

Consultation on the Introduction of a Renewable Heat Obligation

Submission by [REDACTED]

Introduction and Summary

Thank you for the opportunity to comment on the proposed renewable heat obligation scheme.

The proposed scheme excludes renewable electricity technologies and is consequently essentially a bioenergy obligation scheme. I do not see any justification for, or merit in the proposed obligation scheme. It would introduce unnecessary complications in implementing existing national strategies and is predicated on significant additional bioenergy supplies beyond the sustainable indigenous production capacity.

As a de-carbonisation strategy, reliance on significant additional bioenergy is a dead-end, as has been demonstrated by the failure of various state bioenergy initiatives over the past 20 years. It is time to stop flogging this particular dead horse.

An obligation scheme would also conflict with national policy on achieving significant reductions for the more polluting fuels by 2030. Moreover, it would represent unwise dispersal and dilution of limited bioenergy and other renewable supplies which would best be focused on high heat loads which are difficult to decarbonise electrically. Proceeding with this flawed obligation scheme would entail serious and readily foreseeable significant costs and risks.

My main objections are summarized below and are discussed in detail later in this submission.

1. The EU target for renewable heat can be achieved by measures already envisaged under Climate Action Plan 2019
2. The obligation scheme would prolong reliance on oil, coal, peat and natural gas, which is contrary to national GHG policy
3. The obligation scheme would cause large importation, which is not sustainable
4. The obligation scheme would result in dilution of the limited renewable fuels into the national fuel streams
5. Reliance on significant indigenous biomethane for injection to the gas grid is speculative and highly questionable

6. The obligation scheme would create policy confusion and divert focus from the urgent need to de-carbonise the economy
7. Imposition of an obligation would undermine carbon taxation policy, and lead to inefficient operation of the renewable energy market

1. Existing Measures can Achieve Targets

Residential Heating

The residential sector is the main heat load in the state, and has a renewables component of approximately 3%¹ in the form of biomass (wood), solar and heat pumps.

Taking the higher EU target of +1.3 percentage points per year, this would be an increase of 13% points by 2030, bringing the total to 16%. Climate Action Plan 2019 (CAP 2019) had already envisaged upgrade of 500,000 dwellings, installation of 400,000 heat pumps in existing dwellings, and 200,000 heat pumps in new dwellings. I calculate that this would increase the renewable component of residential heating to around 20%. Consequently measures already set out in CAP 2019 will achieve the EU target. It is a certainty that climate action measures will be escalated following the government's commitment to a 51% reduction in GHG by 2030, and a higher renewable heat percentage can therefore be expected.

Industry/Commercial/Agricultural

CSO data indicates that renewables make up 11% of fuels² in industry and 5% of fuels in the commercial/public sectors. For commercial and small industrial enterprises CAP 2019 set out a pathway to de-carbonisation through electrification of heating, and biomass boilers. For the commercial sector, building upgrades and heat-pumps are a credible pathway for achieving an increase of 1.3% points/year in the renewable heat component, without recourse to a bioenergy obligation scheme. In industrial heating applications such as drying, evaporation, cooking, distillation there are electrical options available for small loads, and biomass boiler options for larger loads. The existing Support Scheme for Renewable Heat (SSRH) will assist in increasing the share of renewables in these sectors. As renewable electricity supply approaches 70% by 2030, there will also be a significant additional renewables component in the electrical and heat-pump applications. These sectors will seek the lowest cost solutions, which in many cases will be through electrification, and they

¹ CSO residential fuel data, with electric heating estimated at 146000 dwellings x 14000KWh/yr

² Excluding electricity, CSO data does not quantify electricity for industrial/commercial heating

should not have their hands tied by a requirement to incorporate set percentages of bioenergy fuels.

2. Obligation Scheme Would Prolong Reliance on Fossil Fuels

Introduction of the obligation scheme would prolong reliance on oil, coal, peat and natural gas, which is contrary to national GHG policy.

Since publication of CAP 2019, the national GHG reduction target for 2030 has been increased to 51%. When a revised sectoral plan is devised for the heating sector it can be expected that it will need to focus on rapid elimination of the higher emission fuels (peat, coal, oil), a reduction in natural gas, and increased upgrades and deployment of renewables beyond the targets in CAP 2019. A gradual reduction in fossil fuels through incorporation of imported biomass/biofuels, and speculative indigenous biomethane would not be sufficient to achieve the revised 2030 target. While one may argue that the obligation scheme would be another cross-cutting measure to assist achieving reductions, it carries a significant risk of policy confusion. It would signal that the state intends to continue use of fossil fuels for heating to 2030 and beyond, whereas the message must be clearly communicated that these fuels need to be phased out as quickly as possible.

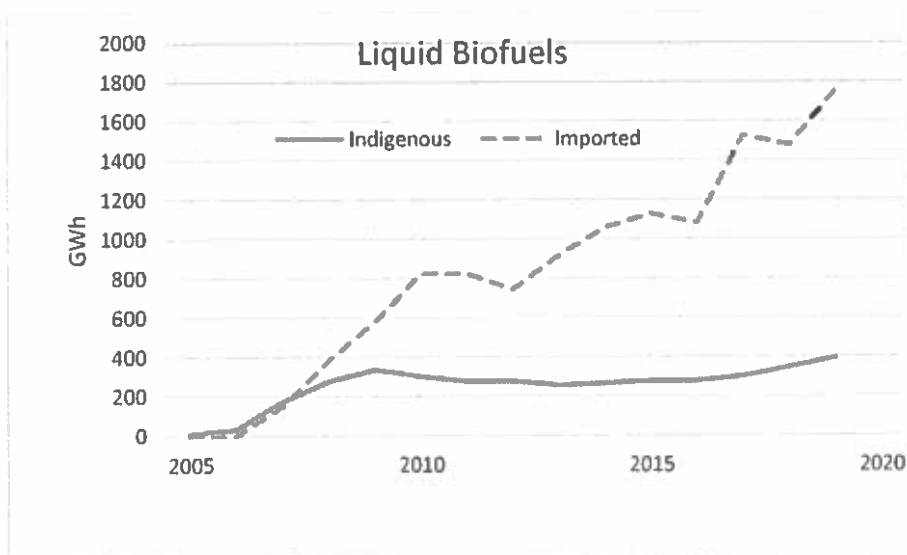
3. Obligation Scheme Would Cause Large Importation

There is a limited supply of indigenous renewable fuels. The total primary renewable biomass, biofuel and biogas supply in 2019 was about 5700 GWh, of which 36% was imported, mainly in the form of liquid biofuels to meet the transport biofuel obligation. The renewable heat obligation would require this renewable fuel supply to increase by between 30% (for 3% obligation) and nearly 100% (for a 10% obligation). Inevitably this increase would have to be met mainly by imports.

For solid biomass, which is currently 90% indigenous production, there may be scope for modest growth and limited additional importation for de-carbonising high heat loads. However, in the short-term much of the increased demand would need to be supplied from imports. In principle such imports meeting nominal sustainability criteria could be sourced on the world market. However, imports of biomass should as a matter of policy be limited to within the EU, so that any associated land-use and forestry emissions are properly accounted within the EU GHG reporting system.

Liquid biofuels would in theory be an attractive option for large industrial heat loads and could be used as a fuel for efficient CHP. However, in the absence of a significant domestic production, and inherent economic inefficiency of indigenous production, there would in reality be a total reliance on imports. Experience with the transport fuels obligation scheme

has shown that escalating obligations have resulted in sharply increased imports of biofuels (see graph below).



Imports of liquid biofuels are mainly derived from feedstocks outside the EU and the sustainability of such supplies must be questioned, in particular issues of deforestation driven by energy crops. If ethanol from Brazil meets low carbon criteria, it would be better used to reduce Brazil's GHG emissions, which are over thirty times Ireland's emissions. Or if palm-oil from Indonesia is really low carbon, it would be better used to deal with its own rocketing GHG emissions (+313% re 1990). From a purely national GHG accountancy viewpoint one could certainly import liquid biofuels and achieve targets, but there would be absolutely no benefit in terms of global emissions. A tonne of biofuel imported from outside the EU is one tonne less available for these exporting countries to deal with their own GHG problems.

4. Obligation Scheme Would Dilute Renewables Supply

Dilution of limited indigenous biomass, liquid biofuels and renewable gases into the national fuel streams will deprive industry of access to sufficient concentrated supplies which will be required for certain high heat load applications

As there is a limited quantity of indigenous renewable fuels, it is important that this resource should be reserved for industrial applications where electrification of heat is currently not feasible. The proposed obligation scheme could have the adverse impact of dissipating available renewable fuels. Solid biomass would be directed into the coal, and peat supply chains, and liquid biofuel would be diverted into the heating oil fuel supply chain.

In the future, green hydrogen, and other synthesized green fuels produced from excess renewable electricity, will be essential for energy storage. However, in the decade to 2030 it is likely that such renewable fuels production will be modest, and would best be stored for back-up power generation, rather than distributed for heating applications

5. Limited Prospects for Significant Biomethane

The consultation document cites the example of biomethane as the lowest cost renewable fuel, which will be the first to mobilise in response to the obligation scheme. Initially it is envisaged that biomethane would be generated from food waste, and subsequent increased demand would be met by agricultural feedstocks. It should be noted that in CAP 2019 the marginal abatement cost for biomethane production was indicated to be over €400/tCO_{2eq}, and consequently was considered uneconomic. This is still the case, and the economic inefficiency of biomethane will become more pronounced as the price of wind and solar PV electricity continues to decrease.

There are however acknowledged environmental benefits in treating organic waste streams in anaerobic digestors (AD) and using the biomethane produced to displace natural gas. Given the costs involved, the volume of biomethane is however likely to be modest. Rather than injecting this small quantity into the gas grid, it may be more efficient to construct the required anaerobic AD plants close to large industrial heat loads. Many of these large heat loads are in the milk processing sector, and are located convenient to the raw material supplies for the AD.

Great caution should be exercised in factoring in large supplies of biomethane, as for example projected by Gas Networks Ireland (GNI)³. In my view the GNI projections are simply not credible. Their plan projects 11 TWh of biomethane in 10 years (20% of Ireland's current gas demand). For efficient biomethane generation the farm slurry waste streams need to be supplemented with plant matter, which in Ireland's case would be grass. As described in the GNI Vision 2050 document, the AD plants would require 11 million tonnes of grass silage, and 9 million tonnes of slurry per year. The biomethane produced would then be transported as compressed gas by truck for further processing and injection into the gas grid. The land requirement is not specified but can be calculated to be at least 300,000 hectares. Quantities of feedstock and the land area would need to be doubled to reach 2050 targets.

Apart from the evident costs and impracticality of such biomethane production, it would represent very inefficient land use. In terms of energy produced per hectare, wind energy is at least 200 times more efficient compared with grass to methane. Solar PV would be at

³ GNI Network Development Plan 2019, and GNI Vision 2050

least twenty times more efficient. Both these technologies can supply renewable energy to the power grid without the need for transporting 20 million of tonnes of material throughout the countryside, requiring hundreds of thousands of truck movements. It is difficult to imagine that any investor would risk money in a large scale biomethane project, given its cumbersome operation and inherent low efficiency compared with commercially proven alternatives. It would be wrong for the state to impose such an unjustified financial burden on the public through increased fuel charges under the renewable heat obligation scheme.

6. Policy Confusion and Diversion of Focus

The proposed obligation scheme would divert efforts from the urgent need to de-carbonise the economy, which can be achieved with existing policies, resources and technology. The proposed obligation scheme, along with the existing transport obligations scheme, are gradualist policy approaches, which imply that slow changes over a few decades can have a significant impact. After a decade's experience with the transport biofuels obligation the state is no closer to achieving a low carbon transport system. Road transport emissions are 143% higher than in 1990, and emissions have increased by more than 5% since the transport fuel obligation scheme was introduced in 2010.

No one at this stage argues that there is a sustainable future in a transport fleet powered by indigenous biofuels. Nor can a rational and sustainable heating sector be envisaged based on indigenous bioenergy fuels. Such bridging technologies may have had a relevance two decades ago prior to the advent of renewable electricity technologies which are now price competitive with natural gas, and considerably cheaper than bioenergy fuels.

The policy of electrification of all sectors of the economy must be the primary national focus for achieving renewables targets and for reducing GHG emissions. Ireland has vast and essentially unlimited wind resources, and very large unexploited solar resources. With appropriate back-up storage, interconnection, generation of green fuels, fossil fuels can be totally replaced within a few decades. A scheme to introduce small quantities of bioenergy sources into fuel supplies does not assist and in fact undermines this objective, by diverting financial resources to this inefficient obligation.

7. Carbon Tax

Steady and predictable increases in carbon taxation is the key policy for phasing out fossil fuels, incentivising renewables, and socialising the costs. Imposition of an obligation is counter to efficient operation of the renewable energy market. It would introduce an obligation to purchase bioenergy fuels which cost significantly more than the electrical alternatives.

Carbon tax within the state is currently €33.50/tCO_{2eq}, and the government has signaled that it will rise to €80/tCO_{2eq} by 2030. This provides a significant incentive to upgrade

buildings and take advantage of renewable electric heat options. Heat loads in the ETS are also subject to an effective carbon tax which will progressively increase as the price of carbon rises in the EU. This will incentivize renewable heat, without the need for an obligation scheme. Such an obligation scheme would represent state intervention in the market and risks generation of perverse outcomes, such as paying too much for the bioenergy, diverting funding from more cost-effective options, and inducing unsustainable importation and environmental damage elsewhere.

In the event of a malfunctioning carbon market the state would of course be justified in intervening, as it has done to provide price guarantees for renewable electricity. There is a difference however between an intervention to stimulate renewable electricity generation, and an intervention to stimulate bioenergy supply. The unexploited renewable electricity resources available to the state are vast and many times the total energy demand of the state. In contrast, the indigenous bioenergy resources are inherently limited, and no amount of stimulus can create supply where the economically feasible resources simply do not exist.

If existing carbon taxes are not sufficient to drive decarbonisation of the heating sector, there is a simple solution – increase the tax !

Eminent economist Nordhaus expresses it well:

“To a first approximation, raising the price of carbon is a necessary and sufficient step for tackling global warming. The rest is at best rhetoric and may actually be harmful in inducing economic inefficiencies” (Nordhaus, 2008, p. 22).⁴

The temptation to set a renewable heat target embedded in the fuel supply is understandable but would be completely unnecessary if the carbon tax policy were vigorously pursued. Irish economist Colm McCarthy has made an incisive observation on Irish climate policy:

“As to domestic policy, in place of targets the Government should focus on policy. The confusion of target enunciation with policy decisions is a contemporary political ailment particularly evident in discussion of climate and energy issues”⁵

██████████ is an independent climate change policy analyst. The views in this submission are his own and do not seek to represent the views of other persons or organisations.

Conflicts of interest: none

Qualifications: BA(mod) Physics, M.Sc. Physics, Pg.Dip (Env), Ph.D.

⁴ Nordhaus, W., (2008) *A Question of Balance: Weighing the Options on Global Warming Policies*. New Haven: Yale University Press.

⁵ McCarthy, C., and Scott, S. (2008) *Controlling the Cost of Controlling the Climate: The Irish Government's Climate Change Strategy*, Working Paper Series WP08/07. Dublin:UCD School of Economics, University College Dublin.