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Sustainable NI Consultation Response: Using Biofuels to Transition Away from Fossil Fuels for Heating

Submitted to: Department for Economy
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Sustainable NI

Sustainable NI is an independent charity (Charity Number NIC103426) dedicated to accelerating and supporting Northern Ireland's transition to a sustainable future in which people and the planet can flourish. We promote sustainability principles through our events, policy work, projects and forums. Our goal is to tackle the root cause of societal problems like climate change and inequality through sustainable policy and decision-making. Our vision is a thriving society that meets its needs without compromising the planet.

Summary

In summary, Sustainable NI welcomes the important recognition by the Northern Ireland (NI) government throughout this call for evidence that heat pumps and heat networks must play a foundational role in replacing fossil fuel heating sources to decarbonise the heating sector. The Climate Change Committee (CCC) has noted that biomass boilers may play a role in certain niche circumstances, however this call for evidence says "renewable liquid biofuels like HVO and bioLPG could play a crucial transitional role in decarbonising our heating systems" in NI and that they are a "low-carbon drop-in replacements to traditional fossil fuels that can be used quickly to decarbonise heating and hot water." Though Sustainable NI agrees that biomass has a very limited role for heating in rural hard to treat properties, and only where electrification is not an appropriate or financially viable option, we believe that biofuels are not a broad alternative measure in all other instances because of their environmental and economic consequences.

It is imperative to prioritise the rapid deployment of heat pumps and heat networks as the most viable long-term heating solutions to reach net-zero. There is a tangible risk that biofuels could be misrepresented as an easy and immediate fix, diverting attention and resources away from the urgent need to scale up electrification and roll out these technologies. While we will not be responding to the individual questions set out in this call for evidence, we wish to provide evidence for the different chapter topics to reiterate the importance of pursuing heat pumps and heat networks as the preferred solutions in most instances.

Key considerations

Economic considerations

Biofuels are at present more expensive than fossil fuels, with supply chains still in the early stages of development. A 2021 demonstration project in Cornwall, England, tested the use of HVO in 17 homes and found that HVO was more than twice the price of kerosene heating

oil.[i] This could result in NI households that qualify for biomass boilers being subject to high heating costs. The fact that NI currently lacks large-scale domestic production of HVO and BioLPG, means reliance on imports from Great Britain and international markets will drive up costs. The consultation proposes that biofuels could be blended with fossil fuels to increase fuel availability and reduce costs. However, we believe that this approach contradicts the object of the government's proposal and associated decarbonisation goals and will delay the transition away from fossil fuels as it sends a signal to the market that the NI government wants to keep fossil fuels in its energy mix for the near to medium future. For these reasons, biofuels cannot not be a long-term solution to decarbonising off grid properties.

Health Safeguards and Consumer Engagement

Over 800 people die from air pollution every year in Northern Ireland. Children are particularly vulnerable to air pollution. Biofuels and biomass boilers are a source of Particulate Matter and Nox which contribute to air pollution. The Boiler Upgrade Scheme, the Government scheme that replaced the Domestic Renewable Heat Incentive (RHI) scheme in April 2022 in England, sets limits for emissions of Particulate Matter and NOx from biomass heating systems. This involves confirming that emissions of Particulate Matter did not exceed 30 grams per gigajoule (g/GJ) net heat input when a biomass product was tested in an accredited test laboratory with both parameters being measured on the same occasion.[ii] This testing must be in accordance with the applicable version of EN 14792:2005 for NOx and, for PM, EN 13284-1:2002 or BS ISO 9096:2003. All new potential fuel sources from forestry, waste and agricultural sectors must comply with these standards and especially those in Smoke Control Areas, which will limit biomass deployment in urban areas. We recommend NI follows similar guidelines to protect consumers from these potential harmful side effects.

As mentioned previously, it is important that biomass boilers are not falsely advertised as a low carbon 'clean' method of heating as they still contribute to air pollution and global warming. To engage consumers with the transition to zero carbon heating, both the UK government and NI Department for the Economy should introduce a national information campaign to raise awareness of the benefits of heat pumps including their high energy efficiency and health benefits, to encourage the growth of the sector.

Ensuring Reliability and Security of Supply

Though the domestic production of HVO and BioLPG could theoretically reduce wholesale costs and increase energy security, it could also have a knock-on effect on other sectors and give rise to significant trade-offs. For example, the expansion of biofuel production competes for land needed for food production. Globally, there is a growing "food vs fuel" challenge in relation to land allocation for biofuels or food production, which is creating food security problems,[iii] which would present a future challenge for the government if biofuels were promoted heavily in Northern Ireland's energy policy. Furthermore, not only are biofuels more expensive than fossil fuels, but the cost of biofuels, like fossil fuels, is volatile and subject to competition with the feedstocks used in other industries, such as transport.[iv] This diminishes their reliability as a stable, reliable and secure supply of energy.

Health, Environmental and Local Community Impacts

The environmental impact of HVO and biofuels in general is complex, and it is important to consider the entire life cycle of its production, transport, distribution and end use when calculating GHG emission reduction.[v] Though there has been evidence that the use of biofuels can reduce GHG emissions by 80% compared to fossil fuels, other studies have found GHG reduction for HVO to be much lower, for example between 37% to 54% lower than diesel depending on the source vegetable oil.[vi] As highlighted in the consultation, deforestation and land use change to grow biofuel crops is not sustainable and can lead to an overall increase in GHG emissions. When making sustainability claims, it is imperative that the full range of environmental, social and economic impacts are considered. This not only refers to emissions, but also the impact of biofuel production on land use, and biodiversity. For example, a 2021 study highlighted the impacts of biofuel crops on local biodiversity. In Europe, species richness was 31% lower at sites planted with first-generation biofuel crops than in sites with primary vegetation.[vii]

It is also important to consider local community impacts such as air quality and human health issues. We agree with the Climate Change Committee's conclusion from the *Reducing Emissions in Northern Ireland* report that biomass in urban areas should not be supported due to air quality concerns.**Error! Bookmark not defined.** Due to high particulate and NOx emissions from biomass for large scale urban heat network deployment, Sustainable NI feels this would be inappropriate technology for built up areas or areas close to towns or cities, due to air quality concerns.

Conclusion and Recommendation

The role of biomass in decarbonising home heating should be limited and restricted to cases where zero-carbon options are not viable. We strongly advocate prioritising genuine zero-carbon options, namely heat pumps and heat networks powered by zero-carbon renewable electricity, as the primary options for decarbonising heat in homes and industry. With significant economic and environmental drawbacks, biofuels are not a comprehensive solution, and they risk delaying the essential transition to electrification which must remain the government's central focus in achieving a zero-carbon heating sector.

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