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To: Dr Dietmar Tourbier

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CSIRO Energy Director



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Dear Mr Tourbier,

CSIRO and Boeing SAF Roadmap: Charting the flight path to sustainable skies

Thank you for your report, CSIRO and Boeing SAF Roadmap: Charting the flight path to sustainable skies. This has helped us better understand the opportunities for aviation going forward.

We note the work that has gone into the analysis to find that Australian feedstocks “could supply nearly 60% of jet fuel demand projected” for aviation.

We certainly agree with you that the current shipping of canola to the EU and tallow to Singapore for processing is a significant source of carbon emissions and that processing here could reduce this.

We also agree with your quote that the Intergovernmental Panel on Climate Change (IPCC) have shown “the need for urgent action to address the climate crisis and achieve a resilient and sustainable future”.

Their 2018 report (SR15) said that we had 12 years to enact dramatic carbon-emission mitigation strategies and many commentators such as Dr Michael Mann have noted “potentially catastrophic” alternative futures should we fail to act urgently. So we read with interest that you have set your goal as to “support Australia’s hardest to abate sectors to halve their emissions by 2035” rather than 2030.

We also noted that SAF is blended with CJF in ratios of up to 50% in current aircraft and that eventual rollout of the entire strategy relies on massive fleet replacement of new aircraft being produced. We query this, as it would seem that this cannot happen in the timeframe to 2030 by which sources of carbon emission must be significantly reduced.

With regard to canola currently sent to the EU, surely other than reducing shipping emissions, whether the oil is processed here or in Europe, the net benefit to the atmosphere is identical? Furthermore, as your Figure 9 highlights, atmospheric savings from canola versus CJF are small.

As noted in the Green Paper proceeding from your report, “Biofuels can emit more greenhouse gases than some fossil fuels on an energy-equivalent basis, depending on production process and time horizon of analysis. Crop-based feedstocks may also compete with food production, potentially increasing the cost of essential grains and cooking oils.”

We wonder if any analysis was done to consider the issue of sugar cane waste being sent from different parts of Queensland to processing facilities, specifically how transportation of this waste in fossil intensive vehicles would change the consideration of overall atmospheric savings from a different fuel use in aviation? Indeed, would you not agree that the opportunity loss in applying this biofuel to aviation would be considerable versus applying it to domestic grounded transport, or for the land to be applied to other purposes?

Turning to synthetic fuels, we note that the UK’s Climate Change Committee report on the countries 6th carbon budget analysed the emissions saved with 1 MWh of zero-carbon electricity across sectors and found this to be a particularly poor candidate for climate action. Rather than producing liquid fuel for aviation, displacing coal and

gas electricity production and powering EVs and heatpumps were vastly more energy efficient, making synthetic e-fuels a very poor quality, inefficient investment.

I understand that the industry wishes to expand services past 2030, but it would seem that the urgent climactic situation and the physics of applying renewable power where it can best serve decarbonisation, dictate not a synthetic aviation fuel industry, rather other actions.

I understand that this has come after your report was produced, however it is quite clear in December 2023 that the government has found difficulty in progressing its transition to renewable power sector according to their targets. Would you agree that this calls into question any development of synthetic fuels in Australia and begs we look at other solutions?

Other solutions are clear. IEA analysis in their updated Aviation Sector Strategy (2022) report, say that growth in air travel needs to be curtailed in order to keep the planet on track for no more than 1.5°C of global warming. Last month, a Chatham House / Possible report examined the limits to what can be achieved using technological solutions to decarbonise aviation and the extent that demand management will be needed, finding that technologies including efficiency, negative emissions and alternative aviation fuels will not be sufficient to manage aviation emissions if the industry keeps on growing. Furthermore it noted that, even if these technologies do develop, to keep within the emissions limits they have set, UK demand in terms of passenger-kilometres flown in 2030 would need to be 36 per cent lower than in 2019.

We are concerned that aviation has traditionally doubled its footprint every 15 years, and this has always trumped efforts at reducing emissions, and we are starting from a base where 99% of aviation is fossil fuel based and even in the upcoming scenarios you outline they remain hydrocarbon based during the crucial decade ahead. We think a "Net Zero" or "Jet Zero" position takes no precautions against the 10% chance of catastrophic runaway heating built into the models, and could in fact lead to consumer apathy, inertia because of the public view that something is being done, and increase flying.

As LEK consulting showed, environmental concern amongst flyers is a most potent factor in reducing emissions. Their "Scenario Analysis of the Future of Australian Aviation" report showed only their most aggressive case, "Scenario 3 – Environmentally Conscious" saw more falls in emissions (and only by c.45% on 2025 levels by 2050), with most emissions still happening, and so most warming (incl. non-CO2). In other scenarios, they saw warming from aviation rising!

For Flightfree Australia, we appreciate the scientific work required to craft technological change. However we are concerned that politicians may not understand that it falls upon them to understand that real climate action requires policy settings different to the tradition growth settings they have fallen back on. Commentary like Kirsten Rose's in the report foreword that we "have a real opportunity now to be part of decarbonising our skies" have a real danger of being misconstrued.

We hope that you will take time to answer our questions and consider corresponding with us.

I appreciate your response.

Alex Mungall
for
Flightfree Australia