

**Submission on setting New Zealand's post-2020 climate change target
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Process to climate.contribution@mfe.govt.nz)**

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I am employed as a Senior Research Fellow at the University of Otago. My research areas are all related to climate change and its impacts; sea ice formation, physical oceanography, energy use in buildings, renewable energy resources, and greenhouse gas emissions from international transport. I also lecture a second year university paper called Environmental Physics (PHSI 243), which is focussed on the physics of climate change.

Due to my strong involvement in climate research and education, I was aware that Intended Nationally Determined Contributions (INDCs) were to be submitted to the UNFCCC by 31 March 2015 by “those Parties ready to do so” (United Nations Framework Convention on Climate Change, 2014). I was surprised when I checked in early April 2015 that New Zealand had not submitted anything. When I heard in May 2015 that the New Zealand Government was consulting on New Zealand’s INDCs, I was concerned that consultation was being left so late in the process. When I read the consultation document (Ministry for the Environment, 2015a), I was shocked that the document offered no clear vision of a path forward for New Zealand. The document appeared to be internally conflicted; it clearly presented evidence that urgent and severe global action is needed (e.g. Figure 1. page 6 of Ministry for the Environment, 2015a), but much of the document contained feeble excuses for inaction (e.g. “New Zealand has fewer lost-cost options to reduce our domestic emissions”, page 8 of Ministry for the Environment, 2015a).

It was heartening to read and hear that the climate consultation meetings throughout New Zealand were well-attended, and that members of the general public voiced their anger at the lack of proposed action in Ministry for the Environment (2015a). There is clearly wide support for the New Zealand government to take ambitious actions and bold leadership on this matter, both domestically and internationally.

I found the lack of detail in Ministry for the Environment (2015a) so frustrating that I went to New Zealand’s Greenhouse Gas Inventory 1990-2013 (Ministry for the Environment, 2015b) to get a feeling for the scale of the problem. Given that Ministry for the Environment (2015a)

indicates that forests will not necessarily be an option for “reducing” greenhouse gas emissions over the next 15 years (page 8 of Ministry for the Environment, 2015a), and that Ministry for the Environment (2015a) states that reducing emissions from agriculture is “very difficult without affecting production”, I decided to calculate what would be needed to at least reach the current target of “5% below 1990 levels by 2020” without buying “offsets” from overseas. Below I outline the results of this simple exercise, and the conclusions that I drew from it.

New Zealand’s 1990 total gross emissions were 66.7 Mt CO₂-e, whereas 2013 total gross emissions were 81.0 Mt CO₂-e (Ministry for the Environment, 2015b). That is an increase of 21.4%, with just over a third of that increase coming from increases in road transport emissions, a third from increases in agricultural emissions, with the rest of the increase being made up from industrial process emissions, emissions from public electricity and heat, and other sources (Ministry for the Environment, 2015b). If agricultural emissions were allowed to remain constant, but not to increase, then what would be involved to reduce emissions to 63.4 Mt CO₂-e by 2020 (i.e. a reduction of 17.6 Mt CO₂-e from 2013 emissions to get 5% below 1990 levels)? Looking only at the transport and energy sectors, the scale of the problem becomes apparent; completely decarbonising public electricity and heat would only reduce total gross emissions by 5.04 Mt CO₂-e. To obtain the rest of the reductions, there would need to be a 99% reduction in emissions from road transport (12.7 Mt CO₂-e in 2013). Going for 100% renewable electricity and also decarbonising transport are going to be important things to do globally anyway (as shown by Figure 1 of Ministry for the Environment, 2015a), but even if we did those things, New Zealand would still have emissions that were only about 5% below 1990 levels. In the new negotiations, countries will need to “progress beyond their current commitments” (pp. 6-7, Ministry for the Environment, 2015a). This is important for future generations to have any hope of inheriting a livable planet, so New Zealand will need to do better than just a 5% reduction below 1990 levels. This means that agriculture, industrial processes, and waste all need to contribute to emissions reductions immediately, no matter how difficult it seems (again, to see why consider Figure 1 of Ministry for the Environment, 2015a).

It is worth remembering (but it is not mentioned in Ministry for the Environment, 2015a) that New Zealand’s economy and society is heavily dependent on international transport (planes and ships) to move people and goods in and out of the country (Fitzgerald et al., 2011; Howitt et al., 2010; Howitt et al., 2011; Smith and Rodger, 2009). Under the Kyoto Protocol, no country (or any other entity) is currently liable for the greenhouse gas emissions from international transport (Article 2.2, United Nations, 1998). Those emissions have dramatically increased for New Zealand and would make up a significant additional proportion of New Zealand’s greenhouse gas liabilities if they were ever apportioned to countries (for example, for international passenger transport by planes in and out of New Zealand see Smith and Rodger, 2009). New Zealand also needs to actively engage in reducing those emissions.

Successive New Zealand governments have failed to implement policies that deliver the large reduction in gross emissions that New Zealand now needs. It is clear from the public meetings

that the New Zealand public is ready for clear and bold policies that will actually work, and that New Zealanders want to contribute to meaningful international reductions.

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