Irish Petroleum Industry Association

Biofuel Obligation Scheme - Consultation on future increases in the biofuels obligation rate

Response by the Irish Petroleum Industry Association

19th January 2018

The Irish Petroleum Industry Association (IPIA) plays a critical role in the efficient delivery of biofuels in transport fuels in Ireland.

IPIA notes that the consultation process initiated by the Department of Communications, Climate Action and Environment sets out a proposal to 2020. It is surprising and disappointing that, unlike in other EU states for example the UK, it is still not clear as to what is Ireland's proposed path from 2020 to 2030. The oil industry has repeatedly raised this concern with the Irish State – simply asking for the degree of regulatory certainty which would enable the industry to invest strategically and also to afford time to put in place appropriate procurement and sourcing strategies. We should note that – by whatever measure – oil will amount to 50% to 60% of Ireland's energy requirement for decades to come. For transport, that percentage is considerably higher.

The Irish State has prescribed that a certain volume of motor fuels (gasoline and motor diesel) be produced from renewable sources. In 2017, this rose from 6.383% to 8.695%. The State has now asked the oil industry for its views on raising the percentage of such biofuels even further in January 2019 and January 2020. The fact is that – in a climate such as Ireland's - a move to the full 12% would pose risks to vehicles unless all stakeholders are engaged to ensure a smooth transition.

As with previous submissions and meetings with the Department of Communications, Climate Action and Environment, IPIA continues to highlight the impact of policies on the consumer. In this response to the Irish State, IPIA has provide answers to the specific questions raised in the State's consultation document.

There are difficulties for Irish consumers in having higher levels of biofuels in our vehicles.

1. There is the practical risk of vehicle breakdowns and disruption caused by such fuels blocking engine filters in cold weather and other damage to engines caused by high ethanol blends. Government should consult with other EU Member States, engine manufacturers and fuel suppliers to deliver a smooth transition to a higher biofuel blend scenario.

2. There is concern about security of supply of the required biofuel materials. However, given the appropriate market conditions these biofuels can be delivered by Irish suppliers.
   a) A stable well-structured obligation system which justifies long term investment in production capacity and development of novel waste feedstock supply chains.
   b) Any Government mandated introduction of E10 should promote the use of waste derived ethanol. Government support or capital grants to incentivise uptake of high biodiesel blends in diesel fleets.
   c) An efficient approval process for new waste based feedstocks

3. Consumers would face additional costs.

4. It is fully understood that there is a case for increasing the level of biofuels – but only when we have sufficient alternative sources of biofuels – but the Irish BOS policy must build on the successes and avoid the failures of biofuels policies in other Member States to address the issues of quality and security of supply. The BOS market must be sufficiently stable, transparent and attractive on the world level to attract capital investment and sustainable security of supply.

The oil industry has raised these concerns with the Department of Communications, Climate Action and Environment (DCCAE) – and also the National Oil Reserve Agency.

The following technical paper sets out the challenges faced by an increase in biofuel obligation.

Acronyms

FAME: (Fatty Acid Methyl Ester) refers to a product manufactured from vegetable oils or waste oils to produce a biodiesel blending component.

RES-T: Is the Renewable Energy Source in the Transport sector with a mandated 2020 target of 10% renewable energy consumption.

RES-H: Is the Renewable Energy Source in the Heating & Cooling sector and the 2020 target is 12% renewable thermal energy.

Consultation Questions:

Question 1
In order to meet Ireland's 2020 renewable energy target in the transport sector, it is proposed to increase the biofuel obligation rate to 10% from 2019 and circa 12% from 2020.
-Do you support this policy measure?
-What biofuels do you envisage contributing to meeting these increased rates?
-What alternative approaches do you view as being more likely to achieving Ireland's 2020 renewable energy target in the transport sector?

Since the introduction of the Biofuels Obligation Scheme in July 2010 the Irish Petroleum Industry Association (IPIA) has been very conscious of the role the industry has in delivering this key component of Ireland's National Renewable Energy Action Plan, while continuing to meet our obligations under the Renewable Energy Directive and Fuels Quality Directive.

In the past seven years the industry has successfully met the challenges of initially blending 4% biofuels into transport fuels and, since 2017, blending 8% biofuels in conjunction with meeting the increasingly stringent sustainability criteria for biofuels required by the Biofuels Sustainability Criteria Regulations.

Notwithstanding these achievements IPIA is concerned with the proposal by government to increase the rate of biofuel obligation from the current level of 8%. IPIA recognizes that an increase to 10% by volume from January 1st 2019 is achievable but cautions on further increases beyond that in 2020. These concerns include

- The ability of our member companies to physically supply biofuels at the proposed higher rates of circa 12 vol% given
    1. The current limit of 5% ethanol in petrol and the current infrastructure limitations in the Irish market.
    2. The seasonal limitations of blending certain types of Biodiesel due to "cold flow" property constraints (i.e. the potential for filter blocking in Fuel Dispensers and diesel engine fuel filters).
    3. The challenges in securing sustainable 'drop-in' fuels to allow blending of renewables beyond the fuel blend-walls, i.e. beyond E10 and B7.
- The knock on effect on security of supply to our customers unless all stakeholders are engaged to ensure a smooth transition.

IPIA notes that the binding target of using renewable fuels to provide 10% of transport energy must be achieved by 2020.

When these targets were agreed a twin approach was envisaged. The Biofuel Obligation Scheme was one aspect in meeting the EU target for the use of renewable energy in transport; the second was to encourage the accelerated development and usage of electric vehicles, for which the original target was 10% of vehicles by 2020. The penetration of electric vehicles in the Irish market has not met the forecasted levels and it is accepted that the target of 10% or the revised target of 2% will not be achieved as originally envisaged.

IPIA believe the most prudent course of action is to increase the Biofuel Obligation to 10 vol% in 2019 but review any further increases in 2020. Below are the reasons for this:

- The supply chain model for Ireland is based on having one grade of petrol and one grade of diesel available at the forecourt. There are a limited number of retail stations that stock two grades of petrol and two grades of diesel. With this in mind, moving to E10 will be challenging for Ireland. Maintaining the obligation rate at 2019 levels will afford the Department of Communications, Climate Action and Environment (DCCAE), the oil industry and the motor industry the opportunity to work closely together to put in place the necessary infrastructure to introduce E10, a development which will impact on our ability to meet the 2020 targets.
- The next three to five years will see the commercial availability of a wider range of biofuel feed stocks such as HVO (Hydrogenated Vegetable Oil), ethanol from wastes, and second generation biofuels. This will provide the oil industry with far wider opportunities to source biofuels.

In support of this viewpoint we have considered how the existing obligation of 8% is currently met and the challenges of extending this to 10% and beyond.

Current Scenario Meeting the Biofuel Obligation at 8%

When it was introduced in 2010 the biofuel obligation mandated that not less than 4 litres in every 100 litres of road transport fuel is biofuel. This obligation applies equally to both petrol and diesel (motor fuels) and the petroleum industry met the obligation by blending a minimum of 4% ethanol with petrol and 4% biodiesel with diesel.

Petroleum suppliers then applied to NORA (the National Oil Reserves Agency) for certificates for biofuels placed on the market. One certificate was issued for each litre of biofuel provided that fuel met the compliance requirements on sustainability. These certificates were subsequently surrendered to NORA to meet the obligation.

In January 2017 the Biofuel Obligation increased to 8% and again equally applied to both petrol and diesel (motor fuels). The logical assumption would be that the petroleum industry would meet the higher obligation by increasing the blend rates to 8% on both grades however in practice the blend increased only to 5% on petrol and up to 7% on diesel, using double count biodiesel. The certificates issued for each additional litre of biodiesel were used to offset the shortfall in certificates generated by bioethanol.

Any further increase in the Obligation will be met in a similar manner i.e. using additional certificates issued for biodiesel to offset the shortfall in certificates generated by bioethanol.

Proposed Scenario – Meeting the Biofuel Obligation at 10% or higher

Using a higher blend of ethanol - E10

The Fuel Quality Directive (FQD) (2009/30/EC) defines the technical standards for transport fuels to be used across the EU. These specifications were developed jointly by EU governments, the oil industry and the car industry to make sure that petrol and diesel are suitable for use in the wide range of vehicle and engine technologies in use on our roads today and in the future. Initially these specifications permitted blending of up to 5% Ethanol in petrol and 7% biodiesel in diesel however in 2012 the specification for petrol was changed to increase the maximum level of ethanol permitted in petrol from 5% to 10% by volume. UK experience and low carbon vehicle partnership data shows the majority of cars being sold in Europe after 2002 are E10 compatible, as most car manufacturers began selling E10 compatible cars in the mid 90's. Only a few exceptions of non-compatible cars were being sold after 2009. Since 2011 all new cars sold in Europe must be E10 compatible. The low carbon vehicle partnership estimates 92% of cars are compatible increasing to 94% in 2020 with the end of life of these oldest vehicles. A large proportion of the non-compatible fleet are vintage and occasionally driven cars.

While more than 90% of cars on the road are warranted as compatible with E10, at these higher concentrations there are potential compatibility issues with the fuel systems of older cars so the standard additionally requires that where E10 is sold filling stations should continue to supply an E5 'protection grade' petrol for use by vehicles not compatible with E10.

Infrastructure

This requirement poses particular infrastructure challenges in Ireland. Most EU countries have three grades of transport fuel

- Regular Unleaded Petrol with 5% ethanol
- Super Unleaded Petrol with 5% ethanol
- Diesel with up to 7% biodiesel

Where other EU countries have introduced the higher 10% blend (E10) they continue to supply the E5 Blend alongside it, usually in the format of

- Regular Unleaded Petrol with 10% ethanol, E10
- Super Unleaded Petrol with 5% ethanol, E5

However, the Republic of Ireland currently has only two grades of motor fuels, Regular Unleaded Petrol with 5% ethanol and Diesel with up to 7% biodiesel. This is reflected in both our import infrastructure where the terminals in Dublin, Whitegate, Foynes and Galway have dedicated tanks for two grades of road transport fuels (in addition to storage for Gas Oil and Kerosene) and in our retail infrastructure where our forecourts have storage and retail pumps dedicated to two grades, petrol and diesel.

The significant capital costs and lead-time required to install the infra-structure needed to supply an additional grade of petrol is prohibitive and unwarranted as the renewal of the national fleet is an ever present process over which the oil industry has absolutely no control. Over the next 3 to 5 years the number of vehicles not warranted as being compatible with E10 will decrease and with it the requirement for a protection grade of petrol.

Security of Supply

In order to comply with the Fuel Quality Directive ethanol can only be blended into specially formulated petrol known as BOB's (Base Oxygenate Blendstock) as blending ethanol with regular unleaded petrol would result in an off spec product.

Since the introduction of the Renewable Transport Fuel Obligation in the UK the majority of refineries there have switched to producing BOB's specifically designed to be blended with 5% ethanol in keeping with the UK's obligation rate of 4.75%. This BOB is unsuitable for blends up to 10% as it would also result in a product that would not meet the requirements of the Fuel Quality Directive or meet EN228 specifications. The UK has indicated that their RTFO obligation is increasing to 9.75% by 2020 and 12.4% in 2032. In order to achieve this a move to E10 petrol will be required. This will mean that the UK refineries will switch their predominant fuel grade over to an E10 BOB.

Ireland imports circa two thirds of our fuel supply mainly from the UK (the balance is supplied from the country's sole refinery at Whitegate). It is highly unlikely that an Irish petroleum importer could source an E5 BOB in the UK where it would be considered to be at best a niche product. When this occurs Ireland will need to switch over to E10 grade at the forecourt.

Key Points

- Technical Issues – The infrastructure in Ireland can only facilitate two grades of fuel ruling out the possibility of a 'Protection Grade'. This poses issues for cars unable to run on E10. It is estimated that this impacts circa 6% of the Irish carfleet. This would need verification here in Ireland. A significant number of these older cars will be vintage and classic cars. Government should consult with these stakeholders and engine manufacturers on the need to maintain a protection grade and the expected end of life of this section of the Irish fleet.
- Security of Supply – Ireland is dependent on UK Refineries who will be predominantly manufacturing petrol suitable for blending with 10% ethanol.

Implications of increasing our reliance of Biodiesel

The European CEN fuel specifications limit the amount of biodiesel that can be blended with diesel to 7% however the number of certificates issued per litre of biodiesel can vary between one and two certificates depending on the feedstock used to manufacture the biodiesel. Biofuels produced from material that can be considered to be a biodegradable waste, residue, non-food cellulosic material, ligno-cellulosic material or algae are eligible for two certificates per litre.

In practice the key commercially available material meeting these criteria is Used Cooking Oil (UCO) and it is the predominant feedstock for biodiesel on the Irish market. Unfortunately, it is not without its drawbacks both from a technical and a security of supply perspective.

Currently the percentage of UCO blended varies throughout the year with higher blend rates in the summer than in the winter. At colder temperatures there is the potential for technical problems with biodiesel produced from UCO. To avoid this issue the industry blends more biodiesel between March and October however, if the obligation were to increase, this would result in blending at the higher rates all year round.

From a Security of Supply perspective, the availability of UCO is already limited. The Renewable Energy Directive allows for double counting of UCO however Ireland is not the only country to recognise this. The majority of biodiesel used in Ireland is sourced from the UK which has four larger scale biodiesel producers and a larger number of smaller producers. The three main producers are Agri Energy, Argent and Greenergy. While the biodiesel is processed in the UK the Used Cooking Oil feedstock originates from a large number of other countries with significant imports of biodiesel imported into the UK from Argentina, Germany, the Netherlands and others.

Key Points

- Technical Issues – Potentially serious fuel quality issues at low winter temperatures
- Security of Supply - High demand for Biodiesels eligible for double certifications with limitations on supply

Question 2
In order to meet Ireland's 2020 renewable energy target in the transport sector, it is proposed to increase the biofuel obligation rate to 10% from 2019 and circa 12% from 2020.
- What impact do you believe this will have on fuel prices?
- What alternative approaches could provide a more cost-effective method of achieving Ireland's 2020 renewable energy target in the transport sector?

The high demand for biodiesel can be seen in its cost (as published daily by independent analyst's Platts and Argus). Biodiesel is circa 80% more expensive than diesel based on current prices ($1,100 vs $600 per mt).

Introduction of E10 would moderate the cost increase because ethanol is cheaper than biodiesel and on occasion is cheaper than petrol. However, the consumer will receive reduced MPG performance on an E10 grade whilst being charged more for the product. This will need to be addressed by the government – possibly a reduction in duty for E10 should be looked at.

In general an increase in biofuel obligation rate will increase the cost of fuel to consumers.

Key Points

- Biodiesel is considerably more expensive than its fossil fuel equivalent. It is currently circa 80% more expensive than diesel. Given the high market share diesel has in Ireland, the increase in biofuel obligation will need to be covered by biodiesel rather than by ethanol. The increase in the obligation will increase the price of diesel and petrol to the consumer (e.g. change to 8% in 2017 resulted in increased petrol prices to meet the increased obligation).
- The change to E10, if there is one, needs to be government led, mandated and communicated.

Question 3
In order to maximise the contribution of the Biofuels Obligation Scheme to Ireland's renewable energy target in the transport sector, it is proposed to restrict / reduce the current level of use of carried over certificates in 2020.
Do you support this approach?
What would be the appropriate level of carryover for use in 2020 and beyond?
If you feel the current level should be maintained, please provide reasoning including an alternative approach to maximising the contribution from biofuels to achieve Ireland's renewable energy target in the transport sector.

IPIA supports the approach to restrict/reduce the level of use of certs in 2020 but would encourage DCCAE to make the decision no later than March 2018, as stated at the BOS meeting in Dublin, November 21st 2017 to allow for planning of blend rates in 2018.

A value of 15% carryover would be deemed appropriate for 2020., however the carryover allowance should return to 25% for 2021 onwards. Anything lower would be difficult to manage logistically as obligation forecasting is challenging. This level of carryover would allow fuel suppliers to meet the obligation economically without triggering a buy-out, i.e. under blending.

Question 4
The recently amended Fuel Quality Directive (Directive 98/70/EC) places obligations on suppliers to reduce emissions – specifically the reduction in carbon intensity of at least 6% to be met by 31 December 2020 compared to 2010.
-How do you envisage this requirement being met?
-Are there any measures that Government could take to assist obligated parties reach the Fuel Quality Directive target?

In parallel with Ireland's obligations under the Renewable Energy Directive (RED) there is a requirement under the Fuels Quality Directive (FQD) for suppliers to reduce the lifecycle greenhouse gas emissions (GHG) per unit energy of fuels by 6% in 2020 from a baseline set in 2010.

While there are some differences between the two directives on how this GHG reduction will be achieved it is obvious that biofuels will be the key element for both.

This directive will be challenging to meet. Blending up to 10% ethanol and 7% FAME will only achieve 4% reduction in GHG by 2020. Biofuels with higher GHG savings should be incentivized. One option for achieving 6% is the use of sustainable 'drop-in' fuels such as HVO, allowing fuel suppliers to increase the renewable fuel content beyond the blendwall. However, this would require blending beyond the BOS targets, which are already challenging. Currently most of the HVO supply in Europe is controlled by very few companies with strict and lengthy contractual terms, as well as prices that are significantly higher than normal biodiesel. Purchase of these 'drop-in' fuels can be expensive and difficult to secure.

Alternative compliance measures are allowed by the EU to contribute to GHG reduction (namely the use of upstream emissions credits). However, there is currently no market for such credits and no new projects to stop oil field flaring are likely to be supported by this one-time pan EU mandate. IPIA is concerned that the alternate compliance measures envisaged by the EU have not materialized.

Question 5:
Increasing the biofuel obligation rate is likely to involve the introduction of fuels with higher concentrations of biofuel (such as E10 which is petrol blended with 10% ethanol and B7 which is diesel blended with 7% biodiesel). This may lead to compatibility issues with older vehicles, consumer cost, the necessity of consumer awareness in order to ease its introduction, and potentially the development in forecourt infrastructure.
-What do you view as the technical and consumer challenges associated with increasing the biofuel obligation rate (including introducing fuels such as E10 and B7)?
-Can fuels such as E10 and B7 be brought to the market in Ireland by 2020?
-Are there technical barriers to achieving 7% conventional biodiesel blend (B7) averaged across the full year, including the winter months?
-For biodiesel blend rates higher than 7%, are drop-in biofuels a viable solution for Ireland?

E10 is a key element of the 2020 biofuel mix. While the level of capital investment required to introduce a third grade into the Irish infrastructure is prohibitive this should not preclude the use of E10 by 2020. E10 is a practical alternative once the requirement for a protection grade (E5) is removed. The need for E5 will reduce as the national fleet is renewed.
The change to E10, if there is one, needs to be government led, mandated and communicated.

There is additional scope to increase the blending rates of FAME to diesel. Currently the blending rates vary from 4-6% under a BOS obligation of 8 vol%. Maintaining a blend rate of 7 vol% all year round is very challenging and needs to be carefully managed. Issues around filter blocking tend to occur during periods of cold weather. The quality of the FAME in the blend needs to be such that it is suited to Winter blending and meets the EN14214 standard.

As discussed previously, use of ‘drop-in’ fuels should not be considered for 2020 as the demand for such fuels presently make them uneconomical to purchase.

Question 6:
Since the publication of A European Strategy for Low Emission Mobility in July 2016, the European Commission has designated that food based biofuels have a limited role in decarbonising the transport sector due to concerns about their actual contribution to the decarbonisation. It is envisaged that a gradual reduction of food based biofuels and their replacement by more advanced biofuels will realise the potential of decarbonising the transport sector and minimise the overall indirect land-use change impacts. The EU Commission has signalled that the trajectory of biofuels is away from first generation biofuels towards advanced or second generation biofuels. This is primarily to be achieved through the introduction of a cap on first generation biofuels and the incentivisation of advanced biofuels.
-How should the development of increased levels of advanced biofuels be supported in Ireland?

Regulatory certainty needs to be provided to the industry in a timely fashion to allow for investment in this area.

Question 7:
Currently, the Biofuels Obligation Scheme is limited to the transport sector. In the heating sector, there is a high use of fossil fuels (including oil) and a target 12% of energy consumption from renewable sources by 2020.
-What is your opinion on the potential for an obligation scheme (similar to the Biofuels Obligation Scheme) in the heat sector?
-What do you see as the technical barriers to introducing such a scheme?

An obligation scheme to allow heating oil contribute to RES-H would only be successful when 'drop-in' fuels are readily available. It would not be recommended to blend FAME into heating oil as this commodity does not move as fast as the likes of petrol or diesel. Layering can occur in the heating oil tanks giving rise to a high potential for blockages to burners.

As 'drop-in fuels' are not readily available an obligation in this sector would only compete for the same 'drop-in fuels' required to meet the REST-T target.