

## Climate Change Contribution Consultation

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Dear Mr Groser, I have read your discussion document. I am a businessman formerly managing projects in Microsoft's product and research divisions. I hold several patents and have a strong engineering background and a track record on delivering practical solutions for difficult business objectives. I have the following submission regarding this very difficult challenge for New Zealand..

1) The government objectives as stated are morally flawed. It is not the mere appearance of fairness upon which New Zealanders of this generation will be judged. Rather, history will judge whether the New Zealand people and its representatives were in reality fair. If climate scientists are to be believed, climate calamities such as famines of immense scale threaten millions and will dwarf prior mass exterminations. Your document rightly notes that it is likely that New Zealand will not directly suffer these consequences. But the science is that Kiwis share the responsibility for a death toll which could number in the tens if not hundreds of millions.

Mr. Groser, it is not morally acceptable that New Zealand be party to such **indirect genocide of millions** of people around the globe.

Diplomats from Africa at the Copenhagen conference have made similar warnings. Our inaction meets this seemingly hyperbolic accusation because our choices are deliberate, and the outcome was clearly described to us. There is no avoiding the fact that our present course is a death sentence for Africa and other regions who will be hard hit by reduced rainfall. So the goals as stated in your discussion document are morally bankrupt. It is irrelevant whether our contribution is "seen as fair". It must be fair to these millions of future victims. It is irrelevant if it provides "signals to the NZ economy" of our direction. We are morally culpable if our contribution merely "signals our intentions" but does not deliver decisive action to see that New Zealand spends no more than its fair share of carbon. Our country has a proud history not of delivering appearances and signals, but of rolling up our sleeves and fighting to end genocides in Europe and elsewhere around the world. We are strong enough to face this new struggle. This must not be the generation to turn its back on our history and shrink from our duty. The question is whether our leaders have the leadership necessary to rise to this challenge.

2) New Zealand must state its 2050 carbon budget necessary for averting 2 degrees of climate change. Keeping in mind these millions of future victims of climate changes, it is unethical for the New Zealand Government to refuse to state how much carbon it believes it is fair for New

Zealand to release by 2050. Its targets for 2020 should conform to this overall budget plan.

3) New Zealand leaders must be accurate with the public concerning the magnitude of this moral challenge. We have the data from impartial scientists but even charts such as those in the discussion document do not spell out New Zealand's share of responsibility. The global carbon budget for avoiding 2 degrees of climate change is extremely limited and even with aggressive action, New Zealand will burn through its per capita share of this budget in seven years. This is not a political assertion but the simple data as provided by IPCC and New Zealand government ministries. According to the IPCC's Fifth Assessment report published in 2014, to achieve a "likely" (66% or better) probability of avoiding 2 degrees of global warming, global cumulative emissions must not exceed 550 to 1300 Gt CO<sub>2</sub>e by the agreed on date of 2050. [IPCC2014] Please refer to the chart below, and the cited report for explanation and supporting data.

CO <sub>2</sub> eq Concentrations in 2100 [ppm CO <sub>2</sub> eq]	Subcategories	Relative position of the RCPs <sup>5</sup>	Cumulative CO <sub>2</sub> emissions <sup>3</sup> [GtCO <sub>2</sub> ]		Change in CO <sub>2</sub> eq emissions compared to 2010 in [%] <sup>4</sup>		Temperature change (relative to 1850–1900) <sup>5,6</sup>					
			2011–2050	2011–2100	2050	2100	2100 Temperature change [°C] <sup>7</sup>	Likelihood of staying below temperature level over the 21st century <sup>8</sup>				
								1.5 °C	2.0 °C	3.0 °C	4.0 °C	
< 430	Only a limited number of individual model studies have explored levels below 430 ppm CO <sub>2</sub> eq											
450 (430–480)	Total range <sup>1,10</sup>	RCP2.6	550–1300	630–1180	–72 to –41	–118 to –78	1.5–1.7 (1.0–2.8)	More unlikely than likely	Likely	Likely	Likely	
500 (480–530)	No overshoot of 530 ppm CO <sub>2</sub> eq		860–1180	960–1430	–57 to –42	–107 to –73	1.7–1.9 (1.2–2.9)	Unlikely	More likely than not			
	Overshoot of 530 ppm CO <sub>2</sub> eq		1130–1530	990–1550	–55 to –25	–114 to –90	1.8–2.0 (1.2–3.3)		About as likely as not			
550 (530–580)	No overshoot of 580 ppm CO <sub>2</sub> eq		1070–1460	1240–2240	–47 to –19	–81 to –59	2.0–2.2 (1.4–3.6)	Unlikely	More unlikely than likely <sup>12</sup>			
	Overshoot of 580 ppm CO <sub>2</sub> eq		1420–1750	1170–2100	–16 to 7	–183 to –86	2.1–2.3 (1.4–3.6)					
(580–650)	Total range	RCP4.5	1260–1640	1870–2440	–38 to 24	–134 to –50	2.3–2.6 (1.5–4.2)	Unlikely	More likely than not			
(650–720)	Total range		1310–1750	2570–3340	–11 to 17	–54 to –21	2.6–2.9 (1.8–4.5)					
(720–1000)	Total range	RCP6.0	1570–1940	3620–4990	18 to 54	–7 to 72	3.1–3.7 (2.1–5.8)	Unlikely <sup>11</sup>	More unlikely than likely			
> 1000	Total range	RCP8.5	1840–2310	5350–7010	52 to 95	74 to 178	4.1–4.8 (2.8–7.8)	Unlikely <sup>11</sup>	Unlikely			More unlikely than likely

Characteristics of modelled scenarios assessed for IPCC Fifth assessment Report, 2014.

4) Our share of the global carbon budget: New Zealand's net CO<sub>2</sub>e emissions by 2050 must be no more than 823,405 Gigagrams.

A) With our population representing .06% of the global population [NZStats01], our share of the remaining of the two degree global CO<sub>2</sub> equivalent budget is .06% of 550 to 1300 Gt = 348,364 to 823,405 Giga Grams CO<sub>2</sub>e.

B) Consider a seemingly aggressive policy target of zero net CO<sub>2</sub>e emissions by 2050. Would this be sufficient? According to the Ministry for the Environment, our yearly expenditure as of

2012 was 76,048 gigagrams per year [MFE2014], so this would mean that if we started reducing today, we would have to reduce by 2,172 gigagrams per year.

C) Charting the reductions in a spreadsheet, if we assume the models that give New Zealand the greatest amount of time (823,405 gigagrams), NZ will blow its two degree carbon budget in 2022. This is 28 years ahead of schedule. If we assume the model that is the least permissive (348,364 gigagrams), we will blow our budget this year, and the blood of every one of those millions of victims will be on every Kiwi's hands. Mr. Groser, you are in a position to be lauded as the leader who rose to this challenge, or to go down in history as the one complicit in the genocide of millions.

5) For New Zealand to do its fair share of CO<sub>2</sub>e emissions reductions, we must firstly set a minimum target of a 40% emissions reduction from 1990 levels by 2030. Our 2020 contribution should correspond to this target. This is a target that scientists and economists agree is both necessary and achievable.

6) New Zealand must immediately reforest approximately 1.5 million HA of marginal grazing acreage. Even given the aggressive reduction target above, there will be CO<sub>2</sub>e overbudget amount of at minimum 1.3 million gigagrams, so going carbon negative is essential if we are to balance our carbon budget. Such a program is tractable with NZ farmers because financing can provide farmers a stable yearly income based on future forest harvest, and the program can deliver profits comparable to those of the marginal land used for grazing. Such a program would be budget neutral since outlays would be matched by the assets for the contracted forest harvests. The program is practical while alternatives are not since no other sequestration technology has materialized and so none other can be relied on for answering our moral duty to future victims of climate change. Such a scale is necessary because as shown in point 4, even the ambitious minimum of 50% reduction by 2030 results in heavy deficit spending of our carbon budget. New Zealand can generate substantial carbon sequestration surpluses in the out years after 2030 but this is possible only if planting begins immediately.

## References

[IPCC2014] IPCC, 2014: Summary for Policymakers, In: Climate Change 2014, Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. See page 13, table 6.5, row 1. See also in this document the definition of “Likely” which means only a 2 in 3 chance of avoiding 2 degrees of warming. [http://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc\\_wg3\\_ar5\\_full.pdf](http://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_full.pdf)

[PopStats] Unrounded NZ percentage of global population .0633% New Zealand Population clock as of 9 May 2015: 4.587 million

[www.stats.govt.nz/tools\\_and\\_services/population\\_clock.aspx](http://www.stats.govt.nz/tools_and_services/population_clock.aspx)

World population 7.242 billion according to US Census <http://www.census.gov/popclock/>

[MFE2014] "New Zealand's total greenhouse gas emissions were 76,048.0 Gg CO<sub>2</sub>-e in 2012", page v. report:"New Zealand's Greenhouse Gas Inventory 1990 – 2012"

<https://www.mfe.govt.nz/sites/default/files/media/Climate%20Change/ghg-inventory-1990-2012.pdf>

[NZJIF2008] Hectares required is estimated on sequestration figures given by NZ Journal of Forestry, Vol. 53 No. 1, page 42. An annual average of 33 tonnes CO<sub>2</sub> sequestration per hectare can be expected for radiata planted for a 30 year rotation. Other journals give an average of 18 tonnes for less productive sites.

[http://www.nzjf.org/free\\_issues/NZJF53\\_1\\_2008/2BCB0ED9-7C71-4576-80F4-F35B228CCF62.pdf](http://www.nzjf.org/free_issues/NZJF53_1_2008/2BCB0ED9-7C71-4576-80F4-F35B228CCF62.pdf)