Detailed submission response from Refining NZ

Domestically produced biofuels will produce the greatest economic benefit.

Ministers Woods and Wood acknowledged in the mandate's foreword that if "biofuels are locally produced; they will facilitate low-carbon growth and employment creation that will help future-proof our economy".

Refining NZ recognise this, and believe any policy developed by the Government should incentivise local production of our own fuel requirements, as it contributes to decarbonisation while creating further economic benefits for New Zealand.

The current mandate proposal in no way incentivises local biofuels production, as such the mandate will likely be met with imports. It should be noted that the modelling done by the Climate Change Commission in its final report to the government, **does not include** any imported low-carbon fuels and has focused on domestically available biomass.

If Aotearoa is to import all its future fuel requirements, it will likely be at a higher cost than the present time. Importing also does not produce the same jobs, or economic benefit for New Zealand. An estimate included in the consultation paper suggests domestic production of aviation fuel alone would enable 1,800 permanent and direct jobs, more than 5,000 additional indirect or downstream jobs, and 6,400 temporary infrastructure development jobs by the year 2050.

Unlike crude-oil based refined fuel markets, the global market for new fuels such as Biofuels, is not as well developed, there is limited global production which is often supported by Government subsidies, and the market overall is not well traded, or transported. To be fully reliant on importing all Biofuel requirements will mean New Zealand is at the mercy of a number of external and currently unknown factors which will have an impact on the reliability, and cost of imported fuels.

While New Zealand has been dependent on imports of crude-oil and refined fuels for its fuel requirements up to now, the development of a local biofuels industry provides the opportunity for New Zealand to become more self-sufficient in its future fuel supply.

For Aotearoa to have the option to produce locally, New Zealand will require:

1. Affordable, globally competitive renewable electricity

Affordable electricity is the foundation for decarbonisation, as it is required for manufacturing renewable fuels, as well as the electrification of the vehicle fleet. Failure to stop and address increasing electricity supply, transmission and distribution costs may deter domestic production of biofuels and discourage many from shifting to electric vehicles.

2. Access to low-cost feedstock at scale

The long-term viability of biofuel supply in New Zealand is contingent on the availability and security of feedstock supply. Further work is required to determine which options are appropriate, considering long-term security of supply, costs, and scaling potential.

3. Globally competitive incentives for local, value-adding supply.

Government policy support, as well as funding structures, will be required in the short- to medium-term to establish a local biofuels industry and production capability, as has occurred in other countries which have established biofuel markets. A combination of these incentives and support structures should be included in the Government's annual budget until 2035.

4. A skilled workforce

The proposed conversion of the Marsden Point refinery to an import terminal will significantly reduce the number and type of roles required at Marsden Point next year, including the highly skilled roles required for operating a renewable fuels refinery in New Zealand. If these are lost, it is likely to impact the country's ability to locally produce alternate fuels in the future.

The proposed mandate is likely to lead to biofuels imports at high cost, with no local production.

Mandates without incentives will result in limits being met with imports and if New Zealand is largely reliant on imports, New Zealanders will pay a premium for these imports as the price of imported biofuels will be set by countries/regions which provide the highest incentives for production.

New Zealand will be competing with other countries around the world for supply of biofuels and access to biofuel feedstock. New Zealand tallow is today being exported to Singapore for production into biodiesel and sale into California, because of the significant State and Federal Government incentives in place. Translated into NZ dollars per litre New Zealand would need to pay a premium of 144c/litre of fuel (or US$160/barrel) just to compete with the incentives California is offering for biofuel supply. This is significantly higher (20 times) than the 7cpl price increase on diesel projected in the mandate proposal document.

By competing for imports New Zealanders will experience the effects of fuel price increases without any positive impacts on GDP or New Zealand jobs. Therefore, to establish and maintain competitive and affordable fuel supply in New Zealand, given the current state of the global biofuels market, we encourage the New Zealand Government to prioritise the establishment of local manufacturing capability.

Competitive sustainable aviation fuel is critical to the long term sustainability of New Zealand's biggest export industry - tourism.

Tourism was New Zealand's biggest export industry until the beginning of 2020, contributing $41.9 billion or 20.1% of foreign exchange earnings. Tourism's positive impact on regional economies is significant, supporting employment by directly employing 8.4 percent (229,566 people) of the New Zealand workforce. The industry relies on international travellers, particularly those who take long-haul flights to get here; international flights are one of the fastest growing sources of carbon emissions.

Given aviation's limited abatement options and criticality to international connectivity, it is essential that the importance of sustainable aviation fuels (SAF) and aviation decarbonisation for New Zealand is recognised and prioritised.

The EU, several states in Europe, and the UK are adopting or proposing mandates to bring about the uptake of alternative fuels in the aviation sector. This is a departure from previous strategies to bring about an uptake of SAF, which has relied on voluntary initiatives and non-binding targets.

The European Federation for Transport and Environments makes the following recommendations around SAF mandates:

- Mandates are an essential tool, but they must exclude all crop-based biofuels, and should only include advanced biofuels that meet strict sustainability criteria.
- Mandates should allow for e-fuels, to ensure investment is directed at these fuels which can in the future reduce aviation's climate impact.
- Targets should be established, but should be set based on realistic and credible forecasts of feedstock availability, including the availability of additional renewable electricity.

Additional studies, supply chain development, policies and investment are critical to establishing a domestic SAF market and production capabilities. To close the commercial gap between SAF and fossil-derived jet fuel in New Zealand further incentives (in addition to a mandate) are required.

As it currently stands, only 30 percent of jet demand is used for domestic travel. The remaining 70 percent is used for international flights. As greenhouse gas targets only apply to domestic products, the mandate in its current form will not incentivise decarbonisation of jet fuel above that which is required for domestic travel.

Sustainable aviation fuel relies solely on second generation fuels, which are more complex to manufacture. For this reason, greater incentives will be needed to establish a competitive domestic manufacturing capability.

Possible incentives and support structures could include:

- A renewable fuels production incentive per litre,
- NZETS exemptions for renewable fuels use,
- A levy on individual passenger carbon emissions (for example, through the International Visitor Levy),
- Capital grants to help establish production capacity, and supply chain infrastructure,
- Ring-fenced funds for use for CAPEX, relating to establishing production, and/or financial incentives for feedstocks sold for mandated production,
- OPEX support mechanism.

Government policy, as well as funding structures, will be required in the short- to-medium term while Aotearoa establishes a local industry, and production capabilities. A combination of incentives, and support should be included in Government budgets until 2035.

Biofuels will require an infrastructure plan for imports as well as domestic production

Efforts should also be made to understand the infrastructure requirements to support biofuels blending. Refining NZ currently operates the Refinery to Auckland Pipeline (RAP), for supply of jet fuel from Marsden Point to Wiri, and on to Auckland Airport. The Refinery to Auckland pipeline is unable to transport ethanol-based fuels as it would contaminate the jet fuel travelling along this pipeline; concerns around contamination of jet fuel may also rule out delivery of first-generation biodiesel (FAME) down the Refinery to Auckland pipeline. This will result in first generation fuels being transported to Auckland by truck/tanker, consequently increasing CO_2 emissions as volumes are shifted from a low-CO_2 transport system (the RAP) to trucks. First generation fuels are also subject to blending limits ranging from 5-10%, which mean they may provide a short-term solution when the biofuel mandate is low, but cannot deliver the level of CO_2 emission reduction this policy is targeting. The production of second-generation biofuels ("drop-in" fuels, which could be transported down the RAP) is required to meet New

Zealand's biofuels aspiration and requires extensive work to determine feasibility as well significant incentives to ensure economic viability.

Unlike regular fossil fuel-based fuel and second-generation biofuels, ethanol readily absorbs water, resulting in phase separation, impacting fuel quality. Due to the risk of water ingress, most existing product tanks around the country will not be suitable for the storage of ethanol or ethanol-blended gasoline without modification. Ethanol handling also comes with additional requirements around effluent handling and containment of spills. This will result in the tankage and infrastructure upgrades/modifications around the country, should ethanol be used.

Prior to mandate implementation, more work will be required to understand the infrastructure requirements to support biofuels storage, blending, and distribution. This work is required to properly assess the cost of these requirements, which we expect will increase the calculated 0.4c/l petrol and 7c/l diesel price increase that is currently modelled.

Carbon reduction needs to consider the total carbon emissions of the fuel delivered to customers.

To correctly reflect the total lifecycle emissions of fuels, emission factors must reflect the greenhouse gas impact of transporting fuels from the country of origin to the point of use in New Zealand.

First generation biofuels cannot be transported via low-carbon fuels distribution systems such as the RAP. This will result in first generation fuels being transported to Auckland by truck/tanker consequently increasing CO_2 emissions as volumes are shifted from low CO_2 transport system (RAP) to trucks. The calculation of lifecycle emissions should account for these impacts.

Advanced biofuels should have greater credits/incentives

First generation biofuels are produced from food-based feedstocks including vegetable oils, animal fats, sugarcane, corn, wheat, etc. First generation fuels can be blended into fuels up to a certain limit, for example ethanol can make up to 10 percent of the gasoline blend, and 5 percent to 7 percent FAME can be blended in diesel. Once these limits are reached second generation biofuels become necessary.

Second generation (advanced biofuels) are known as "drop in" fuels, and provide a direct replacement to fossil fuels. These fuels are produced from non-food feedstocks such as organic municipal waste, agricultural and forestry residues, grasses, etc. Second generation fuels have extremely high blend limits and will not require different infrastructure or engine technology.

Advanced drop in biofuels cost significantly more to produce than first generation biofuels. Limited access to oil crops and tallow in New Zealand means that feedstocks available in New Zealand lend themselves to second generation biofuels rather than first generation.

In several countries with biofuels mandates, governments recognise the higher cost and complexities of producing second generation biofuels by either providing double the amount of emissions credits and incentives, or setting specific targets for second generation biofuels as a percentage of the fuel blend (or as a greenhouse gas emissions target).

In addition to specific advanced biofuels mandates in most EU states, 21 EU nations and the UK allow for double the number of emissions credits for second generation biofuels.

The RED II further supports the production of advanced biofuels with the following elements:

- A declining cap of food crop-based biofuels from 7 percent in 2021 to 3.8 percent in 2030.
- A minimum share of energy from advanced biofuels from 1.5 percent in 2021 to 6.8 percent by 2030.
- Advanced alternative fuels used for aviation and maritime can be counted 1.2 times toward the 6.8 percent renewable energy mandate.

Appendix: Answers to Selected Consultation Questions

Consultation question 1: Do you support having a GHG emissions reduction mandate? If not, why?

Yes, Refining NZ supports having a GHG emissions reduction mandate. If calculated correctly, targets based on GHG intensity incentivise the use of those fuels with the greatest emissions benefits.

Consultation question 2: Do you support the proposal to require certification of lifecycle emissions of biofuels sold in New Zealand using international standards? If not, why?

In principal Refining NZ supports the proposal to require certification of lifecycle emissions however, emission certificates are difficult to police and verify their authenticity. Certificates should be audited by a trusted 3rd party in order to prevent fraud. The requirement does place a significant administrative burden on oil companies and suppliers.

Consultation question 3: Do you support applying the Sustainable Biofuels Mandate to all liquid transport fuel? If not, why?

Yes, Refining NZ supports applying the Sustainable Biofuels Mandate to all liquid transport fuel as it provides the greatest flexibility for fuel suppliers. However, the rate of mandate increase needs to match established supply capacity, including infrastructure requirements and for Sustainable Aviation Fuel. Further work is required to establish local production capacity and determine the infrastructure required to support the mandate, before the mandate rate is set and commences.

Consultation question 5: Do you support having single GHG emissions reduction percentages across all fuel types, or do you favour separate reduction percentages? Why and how many separate percentages would you suggest we have?

To decarbonise the hard to abate aviation sector a separate GHG reduction percentage should be considered for Jet; this should be considered in conjunction with incentives for domestic production.

GHG emissions targets applicable to all fuel types, will drive the lowest cost option, i.e. ethanol blending in petrol. As EV uptake increases and petrol consumption decreases, the effectiveness of low-cost ethanol to meet the country's GHG reduction targets is diminished. For this reason, we need to incentivise and drive investment in capacity for the hard to abate liquid fuels, particularly Jet fuel, because this will be a part of our emissions profile for a much longer time.

Consultation question 6: Do you support provisional emission reduction percentages being set for 2026–2030 and 2031–2035 with the percentages being finalised in 2024 and 2029 respectively? If not, why?

No, given the implementation timeline and significant investment to build domestic production capacity (6-to 8-years) and infrastructure upgrades to handle imports, mandates spanning just 3-years do not provide the required long-term investment certainty for business.

Consultation question 7: Do you support the proposal that biofuel producers must be certified against an established sustainability standard to count towards achievement of the emissions reduction percentage? If not, why?

In principal Refining NZ supports the proposal to require certification of sustainability however, these types of certificates are difficult to police and verify the authenticity. Certificates should be audited by a trusted 3rd party to prevent fraud. The requirement does place an increased administrative burden on oil companies and suppliers.

Consultation question 9: Should New Zealand try to overcome the challenges that domestic biofuel producers face in maintaining access to affordable supplies of domestically produced feedstocks? Do you have any suggestions for how this challenge could be overcome?

Yes, if we do not overcome this challenge New Zealand will be completely reliant on imports, forced to compete with other countries for higher priced imported fuels, to the detriment of local industry and employment/opportunities for New Zealanders.

There is a complex link between feedstocks, conversion technologies and the supply chain. In addition, appropriate policies and investment structures are critical to establishing production capability.

A coordinated approach between industry and Government is necessary. Further work is required to determine which feedstock and feedstock transport options are appropriate taking into consideration long term security of supply, feedstock cost and scaling potential. From our discussions with overseas biofuels manufacturers approval of investment is reliant on long term (20-year) feedstock supply contracts.

Consultation question 11: Do you agree with the method for calculating a supplier's GHG emission reduction? If not, why?

In principle, we agree with the calculation methodology however the emission factors in the worked example in Appendix 3 does not account for the GHG impact of transporting fuels from country of origin to the point of use in New Zealand. This needs to be included in the calculation to correctly reflect the total lifecycle emissions.

First generation biofuels cannot be transported via low-carbon fuels distribution systems such as the RAP. This will result in first generation fuels being transported to Auckland by truck or tanker, consequently increasing CO_2 emissions as volumes are shifted from low CO_2 transport system (such as the RAP) to trucks. The calculation of lifecycle emissions should account for these impacts.

For reasons stated in this submission second generation biofuels, i.e. biofuels derived from waste materials, residual products from agricultural and forestry production including residues from processing cellulosic non-food materials or lignocellulosic materials should attract double the amount of emissions credits, as is the case in most EU states.