

**Appendix to OraTaiao submission on Government's consultation on setting New Zealand's post-2020 climate change target: Supporting detail:
Ancillary arguments supporting OraTaiao's position**

Climate change and health

OraTaiao: The New Zealand Climate and Health Council (OraTaiao, 'The Council') holds climate change a serious, potentially catastrophic emerging risk to public health, development and equity.

- Climate change is almost certainly already contributing to the global burden of disease and premature death, with larger health impacts expected over coming decades. These potentially catastrophic health impacts disproportionately affect developing countries, and the most disadvantaged and vulnerable within all countries. New Zealanders will not be immune from the consequences.
- In New Zealand, Māori, Pacific, vulnerable, and lower socioeconomic populations are at risk of disproportionate health impacts from climate change. Therefore climate change also has serious implications for health equity in New Zealand.
- New Zealand's location in the Pacific and its reliance on the global economy mean that beyond direct climate-health impacts, adverse impacts on the determinants of health are likely, along with new health and social pressures from migrant populations arriving in New Zealand.

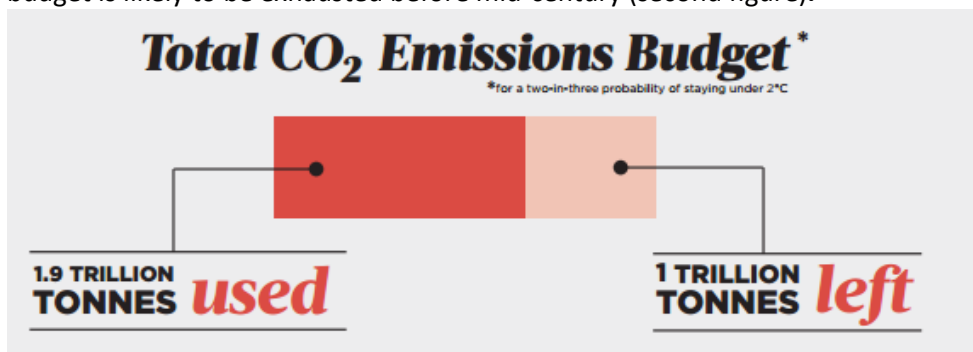
Our key messages include:

- Human-caused climate change is a serious and urgent threat to health and health equity globally and in New Zealand.
- Globally, leading health threats include water and food insecurity with malnutrition, extreme weather events, and changing patterns of infectious disease.
- Climate change means New Zealand will face many adverse impacts on health, with disproportionate health impacts for Māori. New health and social pressures will arise from climate migrant and refugee populations arriving in New Zealand and flow-ons from disruptions to the global economy.
- Without rapid and sustained global action to reduce greenhouse gas emissions (particularly from fossil fuels), the world will breach its carbon budget and may experience high levels of warming (4- 6°C by 2100) that render many populated areas of the world unable to support human health and wellbeing.
- Well-planned action to reduce greenhouse gas emissions can bring about substantial health benefits and will help New Zealand address its burden of chronic disease. Public health medicine professionals call for strong and urgent action on climate change that improves population health, accords with Te Tiriti O Waitangi (The Treaty of Waitangi), and creates more equitable, just and resilient societies in New Zealand and worldwide.

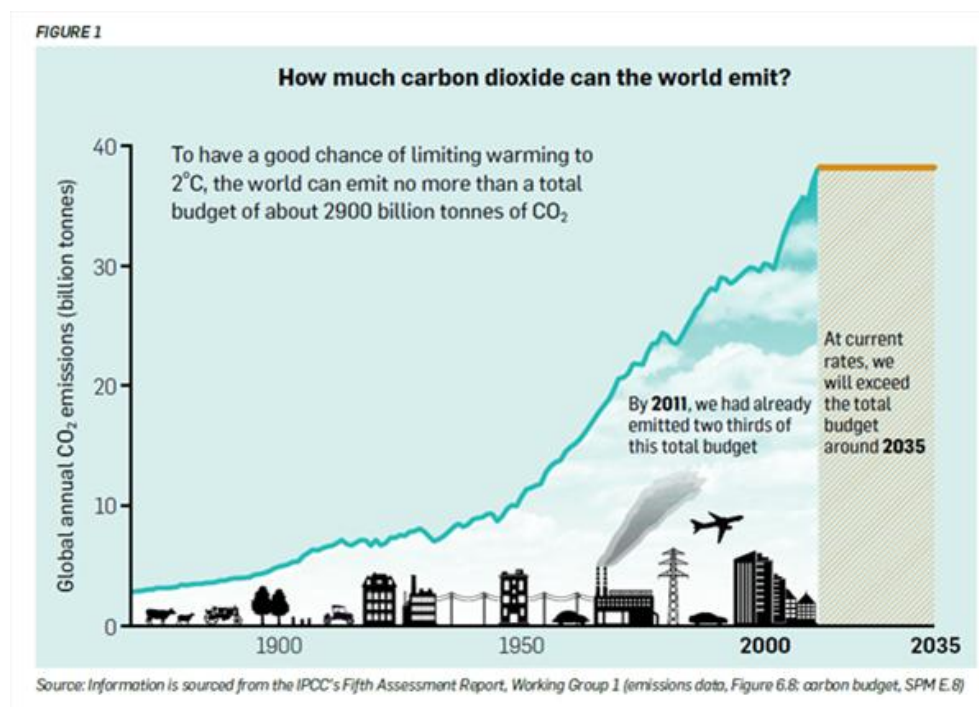
OraTaiao's stance on setting national GHG emissions targets

Health equity is one of OraTaiao's core values, and so the Council supports approaches that explicitly incorporate fairness. Our stance on the setting of greenhouse gas emissions reductions targets is that New Zealand needs to rapidly reduce its greenhouse gas (GHG) emissions, substantially more than its targets in international commitments to date. This stance is detailed in Supplement 1 to the New Zealand College of Public Health Medicine (NZCPHM)'s [climate change policy](#), which OraTaiao fellows of the College co-authored. The Supplement 1, '[Background to the NZCPHM's stance on setting national GHG emissions targets](#)', is available at <http://www.nzcpm.org.nz/policy-publications>.

The Intergovernmental Panel on Climate Change (IPCC)'s Fifth Assessment report states that to give a >66% chance of staying below 2°C, the maximum amount of CO₂ that can be emitted over the industrial period is 3.67 trillion tonnes (2.90 trillion tonnes CO₂ if also including the effects of non-CO₂ greenhouse gases). At 2011 the world had already used up two-thirds of that budget (1.89 trillion tonnes CO₂) (see first figure below), and if current rates of emissions continue, the rest of the budget is likely to be exhausted before mid-century (second figure).

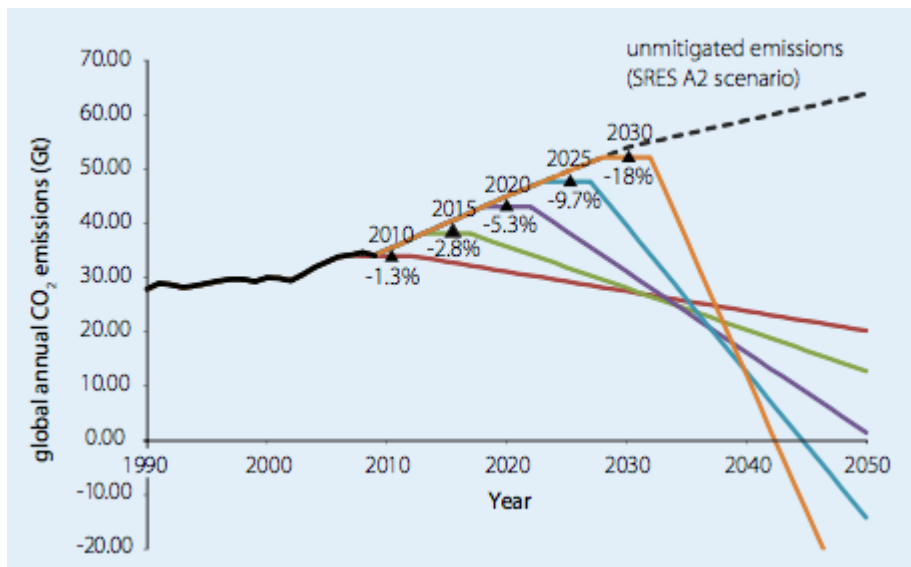


[source: http://www.generationzero.org/report_a_challenge_to_our_leaders]



[source: MfE 2015]

The longer the world delays getting started - NZ included - the steeper the emissions cuts will need to be, and the earlier the world will need to reach zero emissions, in order to remain within the carbon budget. As the following graph shows, this becomes extremely challenging in short time.



source: New Zealand Climate Change Centre 2011, [The Challenge of Limiting Warming to Two Degrees](#). Alternative scenarios for global CO₂ emissions to 2050.

The percentage figures indicate the amount (relative to 1990) by which global emissions would need to be reduced, per year, every year, after their peak to remain within the same cumulative emissions budget. In this particular modelling, all scenarios meet the same cumulative emissions budget of 1445 Gt CO₂ between 2000 and 2050, which gives a roughly 50/50 chance of limiting long-term temperature increase to 2°C

There are a number of different ways for countries to set targets for GHG emissions reductions, in order to keep within global emissions budgets. Several frameworks, in the context of fixed limits, incorporate historical responsibility, science and fairness in calculating emission reduction allocations. For example, the Greenhouse Development Rights (GDR) framework's Responsibility and Capability Index combines countries' cumulative emissions (responsibility) with their capability to mitigate (using wealth as a proxy, from per capita GDP adjusted for distribution of thresholds of individuals' incomes).

Within overall limits for established economies, approaches that consider per capita emissions (which can include historical cumulative emissions) and affordability calculate markedly higher targets than what New Zealand has committed to. The Greenhouse Development Rights (GDR) framework (GDRf) would expect New Zealand to reduce its emissions by 41% by 2020 on 1990 levels.

OraTaiao's core values include equity, and this supports approaches that account for fairness in the face of fixed limits. Established economies, like New Zealand, historically have had high greenhouse gas emissions and have benefited from activities that cause high emissions. By contrast, least developed and developing nations are disproportionately affected by climate change, which they have not caused and yet have least capacity to adapt.

Figure: The climate gap: those who have caused climate change



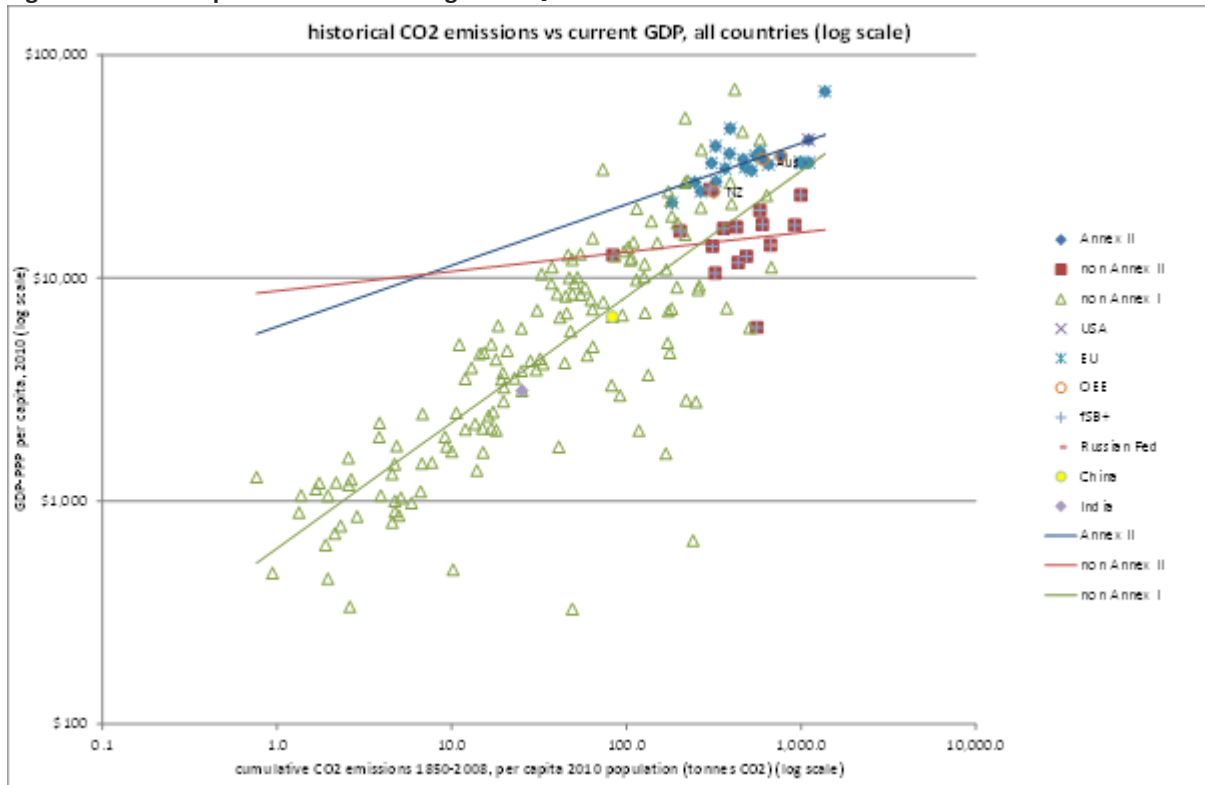
Figure: The climate gap: those who will suffer most from climate change



Density-equalising cartogram. Comparison of (a) undepleted cumulative CO₂ emissions by country for 1950–2000 vs. (b) the regional distribution of four climate-sensitive health consequences (malaria, malnutrition, diarrhoea, and inland flood-related fatalities) est for 2000-2030.

source: Costello A, Abbas M, Allen A, Ball S, Bell S, et al. Managing the health effects of climate change: Lancet and University College London Institute for Global Health Commission. *Lancet* 2009;373:1693-1733. figure 4: sourced from Patz et al: Patz JA, Gibbs HK, Foley JA, Rogers JV, Smith KR. Climate change and global health: quantifying a growing ethical crisis. *EcoHealth* 2007;4:397-405. figure 1.

Figure: Relationship between historical gross CO₂ emissions and current GDP



source: New Zealand College of Public Health Medicine. Supplement One - Background to the NZCPHM’s stance on setting national GHG emissions targets (2013). Wellington: New Zealand College of Public Health Medicine, 2013. <http://www.nzcpm.org.nz/policy-publications>

Consequently, the Council considers established economies, like New Zealand, are in a position, and have a responsibility, to alleviate past actions and contribute rapidly and proportionately more reductions than nations with historically lower emissions.

Targets calculated using the GDR framework are based on fair and equitable approaches to the allocation of emissions reduction amongst countries. New Zealand’s 5% target for 2020 and its 50% target for 2050 are much lower than needed under the GDR and similar frameworks.

The Council therefore holds that New Zealand’s targets for 2020 and 2050 need to be higher in order to fairly and equitably contribute to limiting global warming to 2°C by 2050. Our Intended Nationally Determined Contribution needs to also commit to the cross-party agreement and national policies needed to achieve these targets.

Response to the Consultation process, including economic modelling with lack of Health input

Rushed process, bias in discussion document, with poor supporting information

Considering the importance of the issue, OraTaiao considers the consultation process has been unnecessarily brief (18 working days) and poorly resourced. The requirement to submit New Zealand's contribution (preferably by March 2015) has been known by the New Zealand government since November 2013, yet public consultation was announced via email on 7 May 2015. For such an important yet complex issue, meaningful consultation should have started in January or February.

The Council also considers the discussion document biased. It reads that emissions reduction in New Zealand is too expensive, too difficult, and more costly compared with other parts of the world, but does not provide credible evidence in support. It implies that New Zealand should therefore take on a minimal emissions reduction target.

There is no mention of what NZ has committed to already – not only 5% below the 1990 baseline level by 2020, but also 50% by 2050, both targets officially gazetted. These can only be the bare minima made at the beginning of any considerations – yet, misleadingly, there is no mention of them in the discussion document.

After receiving a formal request, the government agreed to release the economic modelling behind these assertions. This was released but a short time ago, available at <http://www.mfe.govt.nz/climate-change/reducing-greenhouse-gas-emissions/consultation-post-2020-climate-change-target>. Further, government has so far refused to release the analysis that lies behind the claim that emissions reductions in New Zealand are more costly compared to other countries. This gives little confidence that the argument has any pedigree or robust supporting evidence.

The late release of this information by the Ministry, and the modelling itself, so late into consultation, questions the credibility of the consultation itself – with inadequate consultation material, hence public discourse that is uninformed, which the government may easily dismiss. It is also difficult to see how NZ will be able to meet the international obligation to furnish a contribution that is transparent, given the failure to date to share assumptions and methodological approaches with the NZ public.

Flaws in the economic modelling

The economic modelling is also biased due to the baseline that has been chosen. New Zealand has already committed to reducing emissions 5% below 1990 levels by 2020, and the current Bonn/Paris negotiations implicitly expect no 'backsliding' from existing commitments. This 5% target effectively sets a new baseline for New Zealand to take further action. By contrast, the modelling assumes a baseline where New Zealand has no reduction commitment and takes no action. We consider this diplomatically untenable and hence an unrealistic assumption that creates an impression that income foregone is greater than it otherwise would be. The 'real world baseline' is in fact a 5% reduction commitment by 2020.

A late posting on the MfE website describes the economic analyses commissioned and why those have ignored health etc, as follows:

<http://www.mfe.govt.nz/climate-change/reducing-greenhouse-gas-emissions/consultation-post-2020-climate-change-target>

“Modelling the economic costs of New Zealand's intended nationally determined contribution Why doesn't the modelling include the costs of inaction or co-benefits of action?”

The costs of inaction are difficult to quantify as they depend on the actions that the whole world takes to reduce emissions, not just New Zealand. The costs of inaction will be large but are hard to predict accurately and hard to express in monetary terms.

This is also the case for modelling co-benefits of action such as air quality and health benefits. Current research and model development is beginning to address these complexities.”

OraTaiao however is very unconvinced by these arguments and disputes their validity, for the following reasons:

1. Some cost have already been modelled, reporting cost-benefit ratios or monetary savings, especially for the health co-benefits of action (references at end of this section);
2. Health costs in a warming NZ could be substantial. The lack of any Health input into modelling work is of concern (see ‘Which Government agencies are involved?’ on that webpage) – the extent and scope of health costs and benefits will not have been identified as modelling issues;
3. Including uncertain health cost of inaction and health savings from action is no less valid than the aspects modelled that have been included;
4. Scenario analyses with logical consequences can be modelled, which could include applying the inflated \$50 social cost of carbon (already used by Government) to excess CO2 emissions BAU beyond targets cumulative to 2030.

The reason given for not including the health costs from climate inaction was that New Zealand is dependent on the rest of the world to take adequate climate action. But this applies to any country - no nation is large enough to solve climate change on its own, and it is nonsensical to expect other nations to not weigh the costs and benefits of climate action (unless unduly influenced by NZ’s example, NZ thus being saboteur).

The inclusion of only climate action costs (with incomplete analysis and questionable assumptions) is invalid; the modelling done already is full of assumption, and including uncertain (but substantial) health cost of inaction and health savings from action is no less valid than the aspects modelled that have been included. Consistent with [Treasury CBA guidance](#), it is better to manage uncertainty – with loss of precision – than discard major factors, wrecking construct validity.

Variable levels of information do not excuse presenting only the costs of action, without attempting to outline the benefits. The discussion document could have easily undertaken scenario analyses rudimentary in any public policy setting, examining a matrix of four scenarios - (i) neither the world nor NZ takes adequate climate action (NZ as co-saboteur, and humanity is all doomed), (ii) the world doesn’t act/NZ does (this is impossible), (iii) the world acts/NZ acts (adaptation costs averted), and (iv) the world acts/ NZ does not (NZ as pariah).

The costs of inaction (scenarios (i) and (iii)) could be broadly estimated by applying the Government’s (viz NZTA’s) implied \$50/tonne CO2 social cost of carbon ([EEM Appendix A9.6,A9.7](#) \$40/tonne, inflation-adjusted) to excess emissions beyond NZ’s [620 Mt CO2 per-capita share of the remaining global carbon budget](#) as BAU beyond targets cumulative to 2030.

[In summary](#), the modelling asked by MfE

- ignores the likely costs to society and the economy of a changing climate;
- ignores any non-market tools for achieving emissions reductions by regulation;
- ignores NZ’s international exposure to climate risk (ie action by consumers or governments in other countries might take against New Zealand if it was perceived that New Zealand was not doing enough to reduce emissions);
- ignores likely trends in global carbon prices;
- ignores anything that agriculture can do to reduce emissions, and assumes that the rest of the economy will subsidise farming;
- ignores anything that our forestry industry can do to plant trees and remove carbon from the atmosphere;

- assumes NZ can only meet our emissions obligations by buying overseas emissions units.

Despite such flaws, the model quoted in the discussion paper still finds that New Zealand could achieve a 40% emissions reduction target while raising average household incomes from \$73,000 today to \$83,200 by 2027 (based on a \$50 per tonne carbon price). With a 40% target, the increase in average annual household income is only \$530 lower than it would be with the 'real world baseline' - a 5% target (\$83,730) (p.14 [MfE discussion document](#)). So, according to the government's own modelling, the average household will forego just \$10.20 per week in additional income to achieve a 40% target compared with the 'real world baseline'.

Lack of Health consideration

The discussion document presents no analysis of the costs to New Zealand of climate change, Health and otherwise. In the absence of concerted action to reduce emissions globally, the cost to the economy of the increased frequency of extreme weather events is likely to be billions of dollars, astride the cost to peoples' lives and health (both physical injury and mental/social disruption); eg. [the 2008 drought cost the economy an estimated \\$2.8 billion](#). Likewise with adapting to sea level rise.

While New Zealand's emissions are a very small contribution to the global problem, if a country like New Zealand is unwilling to take significant action and is perceived to be doing as little as possible, it reduces the chances of a meaningful global deal (we become saboteurs, truly punching above our weight). If we want to avoid these costs, we need to increase the likelihood of significant action by major emitters, which means committing to take significant action ourselves.

The discussion document makes no attempt to assess the co-benefits of taking action to reduce emissions, such as improved health arising from increased walking and cycling or reduced water pollution from more riparian tree planting. Studies already exist on the estimated costs of air pollution in New Zealand, the economic costs of congestion, the costs to the economy of physical inactivity, the potential economic benefits of more active transport modes, likewise home insulation, better eating, and the potential economic benefits of riparian planting (references at the end of this section). The failure of the Ministry for the Environment to incorporate this kind of analysis into its discussion of New Zealand's emissions reduction target – and in fact the failure to have any Health involvement in the economic modelling (Government agencies involved) – is disappointing.

Lack of Health sector input

We are concerned at the clear lack of Health input into the targets work to date – evidenced by Health not being in the listed Government agencies involved, and rejection of health impacts of inaction, in economic analyses (<http://www.mfe.govt.nz/climate-change/reducing-greenhouse-gas-emissions/consultation-post-2020-climate-change-target>). OraTaiao was concerned to learn, from the Ministry's public meetings, that neither the health gains ('mitigation co-benefits') from well-designed climate action, nor the health costs from climate changes, have been included in the economic analysis of the costs of New Zealand's climate action. Any climate action strategy should include appropriate and well-designed actions that protect – and improve – New Zealanders' health and well-being in the short and longer term. These actions will have an economic impact that should be included in any serious economic analysis of the costs of a climate action strategy.

We are further concerned the above defects may be symptomatic of more fundamental under-appreciation of the health impacts of climate change, even in New Zealand, by the Ministry, on our reading of the MfE's website <http://www.mfe.govt.nz/climate-change/how-climate-change-affects-nz/climate-change-impacts>. This ignores extensive literature on health impacts, health equity

implications and potential climate action co-benefits in New Zealand, where effects on health and health equity will be large and far-reaching.

References:

Studies of health and other costs of climate inaction and action in New Zealand:

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- 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(1):54-60. <http://onlinelibrary.wiley.com/doi/10.1111/j.1753-6405.2010.00621.x/pdf>
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- Wilson N, Nghiem N, Ni Mhurchu C, Eyles H, Baker MG, Blakely T. Foods and dietary patterns that are healthy, low-cost, and environmentally sustainable: a case study of optimization modeling for New Zealand. PLoS ONE. 2013;8(3):e59648. <http://dx.doi.org/10.1371/journal.pone.0059648>
- Landcare Research work on ecosystem services (riparian zones): <http://www.landcareresearch.co.nz/publications/newsletters/soil/issue-23/riparian-zones>

Acting to reduce emissions

OraTaio holds that New Zealand's targets for 2020 and 2050 need to be higher in order to fairly and equitably contribute to limiting global warming to 2°C by 2050. Our Intended Nationally Determined Contribution needs to also commit to the cross-party agreement and national policies needed to achieve these targets.

Levels of health risk posed by climate change vary according to age, ethnicity, geographic location, and socio-economic status – with those at highest health risk from climate change in New Zealand including Maori, Pacific peoples, children, elderly and low income groups. Climate action has the potential to widen or reduce existing health inequities, depending on design and implementation. This means we need domestic policies to make sure the costs of climate action are shared fairly, protecting the most vulnerable households, not the profits of big climate polluters.

Investing in real climate action is future-proofing our macroeconomic stability, health and well-being – both directly and by enabling NZ to credibly press for sufficient global action. Cross-party climate action will minimise costs for businesses by creating certainty about NZ's direction, and thus business strategies and infrastructure investment to thrive. The health of NZ's economy also sustains the taxpayer funding of our health services – future-proofing our economy is important for our health and health services.

The world's focus is rightly on moving towards zero carbon, but NZ can, and must, also reduce agricultural emissions with the technology and knowledge already available. The reality is that a largely plant-based diet emphasising plant proteins is better for human health, rather than animal proteins and fats which we are currently encouraging populations traditionally dependent on soy-based proteins to switch to. Breast milk is also better for human babies and our climate, than processed and exported dairy milk powder. The world currently produces sufficient food to feed everyone, the biggest challenge is allocation. Localised small scale agriculture is the solution to feeding the world's growing population – and those areas experiencing malnutrition exacerbated by population growth are unlikely to significantly gain from NZ's agricultural export production.

We also need to move quickly now to build a zero carbon whole-of-society future well before 2050, with the best policy settings and infrastructure investment – before the costs of climate changes already locked in, begin to overwhelm NZ's financial base.

Assessing the overall financial impact of climate action requires much more sophisticated economic analysis than the consultation discussion document appears to use. The health threats from climate changes for NZ include (i) direct impacts (eg. high temperatures and other extreme weather events where all-causes mortality and morbidity also rise for months after the event); (ii) biologically-mediated events (e.g. changing patterns of infectious disease, global rises in food prices impacting on NZers' nutrition); and (iii) socially-mediated impacts (e.g. loss of livelihoods, forced migration, economic vulnerability and increased risks of conflict). The overall costs to NZers are much more than changes in sea level and extreme weather events.

Government ambiguity around both GHG reduction targets and commitment to target achievement, adds considerably to uncertainty for businesses and communities, and may impede early adoption of low-carbon options. The health sector, for instance, is a high user of carbon-based energy and technologies globally. It will face important long-term procurement and infrastructure decisions that would benefit from clear policy and strategy for responding to requirements for reducing GHG e.

Here is an extended list of action to rapidly reduce NZ's greenhouse gas emissions:

- A NZ Climate Action Act (with wide cross-party support) introduced this year to legislate:
 - NZ's emissions reduction target of at least 40% reductions on 1990 levels by 2030
 - an independent NZ Climate Commission to direct policy and report progress annually
 - climate impact assessments of annual budgets and new government proposals
 - health (including equity) assessment routinely informing key climate-relevant policies
 - measures that prioritise and protect groups likely to be worst affected by climate changes (Maori, Pacific peoples, children, elderly, and low income people)
- NZ's capacity to regulate to protect our climate and the future health and well-being of NZers being protected from restrictive trade agreement clauses
- State sector-wide emissions reductions targets with emissions a key performance indicator – and consequent financial savings made in the health sector retained for Vote: Health use
- Transport demand management with substantially-increased rapid investment in renewably-powered quality public transport and safe cycling and walking networks in all NZ urban areas
- Good clean-energy alternatives to domestic air travel
- Regulation to encourage freight off our roads and onto rail and coastal shipping
- A moratorium on new motorway building until most NZ road vehicles are renewably powered
- Building code changes for low or zero-energy buildings
- Warrant-of-fitness for NZ homes, especially rental properties, to maximise energy efficiency
- Encouraging and incentivising healthy low emissions eating choices
- Widespread targeted public education programmes and advisory services
- Targeted finance to adequately support low-income households' transition to low emissions
- Monitoring and reporting the health and savings gains from emissions reductions
- Resource Management Act changes to include effects on climate change for consents
- An Agricultural Accord that protects the viability of our farming sector by rapid widespread uptake of the current low-emissions farming practices, commits to renewable energy, diversifies farming to match environmental conditions, caps overall emissions, and gives some taxpayer support to adapt to the impacts of climate changes over the years ahead
- Similar Accords to future-proof our other major export earners including tourism and fisheries
- Incentivising rapid forestry planting on marginal lands to increase our carbon sinks, and help to offset the 2020s harvest impact
- No new coal mines - and phasing out both coal use and existing coal mines, with a just transition of coal mining employees to alternative stable employment.
- No oil exploration by NZ or overseas companies, phasing out existing oil extraction including good employment alternatives
- Divesting all government funds from fossil fuel investment and related industries.
- Monitoring and reducing international aviation and shipping emissions with other nations
- Health sector planning to prepare for the locked-in health impacts of climate change, and rapidly adapting to a low-carbon future
- Widespread dissemination of latest information on climate changes expected in NZ to guide public and private sectors, maximise resilience and minimise wasteful spending decisions
- NZ to demonstrate leadership in protecting and promoting health in the climate-vulnerable Pacific regions

Source information:

Ministry for the Environment. Consultation on setting New Zealand's post-2020 climate change target. Wellington: MFE, 2015. <http://www.mfe.govt.nz/climate-change/reducing-greenhouse-gas-emissions/consultation-setting-new-zealand%E2%80%99s-post-2020>

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Joint call to climate action 2014 <http://www.orataiao.org.nz/Joint+call+to+action> - needing national emissions reduction targets in New Zealand of 80–95% by 2050, consistent with Intergovernmental Panel on Climate Change (IPCC) evidence (AR4) and with our responsibilities as a developed nation with high per capita greenhouse gas emissions.

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Earth Statement <http://earthstatement.org/> (4/8 statements):

- Governments must put into practice their commitment to limit global warming to below 2°C.
- The remaining global carbon budget - the limit of what we can still emit in the future - must be well below 1000 Gt CO₂ to have a reasonable chance to hold the 2°C line.
- We need to fundamentally transform the economy and adopt a global goal to phase out greenhouse gases completely by mid-century. Deep decarbonization, starting immediately and leading to a zero-carbon society by 2050 or shortly thereafter, is key to future prosperity..
- Equity is critical for a successful global agreement in Paris. Every country must formulate an emissions pathway consistent with deep decarbonization. For the sake of fairness, rich countries and progressive industries can and should take the lead and decarbonize well before mid-century. Developing countries should formulate plans far beyond what they can be expected to pursue on their own, reaping benefits from leapfrogging into a sustainable economy, well supported by international climate finance and technology access. Safeguarding the right to development of the Least Developed Countries (LDCs) is fundamental.