Submissions on the Climate Change Commission's Draft advice on Aotearoa New Zealand's fourth emissions budget and the discussion document on inclusion of emissions from international shipping and aviation

To Climate Change Commission

31 May 2024

Submitter details

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Parliamentary Commissioner for the Environment

The Parliamentary Commissioner for the Environment (PCE) was established under the Environment Act 1986. As an independent Officer of Parliament, the Commissioner has broad powers to investigate environmental concerns and is wholly independent of the government of the day. The current Parliamentary Commissioner for the Environment is Simon Upton.

Draft advice on Aotearoa New Zealand's fourth emissions budget

Introduction

In New Zealand emissions budgets are the foundations upon which emissions reduction plans are constructed. Emissions budgets need to be consistent with achieving New Zealand's long-term targets.

The Government published the first three emissions budgets (2022–2025, 2026–2030, 2031–2035) in May 2022. The current consultation asks what the size of the fourth emissions budget should be and reflects upon whether any changes should be made to budgets that have already been established.

This submission focuses only on the proposed changes to the second and third emissions budgets (2026–2035) in the light of recent high levels of afforestation.

Previous relevant PCE work

I have now written extensively on the problems that arise from the unconstrained use of forestry as an offset for long-lived fossil fuel emissions. In 2019 *Farms, forests and fossil fuels* documented the litany of threats to forests, from floods and

droughts to pests and pathogens, all of which undermine the suitability of afforestation as a permanent offset for long-lived fossil fuel emissions.[1] Since the publication of that report, the devastating impacts of Cyclones Hale and Gabrielle have highlighted the all too real risks of forestry impermanence.

The nature of carbon dioxide as a long-lived pollutant necessitates that every molecule emitted must be offset to achieve net-zero. Thus, if gross emissions continue, increasing areas of land will be forfeited to sequester carbon in permanent forests, with a loss of option value to the land. In my most recent publication, *Going with the grain: Changing land uses to fit a changing landscape* I have updated and summarised my concerns with this approach.[2] The companion report, *Exploring land use change under different policy settings in two case study catchments*, details how some catchments are – based on current projections – likely to become dual monocultures of dairy farming and pine forestry.[3] If realised, such sweeping land conversions will have consequences for the fabric of New Zealand's rural communities.

The relative impermanence of forestry as compared to long-lived fossil fuel emissions, and the need to sustain planting until such a time as gross emissions are reduced or alternative carbon storage capabilities are realised, make offsetting a fragile approach to meeting New Zealand's long-lived fossil fuel emissions targets. In the short term, afforestation may make the achievement of emissions budgets easier, as offsetting emissions precludes the need to invest in more expensive mitigation technologies. However, in the long-term the levels of afforestation required if gross emissions are not reduced will cause forestry to encroach on land better suited to other uses, create an ever-expanding liability due to threats from fires, droughts, diseases and other hazards, and will ultimately merely delay the inevitable need to reduce New Zealand's gross emissions.

I have previously addressed the incommensurability of forestry offsets and long-lived greenhouse gas emissions by contrasting the extant situation with the possibility of instead using pine production forestry to offset *biogenic methane* emissions.[4] Due to the comparatively short-lived nature of biogenic methane there is a good fit between the lifetime cooling effect of a pine production forest and the lifetime warming effect from a herd of ruminants. I would therefore be supportive of an offsetting approach using forestry for biogenic methane emissions only. Crucially this approach would ensure that the option value of the land is not lost; if methane emissions are reduced (for example through technological breakthroughs) then the forests could be progressively removed.

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1 https://pce.parliament.nz/media/humpby5q/report-farms-forests-and-fossil-fuels.pdf.

2 https://pce.parliament.nz/media/qfxluadl/going-with-the-grain-changing-land-uses-to-fit-a-changing-landscape.pdf.

3 https://pce.parliament.nz/media/ut0dxela/exploring-land-use-change-under-different-policy-settings-in-two-case-study-catchments.pdf.

4 https://pce.parliament.nz/media/03bpa3sn/how-much-forestry-would-be-needed-to-offset-warming-from-agricultural-methane.pdf.

PCE comments on the draft advice on Aotearoa New Zealand's fourth emissions budget

As part of its advice on a fourth emissions budget, He Pou a Rangi Climate Change Commission (the Commission) is tasked with examining budgets that have already been established, and determining whether any revisions are required. The examination of existing budgets is critical if they are to remain consistent with achieving the 2050 target.

The Commission's assessment of the second and third emissions budgets, which collectively cover the period 2026–2035, has identified a significant change in their achievability as a result of recent high rates of afforestation. Beyond the problems posed by offsetting that I have summarised above, the Commission's analysis draws attention to an additional risk that the current operation of the New Zealand Emissions Trading Scheme (NZ ETS) poses – namely, a difficulty to predict, let alone guarantee, the level of afforestation that will be realised.

Within the NZ ETS there are multiple pathways for forestry's participation. The participation of post-1989 foresters is voluntary, so participants are free to enter and exit the scheme as they see fit. Changes to NZ ETS rules have compounded the forecasting problem.

When the first three emissions budgets were set in May 2022, projected afforestation rates for exotic species in 2022 and 2023 respectively were 41,300 hectares and 34,100 hectares.[5] Recent estimates now put figures for estimated and projected exotic afforestation at 64,200 hectares for 2022 and 88,000 hectares for 2023.[6] If the planting now projected for 2023 comes to pass, this would represent a 150% increase from the level of afforestation anticipated in 2022, when the first three emissions budgets were agreed to by Cabinet.

This afforestation will not meaningfully impact upon the first emissions budget (2022–2025) as there is a time delay between the planting of a tree and the point at which it sequesters significant quantities of carbon. However, by the second and third emissions budgets recent afforestation will have begun sequestering significant quantities of carbon – in theory enabling these budgets to be met without the need for meaningful reductions in gross emissions.

In addition, there is uncertainty around harvesting estimates over the next few years. With a low log price there is currently a risk that some of the forests planted in the 1990s under the stock change method are not harvested. This is more likely for forests with higher harvesting or transport costs. Effectively this land would be transferred to permanent forestry, raising further questions about the loss of productive land and how legal liability to maintain that standing stock of carbon will be enforced over the long term.

I have repeatedly highlighted issues in assuming fungibility between emissions offsets using forestry and substantive emissions reductions. If the second and third emissions budgets can now be met without notable emissions abatement, I am

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5 https://www.mpi.govt.nz/dmsdocument/46564/direct.

6 https://www.mpi.govt.nz/dmsdocument/57130/direct.

supportive of increasing the stringency of these budgets. This is to reflect the risks of forestry impermanence and the uncertainty created by relying on voluntary afforestation in the NZETS.

I agree with the Commission's contention that there is a need to ensure gross, and not just net, emissions reductions are on track to meet New Zealand's long-term climate ambitions. If action to reduce gross emissions is not taken, New Zealanders face three unpalatable outcomes: either we will run belatedly into the need for rapid, costly and disruptive emissions reductions; or we will forfeit the option value over ever-increasing areas of land which must be converted and maintained as carbon forestry in perpetuity; or we will be forced to renege on promised budgets and targets if foresters choose to exit the NZ ETS or the NZ ETS runs out of incentives.[7]

It is also worth noting that the Commission's draft advice contains a quantification of one of the *benefits* from gross emissions reductions, namely, the economic value of improved air quality that would ensue if the Commission's 'EB4 demonstration path' were followed.[8] This was valued at, on average, $2.7 billion a year over the fourth emissions budget period (compared to the reference scenario). This was due to improvements in human health, quality of life and productivity. Valuations such as these helpfully expose some of the underlying benefits from gross emissions reductions.

[7] https://www.climatecommission.govt.nz/public/Advice-to-govt-docs/ERP2/final-erp2/ERP2-Final-Advice-for-web.pdf, p.178.

[8] https://haveyoursay.climatecommission.govt.nz/comms-and-engagement/advice-on-the-fourth-emissions-budget-2036-2040/user_uploads/20240403-eb4-draft-advice-p05-v01-updated-140524.pdf.

Discussion document on the inclusion of emissions from international shipping and aviation

Introduction

New Zealand's geographic remoteness, large tourism industry and high proportion of residents with family overseas necessitates that we pay closer attention than most to our emissions from the international transit of goods and people. Prior to Covid-19 New Zealand ranked sixth in the world for its total per capita aviation emissions, and flight numbers in 2023 were back up to 83% of 2019 levels.[9]

At the time, I called for the discontinuity provided by the Covid-19 pandemic to be used as an opportunity to rethink our approach to travel and tourism in New Zealand.[10] However, despite the tourism sector understanding that a healthy environment is a fundamental prerequisite for the ability of New Zealand to attract visitors from overseas, tangible progress has been limited.

This is particularly true when considering long-haul aviation and shipping. In *He Āhurutanga Taiao: Draft Tourism Environment Action Plan*,[11] the Ministry of Business, Innovation and Employment addressed the need to decarbonise journeys. However, no real detail was provided.[12] This was a missed opportunity to provide much needed direction. Few people would disagree with the need to reduce these emissions – it is the *how* and the *who* that needs elaboration.[13] Work on the Tourism Action Plan was curtailed in response to the Government's decision to cease work on Industry Transformation Plans, terminating three years of research prior to its ability to deliver a more actionable suite of recommendations.

The desire to avoid difficult conversations when considering the emissions caused by international shipping and aviation may be due in part to scientific uncertainties and high costs associated with decarbonising these industries. At present Sustainable Aviation Fuels (SAFs) offer the greatest potential for reducing the carbon emissions from flying. However, supply is far from being able to meet rising demand, and there are concerns over the environmental impacts of land clearance or re-purposing for biofuel production. There is also debate concerning how to allocate emissions from international shipping and aviation between countries. This has prevented the inclusion of these emissions in agreements, such as Kyoto and Paris, made under the United Nations Framework Convention on Climate Change (UNFCCC).

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9 https://ojs.victoria.ac.nz/pq/article/view/8232; https://infoshare.stats.govt.nz/.

10 https://pce.parliament.nz/media/d0rj4mmb/report-not-100-but-four-steps-closer-to-sustainable-tourism-pdf-24mb.pdf.

11 https://www.mbie.govt.nz/dmsdocument/26815-draft-tourism-environment-action-plan-summary.

12 https://www.mbie.govt.nz/dmsdocument/26809-consultation-document-draft-tourism-environment-action-plan-pdf, p.34.

13 https://pce.parliament.nz/media/rxzblk4r/pce-submission-on-the-draft-tourism-environment-action-plan.pdf.

Previous relevant PCE work

In my *Not 100% – but four steps closer to sustainable tourism* report I considered four currently available mitigation options: technological improvements (such as improved aircraft design), sustainable fuels and energy sources, optimised air traffic management and other operational measures, and demand side management.[14] Setting aside demand management, these decarbonisation strategies are more expensive than those available to other industries and may be challenging to expedite. The slow rate of aircraft turnover, and lengthy development and certification times curtails the rate of technological progress, and the paucity and expense of SAFs disincentivises uptake of these replacement fuels. It is unlikely that the industry will decarbonise voluntarily.

In my *Pristine, popular… imperilled?* report,[15] I drew attention to the scientific unknowns associated with the cruise ship industry, from biosecurity risks to their high per capita emissions. Global average cruise emissions per passenger in 2015 were approximately the same as a return economy class flight between London and Tokyo (0.83 tonnes of carbon dioxide equivalent).[16]

In the face of uncertainty and difficulty there is an understandable desire to resort to aspirational words about protecting the environment whilst remaining on a broadly business-as-usual trajectory. However, the reality that must be confronted is that if decisive actions are not taken environmental degradation will ensue, eventually undermining any marketing-driven feel-good narratives. At present, aviation emissions are growing faster than emissions from any other form of transport,[17] and the situation is anticipated to worsen over time as other sectors with available opportunities for abatement act.[18]

Over the course of my investigations, I carefully evaluated the challenges around reducing emissions from international air travel.[19] I came to the conclusion that emissions from international aviation need to be priced in the same way that emissions from domestic flights are. Doing so is not straightforward, however. International law makes the legality of introducing taxes or levies on the fuel used in international flights – via the NZ ETS, for example – highly debatable. As such, I recommended that consideration be given to implementing a (distance-based) departure levy that would apply to both domestic and international travellers.

Such a tax on flying is likely to be progressive, given that only 5% of New Zealanders in the bottom decile of material deprivation have an overseas holiday at least once

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[14] https://pce.parliament.nz/media/d0rj4mmb/report-not-100-but-four-steps-closer-to-sustainable-tourism-pdf-24mb.pdf.

[15] https://pce.parliament.nz/media/mvud3vpb/report-pristine-popular-imperilled.pdf.

[16] https://blogs.griffith.edu.au/institute-for-tourism/how-much-carbon-does-cruise-ship-tourism-emit/ ; https://www.pressreader.com/new-zealand/the-timaru-herald/20190405/281719795951449.

[17] https://www.transportenvironment.org/topics/planes/airplane-pollution.

[18] https://ourworldindata.org/global-aviation-emissions.

[19] https://pce.parliament.nz/media/d0rj4mmb/report-not-100-but-four-steps-closer-to-sustainable-tourism-pdf-24mb.pdf.

every three years,[20] and globally 89% of the world's population do not fly at all.[21] The revenue generated by any tax should be directed towards technological development to aid the decarbonisation of the aviation industry. The current high cost and/or lengthy development times for aviation decarbonisation technologies need to be reduced to help facilitate significant emissions reductions. This would sensibly be done in partnership with key aviation, engine and fuel technology companies by bringing together a coalition of like-minded countries which, like New Zealand, share a common exposure to high per capita emissions caused by geographic isolation and reliance on tourism.

PCE comments on the discussion document on inclusion of emissions from international shipping and aviation

The need for domestic action on emissions from international aviation and shipping is heightened by a lack of international action. The UNFCCC and the agreements made under it, including the Kyoto Protocol and the Paris Agreement, do not address emissions from international shipping and aviation. This is because parties could not agree on how these emissions should be attributed to specific countries.

The International Civil Aviation Organization (ICAO) is the designated international body responsible for the development of policy measures to address emissions from international aviation. At the 41st ICAO Assembly, member states agreed to the collective long-term aspirational goal of net-zero carbon emissions by 2050. Similarly, the International Maritime Organization (IMO) is responsible for the greenhouse gas emissions strategy for international shipping. In 2023 member states agreed to reach net-zero greenhouse gas emissions from international shipping "close to 2050". New Zealand is a member state of both the ICAO and the IMO, and should acknowledge and address the fact that these aspirational targets will not be achieved without greater coordinated domestic action.[22]

At COP26, New Zealand, along with 22 other countries, became a founding member of the International Aviation Climate Ambition Coalition. There are now around 60 signatories, which reflects the global appetite for greater ambition in this area. However, 60 members is still significantly fewer than the ICAO (with 193 members). The International Aviation Climate Ambition Coalition is thus less likely to be restrained by the reticence of less ambitious parties as evidenced in ICAO process. Currently, other signatories, including the United Kingdom, United States of America and European Union have targeted policies in place, from SAF mandates to air travel taxes. For New Zealand to realise the potential of plurilateral coalitions such as this, it is important to link domestic ambition to that of other members.

Having found that the inclusion of emissions from international shipping and aviation in the 2050 target would be consistent with the purpose of the Climate Change Response Act, **I support the Climate Change Commission's**

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[20] https://ojs.victoria.ac.nz/pq/article/view/8232.

[21] https://www.sciencedirect.com/science/article/pii/S0959378020307779.

[22] https://pce.parliament.nz/media/d0rj4mmb/report-not-100-but-four-steps-closer-to-sustainable-tourism-pdf-24mb.pdf. See pp.18–20 for an overview of the existing policy landscape in New Zealand. The key policy lever – the NZ ETS – does not yet apply to emissions from international shipping and aviation.

recommendation that these emissions be incorporated. The inclusion of these emissions in domestic targets would provide an impetus for greater policy work in this area and may propagate a move away from aspirational language towards more implementable solutions.

The manner in which these emissions are incorporated into the existing framework of targets is important. At present New Zealand has a split-gas target, in which emissions of biogenic methane are treated separately from other long-lived greenhouse gases. The emissions from international shipping and aviation are long-lived, and as such it would seem an apt solution to amalgamate these into the net-zero 2050 target currently applicable to other long-lived gases.

My *Not 100% – but four steps closer to sustainable tourism* report found that credible decarbonisation pathways exist. However, while these could realise significant emissions reductions in the medium term, they implied the take-up of technologies that are much more expensive than those available to other sectors of the economy. The upshot is that if these emissions were incorporated into existing targets, they would place significant price pressure onto other sectors. And under current NZ ETS design principles, higher unit prices run the risk of permanently locking up even more productive land in forests, as this would be considerably cheaper than pursuing meaningful abatement.

I have mentioned already the importance of earmarking the proceeds from policies aimed at reducing aviation emissions for the development of emissions reduction technologies for the aviation sector. I am also in support of using the income from such policies for financing Pacific Island nations' climate responses, in recognition of their disproportionate burden. This would be most readily achieved if aviation and shipping emissions were treated as distinct from the current 2050 target and budget frameworks. I also note that shipping and aviation have different decarbonisation trajectories.

My preference is the Commission's proposed option three, in which two additional separate components to the 2050 target are created, one covering gross emissions of international shipping, and the other covering gross emissions of international aviation.

International shipping and aviation differ in their relative impacts if incorporated into New Zealand's targets. In the Commission's *Review on whether emissions from international shipping and aviation should be included the 2050 target, and if so how: Discussion document*,[23] the total estimated emissions from the fuel taken on board in New Zealand for international transit in 2019 was close to 5 megatonnes of carbon dioxide equivalent. Of this, approximately 4 megatonnes of carbon dioxide equivalent was from jet fuel for international aviation. Thus, international aviation represents a critical sector for emissions reductions, which may justify an exclusive target and focus. Perhaps more importantly, the two sectors have different existing opportunities for emissions reductions and diverging decarbonisation trajectories. It would therefore be difficult to establish a combined target representing a realistic

[23] https://www.climatecommission.govt.nz/public/Uploads/ISA/20240403_ISA-Discussion.pdf, p.21.

decarbonisation pathway for each of the sectors.

Concluding thoughts

The importance of earmarking the proceeds from policies, such as a departure levy, for the pursuit of technological decarbonisation solutions resonates with my strong assertion that it is *gross* emissions reductions that should be pursued. Currently New Zealand is on a trajectory in which carbon-forestry subdues carbon prices preventing meaningful abatement. This has the potential to worsen with the inclusion of emissions from international shipping and aviation, which are currently harder to abate than other sectors. If technology does not progress to facilitate the decarbonisation of these industries, even greater reliance on forestry offsets may ensue.

In addition to providing dedicated funding for the development of decarbonisation technologies, I am hopeful that including emissions from international (and not just domestic) shipping and aviation in the 2050 target will help facilitate the economies of scale necessary to develop some of these technologies, which would otherwise not be viable if only domestic emissions were valued.