

13 June 2018

## Submission on the New Zealand Productivity Commission's Low-Emissions Economy: Draft Report

### *Executive Summary*

Thank you for the opportunity to have input into the draft Report<sup>1</sup>. This submission was prepared by Dr Andrea Forde and representative members of OraTaiao: The NZ Climate and Health Council below.

As New Zealand's only climate change NGO focused on wellbeing and equity, we would also welcome the opportunity to have further input into the Inquiry.

We welcome the draft Report which proposes some significant and far reaching steps in reducing New Zealand emissions. Our recommendations are summarised below.

We have also reiterated our concerns with the approach taken by the Commission.

### *Summary of recommendations*

#### Recommendation 1.

OraTaiao supports an all emissions target of net zero well before 2050, and decisive domestic action to fairly limit global warming to 1.5° C. New Zealand values, acknowledging both our large per capita historical responsibilities and obligations, and our greater capacity to adapt and mitigate, are also important considerations in reaching net zero much earlier. Fair shares modelling from 2016 suggests timelines for New Zealand to reach net zero emissions ranging generally from 2022 to 2038<sup>2</sup>.

The longer the delay till global emissions peak, and the slower the initial downward trajectory, the less time New Zealand will have to reach net zero (or even negative) emissions. New Zealand's contribution, as a good global citizen, involves more than simply setting a deadline for net zero NZ. It also means having net emissions decline now (preferably from 2018/19, supporting a global peak by 2020), and continuing to drive a decisive decline. NZ needs to focus on sharp emissions decline over the next few years, as well as determining our ultimate target a few decades hence.

#### Recommendation 2.

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<sup>1</sup> New Zealand Productivity Commission. Low-emissions economy: Draft report. Wellington: NZPC, 2018.  
[www.productivity.govt.nz/inquiry-content/3254](http://www.productivity.govt.nz/inquiry-content/3254)

<sup>2</sup> Metcalfe S. Brief analysis – setting gGHG year 2030 targets for New Zealand. v1.1 – corrected, 27/06/16 Technical notes (pre-publication)

OraTaiao recommends long term transparent and robust political commitment to reducing emissions, through strong institutional structures and robust independent organisations and the supporting statutory and regulatory legal frameworks. We support the emphasis that the Commission places on the importance of long term policy commitments across Government, supported by strong independent institutions. However, decisive milestones and policies set over these next few years are critical.

#### Recommendation 3.

As a science-based organisation, committed to evidence that protects and fosters health, OraTaiao recommends a continual evaluation of the policies adopted that are targeted at NZ net zero, including consistent approaches to health and safety impacts, and improved equity.

#### Recommendation 4.

We recommend a robust framework that encompasses a more expansive consideration of “wellbeing” and note, that in the absence of such a framework, the Report defaults to income growth as a measure of “wellbeing”. OraTaiao notes that the report was to have addressed “higher living standards, including sustainability . . . increasing equity, social cohesions and resilience to risk”<sup>3</sup>. As health professionals we understand wellbeing to be more than simply physical health and is underpinned by healthy environments, communities and societies etc., all of which are impacted by climate change. OraTaiao recommends a more in-depth consideration of these matters in the final report, using approaches consistent with the United Nations Sustainable Development Goals.

#### Recommendation 5.

OraTaiao recommends that some of the highly regressive impacts of an increase in the value of an emissions unit be mitigated by measures including changes in the built environment, income relief, improved affordable safe systems of transport that are not reliant upon private vehicle ownership, better insulated housing stock, and improved nutrition. We recognise that both climate change, and the regressive impacts of reducing emissions, will impact most severely upon children, the less advantaged, Māori and Pacific peoples. We recommend collaboration with the organisations working in the fields of equity and social justice as the way forward. We consider that there should be transparent accountability for the revenue, and the concomitant spend on mitigating regressive impacts. Immediate cessation of all fossil fuel subsidies is an instant revenue source for mitigating regressive impacts.

#### Recommendation 6.

We recommend that, where there are a number of different pathways available to quickly achieving net zero, that the preferred pathway has the greatest co-benefits, reduces social inequities, is consistent with Te Tiriti o Waitangi (the Treaty of Waitangi), and is timely.

#### Recommendation 7.

We commend the Commission for recommending the inclusion of agricultural emissions. We recommend a robust approach towards communicating and achieving the significant health

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<sup>3</sup> New Zealand Productivity Commission. (2018). Low-emissions economy: Draft report. [www.productivity.govt.nz/inquiry-content/low-emissions-draft-report](http://www.productivity.govt.nz/inquiry-content/low-emissions-draft-report)

benefits potentially available, and we refer the Commission to the recently published paper in Science<sup>4</sup> on the importance of diet in reducing greenhouse gas and other planetary impacts.

#### Recommendation 8.

As in its earlier submission, OraTaiao recommended the consideration of other forms of transport, and transport infrastructure, in addition to e-vehicles, and research into the reticence of New Zealanders to contemplate higher density living.

#### Recommendation 9.

We recommend that in evaluating the externalities of mitigation and reduction tactics to enable NZ to reach net zero, that, in the interests of transparency, the externalities offshore be included. OraTaiao recognises the inbuilt errors in addressing NZ commitments only. For example, international transport is currently excluded from the Paris agreement, but inbound tourism, a major contributor to NZ GDP is emissions-intensive.

#### Recommendation 10.

OraTaiao recommends that the social costs of carbon (for example, conservatively predicted to be NZ\$88 per tonne by 2020 rising to NZ\$176 by 2050<sup>5</sup>) be included in all state sector and local government analysis from 2018/19, and that such analyses should use social discount rates that avoid discrimination between generations<sup>6</sup>.

Yours sincerely



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<sup>4</sup> Poore J, Nemecek T. Reducing food's environmental impacts through producers and consumers. Science 2018;360(6392):987-92. <http://science.sciencemag.org/content/360/6392/987>.

<sup>5</sup> Mid-range social costs of carbon in 2017 dollars. Source: Chapman R, Preval N, Howden-Chapman P. How economic analysis can contribute to understanding the links between housing and health. Int J Environ Res Public Health. 2017;14(9).pii:E996. <http://www.mdpi.com/1660-4601/14/9/996/htm> 2. Methods

<sup>6</sup> Stern N. The economics of climate change: the Stern review. Cambridge: Cambridge University Press, 2007. [http://www.hm-treasury.gov.uk/stern\\_review\\_report.htm](http://www.hm-treasury.gov.uk/stern_review_report.htm).

## About OraTaiao

- Climate change is increasingly recognised as the biggest global health threat of the 21st Century<sup>7,8</sup>, as well as the greatest opportunity to improve health<sup>9</sup>.
- OraTaiao: New Zealand Climate & Health Council has over 600 health professional members. Our [Health Call to Action on Climate Change](#) is supported by [17 leading health professional organisations](#) including the New Zealand Medical Association, the New Zealand Nurses Organisation and the Public Health Association, as well as several Specialist Colleges and both New Zealand's Medical Schools.
- OraTaiao is part of a worldwide movement of health professional authorities urgently focusing on the health challenges of climate change ([The Global Climate and Health Alliance](#)).
- As senior doctors and health professionals, we are advocating on behalf of our patients and communities.
- OraTaiao is a politically non-partisan incorporated society, with rapidly growing membership and support across the New Zealand health sector. OraTaiao emphasises science, evidence, health, equity and resilience. We regard climate change adaptation and mitigation as New Zealand health priorities.
- We take a broad view of health, one that incorporates a range of wellbeing outcomes (social, environmental, physical, cultural, spiritual and economic), and acknowledging that health starts outside the health sector in economics, natural and built environments, in people's houses, neighbourhoods and workplaces, and in policies that protect, enhance and shape these health building blocks.
- We honour Māori aspirations, are committed to the principles of Te Tiriti o Waitangi, and strive to reduce inequalities between Māori and other New Zealanders. We are guided in our practice by the concepts of kaitiakitanga (guardianship), kotahitanga (unity), manaakitanga (caring), and whakatipuranga (future generations).

## Our Vision – fast, fair, Tiriti-based transition to net zero NZ, well before 2040

We consider that a healthy, fair, net-zero NZ economy with high quality of life is possible, though will now require more rapid and deep change because of our collective continued inaction.

We envision pathways to a stable, net zero-emissions economy built on Te Tiriti o Waitangi (the Treaty of Waitangi), the development of a shared set of values for wellbeing, and participative processes backed by integrated, dynamic impacts modelling of policy options.

We consider the communication of short-term, and long-term, health, wellbeing and fairness co-benefits; the leadership of government and the health sector; and a move from GDP as a measure of progress towards wellbeing economics to be fundamental to achieving this vision.

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<sup>7</sup> Costello A, Abbas M, Allen A, et al. Managing the health effects of climate change: Lancet and University College London, Institute for Global Health Commission. Lancet 2009,373:1693–1733.

[http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(09\)60935-1/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(09)60935-1/fulltext)

<sup>8</sup> World Medical Association. WMA Declaration of Delhi on Health and Climate Change,

<https://www.wma.net/policies-post/wma-declaration-of-delhi-on-health-and-climate-change/>

<sup>9</sup> Watts N, Adger WN, Agnolucci P, Blackstock J, et al. Health and climate change: policy responses to protect public health. Lancet 2015. doi: 10.1016/S0140-6736(15)60854-6. <http://www.thelancet.com/commissions/climate-change-2015>

## Introduction

OraTaiao: The New Zealand Climate and Health Council welcomes the draft Report from the Productivity Commission on achieving a low-emissions economy for New Zealand. We recognise that the recommendation of the Commission to include emissions from agriculture in the Emissions Trading Scheme (ETS) is a significant step in transitioning the NZ economy, however we consider that the target should be to a net zero emissions future with accelerated timelines.

## Net Zero

New Zealand is a signatory to the recent Paris Agreement, in which all countries committed to limiting average temperature rise to well below 2°C – and to pursue efforts to limit temperature increase to 1.5°C. This will require a rapid transition in NZ as well as globally. Limiting warming to well below 2°C means net zero globally mid-century, with nations like NZ expected to move faster. Pursuing efforts towards limiting warming to 1.5°C means net zero globally a decade or so sooner – in other words, New Zealand needs to be moving decisively towards net zero from now on, which may be as early as 2030s, based on historic responsibility and capacity. Climate change poses current and future significant threats to the health and wellbeing of New Zealanders and to health equity.

The science is clear that the longer the delay till global emissions peak – and the slower the initial downward trajectory – the sooner New Zealand will need to reach net zero emissions, and potentially set negative emission targets. “Adequate” ambition is not just the deadline for net zero NZ, but also NZ’s net emissions declining now (preferably from 2018/19 to support global peaking by 2020), and continuing to drive a decisive decline despite exotic forest harvesting in early 2020s. NZ needs to focus on sharp emissions decline over the next few years, as well as determining our ultimate target a few decades hence.

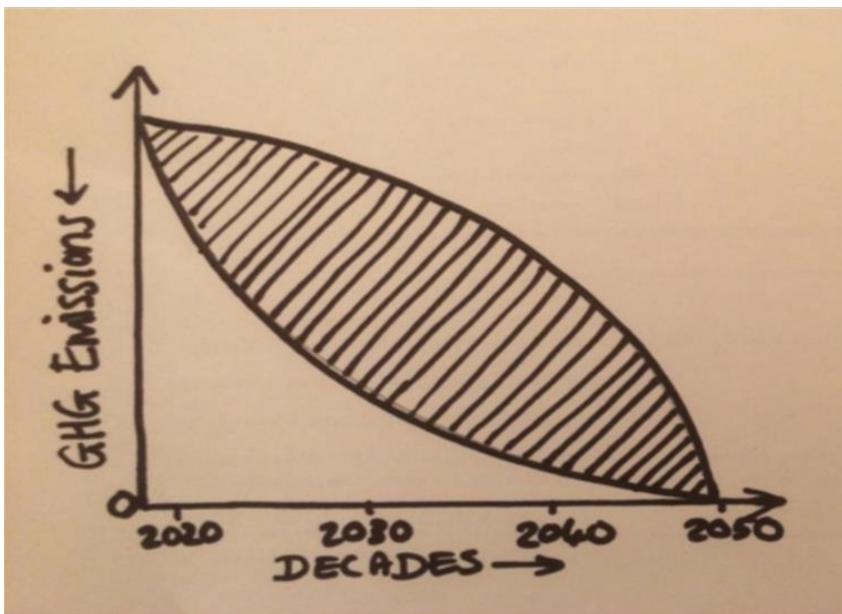


figure: whether emissions reach zero rapidly or slowly strongly impacts total carbon budget (as total emissions, being area-under-the-curve)

## Staying within budget: the later we start, the harder it gets

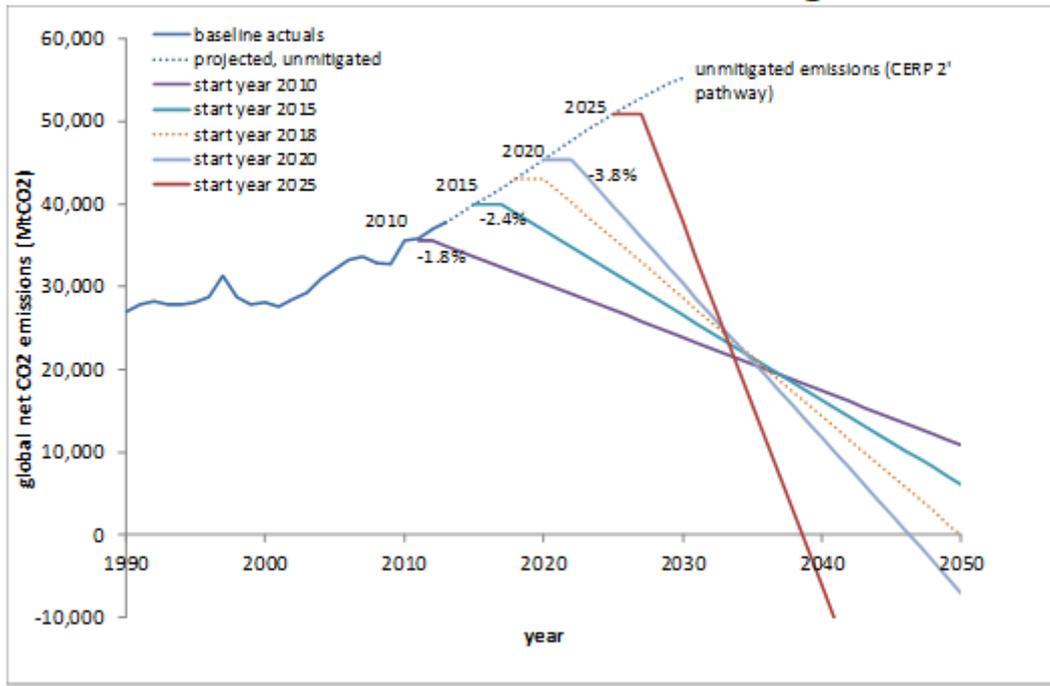


Figure 8.2 *Remaining global carbon budget* of the Productivity Commission’s draft Report is arguably the report’s most important information – especially the surprisingly low probabilities for limiting global warming to 1.5°C or 2°C. This is a highly dynamic environment where the speed in reducing emissions is crucial.

OraTaiao agrees with the emphasis placed by the Commission on the importance of a long term transparent and robust political commitment to reducing emissions, through strong institutional structures and robust independent organisations and the supporting statutory and regulatory legal frameworks. In this respect, OraTaiao welcomes the decision of the government made in April to end offshore oil exploration in New Zealand. Further ending of fossil fuel exploration is recommended by the Commission in the draft Report, and clearly demonstrates a move towards consistency in policy and strategy aimed at achieving net zero emissions by the new Government.

The inclusion of an assessment of alignment of government policies with Te Tiriti o Waitangi has demonstrated the value of this approach in assessing the compliance of all government policy initiatives to the Government’s treaty obligations. OraTaiao suggests that this model is also appropriate for assuming compliance of policy with emissions reductions through a statutory requirement, a review of Regulatory Impact Analysis requirements, and through changes to the Cabinet manual. OraTaiao suggests this approach should include an assessment of the co-benefits of the policy change. At present, the enhanced ETS mechanism proposed by the Commission does not

clearly recognise, nor account for co-benefits, particularly those for health. OraTaiao notes that improvements in the health of a population improves productivity for that population<sup>10</sup>.

The Commission has looked at insulation and building energy efficiency in the context of peak electricity demands. OraTaiao supports the Commission’s recommendation that the demand for peak electricity (during winter mornings and evenings) be reduced by improving the insulation and energy efficiency of buildings. Well insulated, dry and warm homes, which will not require additional electricity produced by fossil fuel generation, will have health co-benefits<sup>11</sup>.

OraTaiao has previously recommended to the Productivity Commission the decarbonisation of electricity used for home heating.

### OraTaiao’s concerns

However, OraTaiao is disappointed that a “wellbeing” framework has not been clearly identified and articulated upfront by the Commission. We reiterate the OraTaiao view, as conveyed in our earlier submission, that this is an oversight in the Report and one likely to have adverse consequences on the health and wellbeing of New Zealanders.

OraTaiao reiterates that the framework proposed by the New Economics Foundation for wellbeing, adapted to a New Zealand context, should be integrated into all strategic thinking and planning on reducing emissions. This centralisation of wellbeing is recognised by the Treasury in its Living Standards Framework<sup>12</sup>. OraTaiao considers that the failure to address “wellbeing” reduces the usefulness of the Report. Furthermore, as health professionals we understand wellbeing to be more than simply physical health. It is underpinned by healthy environments, communities and societies, etc., all of which are impacted by climate change. We also note a failure to integrate the United Nations’ Sustainable Development Goals (SDGs)<sup>13</sup> within the draft Report – despite NZ formally accepting the SDGs.

Further general comments on the contents of the document follow:

### Emissions pathways modelled

Overall, the emissions pathways modelled need to take a “multi-solving” approach to understand comparative co-benefits and identify avoidable co-harms. This could be a fruitful next step in the modelling – it is definitely possible to consider this, perhaps separately for each sector and each pathway.

We were concerned to see the heavy reliance in zero emissions target scenarios on reforestation to reduce net emissions – the risks of this are recognised, but it actually reflects some flaws in the modelling. These flaws include:

- the very modest assumptions about the potential role for mode shift in the transport sector;

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<sup>10</sup> The World Bank. Equity and development: World Development Report 2006. New York: The World Bank & Oxford University Press, 2006. <http://siteresources.worldbank.org/INTWDR2006/Resources/477383-1127230817535/082136412X.pdf>

<sup>11</sup> Howden-Chapman P, Matheson A, Crane J et al. Effect of insulating existing houses on health inequality: cluster randomised study in the community. *BMJ* 2007;334:460

<sup>12</sup> King A, Huseynli G, MacGibbon N. Wellbeing Frameworks for the Treasury. Wellington: The Treasury, 2018. <https://treasury.govt.nz/publications/dp/wellbeing-frameworks-treasury-html>

<sup>13</sup> UN General Assembly. Transforming our world: The 2030 Agenda for Sustainable Development. New York: United Nations, 2015. <https://sustainabledevelopment.un.org/post2015/transformingourworld>, <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>

- the relatively low emissions prices modelled (compared with what is acknowledged as necessary);
- the lack of recognition of soil as a carbon sink<sup>14</sup>; and
- a failure to incorporate the potentially helpful reinforcing dynamic feedback that is likely to occur (for example, see the exponential feedback between reducing costs of renewables and accelerating uptake).

## 2.4 International commitments

We would like to see a commitment that New Zealand will not externalise its emissions by, for example, acknowledging in the final Report that e-Vehicles may have increased emissions over their lifecycle. However at present, this section fails to recognise the equity-focused assessments and estimates of what New Zealand's commitments should look like, in order to be fair and as global citizens<sup>15</sup>.

New Zealand will need to reach net zero well before 2050 to meet our commitments under the Paris Agreement and make a fair contribution to limit warming below 1.5 degrees, rather than 2 degrees, as a consequence of our previous inaction and delay (alongside inaction by other countries). What is even more important, is to aim for zero in a good timeframe, and avoid both severe impacts upon our Pacific neighbours and setting off the feedback loops that will make catastrophic climate changes rapidly inevitable. We note 2016 modelling indicating general timelines for New Zealand of 2022 to 2038 to reach net zero emissions. This is based on both our historical responsibilities and obligations, and our capacity to adapt and mitigate, when compared with other countries<sup>16</sup> (model descriptions, data sources and rationales described in Attachment 1).

We would like to see reframing to 'well before 2050' to allude to significant health gains from well-designed action to mitigate and address climate warming, the economic advantages of early transformation, and the international expectation that relatively wealthy developed nations acknowledge their obligation to take on a disproportionate burden of the transition before lower income countries are expected to decarbonise.

## 4.2 Permits vs. tax

As strategies to reduce emissions urgently need a real price on emissions, OraTaiao recognises the need for compelling action building upon mechanisms already in place. On that basis there is an unspoken preference to retain and scale up the existing ETS. However, there is no consideration of equity in the comparison between introducing a carbon tax and retaining the ETS. The analysis also fails to state that while the government can still have a significant revenue stream from an ETS, there would still be some profit-making possible by polluting industries. This is less likely with a tax.

Therefore, we strongly recommend that the equivalent scale of revenue possible from a carbon tax, be devoted to protecting NZ's most vulnerable households and communities – children, Māori, Pacific people and the less advantaged – from the regressive impacts of the ETS price floors needed

<sup>14</sup> <http://www.fao.org/soils-portal/soil-management/soil-carbon-sequestration/en/>

<sup>15</sup> Metcalfe S, for the New Zealand College of Public Health Medicine and OraTaiao: The New Zealand Climate and Health Council. Fast, fair climate action crucial for health and equity. Editorial. N Z Med J 2015;128(1425):14-23. <https://www.nzma.org.nz/journal/read-the-journal/all-issues/2010-2019/2015/vol-128-no-1425-20-november-2015/6741>

<sup>16</sup> Metcalfe S. Brief analysis – setting gGHG year 2030 targets for New Zealand. v1.1 – corrected, 27/06/16; Climate Equity Reference Project <https://climateequityreference.org/>; Baer P, Athanasiou T, Kartha S, Kemp-Benedict E. The right to development in a climate constrained world: the Greenhouse Development Rights framework (revised 2nd edition). Heinrich Böll Foundation, Christian Aid, EcoEquity, Stockholm Environment Institute, 2008. <http://gdrights.org/wp-content/uploads/2009/01/thegdrsframework.pdf>

for fast emissions reductions. As well as income relief, this also means urban planning that encourages: genuinely affordable and reliable, frequent and low carbon public transport<sup>17</sup>; affordable car share vehicles nearby for hourly hire; and safe walking and cycling routes – so that our most vulnerable households are not locked into increasingly expensive private car transport. We need rebates for e-bikes, bicycles, scooters and other low/zero emission transport equipment – not just electric vehicle (EV) subsidies that disproportionately favour NZ's well-off households and businesses. Other practical measures include ensuring all New Zealanders have warm, dry, well-insulated housing that is easy to warm and cool – no energy poverty.

We recommend that reversing regressive impacts of the fully functioning ETS (which NZ does urgently need) becomes an important work stream, in partnership with NZ's most vulnerable and the agencies who work to relieve poverty. The growing wealth divide between us is already unacceptable to most New Zealanders – and needs to close quickly, not widen further.

#### 4.3 Specific issues: pricing co-benefits and co-harms

##### *Co-benefits need to be adequately counted and valued*

It is good to see potential co-benefits and co-harms recognised here, but the assessment is very limited. There are two reasons for this. First, the cultural discounting of externalities and second, the lack of support for unbiased research. As a science-based organisation, OraTaiao recognises the importance of evidence and the regards the commitment of resources to research essential to develop the evidence supporting policy, alter the metrics, as well as for innovation and commercialisation.

There is a substantial opportunity to improve current population health and wellbeing through well-designed policies to reduce greenhouse gas emissions<sup>18</sup>; leading medical journal *The Lancet* has described tackling climate change as potentially the greatest global health opportunity of the 21st century<sup>19</sup>. Health and health equity gains are possible for heart disease, cancer, obesity, musculoskeletal disease, Type 2 diabetes, respiratory disease, motor vehicle injuries, and mental health, with resultant cost savings for the health system.

These co-benefits arise as measures to reduce emissions have significant positive impacts on important determinants of health, especially energy intake (nutrition) and expenditure (physical exercise). For example:

- Active transport (walking, cycling, public transport) in addition to reducing CO<sub>2</sub> emissions, improves physical activity and can reduce air pollution and road traffic injuries. Walking and cycling are inexpensive. In addition, public transport is used proportionately more by people with lower incomes. Thus supporting active transport and improving public transport infrastructure has the potential to benefit health, climate and equity.

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<sup>17</sup> Deutsche Bank Markets Research. Mapping the World's Prices 2017.

[https://www.finews.ch/images/download/Mapping\\_the\\_worlds\\_prices.2017.pdf](https://www.finews.ch/images/download/Mapping_the_worlds_prices.2017.pdf) Fig 16. Auckland had the 3rd most expensive public transport in the world, with Wellington 12th.

<sup>18</sup> Bennett H, Jones R, Keating G, Woodward A, Hales S, Metcalfe S. Health and equity impacts of climate change in Aotearoa-New Zealand, and health gains from climate action. *N Z Med J*. 2014;127(1406):16-31. <http://www.nzma.org.nz/journal/read-the-journal/all-issues/2010-2019/2014/vol-127-no-1406/6366>

<sup>19</sup> Watts N, Adger WN, Agnolucci P, Blackstock J, et al. Health and climate change: policy responses to protect public health. *Lancet* 2015. <http://www.thelancet.com/commissions/climate-change-2015>

- In New Zealand healthy eating, including increased plant and less red meat and animal fat consumption, particularly highly processed animal products, would, despite the slight reduction in NZ agricultural greenhouse gas (GHG) emissions, lead to significant improvements in health co-benefits by reducing rates of bowel cancer and heart disease i.e. significant health sector and productivity outcomes.
- Improving indoor environments (eg. energy efficiency measures such as home insulation) can reduce illnesses associated with cold, damp housing (eg. childhood asthma and chest infections which are leading causes of hospital admissions, particularly for Māori and Pacific children).

Thus, well-planned climate action could contribute to significant reductions in the large burden of chronic disease and health inequity in New Zealand, leading to large cost savings for the health sector and society as a whole. This could offset a great deal of the early costs associated with climate change mitigation measures.

It is essential that planning prioritises those population groups most in need of health support in the face of climate change—Māori, Pacific, people on low incomes, migrants, rural people, children, and the elderly. Other events (eg. the Christchurch earthquakes, Hurricane Katrina, Hurricane Maria) have shown that planning is also required to avoid an inverse equity pattern in post-disaster responses and outcomes, including those resulting from extreme weather events.

Outside the health sector, effective public policies are required that both lessen climate risk, and improve population health and health equity. These policies should include an effective carbon pricing system, while ensuring that financial costs do not adversely affect those on low incomes.

#### *Adequate shadow pricing for emissions*

We support the use of shadow pricing for emissions – this should apply from 2018/19 across all NZ state sector and local government analysis. This should however be at least \$88 per tonne CO<sub>2</sub>-equivalent:

- We note the apparent NZ Government standard shadow price currently of \$40 per tonne CO<sub>2</sub>-equivalent emissions, used by Land Transport NZ when undertaking some of its economic analyses<sup>20</sup> (albeit the rationale for that price is unclear). Indeed, the use of such a carbon-related cost in cost-effectiveness analyses would at least provide consistency in an all-of-government approach for central government departments and crown agents.
- However, the \$40 is too low a price to account for the true health-related costs of greenhouse gas emission-induced climate change, including effects on NZ health, and inflation since 2000<sup>21</sup>.
- By way of international benchmarking historically, we note the National Academies of Science (NAS) in the US in 2010 used a social cost of carbon (SCC) of US\$30-\$100/ton CO<sub>2</sub>-equivalents<sup>22</sup>. Roughly adjusting for exchange rate differences and ton/tonne conversions,

<sup>20</sup> NZTA Economic Evaluation Manual, 2010. Volume One

<http://www.nzta.govt.nz/resources/economic-evaluation-manual/volume-1/docs/eem1-july-2010.pdf> Appendix A9 Vehicle emissions. NZTA Economic Evaluation Manual (EEM), effective from 1 January 2016

<https://www.nzta.govt.nz/assets/resources/economic-evaluation-manual/economic-evaluation-manual/docs/eem-manual-2016.pdf> Appendix A9.6, A9.7.

<sup>21</sup> The NZTA \$40/tonne cost (July 2000) equates to \$58.80/tonne in 2018 values (using

<https://www.rbnz.govt.nz/monetary-policy/inflation-calculator>)

<sup>22</sup> NAS US\$10-\$30-\$100 per ton SCC range as cited in Epstein, sourced from the NAS expert consensus report;

the NAS-equivalent social cost of carbon in NZ becomes NZ\$68-\$226/tonne CO<sub>2</sub>-eq<sup>23</sup>. Most of these costs are health-related.

- Currently, the social cost of carbon is conservatively predicted to be NZ\$88 per tonne by 2020 rising to NZ\$176 by 2050<sup>24</sup>; these costs should be included in analyses.
- Such analyses should use social discount rates with a long-term rate of return that is riskless (ie. risk-free), not risk-adjusted<sup>25</sup> <sup>26</sup> and does not privilege current generations above future generations.

## 6.6 Supporting actors

The Draft Report ignores the significant impact of the health sector in producing emissions in NZ and in addressing and managing the negative impacts of those emissions. These impacts are not just economic, affecting productivity, but also, cultural, social and psychological.

The health sector:

- contributes a significant amount of emissions;
- has an ethical commitment to reduce emissions (*primum non nocere*);
- is able to influence regional behaviour, policies, investment and supply chains;
- is already showing leadership. District Health Boards (DHBs) are now expected by the Minister of Health to take strong action on climate change from 1 July 2018, with plans to address climate change and the changes needed to incorporate both mitigation and adaptation strategies, underpinned by cost benefit analysis of co-benefits and financial savings<sup>27</sup>; and

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- Epstein PR, Buonocore JJ, Eckerle K, Hendryx M, Stout Iii BM, et al. Full cost accounting for the life cycle of coal. *Ann N Y Acad Sci.* 2011 Feb;1219:73-98. doi: 10.1111/j.1749-6632.2010.05890.x. Review. Erratum in: *Ann N Y Acad Sci.* 2011 Apr;1225:201. Available at [http://solar.gwu.edu/index\\_files/Resources\\_files/epstein\\_full%20cost%20of%20coal.pdf](http://solar.gwu.edu/index_files/Resources_files/epstein_full%20cost%20of%20coal.pdf)
  - National Research Council of the National Academies of Science's Committee on Health, Environmental, and Other External Costs and Benefits of Energy Production and Consumption. Hidden costs of energy: unpriced consequences of energy production and use. Washington DC: The National Academies Press, 2010. [http://www.nap.edu/catalog.php?record\\_id=12794](http://www.nap.edu/catalog.php?record_id=12794) summarised at [http://dels.nas.edu/resources/staticassets/materials-based-on-reports/reports-in-brief/hidden\\_costs\\_of\\_energy\\_Final.pdf](http://dels.nas.edu/resources/staticassets/materials-based-on-reports/reports-in-brief/hidden_costs_of_energy_Final.pdf).

<sup>23</sup> <https://www.ofx.com/en-nz/forex-news/historical-exchange-rates/> USD:NZD 31/12/99-31/12/00 mean 2.048, <https://www.convertunits.com/from/tons/to/metric+tonnes> ton:tonne 0.907185, <https://www.rbnz.govt.nz/monetary-policy/inflation-calculator> NZ 2010 Q1: NZ 2018 Q1 1.13

<sup>24</sup> Mid-range social costs of carbon in 2017 dollars. Source: Chapman R, Preval N, Howden-Chapman P. How economic analysis can contribute to understanding the links between housing and health. *Int J Environ Res Public Health.* 2017;14(9).pii:E996. <http://www.mdpi.com/1660-4601/14/9/996/htm> 2. Methods

<sup>25</sup> Metcalfe S, Gunasekara S, Baddock K, Clarke L, for the New Zealand Medical Association. Time for healthy investment. *Editorial. N Z Med J.* 2017;130(1464):7-10. <http://www.nzma.org.nz/journal/read-the-journal/all-issues/2010-2019/2017/vol-130-no-1464-27-october-2017/7390>

Lipscomb J, Weinstein MC, Torrance GW. Time preference. in: Gold MR, Patrick DL, Torrance GW, Fryback DG, Hadorn DC, Kamlet MS, Daniels N, Weinstein MC. Identifying and valuing outcomes. in: Gold MR, Siegel JE, Russell LB, Weinstein MC (eds.). *Cost-effectiveness in health and medicine.* New York: Oxford University Press, 1996. pp 214-46.

Milne R. Valuing prevention: discounting health benefits and costs in New Zealand. *N Z Med J.* 2005; 118(1214). [http://www.nzma.org.nz/\\_data/assets/pdf\\_file/0004/17941/Vol-118-No-1214-06-May-2005.pdf](http://www.nzma.org.nz/_data/assets/pdf_file/0004/17941/Vol-118-No-1214-06-May-2005.pdf)

Milne R. Richard Milne responds to PHARMAC on discounting future health benefits and costs. *N Z Med J.* 2005; 118(1220):U1620. [http://www.nzma.org.nz/\\_data/assets/pdf\\_file/0003/17931/Vol-118-No-1220-12-August-2005.pdf](http://www.nzma.org.nz/_data/assets/pdf_file/0003/17931/Vol-118-No-1220-12-August-2005.pdf)

PHARMAC. Prescription for pharmacoeconomic analysis: methods for cost-utility analysis. Version 2.2. Wellington: PHARMAC; 2015. <http://www.pharmac.govt.nz/assets/pfpa-2-2.pdf>

<sup>26</sup> Note the NAS US\$10-\$30-\$100 per ton SCC range was essentially applying 4.5%-3.0%-1.5% discount rates. The NAS report implied a good case for discarding the 4.5% level, hence discarding the \$10, with large amounts of detail at pages 294-308

([http://www.nap.edu/catalog.php?record\\_id=12794#toc](http://www.nap.edu/catalog.php?record_id=12794#toc) Chapter 5). Given the compelling intergenerational equity issues (and de facto use of riskless not risk-adjusted discount rates for social preferences, at least in the health sector, ie. long-term opportunity costs at 3.5% not 8%, then 4.5% is not tenable in the NZ health policy setting, and arguably even the 1.5% rate may still be too high (and hence the upper \$US100, \$NZ226 SCC is still too low), given Nicholas Stern's arguments for a zero discount rate (Stern N. *The economics of climate change: the Stern review.* Cambridge: Cambridge University Press, 2007. [http://www.hm-treasury.gov.uk/stern\\_review\\_report.htm](http://www.hm-treasury.gov.uk/stern_review_report.htm)).

<sup>27</sup> <https://nsfl.health.govt.nz/dhb-planning-package/201819-planning-package/supplementary-information-201819-planning-guidelines-0>

- DHBs are often the largest employer in a region, and have influence over supply chains.

## 8 Short-lived gases

OraTaiao is pleased that the significant health co-benefits of reducing black carbon and short-lived gases are recognised here.

## 9 Policies for an inclusive transition

OraTaiao is pleased that equity and regressive impacts of carbon pricing are recognised. However, the options available for mitigating regressive impacts need to also include equity-focused policies and investments in sectors like transport, urban planning and housing eg. investments in public transport, walking and cycling to improve social and health equity as well as reducing transport emissions.

OraTaiao however also agrees with the hypothecation recommendation, as well as the communication strategy outlined. We consider there should be transparent accountability for the revenue, and the concomitant spend on mitigating regressive impacts

## 11 Transport

Housing and transport costs go hand in hand as major determinants of whether wages are living wages. Dispersed residential development results in long distances to the workplace, rendering cycling or walking to work impractical. The low population density from such 'urban sprawl' also makes effective public transport options economically non-viable.<sup>28</sup>

There is no mention of e-bikes, e-scooters or other kinds of electric vehicles other than electric private motor vehicles, nor car share vehicles which have the potential to remove more than ten privately owned cars off the roads with every car share vehicle available for hourly hire<sup>29</sup>. Car share also enables more productive use of land for housing, business and safer active routes, as well as reducing annual car costs, to the user, to hundreds rather than thousands of dollars annually<sup>30</sup>.

Estimates of potential for emissions reductions are based on a single modelling study and are low and unambitious. Other countries have shown significantly greater potential for mode shift<sup>31</sup>.

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<sup>28</sup> New Zealand College of Public Health Medicine. NZCPHM Transport Policy Statement. Wellington: NZCPHM, 2014. [https://www.nzcpm.org.nz/media/64538/2013\\_08\\_02\\_transport\\_policy\\_statement.pdf](https://www.nzcpm.org.nz/media/64538/2013_08_02_transport_policy_statement.pdf)

<sup>29</sup> Transportation Research Board of the National Academies of Science. Car-Sharing: where and how it succeeds. TCRP Report 108, 2005. [http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp\\_rpt\\_108.pdf](http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_108.pdf)  
International Association of Public Transport (UITP) European Moses project, 2005.  
UITP Bremen Paper 2002 (guidelines for synergies between public transport and car-sharing) <http://www.communauto.com/images/BremenPAPER.pdf>

<sup>30</sup> Overseas research indicates that car share has relied on partnership (either with local authorities or public transport operators) to get sufficient scale for the spiral of success – more cars means more visibility, which means more members and thus more cars, which in turn creates more confidence that a car will be available when wanted and leads to more members.  
A 2009 catalogue showed carsharing services being available in over a thousand cities in many nations (<http://ecoplan.org/carshare/general/cities.htm#latest>); numbers are expected to be much higher now, where as of December 2012 there were an estimated 1.7 million car-sharing members in 27 countries (including so-called peer-to-peer services) (<http://www.nytimes.com/2013/01/26/business/car-sharing-services-grow-and-expand-options.html?ref=technology&r=1>)

<sup>31</sup> Teter J. Sustainable transport in an era of urbanization. Paris: International Energy Agency, 2016. [https://www.iea.org/media/workshops/2016/egrdrtransportsystemsofthefuture/2EGRD\\_Teter\\_25\\_10\\_2016.pdf](https://www.iea.org/media/workshops/2016/egrdrtransportsystemsofthefuture/2EGRD_Teter_25_10_2016.pdf)

## Specific questions asked by the Commission

- What opportunities exist for the New Zealand economy to maximise the benefits and minimise the cost that a transition to a lower net-emissions economy offers, while continuing to grow incomes and wellbeing?

In response to the Productivity Commission's question here, we make three main points:

1. The government's overall job is protecting and improving the wellbeing of the nation. There are society-wide risks and opportunities that are not just economic for New Zealand. We are especially concerned about the risk and opportunities to health and equity.
2. Unabated economic growth and a stable climate may be incompatible. The Report needs to acknowledge this possibility. We need new economic thinking, including a wellbeing economics, and a plan for a "steady-state" economy. We also note that the potential contribution to growth, and the low emissions profile, of a high value knowledge economy are not currently discussed in the Report.
3. Co-benefits for health, equity and therefore well-being and economic productivity exist across all major emissions sectors; can be measured; can be valued; and can be included in the cost benefit analysis of policy choices – some analysis has already been undertaken for food, housing and transport <sup>32</sup>.

Therefore, by conflating income growth with wellbeing, the question posed by the Commission is fundamentally flawed.

Asking this question this way restricts the nature of the questions and the responses. Similarly, with the terms of reference of the report, by including its focus on New Zealand and the growth of incomes within New Zealand, the recommendations of the Report may have both foreseen and unforeseen consequences affecting both equity and fairness. OraTaiao notes that the report was to have addressed "higher living standards, including sustainability . . . increasing equity, social cohesions and resilience to risk" <sup>33</sup>. OraTaiao considers that the Report fails to address these matters because of a focus, above all else, solely on economic growth.

Also, by not clearly acknowledging the risk of transferring emissions to outside of New Zealand, the Report does not recognise the importance of NZ acting in an integrated and collaborative fashion with other economies. We consider that this should be clearly identified, for example, although e-vehicles have lower emissions, the emissions generated by their manufacture and production are higher than of fossil fuel vehicles. How will NZ recognise and account for these emissions? Will this cost be externalised? This matter and similar matters are not addressed in the Report.

OraTaiao also recognises that the focus of the Report is on NZ compliance with the Paris accord and notes that a big emitter in the NZ economy, tourism, is excluded from the report by its exclusion from the Paris agreement. OraTaiao notes that the global comprehensive tourism footprint of

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<sup>32</sup> Howden-Chapman P, Matheson A, Crane J et al. Effect of insulating existing houses on health inequality: cluster randomised study in the community. *BMJ* 2007;334:460

<sup>33</sup> New Zealand Productivity Commission. (2018). Low-emissions economy: Draft report. [www.productivity.govt.nz/inquiry-content/low-emissions-draft-report](http://www.productivity.govt.nz/inquiry-content/low-emissions-draft-report)

tourism-related greenhouse gas emissions is about four times greater than earlier estimates, at around 8% of total carbon emissions output<sup>34</sup>.

These two significant exclusions from consideration of strategies to reduce emissions further undermine the findings and recommendations of the Report.

The Commission has indicated that heating is not a significant source of GHG, but also recognises that industrial plant has a life span that impacts upon the cost effectiveness of replacing equipment and changing processes. Greenhouse gas emissions from the health sector are a significant source of total emissions<sup>35</sup>, and within New Zealand, fossil fuels are used within hospitals for heating and laundry and other such purposes. Given the sunk costs and the life span of heating systems used in DHB institutions, a clear statement on the possibility of reducing emissions – not just when planning for new buildings – by transitioning away from coal and gas fired boilers within institutions such as hospitals, prisons, schools etc., would meet the recommendations for a whole of government strategic and integrated approach. In addition, shifting from coal burning to a low emissions heat source by such institutions not only reduces carbon emissions, it also directly improves the health of individuals and communities by reducing local air pollution.

In this respect we note again the recent Statement of the Minister of Health’s expectations of the DHBs<sup>36</sup>. The Minister explicitly expects DHBs to “implement a strong response to climate change, this will include working with other DHBs, other agencies and across government. Plans to address climate change and health need to incorporate both mitigation and adaptation strategies, underpinned by cost benefit analysis of co-benefits and financial savings”.

OraTaiao also notes the importance of evidence and science in addressing NZ emissions. The Productivity Commission has identified significant gaps in our knowledge and understanding of NZ emissions. OraTaiao considers research into these areas important in both quantifying the emissions eg. unidentified landfills, and thus in enabling reduction and mitigation strategies. However it is also important to put in place the baseline evidence to allow for a framework for the evaluation of significant policy changes.

Monitoring and evaluating policy, as well as monitoring progress towards the set targets and metrics proposed by the Commission, will allow for needed changes and adjustments to correct policy errors and further enhance positive directions. For example, OraTaiao notes that the Commission has raised some questions regarding the preferred lifestyle of New Zealanders, to wit an avoidance and a reluctance to consider high density living. In the context of both “wellbeing” and “sustainability”, as a science-based organisation, OraTaiao considers that research into this behavioural preference is important and may well give rise to innovative, and sustainable measures, to understand and mitigate the emissions associated with this behaviour.

Lastly, OraTaiao notes the significant omission from the draft report of the impact of population growth on emissions, ie. the challenge of reducing emissions while the population continues to expand. Such population growth derives equally from both net immigration and our own high fertility rates (some of the highest in the OECD) – the latter resulting from inequities in education by

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<sup>34</sup> Lenzen M, Sun Y-Y, Faturay F, et al. The carbon footprint of global tourism. *Nature Climate Change* 2018;8:522-8. <https://www.nature.com/articles/s41558-018-0141-x>

<sup>35</sup> Malik A, Lenzen M, McAlister S, McGain F. The carbon footprint of Australian health care. *Lancet Planet Health*. 2018;2(1):e27-e35. <https://reader.elsevier.com/reader/sd/F096CBA3355E699A9F212AF41938F7C3AEA66EB2D1914EFEABE38A43BFF24C0302E23B310928C06B931D550C472C8DE0>

<sup>36</sup> <https://nsfl.health.govt.nz/dhb-planning-package/201819-planning-package/supplementary-information-201819-planning-guidelines-0>

income and ethnicity, a failure to implement universal healthcare, and inequities in access to family planning.

## Chapter 6 – Investment

**Q 6.1 Should the investment policy of the New Zealand Venture Investment Fund be updated to identify low-emissions investments as a sector of interest?**

OraTaiao shares with the Commission the recognition of the importance of; first, full financial disclosure of externalities; secondly and concomitantly the financial risks of climate change exposure to a business or sector; and third and most critically, the importance of a unified and consistent policy direction set by Government providing a clear strategy and tactical approach to ensuring NZ meets its commitments to reducing emissions. On this basis it is imperative that the NZ Venture Investment Fund be updated to identify investments that reduce emission, or are low emissions

OraTaiao also recognises the importance of a knowledge economy and the opportunities for commercialisation of innovative approaches to ensure the reduction of emissions, for example, innovation, research and commercialisation directed at reforestation with native species, and managing emissions of unrecognised and undetected solid waste landfills.

## Chapter 10 – Land use

**Q 10.1 What are the advantages and disadvantages of the following options for a point of obligation for agricultural emissions within the NZ ETS?**

Full processor level

Full farm level, only including farms above a minimum size threshold. A point of obligation at the processor level could be used for farms beneath the threshold and for all horticulture and cropping

Farm level for dairying, only including dairy farms above a minimum size threshold; processor level for sheep and beef cattle (and other livestock) farming, and for horticulture and cropping.

What other point of obligation approaches should the Commission consider?

In considering land use in NZ, it is important to consider both the equity impacts of choices, and the potential health co-benefits. On that basis whichever point of obligation is chosen needs to send signals that move us towards a healthy, diverse, resilient food system for New Zealand that also addresses the current issues of food security for low income households.

OraTaiao notes that “processor” is not defined in the Report. However, in reviewing the proposed mechanisms, we consider that there is a significant potential to improve food security resilience for New Zealand in the face of climate change-related food system disruption, through the provision of affordable locally grown food “unprocessed” or from “small farms”, and therefore exempt from ETS, to local markets.

This will have significant health co-benefits in terms of improved nutrition, and food resilience, and a shift to a more plant-based diet. In New Zealand – a net food producer – obesity and poor nutrition are diseases of poverty and a poorly designed and managed food system.

Obesity has many detrimental health effects including cancers, cardiovascular diseases, arthritis, diabetes, and other metabolic disorders, and an association with the dementias. All of these are associated with increasing costs within the health sector, affecting productivity as well as individual wellbeing. The health co-benefits of improving nutrition, by providing nutritionally dense unprocessed food are substantial and recognising this in the final report would better reflect the Terms of Reference.

Impacts upon food security, affordability and quality nutrition can be predicted with high confidence<sup>37</sup>, including in New Zealand<sup>38</sup>. The most recent published estimates of food insecurity in New Zealand are from the 2008/2009 Adult Nutrition Survey, concluding that 7.3% of all households are already classified as suffering from low food security, while Māori women (18.4%) and Pacific women (22.4%) have the highest rates<sup>39</sup>.

Recent evidence clearly indicates that a plant-based diet is probably the single biggest way to reduce the “footprint” of GHG, acidification, eutrophication, land use and water use<sup>40</sup>.

As clearly referenced by the Commission (p.255), at present NZ agriculture does not feed the poor. OraTaiao considers that net zero provides an opportunity to do so within New Zealand if an appropriate point of emissions obligation is chosen above the level of the small farmer who produces for the local (within NZ) market. Food grown and consumed locally will not generate additional emissions from export and distribution globally.

We have reviewed the advantages and disadvantages of the the point of obligation, as below, through that lens.

	<b>Advantages</b>	<b>Disadvantages</b>
<b>Full Processor</b>	Will exclude very small farmers who produce and sell locally. As NZ emissions are overwhelmingly from large scale commercial farms – which produce for export markets – this may be the appropriate level both for simplicity and ease of compliance.	Because it excludes small farmers, it could incentivise producers to break up farm units – on paper – into artificially smaller holdings to ensure exclusion from the ETS.
<b>Full Farm level</b>	A pragmatic approach that will capture emissions in a way that will not inflict compliance costs on small farmers who produce and sell locally, but still allows the emissions of small commercial	Compliance burdens will mostly fall upon farmers.

<sup>37</sup> IPCC, 2013: Summary for Policymakers. In: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Stocker TF, Qin D, Plattner G-K, Tignor M, Allen SK, et al (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 2013. <https://www.ipcc.ch/report/ar5/wg1/>

<sup>38</sup> Bennett H, Jones R, Keating G et al. Health and equity impacts of climate change in Aotearoa-New Zealand, and health gains from climate action. NZMJ 2014 <http://www.nzma.org.nz/journal/read-the-journal/allissues/2010-2019/2014/vol-127-no-1406/6366>

<sup>39</sup> Ministry of Health 2011 A Focus on Nutrition: Key findings from the 2008/09 NZ Adult Nutrition Survey. Chapter 7 Food Security <http://www.health.govt.nz/publication/focus-nutrition-key-findings-2008-09-nzadult-nutrition-survey>

<sup>40</sup> Poore J, NemecekT. Reducing food’s environmental impacts through producers and consumers. Science 2018;360(6392):987-92. <http://science.sciencemag.org/content/360/6392/987>, <https://www.theguardian.com/environment/2018/may/31/avoiding-meat-and-dairy-is-single-biggest-way-to-reduce-your-impact-on-earth>

	farmers and of crop and horticulturalists to be captured at the processor level.	
<b>Variable farm level</b>	OraTaiao recognises the complexity of accounting for emissions, and the compliance costs. This proposal captures all emissions explicitly identifying dairy farming as a major source, distinguishes between dairying and other livestock farming, has a mitigation strategy to manage the artificial break up of large holdings, and allows for smallholders who sell for further processing to have the emissions from their farming practices to be captured.	

**Q10.2 With developing technology and aggregation for accounting purposes, is it technically feasible and would it be cost-effective to include small areas of planting (such as riparian planting) within the NZ ETS?**

OraTaiao recognises that small areas of planting – whether included in the NZ ETS or not – have co-benefits both for health, in improving physical activity levels by walking, cycling, running etc. (thereby reducing obesity and other non-communicable diseases related to inactivity) and improving psychological well-being and enhancing social cohesion.

In addition, small plantings improve water quality and biodiversity – including insect life – the health and the absorbency of wetlands in response to floods, storm surges and more slowly rising water levels. These co-benefits may be larger in these small areas than cost-effective accounting may allow for.

We consider these areas of small planting to be public goods with a value that may be greater than recognised by the ETS.

## Chapter 11 – Transport

**Q11.1 How could New Zealand signal a commitment to a widespread transition away from fossil-fuel vehicles? For example, should New Zealand explicitly aim to phase out the importing of fossil-fuel vehicles by some specified future date?**

New Zealand could signify a commitment to a widespread transition away from fossil fuel vehicles by using the hierarchy of policies recommended by IPCC 5th Assessment Report<sup>41</sup> and as suggested by OraTaiao in its earlier submission by:

<sup>41</sup> IPCC, 2013: Summary for Policymakers. In: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Stocker TF, Qin D, Plattner G-K, Tignor M, Allen SK, et al (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 2013. <https://www.ipcc.ch/report/ar5/wg1/>

- trip avoidance;
- modal shift to active and to public transport;
- energy efficiency of vehicles;
- fuel carbon intensity.

This hierarchy can be applied to light vehicles, freight and aviation trips.

The Commission has not recognised that EVs do nothing to reduce the other problems associated with a car-dominated transport system – physical inactivity, congestion, road trauma, storage problems, neighbourhood severance and a huge opportunity cost associated with the building, extension and maintenance of the road network.

- Approximately 50% of New Zealand residents do not achieve the minimum recommended levels of physical activity of 2.5 hours per week of moderate exercise<sup>42</sup>. Physical inactivity was calculated to cost New Zealand \$1.2bn in 2010<sup>43</sup>. The significant costs associated with road trauma, with traumatic road deaths averaging over 300 per year, can also be reduced by increasing uptake of active (and public) transport.
- Properly researching, funding, developing and promoting active transport has been identified as the most important way of promoting physical activity. These can be realised with even modest shifts to active transport – shifting even 5% of short urban trips to active transport would save an estimated 116 lives per year due to increased physical activity<sup>44</sup>. Indeed, in Auckland it was estimated in 2014 that each dollar spend on cycling infrastructure would generate savings of \$6-\$20 primarily from the health benefits of reducing physical inactivity<sup>45</sup>.
- There are additional benefits from a shift of freight from the roading network to an electrified rail network, due to their disproportionate involvement in road trauma. HGVs are responsible for 6% of the total vehicle kilometres in NZ, but account for 21% of the fatalities<sup>46</sup>.
- These benefits are even more marked in lower socio-economic areas and among Māori and Pacific Island populations, where car ownership levels are lower and the prevalence of the diseases of physical inactivity are higher<sup>47</sup>. Provision of, and improvement in, active transport

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<sup>42</sup> NZ Ministry of Health. Activity levels in New Zealand. Annual Report of Key Results 2013/14.

<http://www.health.govt.nz/your-health/healthy-living/food-and-physical-activity/physical-activity/activitylevels-new-zealand>

<sup>43</sup> Auckland Council, Waikato Regional Council, Wellington Regional Strategy. The costs of physical inactivity: toward a regional full-cost accounting perspective. Market Economics Limited, 2013.

[https://www.waikatoregion.govt.nz/assets/PageFiles/25488/The\\_Costs\\_of\\_Physical\\_Inactivity.PDF](https://www.waikatoregion.govt.nz/assets/PageFiles/25488/The_Costs_of_Physical_Inactivity.PDF)

<sup>44</sup> Lindsay G, Macmillan A, Woodward A. Moving urban trips from cars to bicycles: impact on health and emissions. Aust N Z J Public Health 2011;35:54–60. <https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1753-6405.2010.00621.x>

<sup>45</sup> Macmillan A, Connor J, Witten K, Kearns A, Rees D, Woodward A. The societal costs and benefits of commuter bicycling: simulating the effects of specific policies using system dynamics modelling. Env Health Persp 2014;122(4):335-4. <https://ehp.niehs.nih.gov/wp-content/uploads/122/4/ehp.1307250.pdf>

<sup>46</sup> Briggs D, Mason K, Borman B. Rapid Assessment of Environmental Health Impacts for Policy Support: The Example of Road Transport in New Zealand. Int J Environ Res Public Health 2016; 13(1):61. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4730452/pdf/ijerph-13-00061.pdf>

<sup>47</sup> Food and Agriculture Organization of the United Nations. Livestock's long shadow: environmental issues and options. Rome: FAO, 2006. <http://www.fao.org/docrep/010/a0701e/a0701e00.HTM>

and public transport networks would help protect people against the likely disruptive shift from fossil fuel to electric powered vehicles<sup>48</sup>.

Furthermore, OraTaiao recognises that transitioning away from fossil fuel vehicles to EVs will be severely regressive. We therefore consider that the appropriate way to transition will also mitigate the regressive nature and will also have health and other co-benefits. Such a transition would mean:

- Investing in transport infrastructure to provide safe affordable alternative transportation to rural and suburban areas.
- Supporting low carbon transportation and transport systems in bigger towns and cities – electric cycles and scooters, cycles and walking, car share vehicles for affordable hourly hire, and public transport systems that minimise emissions and foster communities.
- Supporting research to further explore NZ attitudes to higher density living and how these may be changed, or otherwise supported to lower carbon emissions. Arguably, the NZ reluctance to adopt high density living is a consequence of the long-term failure to support high density living with urban amenities and infrastructure. If the infrastructure was there eg. to walk children to and from school, New Zealanders would have a different perspective on an urban lifestyle.
- Putting in place emission standards for vehicles to ensure that NZ does not become a dumping ground for high emissions vehicles.
- Supporting the move away from private ownership of vehicles to shared ownership.

**Q11.2 Should a price feebate scheme cover vehicles within the heavy vehicle fleet? What other policies are appropriate for incentivising the uptake of low-emission heavy vehicles?**

OraTaiao recommends:

1. Following the suggested hierarchy of IPCC 5 policies
2. Investing in infrastructure to provide alternative transport for goods. There is a double benefit if this infrastructure also supports passenger transport.

It is important to note that although carbon emissions and NOx and particulate pollution are reduced at the time of use, at least half of the air pollution due to motor vehicle use is due to road, brake and tyre wear and dust displacement<sup>49</sup>. Any reduction in emissions should also be an opportunity to reduce other harms – in this instance, breathable particulates.

Policy decisions to provide a rebate to major companies must be justified through a transparent analysis of the long-term attempts already made by the particular profit-making sector to reduce their emissions, versus their contribution to deliberately undermining healthy equitable climate policy through lobbying. This is both an ethical and re-distributive issue. In general, OraTaiao considers that principles of equity should mean rebates and protection from costs are prioritised

<sup>48</sup> Arbib J, Seba T. Rethinking Transportation 2020-2030. RethinkX 2017. <https://www.rethinkx.com/transportation>

<sup>49</sup> European Commission JRC Policy and Science Reports. Non-exhaust traffic related emissions. Brake and tyre wear PM. 2014 <http://publications.jrc.ec.europa.eu/repository/bitstream/JRC89231/jrc89231-online%20final%20version%202.pdf>

towards low-income households and communities who have limited resources to transition to zero-carbon.

## Chapter 12 – Electricity

**Q12.1 Does decision making under the Resource Management Act 1991 unduly constrain investment in renewable electricity generation, particularly wind and hydro generation? In what ways could the National Policy Statement on Renewable Electricity Generation 2011 be strengthened to give clearer direction to regional, district and unitary councils to make provision for renewable electricity generation in their regional and district plans, regional policy statements and resource management decisions? NZ ETS? resource management decisions? NZ ETS?**

OraTaiao has previously submitted on changes to the Resource Management Act 1991 (RMA). On balance, while we understand the need to clarify and simplify the RMA and find a good balance between national and local interests in resource management, we considered the recognised issues with the RMA need to be addressed in ways that strengthened its fundamental purpose as a procedural piece of legislation that supports the sustainable management of natural resources. We made 10 specific recommendations, summarised here:

- The most important constraint in the RMA hindering a shift from fossil fuel-based generation to renewable electricity is the exclusion of considerations of greenhouse gas emissions by regional and district councils in considering resource applications. This exclusion needs to be removed from the RMA to create a “belt and braces” approach to driving a zero-carbon transition.
- Increasing central government involvement (ostensibly to ensure consistency between regional plan making and national policy statements) means, for climate change and other environmental issues, a possible weakening of regional plans in order to comply with current national standards.
- Rather than simply ensuring regional councils do not go beyond national standards and policies, the national policies and standards should remain minimum standard. Because of the undue role of industry in national policy-making, and the lack of good public involvement, national regulations and policies must be but a bare minimum.
- The stronger involvement of communities in a more robust democratic process at regional and local level means will quite often mean that regions and districts are able to move beyond, and do better than, the national regulations and standards, including in climate change – better balancing human and environmental wellbeing with regional and local economic development.
- The role of regional and district councils in New Zealand on climate change has been both to provide innovation and leadership in demonstrating what is possible in reducing our greenhouse gas emissions from (eg. from electricity generation, housing and transport) and to provide greater policy consistency and long-term policy direction for businesses and industry. This has been missing from national regulation and policy.

The full OraTaiao submission on the RMA Bill is attached as Attachment 2.

## Chapter 13 – Heat and industrial processes

**Q13.1** Would giving Fonterra discretion to refuse milk supply where this would lead to inefficient land use and/or a significant increase in the company's GHG emissions provide any benefit?

**What, if any, conditions would need to be attached to the exercise of such discretion?**

With land use, it is important to consider both the equity impacts of policy choices, and the potential health co-benefits.

OraTaiao reiterates that the mechanism for reducing GHG from agriculture should in principle have health co-benefits, be consistent with the Treaty of Waitangi and reduce inequities in New Zealand society.

**Q13.2** Does New Zealand need to amend its cement standards to permit greater use of lower-carbon components?

Amending the cement standards to permit the greater use of lower-carbon components is a matter requiring technical expertise on the risks to structural integrity.

OraTaiao is theoretically supportive of lower carbon components being used in the manufacture of cement but not if this results in an unacceptable reduction in strength of the cement.

OraTaiao is conscious of the seismic risk that buildings in New Zealand are exposed to and is opposed to making a compromise on structural safety if the risks of doing so outweigh the benefits. We recommend a consistent approach to health and safety in all measures aligning with NZ legislation and NZ commitments to human rights, using as a framework the principles of valuing health co-benefits, addressing inequities and adherence to the Treaty of Waitangi. This includes acknowledging all the health and safety risks, including those increasing because of climate change, through a policy approach that values human life and safety consistently.

**Q13.3** Do any New Zealand-specific factors exist that would make the use of lower-carbon cements and concretes unsuitable (eg, seismic or other geographic conditions)?

OraTaiao is conscious of the seismic risk that buildings in New Zealand are exposed to and is opposed to making a compromise on structural safety if the risks of doing so outweigh the benefits. We recommend a consistent approach to health and safety in all measures aligning with NZ legislation and NZ commitments to human rights, using as a framework the principles of valuing health co-benefits, addressing inequities and adherence to the Treaty of Waitangi. This includes acknowledging all the health and safety risks, including those increasing because of climate change, through a policy approach that values human life and safety consistently.

## Chapter 14 – Waste

**Q16.1      Should the New Zealand Emissions Trading Scheme be extended to cover wastewater treatment plants?**

Although wastewater treatment plants produce less than half a percent of NZ emissions, OraTaiao supports the inclusion of wastewater treatment plants in the NZ ETS, on the understanding that effluent quality will not be permitted to deteriorate.

Leaving aside the cultural considerations of discharging effluent into waterways, New Zealand's current water quality is already significantly impaired by intensive farming practices with high emissions that have consequent impacts upon health<sup>50</sup>. Land use changes may mitigate this, however OraTaiao considers that preventing further deterioration in NZ water quality will require robust standards and legislation to align the outcomes of both reducing emissions and improving water quality.

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<sup>50</sup> <https://www.dia.govt.nz/Government-Inquiry-into-Havelock-North-Drinking-Water>

## Conclusion

In conclusion, OraTaiao welcomes the opportunity to submit to the Productivity Commission's Draft Report on moving the New Zealand economy to a low emissions economy.

However, we consider that the framing of the question is fundamentally flawed, particularly in its lack of consideration of the meaning of “wellbeing”. Specifically, the Report is marred by not addressing non-economic components of “wellbeing”, and, in the New Zealand context, acknowledging, incorporating and adhering to Te Tiriti o Waitangi.

We also note that – although the Commission has proposed robust and transparent institutional arrangements to achieve a reduction in greenhouse gases, and emphasised the importance of long-term political commitments, to achieve low emissions by 2050 – that the science has moved on and that the target is lower and needs to be met much earlier than 2050. We also note that by referencing the Paris agreement, significant sources of New Zealand emissions are excluded, and furthermore that the risks of further externalising New Zealand emissions are discounted.

The science is clear that the longer the delay till global emissions peak – and the slower the initial downward trajectory of global emissions – the faster New Zealand will need to act to reach net zero emissions. “Adequate” ambition is more than just the deadline for net zero NZ. It is also NZ’s net emissions declining now (preferably from 2018/19, to support global peaking by 2020), and continuing to drive a decisive decline, despite exotic forest harvesting in early 2020s. NZ needs to focus on sharp emissions decline over the next few years, as well as determining our ultimate target a few decades hence. Figure 8.2 *Remaining global carbon budget* is arguably the most important information in the Productivity Commission’s draft Report – especially the surprisingly low probabilities for limiting global warming to 1.5°C or 2°C. This is a highly dynamic environment where the speed in reducing emissions is crucial.

OraTaiao recommends that in the final report the target and the timelines are updated in line with the latest science, that the sense of urgency is reflected throughout the Report, and that the excluded components of New Zealand emissions are identified.

We acknowledge the importance of New Zealand finally including agricultural emissions and recognise the potential for improving nutrition within New Zealand as the mechanisms for including agricultural emissions, and reducing these emissions, are implemented.

And lastly, we propose some principles by means of which the process to achieve net zero may be implemented. These include a more robust acknowledgement of the substantial co-benefits to health from well-designed reduction and mitigation, adherence to Te Tiriti o Waitangi, and a commitment to address issues of inequities within New Zealand society.

## Attachments

1. Model descriptions, data sources and rationales for 2022-2038 targets
  - a. Metcalfe S. Brief analysis – setting gGHG year 2030 targets for New Zealand. v1.1 – corrected, 27/06/16 Technical notes (pre-publication)
  - b. Metcalfe/OraTaiao *NZ Med J* 2015 editorial
2. OraTaiao submission on the Resource Management Act Amendment Bill, 2016