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Withhold under section 9(2)(a)

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Thank you for an opportunity to comment on the biofuels in transport discussion paper.

The main issue I will comment on is aviation. However, aviation needs to be placed in a wider context.

When considering biofuels, clearly the feedstock source needs to be a key consideration. For example, biofuel should not be produced on prime agricultural land. The high grade feedstocks, such as used cooking oil, will be relatively limited. Therefore alternatives such as wood will need to be considered. The size of forests required could be large and have an impact on overall land use. In addition, alternative uses for trees, especially using wood for building, needs to be weighed against the production of biofuels.

Producing biofuels, especially second generation fuels using low grade feedstocks, is energy intensive. It has to be clear the overall benefits are positive. The renewable electricity requirements for producing biofuels need to be made transparent in any decision making.

Which sectors are the best place to use biofuels needs to be carefully considered. For example while biofuels could be used to power trains, in terms of energy use it is likely that full electrification of the network would be a better option.

Fuelling agricultural machinery seems a good use of biofuel and mandates in this sector would be relatively easy to bring in. If New Zealand switches away from pastoral farming and more to producing plant based foods the use of agricultural machinery is likely to increase.

Aviation

As acknowledged, this consultation paper ignores international aviation. This is not unusual given that the Climate Change Commission also currently does not directly address international aviation. Nor did the Ministry of Transport decarbonisation report. But this silo mentality makes no real sense when considering overall local and global decarbonisation strategies. And, on purely a practical level, when dealing with fuel supplies at airports it also makes no sense in having parallel fuelling systems, one based around 100% fossil fuels and the other involving some mandated biofuel drop-ins.

Until the covid crisis, international aviation emissions related to New Zealand had been climbing steadily. By 2019 emissions from international aviation were nearly four times that of domestic aviation. While international flying is largely paused, many hope that the level of flying can resume again and continue to grow. This is the thinking behind proposed airport expansions at both Wellington and Auckland airports and the proposed Tarras airport. Long term plans for both Wellington and Auckland airports suggest steady growth in passenger numbers.

Replacing fossil fuels with so called Sustainable Aviation Fuels has two main routes. One is Power to Fuel the other using second generation biofuels.

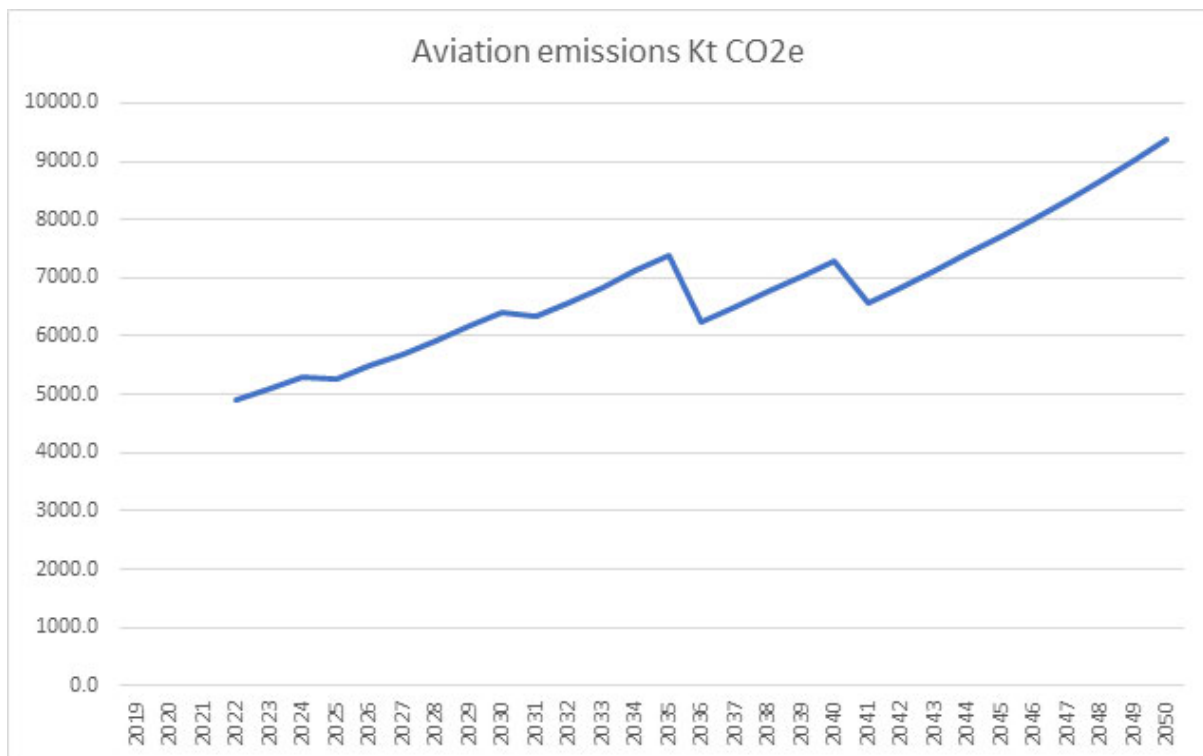
Wallace Rae and I have argued elsewhere that the P2F option is attractive despite its very heavy renewable energy demands. It can involve carbon capture as an added benefit and does not have

any significant land use issues. However, it seems Air New Zealand favours biofuels, with wood, a relatively poor feedstock, being the preferred route to alternative fuels.

Air New Zealand also seems to support fuel mandates. But mandates will only have a significant effect if the targets are ambitious and the gains are not swamped by growth in flying. Here is a simple set of calculations based on ANZ discussions about mandates.

I take total aviation emissions in 2019 from MoE (which were slightly lower than 2018). I start at a base of 2022 saying it was 2019 emissions. Then I look at Auckland and Wellington airport projections. One is 5% growth in passenger numbers per annum, the other is 4.3%. I have randomly picked 4% and projected growth on that basis through to 2050. Next, I assume an efficiency/productivity gain of 2% per annum – it is what the aviation industry is aiming at. Air NZ has done 1.8% in recent years so I am being generous. I therefore adjust the emission growth by 2% gains per annum. Finally, I reduce emissions by the suggested ANZ drop in fuel mandate. 2.5% to 2030, 7.5% to 2035, 25% to 2040 and 35% to 2050. It is all ‘tailpipe’ so assuming no emissions along the way producing such fuels.

As the graph shows mandates do not achieve the emissions reduction that is needed if there is continued growth.



I see the only short to medium term solution for international aviation being a reduction in flying. Only then would mandated fuel drop-ins have the desired emission reduction effects. Ideas of taxes on fuels and removing subsidies on aviation need to be explored. Through various mechanisms, the price of flying needs to rise significantly to reflect its true environmental cost.

With domestic aviation, a mix of biofuel mandates and, for some short low volume flights, electric planes may help reduce emissions. But there are low cost, already technologically proven, options to replace some flying. An example would be significantly upgrading regional rail, including re-

introducing a night train between Auckland and Wellington. These alternatives need to be considered alongside any support for biofuels.