in demand for UCO-derived HVO in road transport, and additional demand from the aviation and maritime sectors (to meet future EU targets), and by other, non-transport sectors.

This justifies maintaining a robust oversight regime to ensure EU requirements for sustainability and GHG reduction are adhered to in all cases, as well as continued incentives to rebalance the supply profile towards advanced biofuels and renewable fuels of non-biological origin.

The European regulation of renewable energy provides for an oversight system for biofuels (and biomass for use in other energy consumption sectors). The 2022 Regulations place an obligation on fuel suppliers in Ireland to ensure information is supplied to the EU database concerning the supply of sustainable biofuels and their feedstocks, once the database is operational. In addition, responsibility has been conferred on the National Oil Reserves Agency to supervise the activities of certification bodies involved in the verification of sustainability and GHG criteria of biofuel supplied.

Ireland's crop-based biofuel supply remains low. There were approximately 0.4 PJ (17m litres) of crop-based biofuels (primarily bioethanol) placed on the market in Ireland in 2021 within a total

energy consumption in road transport in 2021 of approximately 146 PJ (BOS Annual Report<sup>6</sup>). In 2020, approximately 5% of Ireland's biofuel was produced from crop-based feedstocks – the EU average, was 67%. This is discussed further in the Department Response under Theme 2.

Concerning the policy imperative towards more advanced renewable fuels in Ireland's transport fuel supply, the 2022 Regulations empower the Minister for Transport to regulate for an advanced biofuel obligation rate and buy-out charge. It also includes powers to regulate for multiple credits for certain renewable transport fuels specified in the EU Regulation, to incentivise their use in the transport sectors where they are of most value.

Appendix B sets out the suite of renewable transport fuels which are intended to be prescribed for multiple credit/certificates from 1 January 2023.

The Department notes the divergent stakeholder views on the application of multiple credits to support HVO. This has already been built into the projections for the indicative trajectory of obligation rate increase and is intended to incentivise production and supply of HVO to meet ambitious decarbonisation targets. However, the Department will monitor the impact of all the multiple credits to be introduced in 2023, and their continued rationale, within future consultation and review.

With regard to the consultation responses on the inclusion of renewable electricity multiple credits in road and rail, further consideration will be needed by the Department as to how the inclusion of renewable electricity within the obligation could be administered in practice, and this will be further set out in the next policy statement.

There is a need to incentivise the supply of advanced biofuels and renewable fuels of non-biological origin in the fuel supply for transport use. The renewable transport fuel obligation is one measure which can support this transition and multiple credits for certain renewable transport fuels can play a role. Any unintended consequences of incentivising one type of fuel over another, however, must also be monitored as markets react to regulatory and other contextual changes.

Supporting interventions by the State on the demand side are also relevant to support increased supply of advanced and renewable fuels of non-biological origin. For example, the alternative fuel heavy-duty vehicle grants and accelerated capital allowance support which are expected to continue in 2023. The Department is engaged in research for possible future rollout of refuelling infrastructure for alternative fuels required under proposed EU Regulations, as well as research concerning future demand in aviation and maritime transport sectors.

The policy context for the supply and demand of certain renewable fuels is often cross-sectoral. For example, the planned Hydrogen Strategy 2022 will provide a framework for future policy development for a potential hydrogen economy in Ireland linked to the development of future

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<sup>6</sup> Biofuels Obligation Scheme Annual Report 2021: <https://www.nora.ie/fileupload/457-22X0084%20-%20BOS%20Annual%20Report%202021%20for%20publication.pdf>

offshore renewable energy, with side benefits for the transport sector off-takers, along with other non-transport sectors.

Concerning incentives for the transition to E10 in petrol, the consultation written responses confirm a general view coming through the 2022 consultation workshops, that a legislative mandate is the optimum approach to its introduction. While legally, up to a 10% ethanol blend in petrol in Ireland is currently possible, the market is such that suppliers opt for an E5 ethanol blend. Options concerning a mechanism within the renewable transport fuel obligation to achieve an E10 blend were considered by the Department, but none could achieve the objective with certainty. A legal mandate for a specification to achieve an E10 in Petrol is therefore the preferred option.

The Department is working through the draft legislative amendments to provide for the E10 mandate. It is understood that there are different views among stakeholders concerning the implementation date, with sufficient lead-in time for supply, and information for consumers being the biggest concerns. It is noted that an E10 transition aligned to the seasonal changeover of petrol stocks is preferred by stakeholders.

Where the consultation responses under Theme 1 suggested additional aspects which may not have been addressed specifically in the 2021 Policy Statement, these will be considered for inclusion in future iterations of the Policy, and include the following:

- Ongoing review of the application of multiple counting to feedstocks and development fuels.
- Additional supports to incentivise the supply of development renewable fuels and new technologies.
- Inclusion of additional fuels within the renewable transport obligation, with due regard to the positive impact on GHG reduction annually.
- Further consideration regarding increasing the blend wall for FAME /biodiesel/ UCOME (B10).

## Theme 2: The EU Approach – setting limits and safeguarding sustainability

Q8 What further safeguards to ensure the sustainability of biofuels supply and resilience against possible fuel fraud can be implemented to build upon the existing European provisions and plans in this area?

In general, the stakeholders' responses (18) pointed to the EU improvements in supervision of sustainability which are already in train. These include the RED II sustainability and greenhouse gas emission reduction criteria which must be met for certificates under the obligation, the role of certification bodies and voluntary schemes in ensuring biofuels and their feedstocks are traceable and sustainably sourced from the point of origin, and the role of the forthcoming Union database in the verification of sustainability and greenhouse gas emission reduction criteria. Taken together these measures were identified as the means of preventing the risk of fuel fraud and of ensuring public confidence in the biofuels placed on the market.

Many of these respondents (10) indicated that these measures while sufficient could be implemented faster, built upon, and strengthened. For example, the forthcoming Union database, the promotion of biofuels from indigenous feedstocks, and supports for research and development of advanced biofuel feedstocks.

Within the group of respondents on this question some outlier views were stronger - either that the EU has a very robust oversight system to date, or that current schemes do not provide a sufficient safeguard against fuel fraud and that a national anti-fraud office should be established tasked with investigating and prosecuting fuel and energy fraud.

The Renewable Fuels for Transport Policy Statement's commitment to increase the level of evaluation, analysis, and enforcement of robust sustainability limits to underpin renewable fuels, is also broadly welcomed by stakeholders.

Q9 The European approach envisages biofuels from high-risk ILUC being phased out by 2030. Could Ireland phase these out earlier, and when?

There were a variety of responses to this question. Some respondents (5) agree that phasing out high-ILUC risk feedstocks before 2030 is possible from 2023 onwards. These respondents noted the low volume of palm oil feedstock used in biofuels in Ireland currently.

However, several (5) respondents referenced the possible continued role for crop-based and high-ILUC risk feedstocks as part of the renewable transport fuel supply in Ireland, at least in the short term. This is because of Ireland's reliance on waste-based biofuels which will come under increasing supply pressure as global demand for these biofuels increase.

A few (2) respondents felt that the complete phase-out of high-risk ILUC in Ireland should not be before the EU end date of 2030. Otherwise, it would have an immediate and critical impact here on the availability and supply of critical renewable fuels and their role in the ongoing decarbonisation of road transport in Ireland.

Q10 Considering the European limits on biofuels derived from Annex IX Part B feedstocks (incl. UCO and tallow) in renewable energy for transport supply, whether certificates awarded for biofuels produced from UCO and animal fats should continue to be allowed to be carried over to the next obligation period?

Respondents to this question acknowledged Ireland's reliance on Annex IX Part B feedstocks in its biofuel supply. Given the planned increases in biofuel under the Climate Action Plan, it will not be possible for many suppliers to individually meet the EU 1.7 % limit on the supply of these waste-based biofuels without using crop-based biofuels and biofuels from advanced feedstocks, which are currently in limited supply. It was also noted that suppliers not meeting the obligation through blending would buy out of the obligation, and the cost would be passed on to consumers. Many respondents (8) felt that Ireland should seek a derogation from the European Commission from the 1.7 % limit on the supply of Annex IX Part B biofuels.

Some respondents (9) supported the retention of the ability to carry over all biofuel certificates into the next obligation period, to offset some of the future constraints as set out above. While one respondent suggested that the level of the carryover could be adjusted on an annual basis to avoid issues related to stockpiling of certificates, some other respondents felt that the current 15% limit on the carry-over of biofuel certificates could be relaxed to allow a greater number of certificates to be carried over.

It was also noted that several respondents to this question (9) referenced the potential of indigenously produced/collected waste feedstock and animal fats as the feedstocks to support the growing demand for affordable biodiesel FAME or HVO for transport use.

Q11 The challenges and opportunities to incentivise production of advanced biofuels from Annex IX Part A feedstocks.

Respondents to this question (10) agreed that advanced biofuels produced from feedstocks listed under Annex IX Part A have a significant and long-term role to play in biofuel production and decarbonising transport.

However, some challenges were identified by respondents including, the current level of availability of Annex IX Part A feedstocks, and the cost of production of advanced biofuels, including the novel pre-treatment of some feedstocks necessary. Investment in research and development and scaling-up of production was also noted as a key challenge ahead. Respondents also felt that more policy support is needed for development of advanced biofuel production and supply.

Opportunities identified included the potential for conversion of a wider variety of waste materials into biofuels, and possible domestic sourcing of the feedstocks, which will support the security of supply of biofuels. The advanced biofuel sub-targets and obligation introduced within the current renewable transport fuel framework will also help support the supply and development of these advanced fuel technologies.

Q12 With reference to EU Fit for 55 proposals to remove double counting of biofuels from all Annex IX feedstocks, views on the implementation of such a measure by 2025.

Stakeholders (17) do not support the removal by 2025 of double counting of biofuels from feedstocks under Annex IX. Double counting of biofuels from Annex IX feedstocks is a means of promoting the use of waste-based biofuels over crop-based and incentivising the potential of advanced biofuels (from feedstocks under Annex IX Part A) which are currently more costly to produce.

Many of these respondents also noted the high greenhouse gas savings from these waste-based biofuels. In this regard, respondents noted that the greenhouse gas emission reduction mandate proposed under the RED III will be a more effective mechanism than removing the double counting provision relating to biofuel feedstocks.

Q13 What risk exists of biofuel supply mandates in Ireland cumulatively with those in other jurisdictions, creating excessive demand on feedstocks which also constitute food supply, thereby worsening food price volatility, and what safeguards would be appropriate and effective in relation to such risks?

Respondents to this question (14) saw little to no impact of biofuel supply mandates in Ireland creating excessive demands on crop-based feedstocks and, consequently, impacting on food price volatility. They pointed to the high level of waste-based biofuels supply in Ireland, predominately UCO, and the low level of crop-based biofuels supply. It was noted that Ireland is far below the EU's limits on the supply of crop-based biofuels. A few respondents (2) referred to current levels of production in Europe's farming sector as being higher than required for essential nutrition but designed to meet consumer choice and export.

However, many respondents noted the potential for indigenous production of advanced biofuels, biomethane and green hydrogen as opportunities to mitigate against excessive demands on feedstocks globally. Several respondents (5) identified opportunities to expand the use of domestically produced feedstocks, in particular, category 3 animal fats and whey permeate (which are not listed in Annex IX of RED II) as a means of mitigating against price volatility, to promote self-sufficiency and circular economy.

Respondents noted an unintended consequence of further limits on waste-based biofuels to increase the demand for crop-based biofuels. Other responses (3) noted that the production of

biofuels has little to no impact on food prices compared to other factors such as energy and fertilizer costs.

Q14 The relationship and/or competition between biofuels and global and EU biodiversity policy, in particular the need to set aside land for biodiversity.

Most respondents (8) identified little to no risk in relation to biofuels impacting negatively on biodiversity in Ireland given the high levels of waste-based biofuels used here. This risk is also safeguarded against with sustainable feedstocks (as required under European renewable energy regulation) and the implementation of existing legislation and policy measures (e.g., renewable fuels policy measures and the Wildlife Acts).

Although, it was recognised in the responses that the relationship between the development of renewable fuels and issues of biodiversity was complex. One response referenced potential impacts of land use management or change related to bioenergy consumption on biodiversity and the need to mitigate against negative impacts through policy measures and within business practices.

## Theme 2: The EU Approach – setting limits and safeguarding sustainability

### Department of Transport Response

The Department will continue to monitor and consider additional measures concerning the sustainability and availability of renewable fuels. This will be informed by study and research<sup>7</sup>

The 2022 Regulations provide for the implementation of the Renewable Energy Directive in Ireland. Concerning the improvements for adherence to sustainability and greenhouse gas criteria for biofuel supply (aligned to similar requirements for biomass in heating and industrial consumption), the 2022 regulations provide for, some key provisions including:

- obligations on suppliers to ensure information is supplied on the EU database for sustainable biofuels; and
- additional powers for the NORA to supervise the activities of certification bodies involved in the verification of sustainability and GHG criteria of biofuel.

The introduction of the European Database to enable the tracing of biofuels and their sustainability will support the robustness of the sustainability criteria for renewable fuels and their feedstocks and assist in mitigating against the risk of fuel fraud in used cooking oils and other renewable fuels.

Regarding obligations on suppliers, the 2022 Regulations give new powers to the Minister for Transport to regulate for,

- The contribution to the renewable fuel transport obligation of:
  - advanced biofuels and biogas from feedstocks under Annex IX Part A
  - biofuels and biogas produced from crop-based feedstocks
  - biofuels and biogas produced from high indirect land-use change-risk feedstocks (which shall be no more than the amount disposed of in 2019 by the companies and consumers that disposed of them in 2019)

The reporting by Ireland concerning the renewable energy share in transport and the overall renewable energy share in general consumption of energy under the 2022 Regulations is subject to the criteria set out in the Renewable Energy Directive. This includes the limitation on Annex IX Part B based biofuels, the limitation on crop-based biofuels and the limitation (at 2019 levels) and trajectory of decrease in the supply of high ILUC-risk biofuels toward 0% by 2030.

Member States, including Ireland, continue to negotiate the 'Fit for 55' suite of measures that will implement the European Green Deal. The actions set out in the third Renewable Energy Directive (RED III) will continue to shape the Renewable Fuels for Transport Policy from 2025 to 2030.

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<sup>7</sup> In this regard, the Department also notes the related concerns of the Climate Change Advisory Council Annual Report 2022, leading to a recommendation to cease further increases in biofuels to meet domestic climate action plan targets.



Stakeholders have also kept these proposals in mind in their submissions, including the EU proposal for a 13% greenhouse gas intensity reduction target.

The Department will continue to engage with officials in the European Commission regarding Ireland's renewable fuel supply, and all aspects of the Renewable Energy Directive as it relates to transport, including participation on the EU Sustainability Working Group under the RED. The greater transparency of the EU Database on global trends in supply of biofuel and related feedstock will likely inform the future EU consideration on the existing sustainability and greenhouse gas criteria within the Renewable Energy Directive.

Currently, the only high ILUC-risk feedstock identified by the EU Commission is palm oil. In 2019, approximately 2m litres (0.05 PJ) of palm oil derived biofuel was placed on the market; in 2021, approximately 3.2m litres (0.08 PJ) of palm oil was placed on the market

On the issue of the phase-out of high-ILUC risk feedstocks, the Department notes the variety of responses received from stakeholders. It is noted that low levels of such feedstocks are currently in use in Ireland. To ensure the Renewable Fuel for Transport's ongoing commitment to sustainability, the phase-out date for high-ILUC risk feedstocks will be kept under review and the Department will continue to engage with stakeholders to identify the most effective way to achieve this.

Concerning impacts on food security, Ireland has a very low crop-based biofuel supply. Under 1% of Ireland's biofuels were from food/feed crops in 2020. There were approximately 0.4 PJ (17m litres) of crop-based biofuels (primarily bioethanol) placed on the market in Ireland in 2021 within a total energy consumption in road transport in 2021 of approximately 146 PJ.

The respondents' views reflect this and conclude that there is low risk associated with the impact on food security. Nevertheless, to ensure the future security of biofuel supply, the renewable transport policy will continue to promote the development and supply of advanced biofuels.

Regarding the impact of renewable fuels on biodiversity and land set aside for biodiversity, the Department will continue to monitor and consider such impacts in light of Ireland's climate action plan policy to increase biofuels in transport, also noting the role of EU and domestic regulation concerning habitats and protection of species. The Department will continue to engage on a cross-sectoral basis concerning these important considerations of food security, biodiversity, and land use, as we further develop the renewable transport fuel policy.

### Theme 3: Focus on future advanced and development renewable fuels

Q15 The proposed indicative annual trajectory of advanced biofuel rate to 2030, and corresponding buy-out, are referred to in the Background section above.

There were many responses (15) to this question. Most (13) supported the introduction of the advanced biofuel obligation, with some (3) supporting the proposed indicative annual trajectory of the advanced biofuel rate set out in the Policy.

Among fuel supplier respondents there was concern about the aspect of the proposed trajectory of the advanced biofuel obligation rate, given the low availability of feedstocks, early technology readiness and the cost. It was noted that advanced biofuels are likely to be imported rather than produced indigenously; and that further consultation is needed as this obligation is implemented to 2025 and beyond to 2030. Further study concerning the availability of advanced biofuels was requested by one respondent.

Among the respondents it was noted that supports are needed for advanced biofuels and biogas to penetrate the market by 2030, i.e., supporting market demand and production through clarity for investors and minimising risk for producers. It was also noted that there would be likely increased ambition for raising the advanced biofuel sub-targets in RED III.

Some respondents (3) supported the introduction of a buy-out charge for advanced biofuels. However, other respondents (5) referenced a lack of availability and development of advanced biofuels as a rationale for setting the advanced biofuel buy-out at the same level as the standard obligation buy-out.

Q16 With consideration of the advanced biofuel rate and buy-out, should the carryover of advanced biofuel certificates be permitted and aligned to the provisions for the carryover of standard biofuel obligation certificates? Are there reasons why such carry-over of advanced biofuel certificates should not be permitted?

There were many responses to this question (15). Of these most responses (12) agreed that the carryover of advanced biofuel certificates should be permitted and that it should be set at a limit of a minimum of 25%, with one respondent suggesting there should be no limit – referencing the low availability and development of advanced biofuels. A broad carry-over allowance could offset the cost of buy-out to dispose of the obligation, thereby diminishing the cost impacts.

Of the respondents (3) who did not agree with the proposal to allow a carryover for advanced biofuel certificates, this was based upon a view that there should be consistency in the treatment of different renewable fuel technologies and that an advanced biofuel carryover could restrict market growth and incentivise minimum levels of compliance with the obligation.

Q17 With reference to increased European ambition under the Fit for 55 proposals and under the Climate Action Plan, the potential for a higher national target to be set for advanced and development fuels.

There were many responses (13) to this question, of which many (8) broadly supported more ambitious targets for advanced and development renewable fuels. Several respondents noted that national targets would assist in promoting the supply and use of advanced and development fuel. The inclusion of multiple credits, including the quadruple credit for the use of green hydrogen, was identified in this regard. Hydrogen is viewed by respondents as key to the decarbonisation of aviation, maritime, rail and heavy-duty road transport, either directly or through its deployment in the grid to produce renewable electricity.

However, respondents also noted that advanced and development fuels are in the early stages of roll-out and that there needs to be policy certainty and further supports for these fuel technologies. Cost barriers for these fuels and vehicles using these fuels were identified as a challenge and potential barriers to deployment. Respondents also noted the potential to produce development fuels domestically. However, the cost of infrastructure was again noted as a potential barrier to their deployment.

Q18 With reference to proposals for a sub-target for renewable fuels of non-biological origin envisaged under the current European proposals for revision of the RED, that this could be implemented earlier in Ireland, e.g., from 1 January 2024.

Many respondents (10) were supportive of the introduction of sub-targets for renewable fuels of non-biological origin (RFNBOs) as a means of stimulating production supply and demand for these fuels. And to offset the impacts of overreliance on biofuels.

Some respondents (4) cautioned against introducing mandatory targets for RFNBOs in the short term due to uncertainty of availability- that a commencement date of 2024 would be too early for a RFNBO sub-target, which is likely to be introduced across Europe in line with the proposed RED III. There is an opportunity within the next two years to ensure the conditions for compliance with future RFNBO targets and for consultation with stakeholders in that regard.

Many of the respondents (6) to this question identified the forthcoming Hydrogen Strategy for Ireland (anticipated by the end of 2022) to be a first step in providing policy certainty and confidence for investors before a sub-target for RFNBOs is introduced.

Q19 A further measure to be applied in implementing the proposed multiple credits for certain advanced and development fuels when applied in combination, considering potential distortion effects or unintended consequences. For example:

- (a) Prescribing a hierarchy of supply to transport or other sectors, such as in countering the effect of market pricing resulting in HVO supply to the aviation sector rather than road transport.
- (b) Further limiting the application of multiple counting relative to certain feedstocks, such as limiting multiple credits to biomethane when produced from feedstock under Annex IX Part A, so as not to promote feedstocks such as grass being used in biomethane production for transport rather than animal feed.

There were many responses (20) on the topic of the application of multiple credits, which were in general supportive of unrestricted application to promote the supply of advanced and development fuels, considering their contribution to greenhouse gas reduction.

Respondents (referring to biomethane) suggested that adherence to Annex IX Part A and scaling-up of biomethane supply are not incompatible, with indigenous production having a beneficial role of biomethane for the circular economy (e.g., waste to fertilizer by-production) and assisting in meeting RED II targets for advanced transport fuels.

The application of multiple credits to Green Hydrogen was linked in many responses (4) to the need for investment in hydrogen production. Other potential fuels which might be considered in the future for multiple credits were suggested including, bioLPG produced from HVO or produced from syngas gas<sup>8</sup> because of the gasification process and rDME<sup>9</sup>.

Among responses, several fuel suppliers (3) suggested a holistic approach should be taken to the supply of renewable fuels to different transport modes - that fuel types and pathways within the different transport modes can be managed through the application of buy-outs and clear long-term policy incentives to provide investment certainty.

Q20 In addition to the proposals in the Policy Statement for credits to incentivise advanced and development fuels, what other measures could promote their supply and use in the transport sector?

There were a very large number of responses (24) relating to this question, encompassing a wide range of suggestions, some reflected stakeholders' areas of interest in renewable transport fuels. Theme clusters included,

- the need for long-term policy certainty (over 10+ years), including a roadmap for phasing out of ICE vehicles

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<sup>8</sup> Collins English Dictionary defines this as “a mixture of carbon monoxide and hydrogen, from which various hydrocarbons can be synthesized.”

<sup>9</sup> Dimethyl ether produced from renewable or recycled carbon feedstock

- the retention of double credits and other multiple credits to support the deployment of development fuels,
- the taxation of renewable fuels, by reducing duties,
- extending the obligation to other transport modes including aviation, maritime and non-road mobile machinery,
- investment in advanced and development fuels markets to support scale-up by 2030 – covering capital and infrastructure costs, vehicles and research and development.
- Incentives for domestic production of renewable fuels.

Several responses (5) referenced Green Hydrogen for investment support, with the suggestion that a stand-alone support or subsidy scheme be developed for Hydrogen to offset its higher cost of production relative to other fuels in the early years.

A few responses (2) suggested other fuels, such as bioLPG and rDME, also be considered for support.

## **Theme 3: Focus on future advanced and development renewable fuels**

### **Department of Transport Response**

Concerning the proposed indicative annual trajectory of advanced biofuels to 2030, Ireland's policy is aligned to the sub-targets set out in the Renewable Energy Directive. The concerns raised in the consultation regarding the availability of advanced renewable fuels are acknowledged. In 2021 a very small proportion of these fuels (0.7m litres or 0.02PJ<sup>10</sup>) were placed on the market in Ireland.

The advanced biofuel obligation will be used as a mechanism to incentivise further supply. The study concerning biofuels will help to inform the Department regarding the future trajectory contribution of advanced biofuels under the obligation.

To this end, the legislation that has been provided through the 2022 Regulations will allow the Minister to make regulations this year setting the contribution of advanced biofuels towards the renewable transport fuel obligation in 2023. Complementing this will be an advanced biofuel obligation buy-out charge which will be set higher than the standard buy-out (currently €1). It is noted that in the UK the development fuel buy-out is set at 30 pence higher than the £0.50 standard buy-out.

To facilitate the effective administration of the obligation, the ability to carry over advanced biofuel certificates will mirror the provision that currently exists under the renewable transport fuel obligation. Obligation account holders will be able to discharge up to 15% of advanced biofuel obligation using advanced biofuel Certificates carried forward from previous periods.

It is acknowledged that the proposed introduction of multiple credits for advanced renewable fuels is viewed by stakeholders as necessary to support increased supply. However, with due regard to potential impacts as these fuels are supplied across transport modes the proposed suite of multiple credits is to be adjusted compared to the proposal in the Policy Statement 2021. (As set out at Appendix B),.

While there is a rationale to incentivise supply of HVO considering the proposed trajectory of increasing the renewable transport fuel obligation rate the application of multiple credits for HVO will be kept under review by the Department over the coming years.

The stakeholder views concerning renewable transport fuels of non-biological origin and the introduction of sub-targets in line with the proposed Renewable Energy Directive timelines are noted. Clearly, the renewable transport fuel obligation is seen as only one element in the policy and regulatory architecture that is needed to further promote the production, supply, and use of advanced and development renewable transport fuels. Broader policy development will play an important role such as the development of the hydrogen strategy in 2022, which could be the framework within which any ongoing subsidy support could be considered.

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<sup>10</sup> Biofuels Obligation Scheme Annual Report 2021

Regarding the policy implementation of the ambitious 5 TWh by 2030 target for biomethane, consideration will be given to the best hierarchy of use within different transport and non-transport sectors.<sup>11</sup> The Department of Agriculture, Food and Marine will lead on policy development for production and supply of biomethane to meet climate action plan targets, with cross-sectoral collaboration. This also relates to future national bioeconomy and circular economy policy development, as well as the renewable transport fuel policy.

Concerning fiscal or monetary supports, currently, no carbon tax is applied to renewable transport fuel and lower excise is applied to CNG, biomethane, and green hydrogen. Regarding the future proposals for the energy taxation directive for a tax differentiation based upon the energy intensity of different renewable transport fuels and the future phasing out of fossil fuel supports, the Department is engaging consultants this year to examine what this may mean for the future taxation of renewable transport fuels in Ireland as their penetration increases relative to fossil fuels.

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<sup>11</sup> <https://www.seai.ie/data-and-insights/national-heat-study/>

## Theme 4: Aligning administration of the biofuel obligation with the policy for renewable fuels

Q21 With reference to the proposal to move to an energy-based biofuel obligation system, while enabling continued volume-based reporting by account holders, considering the possible future move to European carbon intensity targets in the coming years.

Responses (18) to this question seem to reflect different types of business model preferences.

Fossil fuel suppliers' responses (6) appear to prefer reporting data on a volume basis in line with their operations, the application of levies and taxes, sales contracts and OLA system reporting requirements. However, there was some support from fuel suppliers for the proposal to switch to an energy-based obligation with the retention of the ability to fulfil their data reporting requirements to the obligation on a volume basis.

On the other hand, responses (8) by producers and suppliers of renewable energy, such as biomethane, support the move to an energy-based obligation, as it applies the value of the energy content of different renewable transport fuels and takes these into account within the obligation, aligning to the Renewable Energy Directive.

A few (2) responses advocated for an early move to a carbon intensity reduction-based obligation aligning with both the Renewable Energy Directive, the Fuel Quality Directive and future the 'Fit for 55' package of climate measures. Many more responses (6) favoured an eventual move to a carbon intensity reduction-based obligation, in time.

Q22 Proposed additional measures to support compliance while the obligation rate increases in coming years and to ensure compliance with European targets, in the short to medium term, through:

- (a) Introduction of a penalty and progressive fine for non-compliance with the fuel quality directive target.
- (b) Permitting upstream emissions reductions (UERs) to be offset against the fuel quality directive obligation.
- (c) Limiting the proportion of certificates that can be carried over into the next obligation period, to 10% or 5% (applicable to standard or proposed advanced biofuel obligation certificates), to moderate any distortions in annual compliance with the obligation rate.

There were many responses (15) to this question, but only a very small number of responses (3) were generally supportive of the introduction of additional compliance measures, without being specific as to how this might be achieved among the options presented in the question, or otherwise.



Responses (6) mainly from fuel suppliers oppose any penalties and fines linked to non-compliance with the Fuel Quality Directive greenhouse gas emissions reductions targets, favouring instead the renewable fuel for transport obligation buy-out as the mechanism to ensure compliance. One respondent suggested that fuel pump labelling on the bases of carbon intensity of different fuels could influence consumer choice and shift demand in favour of more greenhouse gas efficient fuels.

Many responses (9), supported the proposal to permit the offsetting of Upstream Emissions Reductions (UERs) against the FQD obligation - this could assist suppliers in achieving compliance with the FQD and is utilised to that end in several other European countries. However, the responses also stressed the importance of UERs being subject to the same stringent sustainability and fraud protection measures as other compliance pathways. Some respondents were of the view that the range of feedstocks included within UER offsetting could be expanded to include those that are less carbon-intensive.

Many responses (10) opposed further limiting the level of the carryover of renewable transport fuel certificates and advanced biofuel certificates - noting the importance of the current 15% carryover limit in meeting the renewable transport fuel obligation without recourse to buy-out from the obligation. Additionally, fuel suppliers stated a preference for no limits in the carry-over of certificates. Among the respondents (5) was a proposal for carbon credits to be carried over in the same manner as renewable transport fuel certificates.

Q23 The challenges and opportunities for inclusion of renewable fuel supplied for use in aviation and maritime within the obligation in future years, aligning to European Fit for 55 proposals.

Among the responses received on this question (19), over half stressed the difficulty in decarbonising the aviation and maritime sectors – which will require advanced and development renewable fuels and technological innovation.

Some responses (4) referenced a demand from these sectors for waste-based renewable fuels in the short term, but this poses challenges for sustainability and availability of these biofuels and feedstocks. Other respondents (2) stressed the need for RED sustainability and GHG criteria to be applied to advanced biofuel supply to these sectors and the potential for indigenous production of advanced biofuels. Other respondents (2) felt that road transport should be prioritised over these sectors for the supply of the available biofuels.

Among the responses, alternative fuel types such as bioLPG and rDME were suggested as renewable fuels suited to the Maritime sector. Green hydrogen was identified as a future technology for the aviation sector with the production of sustainable aviation fuels (SAF) from wastes and residues being the primary feedstocks for these in the short and medium term.

Responses mentioned the need for clear policy in this area at both national and European level to support the transition to scaled-up commercial production of advanced bio- and renewable fuels, including investment in infrastructure and fiscal measures, to mitigate the higher costs of production of these fuels.

Q24 Whether the Department should seek to carry out further research into different types of recycled carbon fuels, concerning their possible contribution to decarbonising transport, other impacts, or unintended consequences?

Of the responses (15) received on this question, a large number (10) favoured the Department undertaking further research into recycled carbon fuels (RCFs), as they are a sustainable, low carbon energy, already provided for under the RED. They pointed to the potential for creating a domestic market for RCFs, enabling possible further industrial processes - chemicals production, from gas, solid and liquid waste, and carbon capture. However, it was noted that there is mixed implementation of RCFs among MSs as a means of compliance with the RED.

A small number of responses (2) were opposed to research into RCFs, favouring established technologies that are already at a commercial scale.

Q25 Is there other research the Department should consider around the Renewable Fuels for Transport Policy?

Most responses (9) suggested that the Department undertake research into development and advanced renewable fuels. Some respondents mentioned specific fuels, such as liquified natural gas (LNG), compressed natural gas (CNG), e-fuels from renewable sources, green hydrogen, and liquid petroleum gas.

Many responses suggested research should focus on supports and incentives to promote new technologies and to stimulate the market for them, for transport and on a wider sectoral basis. Other responses (2) encouraged referral to existing studies - on the transition to green hydrogen and research into biomethane production, including its potential to decarbonise transport.

Many responses (7) supported research on the sustainability of renewable fuels, for more robust standards of sustainability applied to new technologies. Responses also supported research on the availability of feedstocks for biofuels, advanced biofuels, and development fuels – to better understand the sustainability of supply chains, greenhouse gas emissions savings, and the impact on food security, land use and cost.

Q26, Do you have anything further that you would like to add about the Renewable Fuels for Transport policy?

Broadly speaking the responses (18) to this question reiterated the views of respondents that were provided under the previous questions and themes.

The responses reflected an overwhelming view in support of renewable transport fuels, the potential opportunities, and the benefits for ongoing decarbonisation of transport. Development of technology including hydrogen and biomethane, security of supply, policy, and regulation,

investment, and the need to build on international experience in reducing greenhouse gas emissions in transport, were all mentioned.

Support was expressed for the ongoing development of the Renewable Fuels for Transport Policy and ongoing engagement with stakeholders to enable clear policy decisions, for certainty of investment and to give clear signals to suppliers of renewable fuels.

Beyond the policy, stakeholders saw opportunities for integrated policymaking across government. Countries such as the Netherlands, Denmark, Sweden, and Brazil were cited as examples of successful policymaking regarding sustainable transport solutions and the integration of biofuels in the energy mix.

The indigenous production of renewable fuels, including advanced biofuels and biomethane, the potential for other technologies such as bioLPG and rDME and prioritisation of indigenous energy and renewable fuels produced in Europe within policy were raised in the context of security of supply, reducing reliance on imports and opportunities to stimulate investment and supply in Ireland.

Regarding the development of green hydrogen production and the roll-out of infrastructure as a renewable transport fuel, respondents stated that there was a need to go beyond the actions set out in the policy statement (e.g., the multiple) and for financial supports for capital expenditure, grant funding or tax relief that would support the growth of a hydrogen economy. The forthcoming hydrogen strategy is being looked to by stakeholders to provide this certainty.

Stakeholders welcome the forthcoming Alternative Fuels Infrastructure Regulation to support the development of hydrogen in transport. However, they are concerned about the challenges of scaling up availability, infrastructure and investment.

## **Theme 4: Aligning administration of the biofuel obligation with the policy for renewable fuels**

### **Department of Transport Response**

As set out in the 2022 Regulations, the Minister intends to bring forward regulations before the end of this year so that from 1 January 2023 the renewable transport fuel obligation will be expressed in energy terms. Reflecting the wishes of stakeholders and account holders under the obligation through the consultation process the renewable transport fuel obligation will continue to operate a volume-based reporting system.

It is expected that future proposed changes to the Renewable Energy Directive could see a move to a greenhouse gas reduction target based upon a carbon intensity obligation and/or reporting system for renewable transport fuels.

The views of stakeholders concerning opposition to penalties or fines related to compliance with the Fuel Quality Directive are noted. It is expected that the renewable transport fuel obligation rate trajectory will be high enough by mid-decade to also meet the Fuel Quality Directive annual target of 6% GHG reduction. Therefore, the buy-out must correspond, so that the supply of renewable transport fuels is incentivized, therefore will be kept under review.

The Department does not intend to make any changes to the 2023 obligation relating to the 15% limit on using renewable transport fuel certificates from previous periods to discharge the obligation. Provision has been made within the 2022 Regulations for a 15% carryover for advanced biofuels certificates which can be used to offset the advanced biofuel contribution to the renewable transport fuel obligation. The impact of these provisions will continue to be reviewed.

The Department will continue to explore the possibility of raising the current penalties and fines associated with non-compliance with the Fuel Quality Directive and work through any legal issues in this regard.

The Department will also continue to review the question of UERs in the context of the next renewable transport fuel policy, which will also take into consideration the ongoing progress that has been made in terms of compliance with the Fuel Quality Directive.

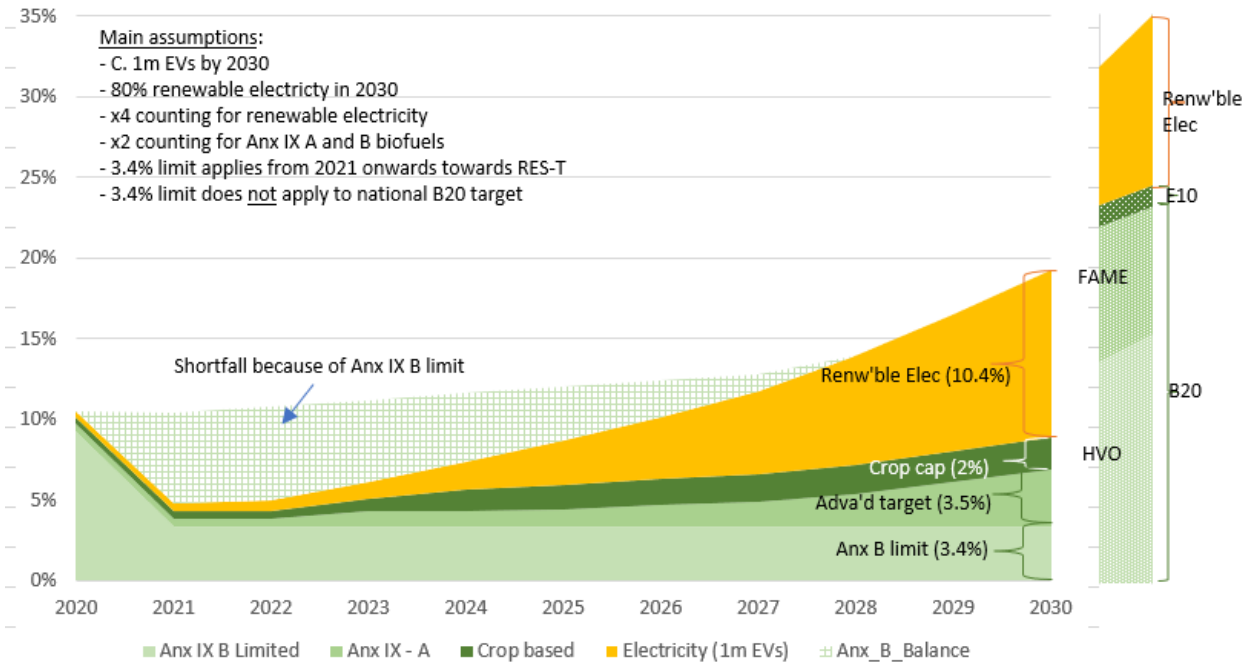
The Department is continuing to examine the future requirements of the aviation and maritime sectors for advanced and development renewable fuels. The outcome of this work will inform the consideration of the next renewable transport fuel policy and the implications for the renewable transport fuel obligation. It will also inform considerations within the context of the development of the draft hydrogen strategy for Ireland.

Informed by the study on the availability and sustainability of biofuels, the department will consider how best to build upon this work to address knowledge gaps relating to renewable transport fuels policy development.

# Appendices

## Appendix A: Indicative Illustration of the RES-T obligation as applied to Ireland’s current and planned renewable fuel transport supply profile

Source: National Oil Reserves Agency



**Appendix B: Adjusted proposed multiple credits for advanced and development renewable transport fuel****Table:**

| <b>Renewable Transport Fuel</b>  |   | <b>Proposed Multiple Credit</b> |
|--|---|---------------------------------|
| <b>In road, rail transport sectors or in non-road mobile machinery</b> | Renewable liquid and gaseous transport fuels of non-biological origin                                     | 4x                              |
|  | Biomethane/biogas   | 1.5x                            |
|  | Hydrotreated Vegetable Oil or Co-processed Hydrotreated Vegetable Oil (incl. blended in diesel or gasoil) | 1.5x                            |
| <b>Aviation sector</b>   | Sustainable aviation fuels listed in ASTM D1655   | 1.5x                            |
| <b>Maritime sector</b>   | Renewable transport fuels used in the maritime sector   | 1.2x                            |

## Appendix C: Renewable Energy Directive – Annex IX Feedstocks

### ANNEX IX

Part A. Feedstocks for the production of biogas for transport and advanced biofuels, the contribution of which towards the minimum shares referred to in the first and fourth subparagraphs of Article 25(1) may be considered to be twice their energy content:

- (a) Algae if cultivated on land in ponds or photobioreactors;
- (b) Biomass fraction of mixed municipal waste, but not separated household waste subject to recycling targets under point (a) of Article 11(2) of Directive 2008/98/EC;
- (c) Biowaste as defined in point (4) of Article 3 of Directive 2008/98/EC from private households subject to separate collection as defined in point (11) of Article 3 of that Directive;
- (d) Biomass fraction of industrial waste not fit for use in the food or feed chain, including material from retail and wholesale and the agro-food and fish and aquaculture industry, and excluding feedstocks listed in part B of this Annex;
- (e) Straw;
- (f) Animal manure and sewage sludge;
- (g) Palm oil mill effluent and empty palm fruit bunches;
- (h) Tall oil pitch;
- (i) Crude glycerine;
- (j) Bagasse;
- (k) Grape marcs and wine lees;
- (l) Nut shells;
- (m) Husks;
- (n) Cobs cleaned of kernels of corn;
- (o) Biomass fraction of wastes and residues from forestry and forest-based industries, namely, bark, branches, pre-commercial thinnings, leaves, needles, tree tops, saw dust, cutter shavings, black liquor, brown liquor, fibre sludge, lignin and tall oil;
- (p) Other non-food cellulosic material;
- (q) Other ligno-cellulosic material except saw logs and veneer logs.

Part B. Feedstocks for the production of biofuels and biogas for transport, the contribution of which towards the minimum share established in the first subparagraph of Article 25(1) shall be limited and may be considered to be twice their energy content:

- (a) Used cooking oil;
- (b) Animal fats classified as categories 1 and 2 in accordance with Regulation (EC) No 1069/2009.

***\*The European Commission has announced that it is currently working on an updated list of Annex IX feedstocks and intends to publish a draft shortly***

