

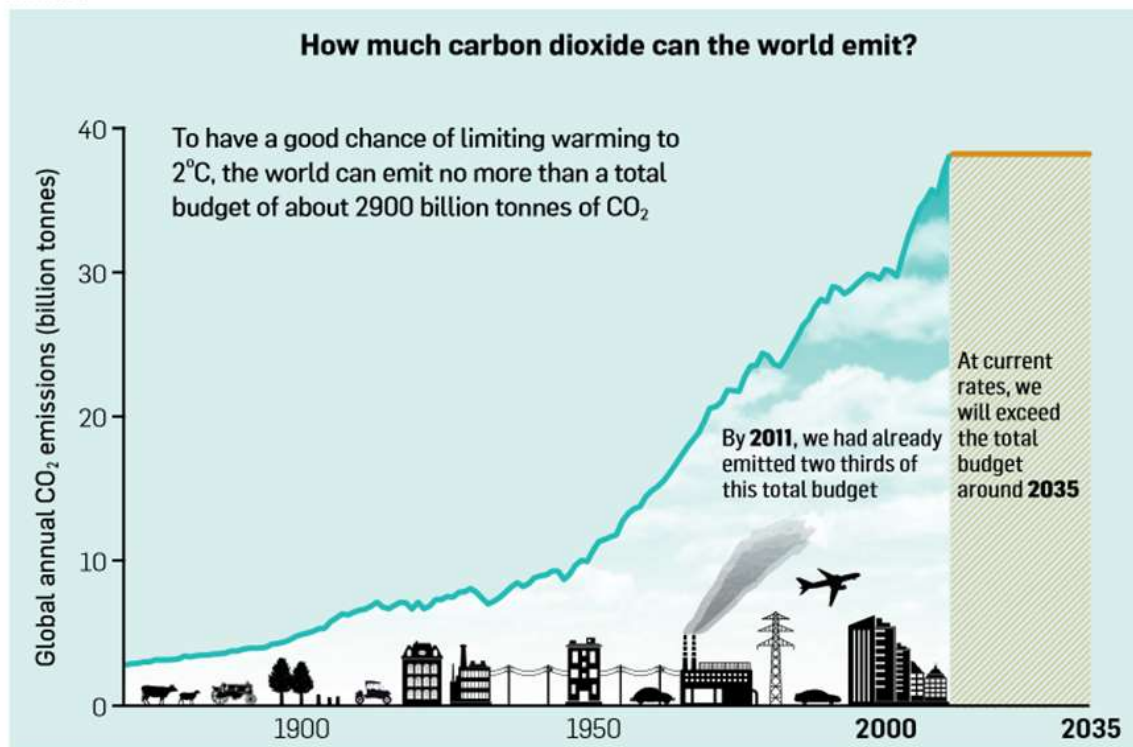
Climate Change policy

The poor response to the challenges of climate change by the NZ Government and by all other political parties, is the reason for the existence of the Climate First party. Both the Green party and the Opportunities party have the goal of net zero emissions by 2050 or soon after. But the public in general does not understand that these goals are nowhere near good enough and in fact fall far short of what is required to stop global warming of more than 2 degrees above pre-industrial temperatures.

What the world and New Zealand needs is not an emissions level target by a certain year, but a carbon budget, within which we must stay. This is Climate First's approach.

We know that this government accepts the carbon budget approach, because the IPCC's world carbon budget chart, Figure 1, was included in the public consultation document on what contribution New Zealand should take to the 2015 Paris Climate Conference.

FIGURE 1



Source: Information is sourced from the IPCC's Fifth Assessment Report, Working Group 1 (emissions data, Figure 6.8; carbon budget, SPM E.8)

Strangely, commentary on the chart states that the world will exceed its budget in 2035 at the current emission levels, but gives no thought as to how this could be avoided. Obviously, the horizontal line from 2011 to 2035 has to be redrawn sloping downwards, remembering that 6 years have passed since 2011 and in that time the world's emissions have risen rather than stayed level.

The first question is how steep does the reduction line need to be for the world to stay within its 1000 billion tonne budget?

The answer is that from 2017 the world needs a straight-line reduction down to zero in 2050. However, New Zealand, because its emissions are twice the world average, needs to reduce faster, down to the average and then keep reducing below the average to make up for the years spent above the average.

The second question is what should New Zealand's fair reduction be?

The answer is that we should emit no more per person than any other country. That means that with a population of 0.066% of the world's population we should emit only 0.066% of the world's carbon budget of 1000Gtns (from Fig.1.), which is 660 Mtns. Unfortunately, in the 6 years which have passed since 2011 we have already emitted 337 Mtns, over half our budget, leaving us only 330 Mtns for the remaining 32 years until 2050.

The third question is how can NZ stay within this tight budget?

The answer is that we need to reduce to zero by 2035 and then have negative emissions of minus -11Mtns from 2038 through to 2050, as shown in Fig.4. This means that our budget overshoot from 2024 to 2035, is clawed back by the negative emissions from 2036 to 2050.

Figs 2, 3 and 4 show the effect on our carbon budget of following the National Government, Greens/TOP and Climate First emissions reduction goals.

Fig. 2. NZ Government Carbon Budget

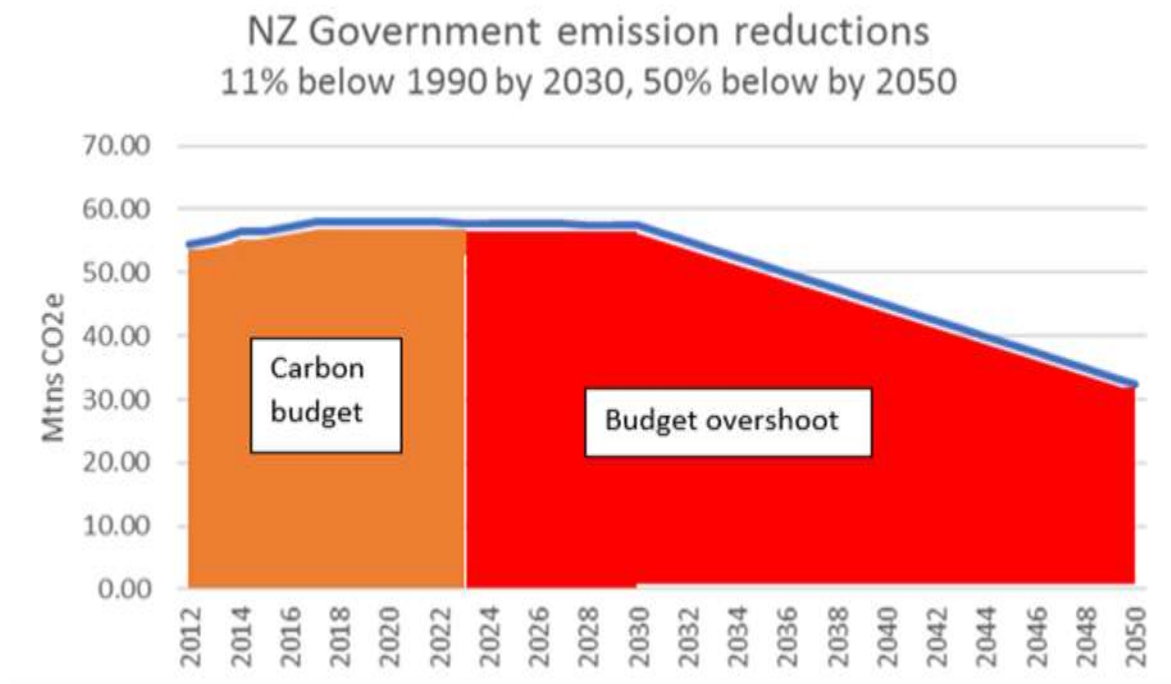


Fig.3. Green Party Carbon Budget

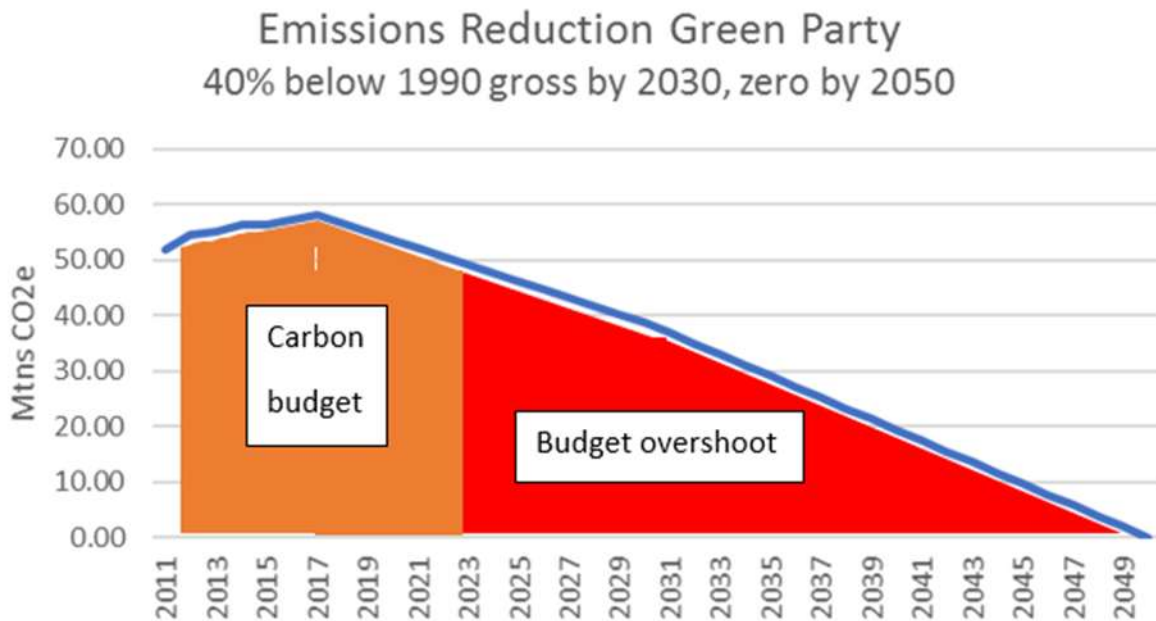
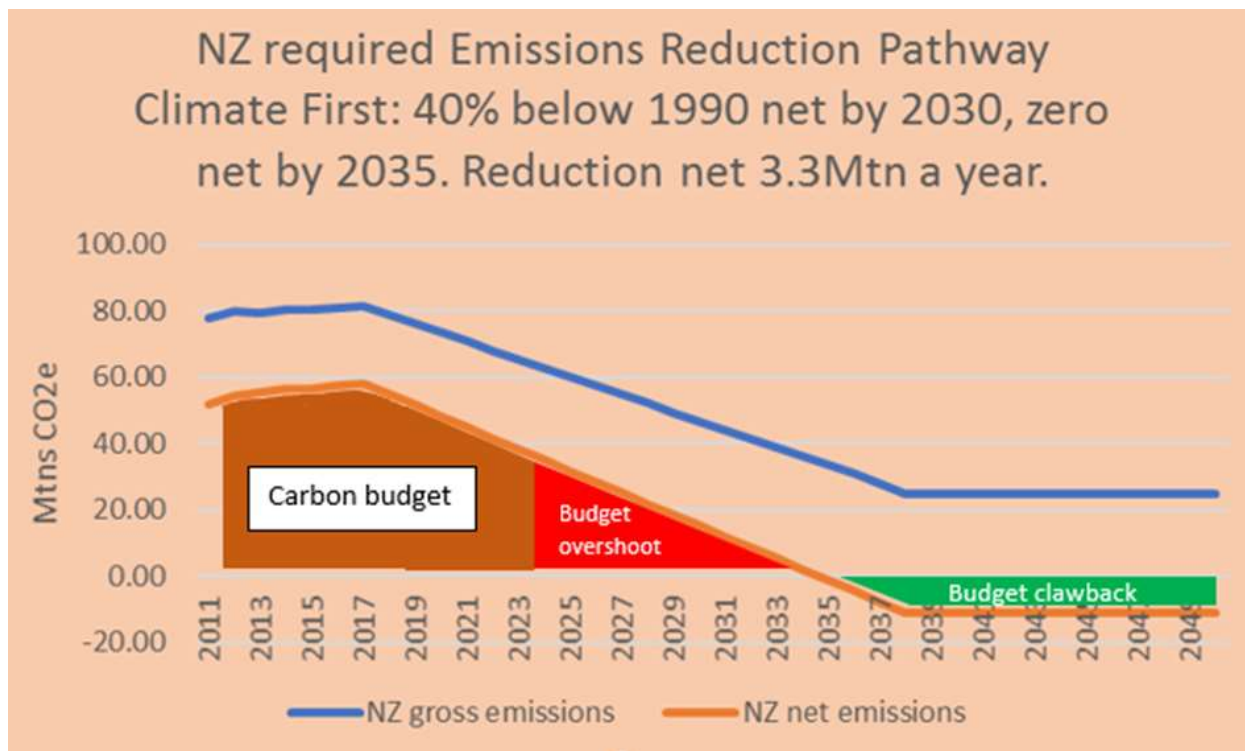


Fig.4 Climate First Carbon Budget

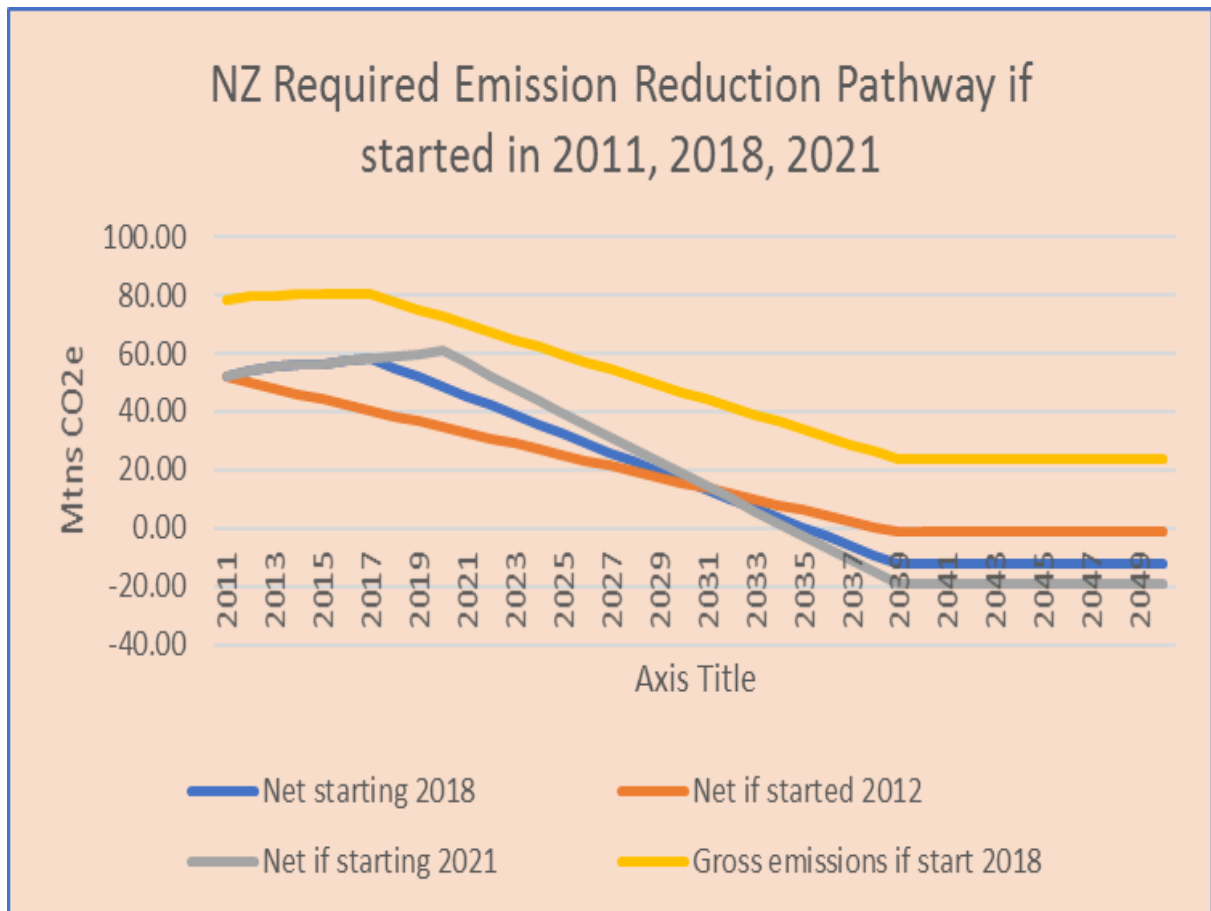


Conclusion: Climate First stays within our budget, by having negative emissions. The Greens/TOP emits twice, and the current government emits three times our allowed budget by 2050.

We call our straight-line reduction the Required Emission Reduction Pathway or RERP and all of our policies and goals are derived from it.

If this situation is not to get worse, urgent action is needed. The following chart shows the effect of the delays which have happened already and the repercussions of further delays.

Fig.5 Three scenarios: If we had started reductions in 2011. If we start in 2018 and if we delay until after the next election in 2020. The table for this chart is in appendix 1.



Explanation of Fig. 5.

If we had begun taking action to reduce our emissions in 2012 when we first knew about this budget, our reductions of 1.9 Mtns per year (the orange line) would have been much gentler and have had a lesser effect on our economy. In fact, we could have remained within our carbon budget by reaching zero net emissions in 2039 and staying at that through to 2050.

If we start after the election in 2018, with a government prepared to implement the Climate First RERP, we could follow the dark blue line with annual reductions of 3.2 or 3.3 Mtns per year, down to negative 11.19 Mtns and stay at that through to 2050.

However, if we wait until after the 2020 election and begin the reductions in 2021, we must follow the grey line and reduce by 4.3 Mtns per year right down to -19 Mtns and stay at that level through to 2050.

The message is that the longer we put off taking action, the steeper the reductions and the more disruptive those actions will be to our society and economy.

How did Climate First arrive at these figures?

We started with the net emissions which NZ must reach to stay within our carbon budget, the orange line in Fig.4. Secondly we decided on a size of 36Mtns that we could achieve for the forest sink (the difference between net and gross). We could then calculate how much we have to reduce our gross emissions (which are what we emit from agriculture, energy, transport, industrial processes and waste). The yellow line on the chart represents the gross emissions, which only have to fall down to 24.81 and stay stable through to 2050. So, we can still fly a little, have livestock farming and have some diesel trucks.

You will notice that the blue and yellow lines diverge slightly; this is the increasing forest sink, from --22 Mtns to -36 Mtns. If we decided to increase the forest sink by more, then we would not have to reduce gross emissions by as much. As you can now see, the Climate First RERP is only one of many possible ways to stay within our carbon budget as a country, but one which requires an emissions reduction and a forest sink increase which are feasible with the right policies. And a period of negative emissions before 2050

Climate First has three major policies to achieve our goal for New Zealand.

1. A carbon tax of \$100 per tonne of CO₂e. on all emissions, without exception. Businesses would only pay this if their emissions remained above the RERP as time passed.
2. Reforestation of 62,000 hectares year on year until 2038, to increase the carbon sink
3. Zero population growth

Each of these major policies has more detailed sub-policies which would help achieve them.

Appendix 1

Column1	start2018	start 2011	start 2021	gross	sink	
year	net	red 1.9	red4.3	diff sink	incr 0.71	
	red 3.2	yoy	yoy	and net	yoy	
2011	51.79	51.79	51.79	77.95	26.15	
2012	54.45	49.89	54.45	79.93	25.48	
2013	55.24	47.99	55.24	79.40	24.15	
2014	56.47	46.09	56.47	80.27	23.79	
2015	56.37	44.19	56.37	80.16	23.78	
2016	57.24	42.29	57.24	80.16	22.91	
2017	58.11	40.39	58.11	80.16	22.04	
2018	54.91	38.49	58.98	77.59	22.67	
2019	51.71	36.59	59.85	75.02	23.31	
2020	48.51	34.69	60.72	72.46	23.94	
2021	45.31	32.79	56.52	69.89	24.58	
2022	42.11	30.89	52.32	67.33	25.21	
2023	38.91	28.99	48.12	64.76	25.85	
2024	35.71	27.09	43.92	62.19	26.48	
2025	32.51	25.19	39.72	59.63	27.12	
2026	29.31	23.29	35.52	57.06	27.75	
2027	26.11	21.39	31.32	54.50	28.39	
2028	22.91	19.49	27.12	51.93	29.02	
2029	19.71	17.59	22.92	49.37	29.65	
2030	16.51	15.69	18.72	46.80	30.29	
2031	13.31	13.79	14.52	44.24	30.92	
2032	10.11	11.89	10.32	41.67	31.56	
2033	6.91	9.99	6.12	39.10	32.19	
2034	3.71	8.09	1.92	36.54	32.83	
2035	0.51	6.19	-2.28	33.97	33.46	
2036	-2.69	4.29	-6.48	31.41	34.10	
2037	-5.89	2.39	-10.68	28.84	34.73	
2038	-9.09	0.49	-14.88	26.28	35.36	
2039	-12.29	-1.41	-19.08	23.71	36	
2040	-12.29	-1.41	-19.08	23.71	36	
2041	-12.29	-1.41	-19.08	23.71	36	
2042	-12.29	-1.41	-19.08	23.71	36	
2043	-12.29	-1.41	-19.08	23.71	36	
2044	-12.29	-1.41	-19.08	23.71	36	
2045	-12.29	-1.41	-19.08	23.71	36	
2046	-12.29	-1.41	-19.08	23.71	36	
2047	-12.29	-1.41	-19.08	23.71	36	
2048	-12.29	-1.41	-19.08	23.71	36	
2049	-12.29	-1.41	-19.08	23.71	36	
2050	-12.29	-1.41	-19.08	23.71	36	
	671.57	663.21	663.29			

August 2017