inver
Inver is part of the Greenergy Group

Inver Energy
River House, Blackpool Park,
Blackpool, Cork, Ireland

ph: +353 (0)21 439 6950
fax: +353 (0)21 439 6930
inver@inverenergy.com
www.inverenergy.com

Biofuels Consultation,
Heat & Transport Energy Policy,
Department of Communications, Climate Action and Environment
29 31 Adelaide Road,
Dublin 2 D02 X285

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Inver Energy is a major importer and supplier of fuels in Ireland. It is part of the Greenergy Group. Greenergy are the largest supplier of road fuels in the UK and one of Europe's largest manufacturer for biofuels. We set out below our submission to the Biofuel Obligation Scheme Consultation on future increases in the biofuels obligation rate.

Inver support the proposed policy which is ambitious, sustainable and will ensure that Ireland honours its domestic and International commitments to reduce greenhouse gas emissions from transport. This is a critical priority as Irish transport emissions have increased by 3.7% in 2016 and 13% in the past four years. Biofuels are the country's best option to deliver these savings within the timeframe under consultation. The proposed policy should encourage investment in the biofuels supply chains and infrastructure which the country is best able to deliver; utilising our domestic waste resources to produce higher biodiesel and bioethanol blends. The current infrastructure is immediately capable of producing, deploying and consuming E10 & B7 from waste and advanced biofuels in the current vehicle fleet.

There are practical considerations which will improve the likelihood of domestic investment, reduce cost of compliance and lubricate the transition to a higher biofuel blend transport network.

a. A stable and ambitious obligation level with persuasive non-compliance penalties which justify long term investment in Irish production capacity & infrastructure and development of novel waste feedstock supply chains
b. A Government mandated introduction of E10 to improve the inclusion of waste derived ethanol. Government support or capital grants to incentivise uptake of high biodiesel blends in diesel fleets.
c. A new sub-target for advanced renewable transport fuels from third generation feedstocks including the non-biogenic portion of municipal and commercial waste.
d. Government participation in European fuel standardisation discussions to address any concerns on fuel quality and engine operability due to higher biofuel blends.

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?

Inver supports the measure to increase the obligation rate to 10% and 12% from 2020. This will help Ireland achieve the 10% Renewable Energy Target in the transport sector and encourages investment in sustainable biofuels.

Registration No: 373915 **Directors:** Chris O'Callaghan, Stephen McCaffrey and Secretary Richard Clifton

Inver will contribute both Biodiesel and Bioethanol into the market. We aim to source biofuels derived from waste and with the highest GHG savings. Inver became part of the Greenergy Group in October 2017 where sustainability characteristics of the fuel that could be supplied (feedstock types, GHG savings and country of origin of feedstocks) is well summarised in the portfolio of fuels we currently supply into the UK RTFO[1]. Under the RTFO regime for double counting wastes we have successfully transitioned to 100% waste based biodiesel (Used cooking oil and animal fat Cat 1) and increased the proportion of ethanol from waste from 32% to 45%. We operate Europe's largest waste based biodiesel capacity at our plants in Immingham and Teesside where we process and convert used cooking oil and waste fats into biodiesel.

With clear guidance on the qualifying criteria for wastes we have been able to identify and develop biodiesel, biomethanol and bioethanol supply chains which now include fuels derived from food waste, animal fat cat 1, brown grease, sewage grease (FOG), oil mill effluent, spent bleaching earth, low grade starch slurry, manure, slaughter house waste, grape marcs and wine lees, poultry feather acid oil, straw, road side grass cuttings, whey permeate and sugar beet tops, chips and tails. Feedstock availability is not an issue as we have identified sufficient resources to triple our UCOME feedstock supply chain. Increased demand for waste feedstocks will incentivise supply chain development, diversification of processing technology and investment in processing capacity. While EU research indicates the current utilisation of UCO at 50% of the global UCO resource potential, it is not the only waste feedstock suitable for biofuel production. The ICCT Wasted Report identifies over 223million tonnes of European waste biomass which is technically viable for biofuel production after agricultural, industrial and biodiversity demands have been satisfied.

We have additionally invested in relationships with producers of renewable fuels from waste tyres, waste plastics, the biodegradable fraction of municipal solid waste, biomethanol from landfill gas and renewable methanol produced using geothermal steam. These advanced biofuels will be supplied into the new sub target for Advanced fuels under the new RTFO and RED II. We see additional opportunity to develop waste to fuel projects and supply chains in Ireland to efficiently dispose of the Irish waste resource. An advanced biofuel sub-target in the new BOS akin to the proposed UK and EU policies would be the bare minimum required to ensure Ireland does not lose investors and waste resources to continental EU markets.

There is an opportunity to increase the Bioethanol blend volumes in Ireland from 37%.
In the UK, for year ending 14/04/2017 the latest statistics show:

Biodiesel 47% (725m litres)
Bioethanol 53% (816m litres)

With petroleum volumes forecasted to decrease, it's important the Biofuel inclusion rates are increased so the volume of Biofuels does not reduce, consequently having an adverse impact of GHG emissions. The increase in obligation will require a mandate and fiscal support for a smooth transition of the national petrol supply to E10 (10% Ethanol). Deployment of the current EN228 standard which permits up to 10% ethanol will permit the obligation to be delivered primarily by the lowest cost biofuel and would be consistent with the imminent change in the UK and continental European gasoline market.

Multi-stakeholder consultations in the UK involving biofuel producers, fossil fuel suppliers, engine manufacturers and consumer groups led by the Low Carbon Vehicle Partnership have identified that

[1]https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/656295/rtfo-year-9-report-5.pdf

E10 compatibility is a minor and declining concern given that engine manufacturers have been warrantying E10 use since the mid 90's with most cars sold after 2002 being compatible. The pool of pre-2002 cars in the UK represents less than 6% declining to 4% by 2020. Of these remaining older vehicles many are vintage and occasionally used classic cars. Given the limited infrastructure available to rural and smaller filling stations, nationwide roll out of E10 should be Government mandated and assisted by duty reduction. Consumers may be concerned by compatibility debate and a lower energy content per litre so a communication campaign should be considered by Government. The Irish Government should utilise the European stakeholder groups who are working on E10 communication campaigns and influenced by the many successful case studies of E10 introduction in Scandinavia, Belgium, USA and Brazil and unsuccessful rollouts in Germany and France.

The introduction of Aviation and Marine Fuel as a sub target would promote investment in alternative fuels and provide suppliers with new means of meeting their obligations and the country's Carbon Reduction commitments.

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?

An increase in Obligation may lead to higher pump prices but ensures that Ireland meets its National and International commitments to climate change while developing a domestic buffer to fossil fuel imports. The cost of reducing transport GHG emissions by bioethanol using 2014 pricing is £94/mtCO2eq compared to £400 £800 by electric vehicles. The UK DFT analysed the cost benefit of increasing the national biofuels obligation from 4.75% to 9.75% in 2020 and 12.4% in 2030. All of their low and high cost scenarios envisage a reduction in the cost of biofuels vs fossil fuels with increasing economies of scale, technological advancement and competing supplies to 2030. In the low cost scenario ethanol is expected to be cheaper than fossil equivalents from 2020. This was already experienced for periods in 2016.

An increasing BOS obligation should encourage some Irish companies to supply into the Irish market rather than export to the UK or Continental Europe. Currently Ireland's largest collector of UCO (Frylite), UK's largest collector of UCO (ABP Group/Olleco), Green Biofuels Ireland, and Irish Biofuels and export their products as the domestic market is least attractive. The UK's largest producers of waste biodiesel (Argent, Greenergy/Inver and Olleco/ABP Group) currently consume Irish UCO and tallow feedstocks and will be ready to supply biodiesel to the Irish market. We have developed international supply chains of waste fats and oils and are confident that there is no shortage of supply to fulfil the proposed UK and Irish biofuels obligations together. As this supply chain is our unique competitive advantage we do not publicise its location or resource potential.

The European IICCT report Wasted estimates that 223 225 million tonnes of European biomass waste is available for advanced biofuel production, after competing primary users in industry and agriculture and secondary users have been satisfied.

The UK RTFO market has also attracted supplies and capital investment in production of waste derived biofuels including those from novel feedstocks including municipal solid waste, brewery waste, manure, waste plastics and food waste. Since Ireland has abundant waste resources and few

acceptable disposal routes, a stable sub-target for advanced biofuels from wastes may encourage capital investment in waste to fuel projects in Ireland.

The most cost effective deployment of renewable fuels will be those that maximise the supply options for obligated parties. The Department have initiated an efficient process to apply for recognition of new waste feedstocks and it will be important that this service is maintained as we intend to apply for waste status where feedstocks have been previously approved in other Member States and as producers supply novel waste fuels suitable for the Irish market. A similar criteria and service for recognition of advanced fuels should be developed.

European fuel standards are available for higher biofuel blends and the Government could consider supporting the introduction of B20 biodiesel blends in buses, HGVs and commercial fleets through capital grants (for segregated supply infrastructure or vehicle modifications) or duty reduction.

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.

We believe that the carry-over rate should remain at 25% to improve the opportunity to reduce the cost of compliance as much as practically possible. Since any carry over represents a surplus of physical biofuel blending in the previous year, the GHG savings and physical volumes of biofuels still demonstrate the country's ability to satisfy its renewable energy targets. Any reduction could lead to biofuel blending being prohibited due to the Carry-Over limit being met, essentially penalising an obligated party if blending were to continue. In order to maximise the physical volume of biofuel blended in 2020, it is important to have an increasing trajectory to 2030 consistent with European targets proposed in the RED II.

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?

This directive will be challenging to meet. Blending up to 10% ethanol and 7% FAME will only achieve 4% reduction in GHG by 2020. The UK RTFO has resolved this problem by issuing GHG tickets in proportion to the carbon saving per litre to biofuels, thus incentivizing those biofuel litres with higher GHG savings. Even with this optimisation, there will still be a deficit vs 6% FQD target so a parallel obligation to reduce GHG emissions by 6% should be implemented in new Irish legislation. The gap between the BOS obligation and the FQD target can be delivered by additional high biofuel blends in fleets and by including advanced biofuels and electric vehicles. Drop in fuels are not seen as sustainable due to their intolerance for waste feedstocks and dependence on large volumes of homogenous vegetable oils in particular palm.

Additionally, the reporting and proportional incentivisation of actual GHG values by biofuel producers will ensure biofuel GHG values are optimised into the Irish market. The German obligation has shown this is possible and that industry will respond by adapting processes to make incremental GHG efficiencies.
Usually, actual Carbon Calculations are lower than the default values, in the RED Annex V, thus more accurate reporting will assist with Ireland meeting the 6% target. The introduction of a tradeable credit system will enable the FQD to be met and optimally by the lowest cost producers. Strict verification of this credit system (equivalent to BOS) will ensure the integrity of credits in meeting the regulation

Since the qualification criteria for UERs and an assessment on their likely availability are not available, it is difficult to assess the potential Carbon Reduction savings that Ireland is likely to meet.

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 7vol% all year round is achievable but 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 meet the EN14214 standard. Government should consult with industry and standardization bodies on any further cold weather requirements on diesel or biodiesel.
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.
We strongly recommend the government takes the lead on the introduction of E10 and implements a mandate. This will provide suppliers and retailers the platform to launch a coordinated campaign and provide customers with the confidence to purchase E10. An introduction of E10 will require infrastructure investment at forecourts and import terminals. This significant cost is why a government mandate is required to provide certainty going forward.

92% of petrol vehicles are compatible with E10 petrol. The remaining 8% are older vehicles. High Ethanol blends have been used successfully internationally for years, specifically in the USA and Brazil. These markets use the same vehicles as in Europe.

Achieving a 7% Biodiesel Blend is achievable all year round and is currently achieved in the UK market.

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?

Any support of advanced Biofuels needs to be legislated in order for investment to take place. Any government support of Advanced Biofuels needs to be in addition to the Biofuel Obligation not in place of. Any displacement of current Biofuels, by Advanced Biofuels, is a like for like replacement with no net benefit in terms of GHG savings per litre.

The ILUC Directive states that by 6th April 2017 Annex IX Part A feedstocks should be included and double counted in the Member States Advanced sub targets and UCO and Tallow should be double counted toward the RED target. We believe these explicit requirements should be adopted.

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?

No Comment.

[redacted]