25 July 2021

Sustainable Biofuels Mandate consultation
Ministry of Business, Innovation and Employment
PO Box 1473
WELLINGTON 6140

Dear Sir or Madam

Increasing the use of biofuels in transport: consultation paper on the Sustainable Biofuels Mandate

1.0 OVERVIEW

Thank you for the opportunity to submit on the Sustainable Biofuels Mandate.

This submission has been prepared by the National Air Quality Working Group (NAQWG), which is made up of air quality practitioners from regional councils and unitary authorities across New Zealand. The NAQWG is part of a wider network of special interest groups in the regional sector.

Specific comments on the consultation document are set out below. These comments focus on the co-benefits for air quality of reducing carbon emissions and improving human health and the environment.

1.1 Context

There are several national and international guidelines and standards that set the minimum requirements for air quality to protect human health and the environment. Of relevance are the Resource Management (National Environmental Standards for Air Quality) Regulations 2004 (NESAQ) made under the Resource Management Act 1991, which include:

- seven standards prohibiting activities that discharge significant quantities of dioxins and other toxics into the air
- five standards for ambient (outdoor) air quality
- a requirement for landfills over 1 million tonnes of refuse to collect greenhouse gas emissions (GHG).

The health, climate and environmental effects of fine particulates are widely known and are of major concern throughout the world. The health effects associated with fine particulates include lung damage and respiratory problems, with black carbon particles known to cause climate warming.

Fine particles are mainly created through the incomplete combustion of biomass and fossil fuels and contain a diverse mix of air pollutants. The main source of PM2.5 in New Zealand is from the burning of wood and coal for home heating purposes, with secondary sources including transport, industry and shipping emissions.

In 2020, the Government announced a review of the NESAQ to address ambient fine particulate (PM2.5) concentrations in New Zealand. To comply with the proposed NESAQ ambient PM2.5 standards, the combustion of biomass, coal, diesel and petrol across New Zealand will need to be significantly reduced and/or emission control improvements implemented in the coming years.

2.0 SPECIFIC COMMENTS

We support the reduction in reliance on fossil fuels in the transport sector. In each region transport contributes air quality contaminants and has localised impact close to roadways. There are significant health benefits to improving air quality in urban areas from reducing transport emissions.

To ensure future co-benefits between health and the climate are achieved, decisions around reducing our impacts on climate change need to be made with consideration to impacts on localised air quality.

The co-benefits of GHG reductions and human health improvements from increasing the use of sustainable biofuels are only briefly referred to in the consultation paper (refer page 10). It is recommended that further consideration is given to the co-benefits on climate and human health that can be achieved by reducing both GHGs as well as hazardous air pollutants.

The NAQWG supports the proposal for increasing the use of biofuels in transport as an additional tool for meeting New Zealand's climate change commitments. However, it is important that decision making around the types of biofuel that are introduced should consider, in addition to the lifecycle GHG emissions, the emissions of hazardous air pollutants. It is important that good evidence is used in this decision making. For example, a recent study by Southern et al., 2021, assessed the toxicity of particles from the combustion of different types of biodiesels. The study found that particles produced from combustion of diesel manufactured from rapeseed oil methyl ester were less inflammatory than fossil diesel but soybean oil methyl ester particles were more inflammatory. Waste cooking oil methyl ester was found to increase particle cytotoxicity whereas palm oil methyl ester decreased particle cytotoxicity. It was also found that particle-phase PAH emissions also followed this trend (Re-assessing the toxicity of particles from biodiesel combustion: A quantitative analysis of in vitro studies - ScienceDirect).

In addition to this, studies tend to indicate that in most cases, biodiesels produce more NOx emissions than diesel (NOx emission of biodiesel compared to diesel: Higher or lower? - ScienceDirect).

Other unintended consequences also need to be considered such as increased emissions of isoprene from fast-growing sources of renewable wood fuel that can be used for manufacture of biofuels which contributes to ozone formation in the troposphere which would have a negative impact on human health. https://www.reuters.com/article/us-climate-biofuels-idUSBRE90601A20130107

It is the findings from studies like these that should be used in the decision making around potential impacts on human health from promoting the increasing use of biofuels within the NZ transport fleet.

We support a realistic pace of change for communities. We support a fuel composition that the public can easily transition to without the high cost of replacing their vehicles. Advanced biofuels mean the technology does not need to be changed substantially to use it. (Advanced biofuels to decarbonise European transport by 2030). Air quality outcomes will also be improved with the complementary work by the Ministry of Transport and Energy Efficiency Conservation Authority to transition the fleet to energy efficient electric vehicles. For rural communities the transition to electric vehicles is not always an option for reducing emissions so advanced biofuels are a good solution for these communities.

We recognise that the supply of biofuels has a carbon footprint. Having locally produced biofuels would reduce this. There are air quality matters that need to be considered if the proposed biofuels mandate led to the production of biofuels in New Zealand. We would support consideration of matters that could impact air quality impacts (including odour) from the production of biofuels:

- Potential for more air pollutants if the biofuel is not high quality
- Potential for stubble burning from farms producing biofuel crops
- Potential for emissions from manufacturing processes used in the production of biofuels
- Potential for existing locations of other types of manufacturing to be converted to biofuels production, to reduce the environmental impact of a new site

We seek for the biofuels mandate to ensure consistency of quality of biofuels. This provides greater assurance over the air quality impacts from the use of biofuels. We support alignment with international standards. This improves the consistency of emissions from the quality of fuel and supports a smoother transition through a variety of options for the supply of biofuels. We would also support a focus on sustainable supply options. We recognise New Zealand is a small market and so local supply is limited e.g. waste tallow stocks.

We would support the proposed MBIE approach to certification of the fuel quality, reporting on lifecycle emissions and compliance and monitoring of the fuel suppliers. We support a greater regulatory approach and guidelines for suppliers to ensure quality and consistency of product, including mandating disclosing their lifecycle emissions from the fuels supplied.

3.0 SUMMARY

Once again, we would like to thank you for the opportunity to submit on the Sustainable Biofuels Mandate. We are happy to work with the Ministry of Transport and Ministry of Business, Innovation and Employment to investigate and resolve any air quality matters.

Yours sincerely

Sarah Brand, Jonathan Caldwell, Clare Pattison, and Kate Sykes

(on behalf of the National Air Quality Working Group)