IN THE WAITANGI TRIBUNAL **WAI 2607**

IN THE MATTER OF The Treaty of Waitangi Act 1975

AND IN THE MATTER OF A claim by **Tāne Cook** on behalf of **Maatatua District Māori Council** that the Crown is acting in breach of Treaty of Waitangi obligations towards Māori as a result of the New Zealand Government failing to implement adequate policies to address the threats posed by global climate change.

AFFIDAVIT OF IVO GEOFFREY BERTRAM

Dated 26 AUGUST 2024

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I, Ivo Geoffrey Bertram, of Wellington, swear as follows:

1. Introduction

1.1. My full name is Ivo Geoffrey Bertram. I am currently a Visiting Scholar in the School of History, Philosophy, Political Science and International Relations at Victoria University of Wellington. I was previously (until 2009) a Senior Lecturer in the School of Economics and Finance at that university, and from 2009 to 2023 a Senior Associate at the Institute for Governance and Policy Studies. I graduated with a BA Honours degree from Victoria University in 1966, and completed a D.Phil degree in economics at the University of Oxford in 1974.

1.2. I have conducted extensive research, modelling, and consultancy work on the economics of climate change policy. In 1989 I and two co-authors produced a report for the Ministry for the Environment on policy options that could be pursued in international negotiations[1]. A paper based on this report appeared in a peer-reviewed international journal in 1992[2].

1.3. In 1993, in collaboration with two other researchers, I carried out computable-general-equilibrium (**CGE**) modelling of the economic impacts of introducing a carbon tax into the New Zealand economy[3], finding that the economy-wide effect of a carbon tax could be positive provided that the revenue raised was appropriately recycled back via reductions in other taxes. These results were

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1 Geoffrey Bertram, Bob Stephens, and Cath Wallace, *The Relevance of Economic Instruments for Tackling the Greenhouse Effect*, Technical report, New Zealand Ministry for the Environment, 1989, online at https://geoffbertram.files.wordpress.com/2021/12/bertram-stephens-wallace-1989.pdf. This paper was later published as *Economic Instruments and the Greenhouse Effect*, Working Paper 3/90, Graduate School of Business and Government Management, Victoria University of Wellington, May 1990.

2 Geoffrey Bertram. Tradeable Emission Permits and the Control of Greenhouse Gases. *Journal of Development Studies*, 28(3):423-446, April 1992, online at https://geoffbertram.files.wordpress.com/2021/12/tradeable_emission_permits_and_the_control_of_greenhouse_gases.pdf.

3 Geoff Bertram, Adolf Stroombergen and Simon Terry, *Energy and Carbon Taxes: Reform Options and Impacts*, Simon Terry Associates report to Ministry for the Environment, Wellington, October 1993.

subsequently peer-reviewed and published, suggesting that "New Zealand could impose a unilateral carbon tax without causing any clear-cut damage to either its international competitiveness or the level of GDP, provided that the overall fiscal package is appropriately structured"[4].

1.4. In 2010, following the introduction of the NZETS, I co-authored with Simon Terry a book analysing in detail the design flaws and lack of ambition that were inherent in the NZETS, both as originally introduced by the Labour Government in 2008, and as watered down by the subsequent National Government in 2009[5]. Key areas of weakness identified in that book, which have since 2009 rendered the NZETS almost entirely ineffective in checking emissions, were

1.4.1. the absence of any quantitative cap on total emissions (which meant that the scheme never matched the economist's textbook concept of a "cap and trade" arrangement);

1.4.2. the fact that the local market for emission-trading credits was fully exposed to the price of internationally-sourced units including Emission Reduction Units (**ERU**s), which meant that the implicit carbon tax represented by the price of New Zealand Units (**NZU**s) could be driven down to very low levels if the overseas market were to be flooded with low-quality units, as proved the case in practice;

1.4.3. the extremely generous exemptions granted to agriculture, and free issue of emission permits to the most heavily-polluting sectors of heavy industry; and

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4 Geoff Bertram, "Modelling the Effects on the New Zealand Economy of the Use of Economic Instruments to Reduce Carbon Emissions", in W.J. Bouma, C.I. Pearman, and M.R. Manning (eds), *Greenhouse: Coping with Climate Change*, pages 586-606. CSIRO, 1996, online at https://geoffbertram.files.wordpress.com/2021/12/bouma-1996.pdf .

5 Geoff Bertram and Simon Terry, *The Carbon Challenge: New Zealand's Emissions Trading Scheme* (Wellington: Bridget Williams Books, 2010).

1.4.4. the lack of certainty for forestry investors arising from the lack of long-term credibility of policy commitments regarding the future value of NZU credits and the consequences of voluntary non-participation.

1.5. In addition to the published work outlined above I have participated in, and presented papers at, numerous conferences, seminars, and round-table discussions of climate change policy, both in New Zealand and overseas, over the past three decades.

1.6. I have acted as an expert economic witness in cases before the Waitangi Tribunal, the Planning Tribunal, the High Court and the Commerce Commission, and in energy-related arbitration proceedings. From 1990 until 1996 I was a member of the Minister of Energy's Energy Advisory Group. Since 1992 I have been a director of the consultancy firm Simon Terry Associates Research Ltd, which over the years has had a wide-ranging practice in the fields of energy, regulatory economics, and environmental economics.

1.7. I confirm that I have read and agree to comply with the Code of Conduct for Expert Witnesses (31 March 2005). This evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

2. Background

2.1. Faced with the threat of climate change, the nations of the world established the Intergovernmental Panel on Climate Change (**IPCC**) in 1988 as a United Nations agency to provide policymakers with regular scientific assessments on the current state of knowledge about climate change. The IPCC has conducted several "assessment rounds" reviewing the emerging literature around both the science and the policy options for averting or limiting climate

change. The report from the Sixth Assessment Round was released in August 2021[6]

2.2. In 1992, following the Rio Earth Summit, the United Nations Framework Convention on Climate Change (**UNFCCC**)[7] was signed. The objective of the Convention was to achieve the "stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a timeframe sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner" (Article 2). Article 3(1) of the Convention states that Parties should act to protect the climate system on the basis of "common but differentiated responsibilities and respective capabilities", and that developed-country Parties should "take the lead" in addressing climate change.

2.3. Over the past three decades, the need for urgent action by the nations of the world to restrict their emissions of greenhouse gases (**GHGs)** has been recognised in the IPCC publications and in decisions reached under the UNFCCC at the regular Conference of the Parties (**COP**), in particular the 2015 **Paris Agreement**[8] in which the Parties agreed to aim to limit global warming to less than two degrees Celsius, and try to limit the increase to 1.5 degrees Celsius.

2.4. Article 4.3 of the Paris Agreement states that "each Party's successive nationally determined contribution will … reflect its highest possible ambition…" [emphasis added]. This captures the proposition that New Zealand's required degree of effort must systematically maximise the extent

6 https://www.ipcc.ch/assessment-report/ar6/

7 Text at https://unfccc.int › application › pdf › conveng .

8 https://unfccc.int/sites/default/files/english_paris_agreement.pdf.

of action to reduce emissions, subject only to the constraint of what is "possible".

2.5. Having signed the 1992 UNFCCC and participated in the negotiation of the 1997 Kyoto Protocol, it was not until 2008 that the New Zealand introduced its first substantial policy – the NZETS. Over the following sixteen years the NZETS has proved almost completely ineffective in checking emissions, both because of initial design flaws[9] and because of policy decisions relating to use of offshore mitigation, exemptions for major industrial and pastoral emitters, uncertainties around forestry incentives, and Government printing of NZUs under s.68 of the Climate Change Response Act 2002 (**the Act).**

2.6. There has been a disconnect between rhetoric and reality in the climate change policies of successive New Zealand Governments, which in my opinion leaves New Zealand exposed both to reputational damage in the context of UNFCCC Conference-of-the-Parties meetings and to future trade sanctions if and when border carbon adjustments are imposed by climate-policy leading countries to protect their economies against laggards.

3. Scope of evidence

3.1. I have been asked by Counsel for the claimants to comment on the adequacy of the New Zealand Government's policies to address climate change. Those policies encompass two general areas of action: policies applied within the New Zealand economy to reduce this country's carbon emissions, and the positions taken by New Zealand as a participant in the ongoing international negotiations and arrangements under the UNFCC and related processes.

3.2. The focus of this affidavit is on the first of these, although some reference will be made to the second. The central contention will be that serious policies have not yet been credibly applied within the New Zealand economy to cut its carbon emissions.

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[9] Discussed in detail in *The Carbon Challenge*.

3.3. The lack of credible policy action to date is especially striking given New Zealand's ranking as one of the highest per-capita carbon emitting countries in the developed world[10], with one of the largest cumulative historic per-capita contributions to atmospheric carbon[11].

3.4. Relative to the amount of time and effort that has gone into policy debate, research and consultation over the past three decades, the payoff in terms of solid actual policy to cut emissions has been small. In my opinion the very slow pace of progress is evidence of a lack of strong political will, in the face of obstruction from powerful vested interests within the private sector of the economy.

4. Setting a benchmark

4.1. In evaluating the adequacy of policy, some benchmark is required. For the purposes of this affidavit I adopt the benchmark clearly stated in paragraph 15 of the Cabinet Paper POL-386-1174, entitled "International climate change negotiations: New Zealand's approach to COP24", namely that "the success of the [Paris] Agreement rests on Parties each contributing to the maximum extent they can" [emphasis added]. This criterion of contributing to the "maximum extent" is consistent with the urgency of accelerated action to achieve decarbonisation of both the New Zealand and the global economy, emphasised by the Intergovernmental Panel on Climate Change in its latest reports.

4.2. Article 4.3 of the Paris Agreement[12] states that "each Party's successive national determined contribution will … reflect its highest possible ambition…" [emphasis added]. This captures the proposition that New Zealand's required

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10 https://edgar.jrc.ec.europa.eu/booklet/EDGARv8.0_FT2022_GHG_booklet_2023.xlsx downloaded 30 July 2024 ranks New Zealand 21st highest per capita emissions of all countries, and fourth highest among OECD countries.

11 As calculated by CarbonBrief at https://www.carbonbrief.org/analysis-which-countries-are-historically-responsible-for-climate-change/ accessed 25 April 2024.

12 Available at https://unfccc.int/sites/default/files/english_paris_agreement.pdf .

degree of effort must systematically maximise the extent of action to reduce emissions, subject only to the constraint of what is "possible".

4.3. Therefore, in evaluating both past and future policies adopted by the New Zealand Government, the appropriate question to ask is not whether New Zealand has contributed (or is contributing) to an extent that is consistent with the narrowly-interpreted letter of its international obligations[13], but rather whether New Zealand's contribution represents the maximum effort of which this nation is capable – in other words, whether policy effort matches the spirit as well as the letter of the global accords to which the New Zealand Government has signed up.

4.4. In my opinion, the answer to this question when it is posed in relation to policy to date is manifestly "no". Governments to date, of all political stripes, have opted to limit their policies to measures that do not encroach seriously on the profitability of key sectors of the economy. They have thereby sought to limit or forestall the intense pushback from major industrial and agricultural interests that routinely greets even tentative policy moves, and that would have responded even more ferociously to a genuine programme of measures seriously aimed at early decarbonisation.

4.5. Three standard tests of the seriousness of a nation's policy stance on any issue are

- Are the full resources of the nation engaged, with active direction and leadership from the Government? A recent example of such engagement is Aotearoa/New Zealand's lockdown in the early stages of the COVID pandemic in March 2020.

[13] In *Thomson v Minister for Climate Change*, [2017] NZHC 733, the Court made clear that New Zealand's Nationally Determined Contribution under the Paris Agreement, however inadequate it may appear, is consistent with the letter of this country's obligations.

- Is there certainty among private sector actors over the announcement, enforcement and sustainability of policy? A clear example of such certainty, and the institutional framework required to sustain it, is the role of the Reserve Bank of New Zealand in setting the Official Cash Rate as the key monetary-policy instrument.

- Is policy legally binding on the ministers and officials responsible for implementing it, as is the case for example with the "principles of the Treaty of Waitangi" in several statutes?

4.6. New Zealand's climate-change policy currently fails all three of these tests, after sliding backwards, from a weak start, over the past two decades. In the early days of the Kyoto Protocol New Zealand did take on a legally binding target under the Protocol's First Commitment Period 2008-2012 (**CP1**) and, in the years leading up to that, there developed a degree of certainty among private sector actors that Government was serious about emission reduction and encouragement of forestry. What was already missing at that stage, however, was ambition; as I discuss in paragraph 6.18 of this affidavit, New Zealand's target for CP1 was easily met without actually making any significant change to business-as-usual.

4.7. CP1 was the last time that New Zealand entered into any legally binding international or domestic commitment to reduce its emissions (as distinct from binding commitments to record, and report on, those emissions). At the start of the Second Commitment Period 2013-2020 (**CP2**) New Zealand refused to make any binding commitment and instead opted for a non-binding domestically-monitored target that embodied no serious ambition to actually reduce emissions (that target was met instead by claiming credit for forestry sequestration and by utilising surplus carbon credits held over from CP1)[14].

[14] https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/emissions-reductions/emissions-reduction-targets/latest-update-on-new-zealands-

4.8. Following the 2015 Paris Agreement New Zealand joined in the process under which individual countries put forward non-binding "Nationally Determined Contributions" (**NDC**s). As I show later, New Zealand's NDC was specified in terms that were opaque to all but the most specialised insiders, ostensibly based on Kyoto Protocol accounting rules (but in fact departing from them by using a 2005 rather than 1990 base year). Thereafter certainty has faded amidst a growing lack of bipartisan political support and rules around forestry, and NZETS settings that are subject to unpredictable chopping and changing.

4.9. In February 2024 the Climate Change Commission noted that[15] "[u]ncertainty about rules and policy is undermining confidence in the NZ ETS: this was consistent feedback across all engagements" and that "[t]he 2023 auction outcomes are … a demonstration of low market confidence". I agree with this assessment.

5. International rankings

5.1. A number of organisations undertake detailed monitoring of the performance of individual countries under the UNFCCC. Because of the weakness of its climate change policies, New Zealand consistently scores poorly in the international rankings produced by these organisations.

5.2. One such organisation is Climate Action Tracker (website at https://climateactiontracker.org/) which "quantifies and evaluates climate change mitigation commitments, and assesses whether countries are on track to meeting those." Its analysis covers countries with 70% of global population and 80% of global greenhouse gas emissions. The Climate Tracker scoring exercise for New Zealand, updated 7 March 2023, is at

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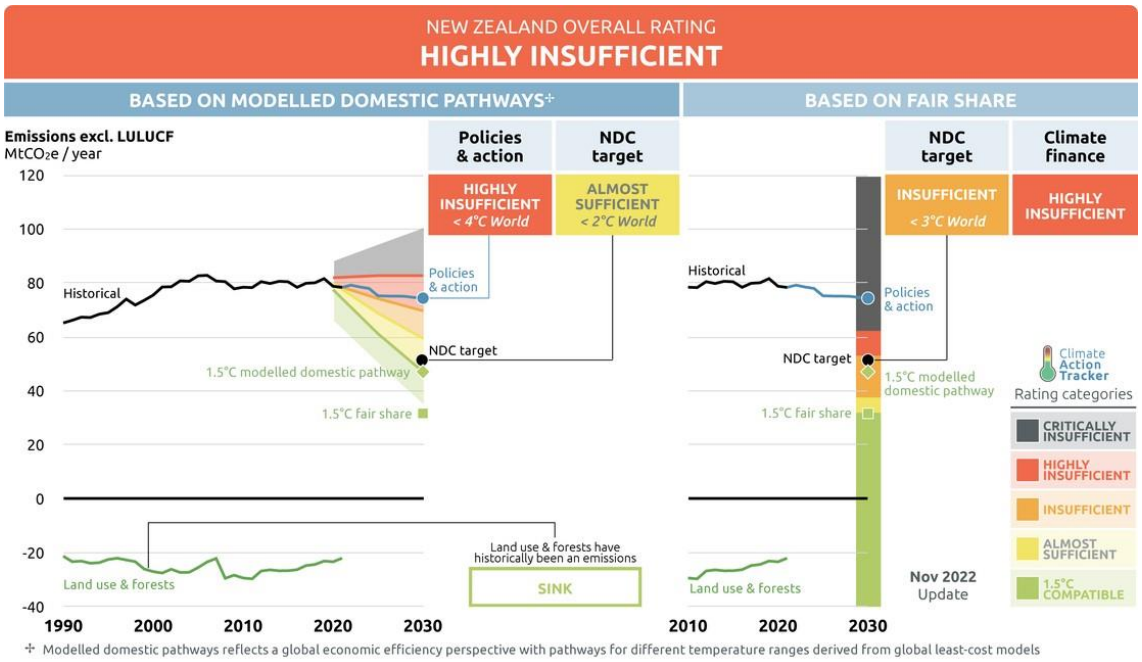
2020-net-position/#new-zealands-net-position-for-the-2013-to-2020-period accessed 30 July 2024.

15 *Advice on NZ ETS unit limits and price control settings for 2025-2029* https://www.climatecommission.govt.nz/public/ETS-advice/2024/CCC_2024-advice-on-NZETS-unit-limit-and-price-control-settings-2025-2029.pdf , pages 14 and 12.

https://climateactiontracker.org/countries/new-zealand/ [16]. The summary chart is reproduced below:



5.3. The blue line showing projected emissions under current policy, as estimated by Climate Tracker, runs well above the NDC target for 2030 under the Paris Agreement, and was the basis for judging Aotearoa/New Zealand's policies and action to be "highly insufficient".

5.4. The vertical bar in the chart addresses the issue of whether New Zealand was meeting a "fair share" of global effort towards targets of 2 degrees and 1.5 degrees of global warming. Current policies and actions as at March 2023 were

16 Accessed 30 March 2024. I note that Climate Tracker has here taken at face value New Zealand's description of its targets as "emission reductions". As I describe in sections 5 and 7 of this affidavit, New Zealand's opportunistic use of UN accounting conventions means that the targets are specified in such a way as not to require any emission reductions so long as "offsets" are available.

judged “critically insufficient”. The scoring system used to construct the chart is shown below[17]:

5.5. The Climate Action Tracker analysis comments as follows on Aotearoa/New Zealand’s performance and targets:

> New Zealand’s current policies are “Highly insufficient” when compared to modelled domestic pathways. The “Highly insufficient” rating indicates that New Zealand’s policies and action in 2030 are not at all consistent with limiting warming to 1.5°C. If all countries were to follow New Zealand’s approach, warming could reach over 3°C and up to 4°C.
>
> …
>
> The Emissions Trading Scheme … continues to exempt the country’s largest contributor to greenhouse gas emissions – the agriculture sector – from a price on its methane emissions until 2025, despite original promises that it would cover all sectors.
>
> …
>
> New Zealand’s NDC target in 2030 is not consistent with the Paris Agreement’s 1.5°C temperature limit when compared to modelled domestic pathways. The target aims for GHG emissions to be 50% below 2005 levels by 2030 (including LULUCF).
>
> …
>
> We rate New Zealand’s NDC target as “Insufficient” when compared with its fair share emissions allocation. The “Insufficient” rating indicates that New Zealand’s emissions in

17 https://climateactiontracker.org/countries/rating-system/ accessed 1 November 2019.

> 2030 need substantial improvements to be consistent with limiting warming to 1.5°C. New Zealand's NDC target is at the least stringent end of what would be a fair share of global effort and is not consistent with limiting warming to 1.5°C unless other countries make much deeper reductions and comparably greater effort.

5.6. I note that Climate Action Tracker's judgment that the 2030 target is insufficient in relation to either the 1.5-degree-limit or a fair-shares benchmark has recently been echoed by the Climate Change Commission's April 2024 discussion document *Review of the 2050 Emissions Reduction Target*[18] pages 37-48.

5.7. A second international organisation ranking countries according to their performance under the UNFCCC is Germanwatch (website at https://www.germanwatch.org/en) which produces an annual "Climate Change Performance Index". In the 2024 release of this index[19] New Zealand ranked 34 out of 67 countries in the overall performance ranking, with a score in the "low performance" range[20]. In the table ranking countries' climate change policies New Zealand was ranked 27th out of the 67 countries, with a "low" score even after taking into account policy announcements to that date.[21]

5.8. The chart below is reproduced from the *Climate Change Performance Index 2024*. It clearly shows how the positive effect on the index score of New Zealand's high renewables share (mainly in electricity generation) is offset by this country's extremely poor performance on greenhouse gas mitigation.

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18 https://www.climatecommission.govt.nz/public/Uploads/Targets/supporting-docs/20240404-Target-Consultation.pdf accessed April 2024.

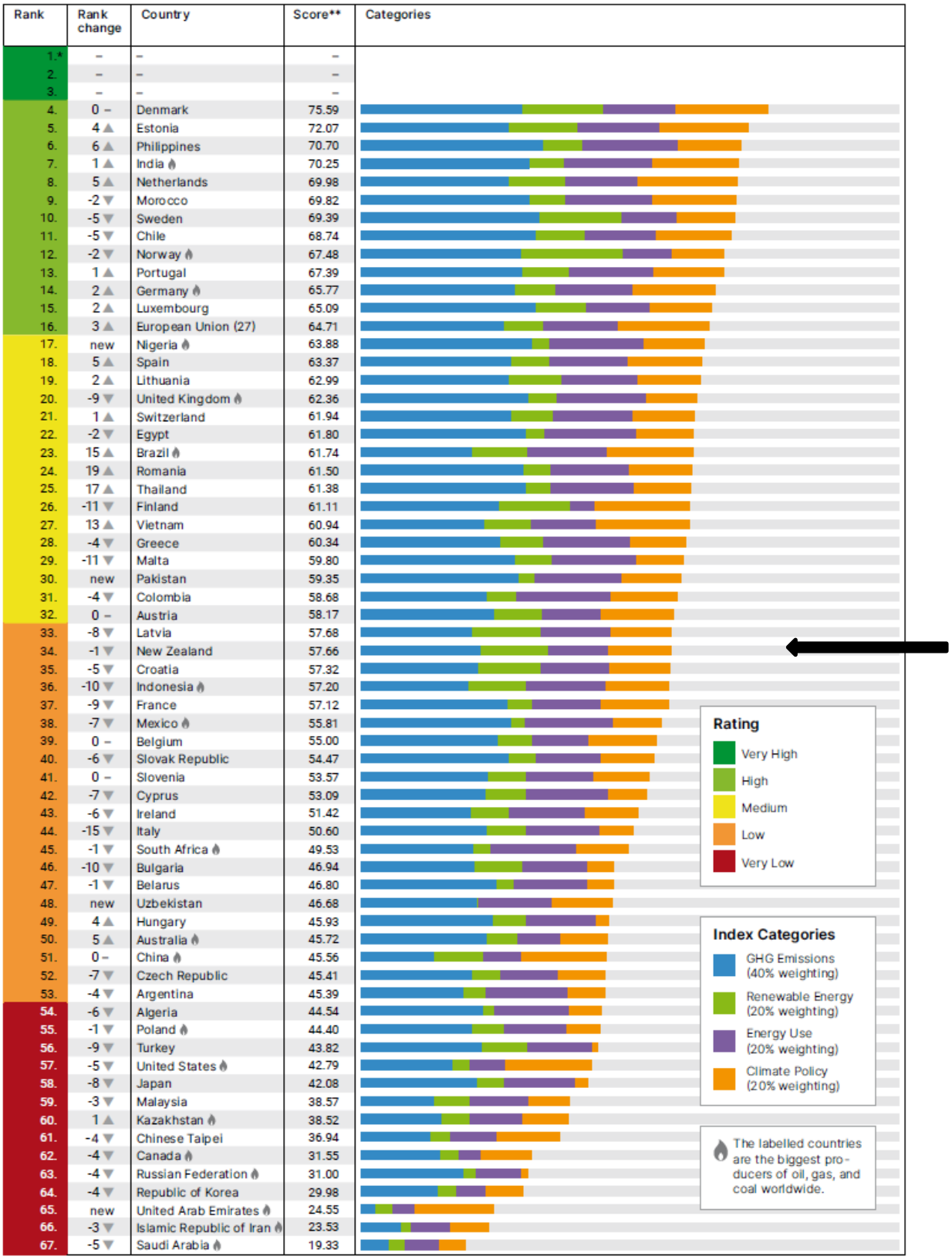
19 *The Climate Change Performance Index 2024*, https://ccpi.org/download/climate-change-performance-index-2024/ accessed 30 March 2024.

20 *Climate Change Performance Index 2024* chart on p.7.

21 *Climate Change Performance Index 2024* table on p.15.

Climate Change Performance Index 2024 – Rating table

Rank	Rank change	Country	Score**
1.*	–	–	–
2.	–	–	–
3.	–	–	–
4.	0 –	Denmark	75.59
5.	4 ▲	Estonia	72.07
6.	6 ▲	Philippines	70.70
7.	1 ▲	India 🔥	70.25
8.	5 ▲	Netherlands	69.98
9.	-2 ▼	Morocco	69.82
10.	-5 ▼	Sweden	69.39
11.	-5 ▼	Chile	68.74
12.	-2 ▼	Norway 🔥	67.48
13.	1 ▲	Portugal	67.39
14.	2 ▲	Germany 🔥	65.77
15.	2 ▲	Luxembourg	65.09
16.	3 ▲	European Union (27)	64.71
17.	new	Nigeria 🔥	63.88
18.	5 ▲	Spain	63.37
19.	2 ▲	Lithuania	62.99
20.	-9 ▼	United Kingdom 🔥	62.36
21.	1 ▲	Switzerland	61.94
22.	-2 ▼	Egypt	61.80
23.	15 ▲	Brazil 🔥	61.74
24.	19 ▲	Romania	61.50
25.	17 ▲	Thailand	61.38
26.	-11 ▼	Finland	61.11
27.	13 ▲	Vietnam	60.94
28.	-4 ▼	Greece	60.34
29.	-11 ▼	Malta	59.80
30.	new	Pakistan	59.35
31.	-4 ▼	Colombia	58.68
32.	0 –	Austria	58.17
33.	-8 ▼	Latvia	57.68
34.	-1 ▼	New Zealand	57.66
35.	-5 ▼	Croatia	57.32
36.	-10 ▼	Indonesia 🔥	57.20
37.	-9 ▼	France	57.12
38.	-7 ▼	Mexico 🔥	55.81
39.	0 –	Belgium	55.00
40.	-6 ▼	Slovak Republic	54.47
41.	0 –	Slovenia	53.57
42.	-7 ▼	Cyprus	53.09
43.	-6 ▼	Ireland	51.42
44.	-15 ▼	Italy	50.60
45.	-1 ▼	South Africa 🔥	49.53
46.	-10 ▼	Bulgaria	46.94
47.	-1 ▼	Belarus	46.80
48.	new	Uzbekistan	46.68
49.	4 ▲	Hungary	45.93
50.	5 ▲	Australia 🔥	45.72
51.	0 –	China 🔥	45.56
52.	-7 ▼	Czech Republic	45.41
53.	-4 ▼	Argentina	45.39
54.	-6 ▼	Algeria	44.54
55.	-1 ▼	Poland 🔥	44.40
56.	-9 ▼	Turkey	43.82
57.	-5 ▼	United States 🔥	42.79
58.	-8 ▼	Japan	42.08
59.	-3 ▼	Malaysia	38.57
60.	1 ▲	Kazakhstan 🔥	38.52
61.	-4 ▼	Chinese Taipei	36.94
62.	-4 ▼	Canada 🔥	31.55
63.	-4 ▼	Russian Federation 🔥	31.00
64.	-4 ▼	Republic of Korea	29.98
65.	new	United Arab Emirates 🔥	24.55
66.	-3 ▼	Islamic Republic of Iran 🔥	23.53
67.	-5 ▼	Saudi Arabia 🔥	19.33



*None of the countries achieved positions one to three. No country is doing enough to prevent dangerous climate change.
** rounded

5.9. In a report published in March 2018, the Parliamentary Commissioner for the Environment, Simon Upton, noted that "New Zealand … has not previously developed comprehensive sectorally based policies to mobilise opportunities. Indeed, a very low carbon price within an uncapped NZETS, along with reliance on forestry sequestration and the purchase of offshore credits, has meant little sustained attention has been paid to domestic emissions reductions."[22] This was in my opinion an accurate summary of the extent of policy effort over the three decades to 2018, and not much has really changed since. It falls well short of any notion of "maximum effort", and accounts for New Zealand's very weak rating in comparison with other developed countries.

5.10. Only very limited improvements have been made since 2018 despite a flurry of legislation, budget-setting and plan-producing which I review in later sections of this affidavit.

6. Accounting practices that disguise policy ineffectiveness

6.1. The United Nations has approved several accounting conventions for the recording of carbon emission and sequestration, and the New Zealand Government's reporting of New Zealand's emissions profile has taken full advantage of two of those conventions:

- The first is that when constructing each country's emissions inventory, all greenhouse gas sources and sinks are treated as interchangeable on the basis of a single metric (carbon dioxide equivalent, or CO_2e), calculated using conversion factors for non-CO_2 gases prepared and published by the IPCC.

[22] Parliamentary Commission for the Environment, *A Zero Carbon Act for New Zealand: Revisiting Stepping stones to Paris and beyond*, March 2018, https://www.pce.parliament.nz/media/196427/zero-carbon-act-for-nz-web.pdf page 11.

- The second is that it is legitimate to apply what is known as a "gross-net" or "target-accounted-net" (**TAN**) accounting framework when reporting on New Zealand's emissions trajectory over time.

6.2. The effect of the Government's use of these two conventions in its emissions accounting has been to understate the severity of the carbon-mitigation problem confronting New Zealand, while providing policymakers with the opportunity to construct formal accounts that have concealed the absence of meaningful policy action to reduce actual gross and net emissions.

Substitutability

6.3. Taking first the practice of treating all greenhouse gas sources and sinks as substitutable one for another without limit, this has been central to the New Zealand Government's past approach to greenhouse gas mitigation. The lack of policy action to directly reduce gross emissions of carbon dioxide from New Zealand's industrial, transport, commercial and household sectors has been concealed behind "offsets" secured by growing forests and by buying-in carbon credits from offshore.

6.4. Forestry must play an important transitional role in limiting New Zealand's contribution to climate change. But treating forestry sinks as a long-term offset to long-lived carbon dioxide emissions has to be qualified by recognition both that (due to the risks of fire, disease and pests) the permanence of forestry sinks is less secure than that of carbon dioxide in the atmosphere; and that land for permanent forest planting is not in unlimited supply. Ultimately, a genuine reduction of carbon dioxide emissions themselves is necessary, with forest sinks playing only a transitional role in bringing net emissions, as measured under UNFCCC accounting, down.

6.5. Unfortunately, it has long been apparent that planting forests to secure offset credits is a cheaper option than actually reducing carbon dioxide emissions from a wide range of industrial and transport activities, with the result that one-for-one substitution of removal credits and emission units has driven behaviour

away from gross emissions reduction and towards the purchasing of offset credits, contributing directly to New Zealand's very poor record on the former.

Gross-net target accounting

6.6. Gross emissions are defined in the Climate Change Response Act 2002 section 40(1) as ""New Zealand's total emissions from the agriculture, energy, industrial processes and product use, and waste sectors (as reported in the New Zealand Greenhouse Gas Inventory)". This corresponds to the definition of gross emissions used by the IPCC: essentially, it is the total of all GHGs emitted within a country.

6.7. "Net emissions" for the IPCC is the overall balance of emissions and absorption (negative emissions) of GHGs, calculated by subtracting from gross emissions the amount of GHGs removed from the atmosphere by carbon-fixing processes, particularly plant growth. Net emissions are described by the Ministry for the Environment as "emissions and removals the atmosphere sees in any given year as the result of all human activities in New Zealand"[23]. They should therefore be the focus of emissions-reducing policy.

6.8. The Climate Change Response Act 2002 makes no mention of net emissions as defined in paragraph 6.7. Instead, it uses a different concept, "net accounting emissions", which are defined as follows in section 4(1):

> the total of gross emissions and emissions from land use, land-use change, and forestry (as reported in the New Zealand Greenhouse Gas Inventory), less—
>
> (a) removals, including from land use, land-use change, and forestry (as reported in the New Zealand Greenhouse Gas Inventory); and
> (b) offshore mitigation.

6.9. In terms of this definition, New Zealand can reduce its reported "net accounting emissions" by (i) purchasing carbon credits from other countries ("offshore mitigation") and (ii) subtracting from gross emissions some set of land-use,

23 https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/emissions-reductions/emissions-reduction-targets/greenhouse-gas-emissions-targets-and-reporting/#emissions-reporting-and-accounting accessed 16 April 2024.

land-use change, and forestry (**LULUCF**) carbon-removing activities that are "reported in the New Zealand Greenhouse Gas Inventory".

6.10. Precisely which set of carbon-removing LULUCF activities is used to calculate "net accounting emissions" makes a big difference to the resulting number, and hence to how New Zealand's emissions performance looks. In the absence of offshore mitigation, subtracting all LULUCF carbon absorption from gross emissions (in the absence of offshore mitigation) leaves the measure of "net emissions" as defined in paragraph 6.7 above. But while this calculation is routinely performed and reported in New Zealand's annual inventory reports to the UNFCCC, it has been absent from the setting and reporting of emissions targets, policies and budgets.

6.11. Subtracting a more limited LULUCF amount that excludes all forestry and other land-use activities dating back before 1990 yields, naturally, a larger TAN number which the New Zealand Government counts as "target net emissions" or "target accounting emissions", described as follows by the Ministry for the Environment[24]:

> Target net emissions include all our gross emissions, but only a subset of emissions and removals in the LULUCF sector.
>
> Aotearoa has large areas of plantation forests, which create peaks and troughs in net emissions as they move through growth and harvest cycles. This can obscure underlying trends.
>
> Target accounting does not count these business-as-usual ups and downs from forests that existed before 1990, or from those that have already reached their average long term carbon stocks.

6.12. The resulting TAN numbers are an accounting construct which does not pretend to measure the net emissions that "the atmosphere sees" from New Zealand, described in paragraph 6.7 above. The rationale for excluding pre-1990 forests

[24] https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/emissions-reductions/emissions-reduction-targets/greenhouse-gas-emissions-targets-and-reporting/#emissions-reporting-and-accounting accessed 16 April 2024.

is Article 7.1 of the Kyoto Protocol, which provides that certain countries' GHG inventory reports are to include "the necessary supplementary information for the purposes of ensuring compliance with Article 3" of the Kyoto Protocol, which states (*inter alia*, and with emphasis added):

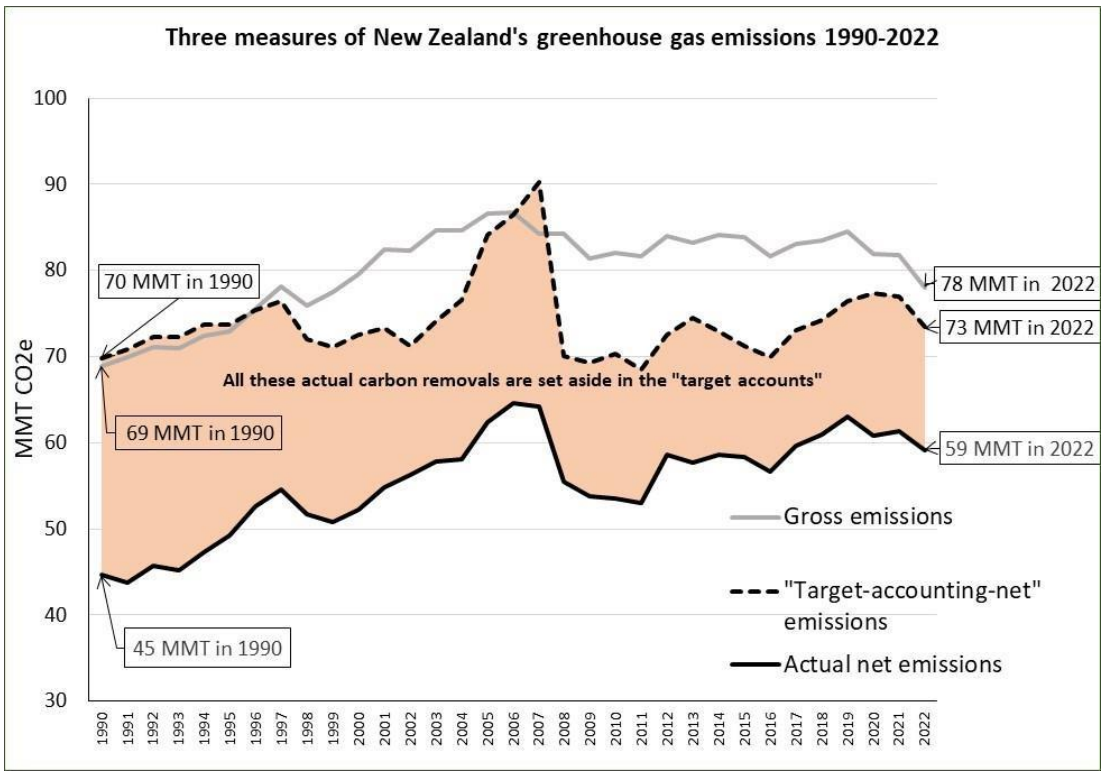
> 3. net changes in greenhouse gas emissions by sources and removals by sinks resulting from direct human-induced land-use change and forestry activities, limited to afforestation, reforestation and deforestation since 1990, measured as verifiable changes in carbon stocks in each commitment period, shall be used to meet the commitments under this Article of each Party included in Annex I.

6.13. This provision was introduced to protect the position of countries such as New Zealand which had negative rather than positive 1990 LULUCF emissions, reflecting the growth of previously-planted forests which were a net sink of greenhouse gases. Because, it was argued, this could have resulted in an unreasonably-low base against which to measure emission reductions during the Protocol's Commitment Periods starting from 2008, the New Zealand Government was allowed to calculate a target emission series that began with 1990 gross emissions, and built forward from that base year by adding-up emissions and removals exclusive of LULUCF removals attributable to pre-1990 forestry activities.

6.14. For New Zealand, this means that its Kyoto target accounts start out with gross and TAN emissions that are recorded as virtually equal in 1990 but then diverge over subsequent decades, with net accounting emissions falling below gross emissions. The chart below compares the three emissions measures – gross, net and TAN – for the years 1990-2022, using the most recent data as at July 2024[25]. The chart demonstrates how removing pre-1990 forests from the TAN calculation converts the 33% increase in actual net

[25] In this chart, gross and net emissions are from the April 2024 GHG Inventory at https://environment.govt.nz/assets/publications/GhG-Inventory/GHG-inventory-2024/2024-Summary-data-for-website.xlsx 15July 2024. TAN (target-accounted-net) emissions are from the Draft Second Emission Reduction Plan, Technical Annex page 21 Figure 6, https://environment.govt.nz/assets/publications/climate-change/New-Zealands-second-emissions-reduction-plan-Technical-annex.pdf accessed 20 July 2024 (data behind the chart supplied on request).

emissions 1990-2022 - from 45 to 59 million metric tonnes (**MMT**) - into just a 5% increase - from 70 to 73 MMT - in the TAN emissions series, giving a false impression of emission restraint.



6.15. A second feature of target accounting as currently practiced by New Zealand is the recent adoption of the practice of averaging of emissions over forest cycles of growth and harvest, mentioned in the passage quoted in paragraph 6.11 above. This averaging has no basis in the Kyoto Protocol, but has been introduced into New Zealand's measurement of "net accounting emissions" as a means of changing the timing of recorded TAN emissions in the country's accounts.

6.16. At this point it should be noted that there has been no international requirement for New Zealand to follow Kyoto Protocol gross-net accounting rules since the time in 2013 when this country declined to participate in CP2. The use of "net accounting emissions" rather than "net emissions" in the Climate Change (Zero Carbon) Amendment Act 2019, and the adoption of averaging over forestry cycles, are both deliberate voluntary acts of the New Zealand Government,

enabling the construction of emission accounts that have been described by Climate Action Tracker[26] as "misleading", a judgment with which I concur.

6.17. All internationally-declared emission-reduction targets set to date by New Zealand have been of this form, starting from base year gross emissions and targeting the level of TAN emissions at some later date. For CP1, New Zealand undertook to hold its TAN emissions 2008-2012 equal to gross emissions in 1990. For CP2 2013-202, New Zealand aimed to have TAN emissions in 2020 5% below 1990 gross emissions. Under the current NDC, the aim is to hold TAN emissions over the ten years 2021-2030 to 571 MMT of CO2-equivalent, with TAN emissions in the 2030 year 50% below 2005 gross emissions.

6.18. Looking at the years 2008-2012 in the chart above it can be seen that the official target for CP1, which was stated as "net emissions no greater than 1990 gross emissions" - was easily satisfied as TAN emissions were virtually unchanged even though gross emissions had increased by 20% since 1990 and actual net emissions had increased 23%[27]. Even without the massive negative impact on emissions of the Global Financial Crisis of 2008-2010, New Zealand could have easily met that target without any change to its pre-existing emissions growth trajectory. Under the gross-net Kyoto accounting procedure, New Zealand was eventually credited with 123.7 million "surplus units" from CP1[28], some of which it subsequently used as credits to cover its ongoing emissions growth over the period 2013-2020[29].

6.19. Framed as "no increase from 1990" the CP1 target may have sounded impressive (as was the intention) but its substantive content was devoid of genuine ambition apart from avoidance of fiscal cost.

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26 https://climateactiontracker.org/countries/new-zealand/ update 7 March 2023, Overview.

27 Using numbers from the *Greenhouse Gas Inventory 1990-2022*.

28 https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/emissions-reductions/emissions-reduction-targets/latest-update-on-new-zealands-2020-net-position/#target-accounting-for-2013-to-2020-the-detail accessed 25 August 2024.

29 See "Latest update on New Zealand's 2020 net position" at https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/emissions-reductions/emissions-reduction-targets/latest-update-on-new-zealands-2020-net-position/ accessed 30 July 2024.

6.20. Similar comments apply to the 2020 target that was substituted for an actual CP2 commitment when New Zealand abandoned the Kyoto Protocol. This target was specified (see the Appendix to this affidavit, attached marked 'A') as "reduce gross GHG emissions to 5 per cent below 1990 levels over the period 1 January 2013 to 31 December 2020", but in fact gross emissions never had to be reduced to meet the target because it was specified to be achieved under Kyoto accounting rules – in other words it was a form of gross-net target. As the charts above show, gross emissions increased by roughly a fifth between 2013 and 2020, yet the target was recorded as having been fully met and a "true-up report" was delivered to the UNFCCC in September 2023 setting out how this had been achieved [30]. As the true-up report, and the Ministry's website posting on the "net position"[31], make clear, the target was considered by New Zealand to have been met on the basis of New Zealand crediting itself with 123.3 million tonnes of forestry sequestration and topping this up with 28 million of the surplus carbon units carried over from CP1.

6.21. The effect of this way of setting targets has been to enable New Zealand to present a misleadingly positive picture of its targets and achievements, while in fact making minimal if any impact on the path of actual gross or net emissions as understood by most people in New Zealand and overseas. The gross-net target procedure creates, for the uninitiated (who include most of the voting public) a false impression of emission reductions when in fact there have been no such reductions, along with the equally false impression of greater progress towards emission reductions than has in fact been the case.

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30 https://environment.govt.nz/news/new-zealand-meets-its-2020-emissions-reduction-target/ , and "true-up report" at https://environment.govt.nz/assets/publications/Report_upon_expiration_Aotearoa_2023_ME1806.pdf . This document does not appear as a recognised true-up report on the UNFCCC website so far as I could determine, presumably because the 2020 target was a unilateral one, not undertaken under the Kyoto Protocol.

31 https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/emissions-reductions/emissions-reduction-targets/latest-update-on-new-zealands-2020-net-position/ accessed April 2024.

6.22. New Zealand's *Eighth National Communication*[32] dated December 2022, contains (pages 166-205) detailed projections of emissions by gas and by sector for the period 2020-2025, comparing projected paths with all policies and measures in force at that date against a hypothetical counterfactual without those policies and measures. The numbers in that document were based on the *Greenhouse Gas Inventory 1990-2020*, submitted to the UNFCCC in April 2022. Because the UNFCCC technical review of the Eighth Communication[33] was produced only in February 2024, these are the most recent projections to have been received and reviewed by the UNFCCC.

6.23. The chart below is constructed from the "with existing measures" (WEM) figures and projections in Table 5.5 on page 167 of the *Eighth National Communication*. There was no presentation in that table of TAN emissions alongside the gross and net emissions series, which were calculated in accordance with the regular UNFCCC inventory methodology. (Including TAN emissions would have enabled readers to compare the two versions of "net emissions" being referred to in official statements, as in the chart I constructed in paragraph 6.14 above. Also unhelpfully for lay readers, the total-emissions chart which I have constructed below appears nowhere in the *Eighth Communication,* nor in the *Technical Review*, although the numbers are in Table 5.5 and there is a copious number of detailed sector-by-sector and gas-by-gas charts presented – but all in the absence of any chart showing the overall context.)

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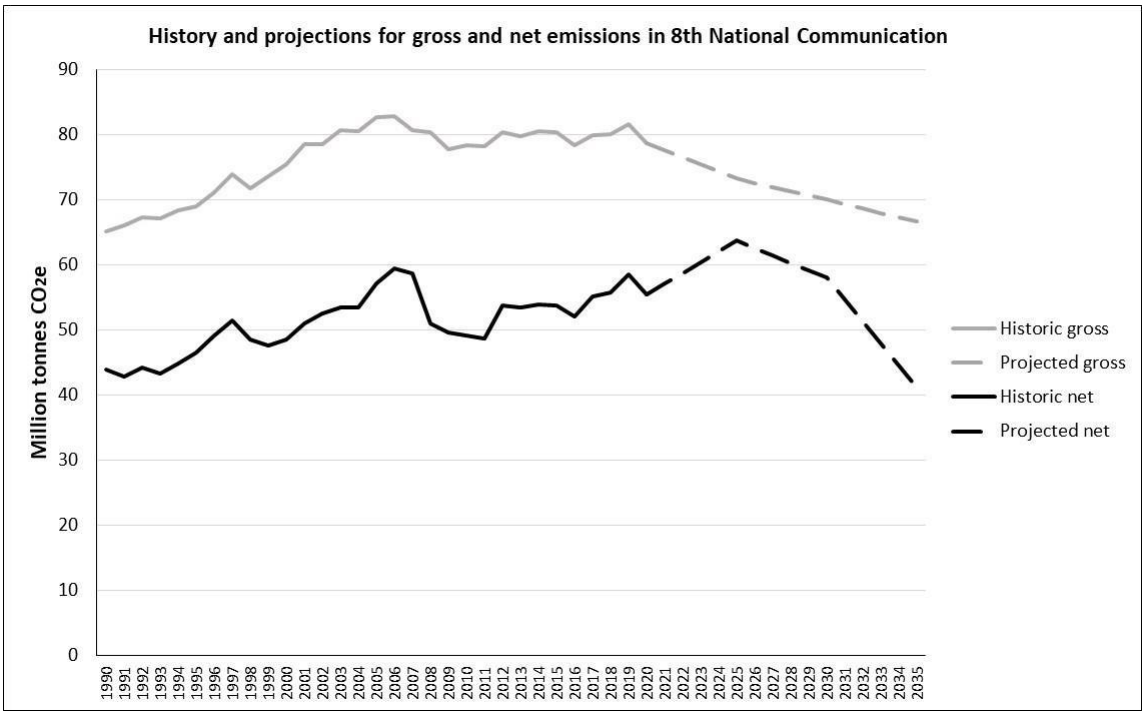
32 https://unfccc.int/documents/624714 downloaded April 2024.

33 *Report on the technical review of the eighth national communication and the technical review of the fifth biennial report of New Zealand* https://unfccc.int/documents/637026 accessed April 2024.



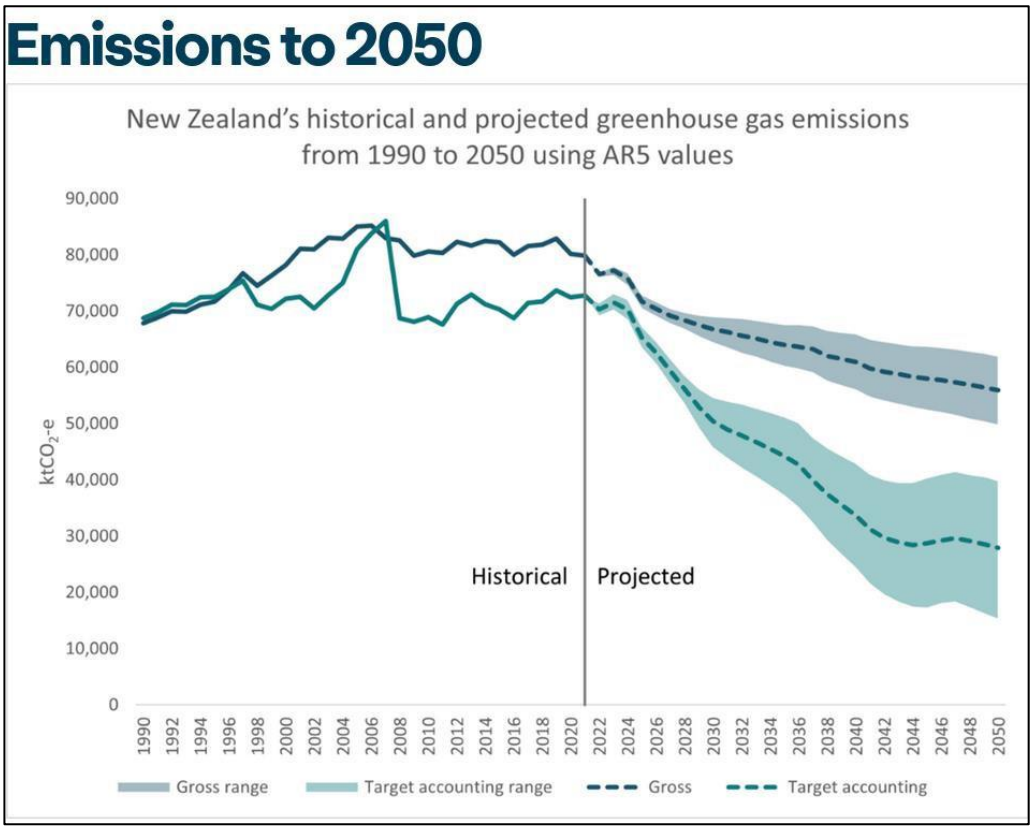
6.24. What the chart shows is that that all the policies introduced since 1990 had left gross emissions in 2021 around their 2005 peak, at more than 80 MMT, 22% above the 1990 base-year. Meantime net emissions ("what the atmosphere actually sees") had risen steadily over the three decades from 44 MMT to 55 MMT, with only a brief interruption in the years leading up to the Kyoto First Commitment Period (probably because expectations of serious and credible emissions-reducing policy were still widespread across the private sector at that time – a situation that no longer applies).

6.25. The projected track of net emissions from 2020 to 2025 in the *Eighth Communication* showed a steep increase from 55.5 MMT in 2020 to 63.8 MMT in 2025, after which at last the long-promised declining path to 2050 was projected to commence.

6.26. I turn now to a more recent set of emission projections published by the Ministry for the Environment in December 2023. The chart below is copied directly from the Ministry's release[34]. A conspicuously favourable and optimistic picture is

[34] "Updated emissions projections to 2050 released", https://environment.govt.nz/news/release-of-updated-emission-projections-to-2050/ , accessed April 2024.

shown of both the past and the future by omission from this chart of the path of the actual net emissions which were plotted in my *Eighth Communication*-based chart in paragraph 6.23 above.



6.27. In order to put those 2023 projections into more easily-understood perspective, in the chart below I have reproduced the central projections for gross and TAN emissions from the December 2023 projections[35] and added the historical and projected values for actual net emissions as recorded in the Ministry for the Environment's December 2022 projections[36]. The story again is one of official communications that, by omitting actual net emissions, gloss over or conceal the failure of policy to date to turn the tide of emissions, while promising improbably rapid progress in future years.

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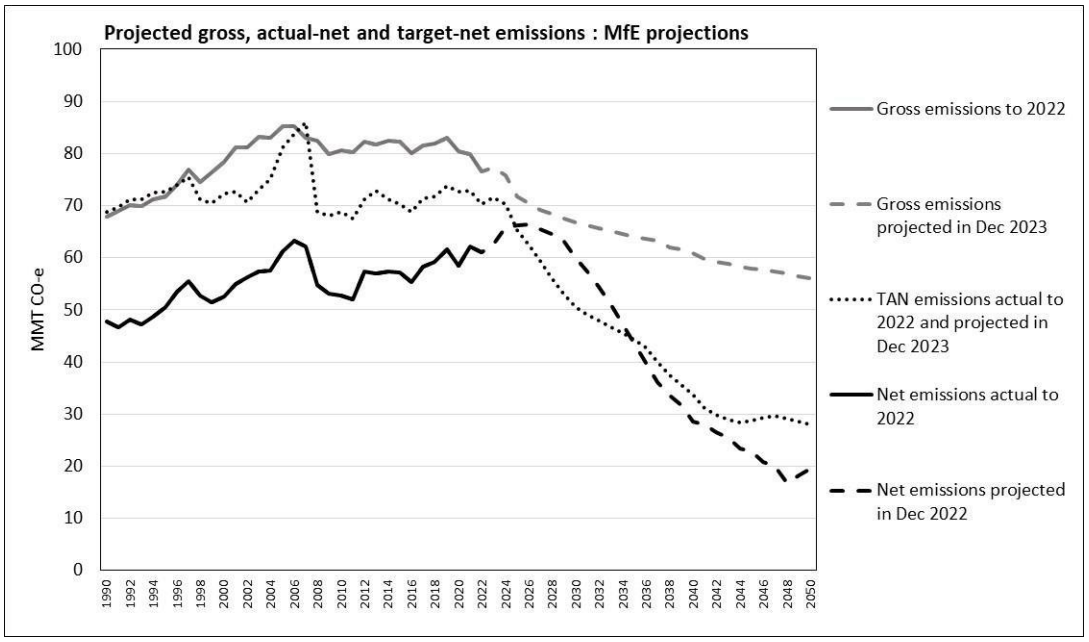
35 https://environment.govt.nz/assets/what-government-is-doing/climate-change/2050-historical-and-projected-sectoral-emissions-data-November_2023-for-publishing-v01.xlsx accessed April 2024. Figures are for the "With Existing Measures" (WEM) scenario.

36 https://environment.govt.nz/assets/2050-historical-and-projected-sectoral-emissions-data-December_2022-.xlsx downloaded 6 May 2023.



6.28. The chart in paragraph 6.27 shows a convergence of gross emissions with both net and TAN emissions in the mid-late 2020s, due to a reduction in net carbon absorption in forestry as the harvest volumes of post-1989 forests rise. From 2030 on the projected series diverge again, indicating the expectation in the 2023 projections that forestry absorption of carbon will do most of the heavy lifting towards the 2050 net-zero target.

7. Reliance on imported "offset credits"

7.1. The purchase from offshore sources of "carbon credits" created as a result of emission reduction activities in other countries is defensible in theory but runs into very severe problems around quality assurance. New Zealand has been one of only a few countries relying extensively on these purchases as a way of offsetting ongoing gross emissions. The record to date has been dogged by scandal, and the outlook is for continual problems with the availability and quality of these offshore credits.

7.2. A major 2016 report from the Morgan Foundation[37] analysed the use of imported carbon credits by the New Zealand Government to meet the letter of its obligations under the First Commitment Period of the Kyoto Protocol, while directly subverting the spirit of those obligations.

7.3. The foreward by Dr Gareth Morgan summarised the findings thus: "our Government has stealthily but steadfastly circumvented the intent of the agreements it has entered, not just by diluting the mechanisms for adjustment (like our Emissions Trading Scheme), but by trading in the products of organised crime in Ukraine and Russia."[38] I agree with this characterisation.

7.4. Under the Kyoto Protocol, participating developed nations committed to reduce their emissions of greenhouse gases below some specified baseline. In New Zealand's case, average annual TAN emissions 2008-2012 were to be held below 1990 gross emissions, with the proviso that this could be achieved in part by purchasing emission reductions in other countries, as represented by UN-approved Kyoto credits such as ERUs.

7.5. It quickly became apparent that Russia and Ukraine had large excess holdings of Assigned Amount Units (**AAU**s), as a result of the collapse of their industrial sectors, which had brought their gross emissions down dramatically relative to the 1990 baseline. Known as "hot air", these AAUs were excluded from international trading in an attempt to maintain the integrity of the basic Kyoto trading architecture. Converted to ERUs by often-fraudulent means, these excess units were unloaded into the market, but rejected by most of the Kyoto partners. Until mid-2015, however, New Zealand allowed unlimited importing by local emitters, who could then meet their obligations under the NZETS by surrendering these units that lacked environmental integrity. The price of New Zealand Units issued under the NZETS was thereby driven down to minimal

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37 Geoff Simmons and Paul Young, *Climate Cheats: how New Zealand is cheating on our climate change commitments, and what we can do to set it right*, Morgan Foundation, April 2016, online at http://morganfoundation.org.nz/wp-content/uploads/2016/04/ClimateCheat_Report8.pdf (accessed 27 March 2019).

38 Ibid., p.iii.

levels, disadvantaging those New Zealand firms (including forest owners) who had acted in good faith, while enriching those that took opportunistic advantage of the windfall of cheap units.

7.6. One important consequence of this use by New Zealand of cheaply imported overseas units was that the country's target for the First Commitment Period 2008-2012 was technically met with a surplus of emission units carried over to the subsequent period. The Ministry for the Environment's October 2023 *Update on New Zealand's Net Position*[39] notes that "the Crown held over 28 million surplus international units from the Kyoto Protocol's first commitment period (surplus CP1 units) that the Government was confident had environmental integrity".

7.7. 6.5 million of those units were later used to meet New Zealand's 2013-2020 target, and the Crown's remaining 21.5 million of these units were cancelled in 2020 as they could have had no credibility or validity for meeting subsequent targets. (Additionally, another 95.6 million units from CP1, already acknowledged as being "of low or questionable quality", were cancelled[40].)

7.8. No sooner had this first use of imported units ended than the Climate Change Response (Zero Carbon) Amendment Act 2019 made explicit provision for the new domestic emissions budgets to be covered by imported units in future. Initial Government press releases claimed, incorrectly, that in relation to the three consecutive domestic emissions budgets required under the Act[41],

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39 https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/emissions-reductions/emissions-reduction-targets/latest-update-on-new-zealands-2020-net-position/ accessed 8 April 2024.

40 https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/emissions-reductions/emissions-reduction-targets/latest-update-on-new-zealands-2020-net-position/#target-accounting-for-2013-to-2020-the-detail accessed 25 August 2024.

41 "Aotearoa sets course to net-zero with first three emissions budgets", press release 9 May 2022, https://www.beehive.govt.nz/release/aotearoa-sets-course-net-zero-first-three-emissions-budgets accessed April 2024.

> The law requires that these budgets be met through domestic alone. The Paris Agreement, on the other hand, recognises that while countries need to take action at home, they can also work with other nations to cut emissions. That is why New Zealand's new NDC goes beyond the domestic emissions budgets Cabinet has agreed.

7.9. In fact, the Climate Change Response Act 2002, as amended in 2019, does not "require" the budgets to be met by domestic action alone. Section 5W of the Act provides only that the Minister must "set a series of emissions budgets … in a way that allows those budgets to be met domestically" [emphasis added]. This is an aspiration, not a binding commitment. The crucial provision in the Act is actually s.5Z, titled "How emissions budgets are to be met", which states that "offshore mitigation may be used if there has been a significant change of circumstance". This gives the Minister effectively free range to assert a change in circumstances and open the way for imported carbon credits.

7.10. The domestic emissions budgets published under those provisions of the Zero Carbon Act (reproduced in the Appendix to this affidavit) involved reductions of TAN emissions that were less ambitious than the country's NDC under the Paris Accord. The NDC had from the outset explicitly anticipated using imported units to meet a "responsibility target". Nevertheless it quickly became apparent that substantial imports of overseas units will be required for the domestic target as well, unless it is abandoned.

7.11. Looking forward to 2050, the stated intention of the New Zealand Government is to remain open to the use of imported units to meet its non-binding commitments under the Paris Agreement.

7.12. In April 2023 the New Zealand Treasury published *Nga Kōrero Āhuarangi Me Te Ōhanga/Climate Economic and Fiscal Assessment 2023*[42] in which chapter 7 was entitled "New Zealand's first Nationally Determined Contribution – scenario analysis of fiscal risk from offshore mitigation". The three scenarios

[42] https://www.treasury.govt.nz/sites/default/files/2023-04/cefa23.pdf accessed 9 April 2024.

set out in Table 7.2, p.83 found that if the domestic budget for the years 2021-2030 was exactly achieved, 99.2 MMT would still have to be covered by imports to fulfil the NDC[43]. If the Ministry for the Environment's projected emissions "under current policies" as of July 2023 turned out correct, the required coverage from imported units would be 114.1 MMT.

7.13. The Cabinet minutes CAB-23-MIN-0283 of 3 July 2023 record, *inter alia,* two estimates of the potential fiscal cost of importing units[44]:

> 18 **noted** that at the time of updating the NDC in 2021, Cabinet noted cost estimates for the required offshore mitigation were in the range of $7.5 to $13.2 billion by 2030 for an NDC of a 49 percent reduction [CAB-21-MIN-0434];
> 19 **noted** that the cost of using offshore mitigation has been estimated by Climate Change Economic and Fiscal Assessment analysis to range between $3-24 billion by 2030;
> 20 **noted** that the total fiscal cost of achieving the first NDC will depend on the costs of international emissions reductions, as well as the direct and indirect fiscal costs of accelerating New Zealand's domestic transition

7.14. The second of these estimates of the fiscal cost of importation of carbon credits – between $3 billion and $24 billion – came from the Treasury's April 2023 calculations[45]. But because neither the Nationally Determined Contribution nor the domestic emissions budgets are legally binding obligations, the Treasury did not enter these figures as contingent liabilities on the Crown balance sheet, and there is a real prospect that New Zealand may simply renege on its NDC under the Paris Agreement rather than pay the rest of the world compensation for failure to honour the Nationally Determined Contribution.

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43 In a Cabinet paper "Nationally Determined Contribution Strategy" dated 3 July 2023, https://environment.govt.nz/assets/publications/NDC-strategy-proactive-release.pdf, the then-Minister for Climate Change, James Shaw, estimated a 99 million tonne shortfall which could be covered by imported units; see paragraph 29 page 4 of the document.

44 https://environment.govt.nz/assets/publications/NDC-strategy-proactive-release.pdf , page 2 of the appended Cabinet Minute of Decision.

45 Table 7.4 page 86 of the Treasury document. The Chair of the Climate Change Commission, Dr Rod Carr, interviewed on Radio NZ's Nine-to-Noon programme on 17 November 2021, gave an estimate in the middle of this range: 100 million overseas carbon units purchased at a price of $140 giving total cost of $14 billion.

7.15. This issue is extensively analysed and discussed in a recent paper from the McGuinness Institute/Te Hononga Waka[46], which notes that at the time the NDC was announced in 2015 it was clearly understood by officials, and reported to Cabinet, that no enforceable legal obligation would exist to meet the NDC target, and hence there would be no necessary requirement to purchase credits to meet the target. The McGuinness Institute report argues that the issue is no longer so clearcut, partly because of new trade-treaty obligations undertaken since 2015, but finds no commitment that unequivocally binds the New Zealand Government.

8. Overhang of banked units

8.1. A problem of emissions trading in the EU as well as New Zealand has been the tendency of the authorities to over-issue carbon credits relative to the market requirement for them, a process which naturally drives the price down dramatically. In the case of the EU emissions trading scheme the over-issuing of credits held the price down close to zero between 2013 and 2017, as the chart below[47] illustrates, before the overhang was eliminated by withdrawing units from the market into a Market Stability Reserve.

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46 *Discussion Paper 2024/1: Risks hiding in plain sight: does a commitment under the Paris Agreement to purchase offshore carbon credits create a requirement to report that commitment in the financial statements of the New Zealand Government?* https://www.mcguinnessinstitute.org/publications/discussion-papers/ accessed April 2024.

47 https://upload.wikimedia.org/wikipedia/commons/6/69/EUA_prices_in_the_EU-ETS_until_2021-10.png accessed April 2024..

8.2. Signs of an overhang of banked units in the NZETS are not new. My 2019 submission to the select committee considering the Climate Change Response (Emissions Trading Reform) Amendment Bill described the issue thus:

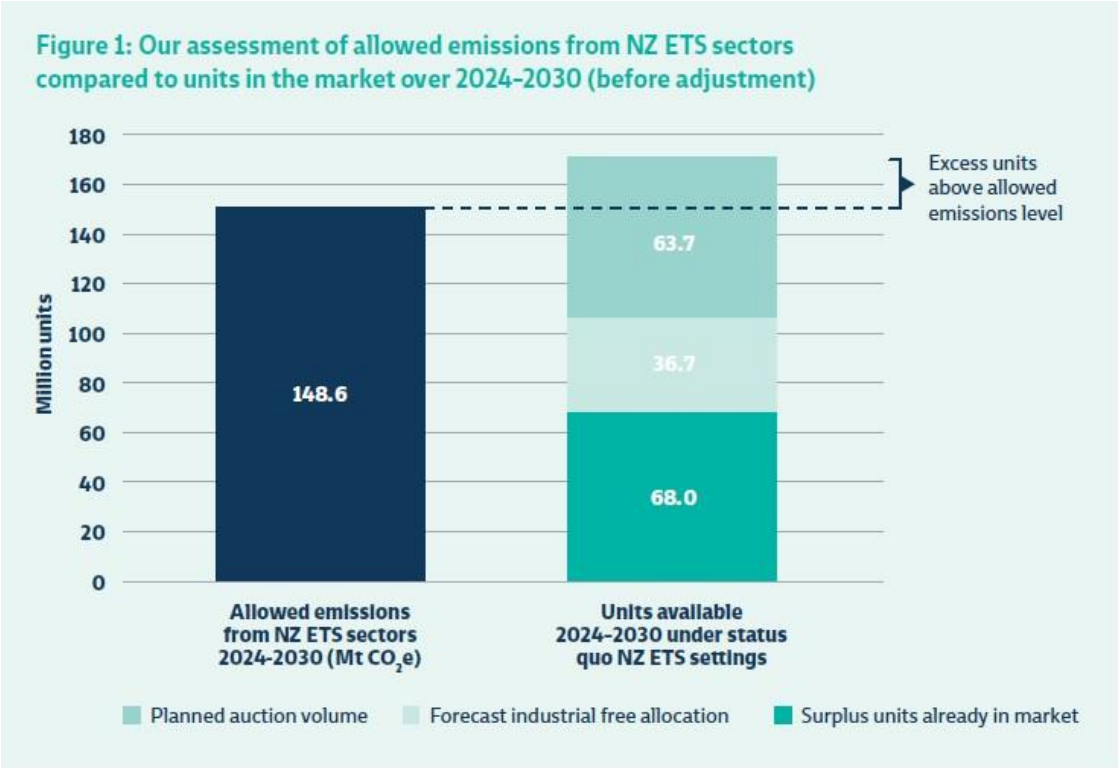
> The NZU is basically a voucher that entitles its holder to cover, by surrender to the Government, whatever the implicit per-unit emission tax turns out to be in each period. By issuing large numbers of these vouchers free of charge to politically-influential insiders, the New Zealand Government in effect pays them to pollute. By allowing the vouchers to be carried over to future periods in an environment of price uncertainty, the Government makes them objects of financial speculation and market manipulation for capital gain. Having allowed NZU vouchers to be accumulated while emissions were covered by imported junk units, the Government is now faced with a large stock of "banked" NZUs overhanging the market for the next few years.

I consider that this description of the position remains accurate five years later.

8.3. The following chart, taken from page 17 of the Climate Change Commission's February 2024 *Advice on NZ ETS unit limits and price control settings for 2025-2029*[48], shows how the NZETS market, and hence the price of carbon units in

[48] https://www.climatecommission.govt.nz/public/ETS-advice/2024/CCC_2024-advice-on-NZ-ETS-unit-limit-and-price-control-settings-2025-2029.pdf accessed 30 July 2024.

coming years, is overhung by a surplus of banked units over and above the number that could bind actual emissions to bring them within the stated emissions budgets for the period.



8.4. In 2020 the Zero Carbon Act replaced the previous NZETS price cap of $25 per tonne by a "cost containment reserve"[49] and sections 30GB(d) and (e) inserted into the principal Act authorised the Minister to release reserve units into the NZETS auctions in order to dampen undesired price escalation. This mechanism is in strong contrast to the EU's use of its Market Stability Reserve to suck units out of an over-supplied market. During 2022 this mechanism was triggered, adding substantially to the overhang of surplus units that caused failure of all four NZETS auctions in 2023.

49 https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/ets/a-tool-for-climate-change/the-role-of-price-controls-in-the-nz-ets/ accessed 11 April 2024; Climate Change Commission *Nga Kōrero Āhuarangi Me Te Ōhanga/Climate Economic and Fiscal Assessment 2023* pp.60-61.

8.5. The banking provisions in s.5ZF of the Act allow unused credits to be carried forward without restriction, which means that lower emissions in one period translate to less binding budgets in later periods. Combined with the power given to the Minister to print and sell over-budget volumes of emission units, this has resulted in a massive overhang of excess units, that has helped render the NZETS ineffective in its ostensible purpose of limiting emissions.

8.6. The Climate Change Commission's *Advice on NZETS Unit Limits and Price Control Settings for 2025-2029*, released in February 2024, pointed out[50] "The surplus of New Zealand Units (NZUs) already in the market represents oversupply. The outcomes of all four government auctions in 2023, which were declined with no units sold, support this conclusion. … This unit surplus will not self-correct." The Commission estimated (p.48 Figure 6) that of 160,8 million NZ Units in private sector holdings at 30 September 2023, 68 million units were "surplus" in the sense of not being held to cover future forest-harvesting or other forthcoming surrender liabilities.

8.7. This surplus represents the carrying-forward of units obtained in the past from forestry planting, industrial free allocation, and importation of foreign units to cover surrender obligations that would otherwise have had to be met with NZUs. Its mere existence means that the NZETS market is paralysed by the uncertainty over the future course of the surplus, especially in face of the sharp uptick in free allocation of NZUs to forestry in the four quarters of calendar-year 2023[51].

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50 https://www.climatecommission.govt.nz/public/ETS-advice/2024/CCC_2024-advice-on-NZ-ETS-unit-limit-and-price-control-settings-2025-2029.pdf accessed 11 April 2024, p.3.

51 https://www.epa.govt.nz/assets/Uploads/Documents/Emissions-Trading-Scheme/Reports/Unit-movement/ETS-Unit-Movement-ReportDec23.xlsx accessed 16 April 2024 showing transactions to the end of calendar 2023.

9. Emission reduction targets

9.1. The chart below[52] shows the statutory framework within which Emission Reduction Targets, Budgets and Plans fit:

9.2. First targets are set; then emissions budgets laid out that are consistent with meeting the targets; then emission reduction plans specify the actual policy measures to be taken to keep emissions within the budget limits. This section reviews the targets; the next section considers budgets and the Emissions Reduction Plan.

9.3. The chart shows also a separate exercise which I shall not discuss further - measures that are designed to enable adaptation to the effects of whatever climate change eventuates. Targets, budgets, and emission reduction plans are pitched at the national contribution to a wider global emission-reduction effort, whereas adaptation confronts the consequences of global inaction to which New Zealand will have contributed only a small part.

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52 Taken from Ministry for the Environment, *Te hau mārohi ki anamata – Transitioning to a low-emissions and climate-resilient future: Have your say and shape the emissions reduction plan*, October 2021, p.9.

9.4. A detailed list of the various emissions targets set by New Zealand Governments since 1990, set out in the *Fifth Biennial Communication*, is in the appendix to this affidavit. All were specified, and their achievement measured, in terms of the gross-net accounting procedure described in section 6 above. Official documents repeatedly present them without qualification as "emissions reductions", with no mention of the vital gross-net calculation on which they rest, nor of the fact that up to 2020 the targets required no serious reduction in actual gross or net emissions.

9.5. The 2020 target, for instance, was gross-net, and from the outset was in fact declared to be so in the small print, by inclusion of the words "New Zealand is applying the Kyoto Protocol framework of rules in reporting and measuring progress towards this unconditional target... This includes applying Kyoto Protocol accounting rules to the target"[53].

9.6. In the case of the Nationally Determined Contribution (NDC) target under the Paris Agreement, the target is very obscurely stated[54]

> **The Nationally Determined Contribution of New Zealand is:**
> To reduce net greenhouse gas emissions to 50 per cent below gross 2005 levels by 2030. This corresponds to 41 per cent when managed using a multi-year emissions budget starting from New Zealand's 2020 emissions target. Based on New Zealand's most recent greenhouse gas inventory, this budget provisionally equates to 571 Mt CO2e over 2021 – 2030.

9.7. Reference to the chart in paragraph 6.26 above shows that the chosen base year of 2005 was the peak year for gross emissions, a choice that departed radically from the Kyoto Protocol's target-accounting framework (which has only a single allowable base year, namely 1990) but that obviously provided the least onerous burden for any chosen percentage reduction. A 50% reduction on 2005 gross emissions is only a 37% reduction on 1990; a 41% reduction on 2005 gross is just a 25% reduction on 1990. The headline number thus falls

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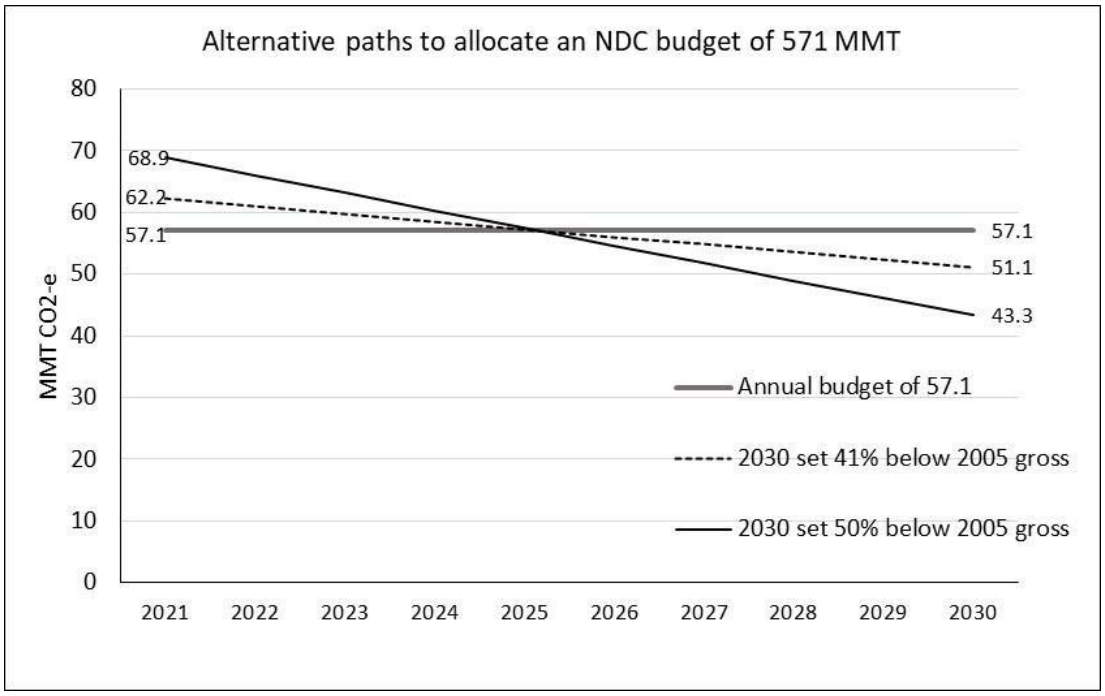
53 *New Zealand's Third Biennial Report under the United Nations Framework Convention on Climate Change*, https://unfccc.int/documents/198859 , p.18.

54 *Submission under the Paris Agreement New Zealand's first Nationally Determined Contribution Updated 4 November 2021*, https://unfccc.int/documents/497818 accessed April 2024.

drastically when translated to actual Kyoto Protocol rules for gross-net accounting.

9.8. To reconcile the two apparently different stated targets (50% and 41%) for the year 2030, the key is that the NDC total budget for the ten years 2021-2030 is 571 MMT. This can be drawn, as in the chart below, as a simple flat line showing annual emissions of 57.1 MMT throughout the 2020s, or as a sloping path ending at a point that is 41% below the 2005 gross emissions number; or as a steeper line ending at a point that is 50% below the 2005 gross. Estimates of gross emissions in 2005 vary from inventory to inventory, but for present purposes I use the number from the 1990-2022 inventory published in April 2024: 86.615 MMT. A 41% reduction on that number yields a 2030 target of 51.1 MMT. A 50% reduction gives a 2030 target of 43.3 MMT.



9.9. The three emissions paths for the ten years 2021 to 2030 in paragraph 9.8 are all consistent with a total budget of 571 million MMT over the period, but they involve different timing:

- The flat path starts at 57.1 MMT in 2021 and stays at that level.

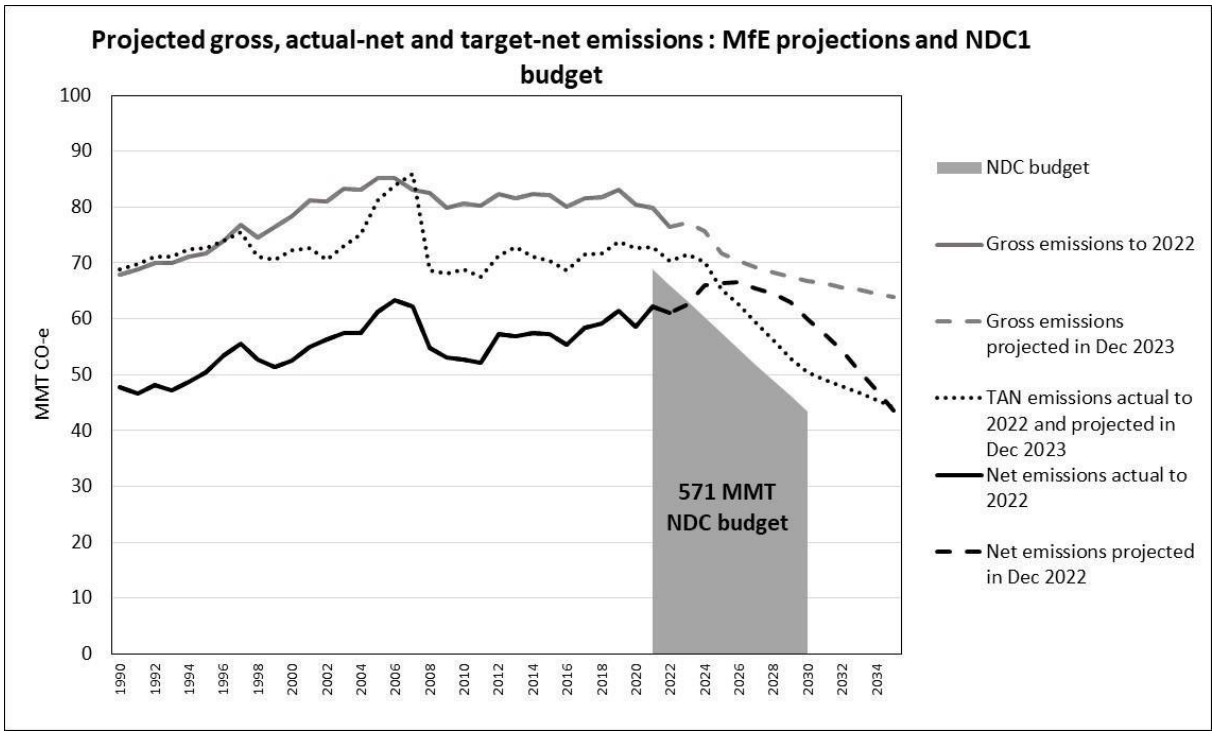
- The 41% path starts at 62.2 MMT in 2021 and declines steadily to reach 51.1 MMT in 2030.

- The 50% path starts at 68.9 MMT in 2021 and declines to 43.3 MMT in 2030

9.10. The actual level of TAN emissions in 2021 was 72.8 MMT[55], effectively ruling out the steady annual budget and the 41% path in paragraph 9.8. The 50% path comes closest to showing a straight-line reduction of target-net emissions sufficient to meet the NDC. (In practice a slightly curved line would be needed, starting at 72.8MMT and finishing at 43.3MMT while staying within the 571MMT ten-year total.)

9.11. The following chart takes the 2022-2023 emissions projections from the chart in paragraph 6.23 above and superimposes the 50% NDC target path from paragraph 9.8. It is apparent that a substantial gap, of the order of 100 MMT over the ten years, has to be bridged between the projected TAN emissions path and the NDC budget.

[55] Calculated from https://environment.govt.nz/assets/what-government-is-doing/climate-change/2050-historical-and-projected-sectoral-emissions-data-November_2023-for-publishing-v01.xlsx accessed 15 July 2024, sheet "1990-2050 Central estimates AR5".



9.12. Summing up, the emissions targets set by the New Zealand Government for years to 2020 were so weak as to be meaningless. New Zealand's withdrawal from Commitment Period Two of the Kyoto Protocol signalled to the rest of the world New Zealand's lack of serious commitment to joint action, while releasing New Zealand from the prospect of being subject to legally binding obligations under the Protocol.

9.13. In contrast, the NDC target for 2021-2030 is quite ambitious relative to projected TAN emissions, but in the absence of effective action drastically to reduce gross emissions the target will again be met (if at all) by means of forestry and overseas offsets.

10. Emissions Budgets and Emissions Reduction Plans

10.1. In May 2022 the Government published emissions budgets covering the periods 2022–2025, 2026–2030, and 2031–2035. These budgets were the basis for the First Emissions Reduction Plan (**ERP1)** published in May 2022, setting out

policies and strategies for meeting the budgets[56]. The table below is from page 14 of ERP1. For the nine years 2022-2030 the budgets totalled 290+305 =595 MMT, already 24 MMT above the NDC total target amount for ten years 2021- 2030. This was, in other words, a step back from the NDC.

	FIRST EMISSIONS BUDGET (2022–25)	SECOND EMISSIONS BUDGET (2026–30)	THIRD EMISSIONS BUDGET (2031–35)
All gases, net (AR5)	290	305	240
Annual average	72.5	61.0	48.0

10.2. Running to over 300 pages, ERP1 was filled with aspirational rhetoric but contained only very limited commitments to policy action, few of which were subsequently implemented in a sustainable way, virtually none of which carried any penalty or provision for failure, and most of which were reversed following the 2023 change of Government.

10.3. Chapters 5 to 9 of ERP1 were supposedly built around a declared intention to "get the settings right across the economy", with three "key actions" identified per chapter. Similarly Chapters 10 to 16 on "sector plans" described another 38 "key actions". (For the lists see page 19 and pages 22-23 of ERP1.)

10.4. The "actions" listed were in fact mostly mere agenda items for later policy consideration, not actual actions. Even where the Plan contained positive, concrete actions these were of limited scope, vulnerable to later political opportunism, and lacking any mechanisms to either entrench genuine policy measures or embed them in a compelling overarching strategic scheme. The Plan was a plan only in the weakest, most general, indicative sense.

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56 *Te hau mārohi ki anamata Towards a productive, sustainable and inclusive economy: Aotearoa New Zealand's First Emissions Reduction Plan* https://environment.govt.nz/assets/publications/Aotearoa-New-Zealands-first-emissions-reduction-plan.pdf accessed 12 April 2024.

10.5. In Chapter 5, for example, the three "key actions" were stated to be "implement emissions pricing for agriculture", "align the New Zealand Emissions Trading Scheme and price controls with climate goals", and "adjust the New Zealand Emissions Trading Scheme to drive a balance of gross and net emissions reduction". The first of these immediately fell victim to the agricultural sector's entrenched opposition to emissions pricing, and in 2024 was replaced by a further exemption of agriculture from participation in the NZETS. The second and third fell victim to the political difficulty of establishing and implementing NZETS settings that would be tough enough to achieve even the softer domestic emissions budget. In February 2024 the Climate Change Commission[57] laid out in detail the inadequacy of the NZETS either to achieve budgeted targets or to properly balance gross and net emissions reduction.

10.6. Chapter 6 of ERP1 had three "key actions". The first was to establish a Climate Emergency Response Fund to finance repair of damage from climate change; the fund was duly set up, but with nothing to protect it from being raided by Government to meet competing fiscal priorities it was first raided by Labour and then converted to a "climate dividend", by National[58]. The second "key action" was to "support climate objectives by issuing Sovereign Green Bonds"; this turned out to be simply a means of raising finance for projects such as the Auckland City Rail Link which would otherwise have been funded from the general pool of Government finance[59]. I am aware of no evidence that labelling a particular sovereign borrowing stream "Green" has made any measurable difference to total borrowing or climate resilience, relative to a counterfactual without this particular programme. The third "key action" was to "improve transparency and management of climate risks through mandatory climate

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57 *Advice on NZ ETS unit limits and price control settings for 2024-2029* https://www.climatecommission.govt.nz/public/ETS-advice/2024/CCC_2024-advice-on-NZETS-unit-limit-and-price-control-settings-2025-2029.pdf accessed April 2024.

58 Newshub, 'Climate policy experts accuse National, Labour of looting Climate Emergency Response Fund', https://www.newshub.co.nz/home/politics/2023/09/climate-policy-experts-accuse-national-labour-of-looting-climate-emergency-response-fund.html .

59 See NZ Treasury *New Zealand Sovereign Green Bond Allocation Report 2023 Allocation as of 30 June 2023*, https://debtmanagement.treasury.govt.nz/sites/default/files/2023-12/nz-sovereign-green-bond-allocation-report-2023.pdf accessed April 2024, p.2.

reporting" – but as page 118 of ERP1 noted, this disclosure regime had already been legislated for in 2021, and all that was envisaged to be new under the Plan was to "explore" options for its extension.

10.7. In a hard-hitting review of the way the ERP1 was assembled the Parliamentary Commissioner for the Environment, Simon Upton, commented that[60]

> A coherent policy framework was lacking. Ministers did not systematically turn their minds to the key choices and trade-offs they faced. Nor did they explore alternative pathways that could have brought those issues into sharper relief. While officials placed some key framing questions in front of ministers along the way, they did not present those questions as a coherent package, nor did they ask them early enough. As a result, ministers were unable to provide a coherent policy framework to guide the detailed work of officials.

In my opinion this accurately captures the lack of serious engagement at top levels of the Government – a failure to engage that is incompatible with any notion of "contributing to the maximum extent" or "highest possible ambition".

The Draft Second Emission Reduction Plan

10.8. In July 2024 the Coalition Government published its draft Second Emissions Reduction Plan (**ERP2**)[61], which represents in my opinion a significant reduction in ambition, and in particular a switch away from attempts to reduce gross emissions towards even greater reliance on carbon offsets from forestry and from overseas.

10.9. Pages 118-119 of the ERP2 document set out an extensive list of "ERP1 actions discontinued", including the Clean Vehicle Discount scheme, the ban on new fossil-fuel generation of electricity and phase-out of fossil fuels, and the action plan for decarbonising industry. Meantime the Coalition Government has

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60 *How ministers and officials developed the first emissions reduction plan — and how to do it better next time: Summary document*, September 2023, https://pce.parliament.nz/media/bqinv5kv/how-ministers-and-officials-developed-the-first-emissions-reduction-plan-summary.pdf p.4.

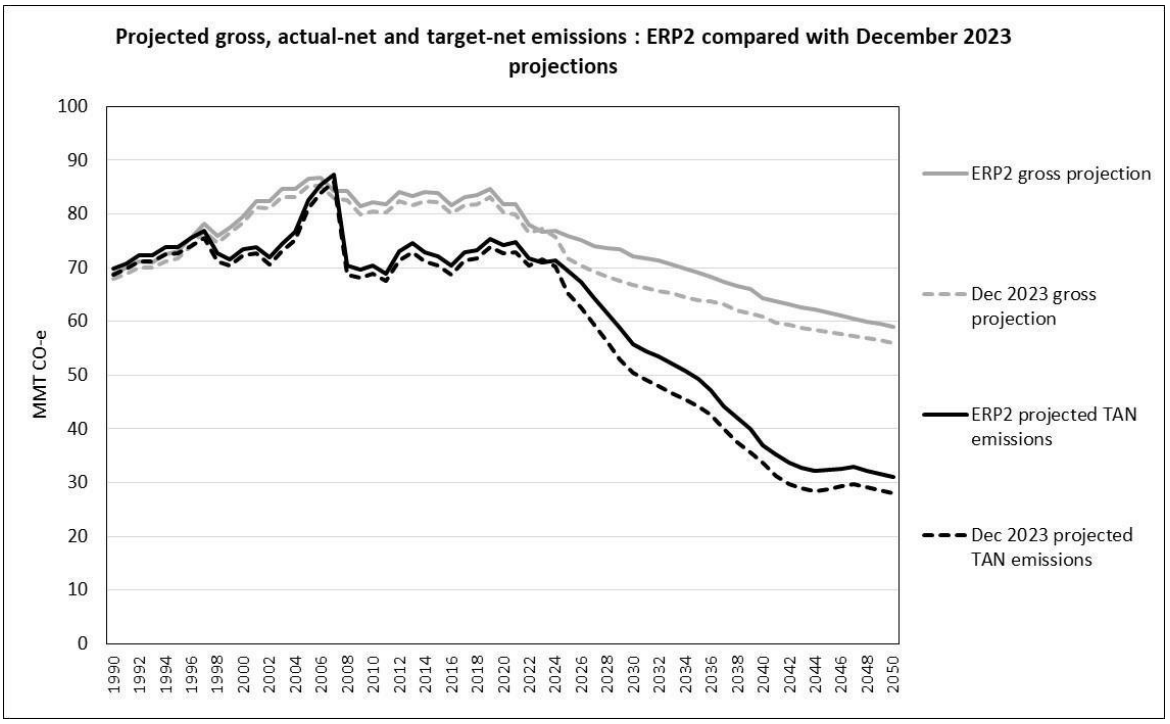
61 *Discussion document: New Zealand's second emissions reduction plan2026-30* https://environment.govt.nz/assets/publications/climate-change/New-Zealandssecondemissions-reduction-plan-Discussion-document.pdf accessed 20 July 2024.

extended the exemption of agriculture from emissions pricing through the NZETS.

10.10. The draft ERP2 is based upon five "pillars"[62] not one of which refers to reducing gross or net emissions. Rather, reference is made to "resilient infrastructure", "credible markets", "abundant clean energy", "climate innovation", and "nature-based solutions". The last of these amounts to an increased focus on absorption of carbon by massive new forestry plantings, to reduce TAN emissions while leaving gross emissions little changed. In particular, Figure 0.2 of the draft ERP2[63] foreshadows virtually no change in transport emissions of CO2, despite the fact that transport is a key area where gross emissions could be rapidly and substantially reduced by electrification of the vehicle fleet and shifts in transport modes away from high GHG emissions.

10.11. The draft ERP2 incorporates anticipated higher levels of gross and TAN emissions relative to the December 2023 Ministry for the Environment projections graphed in paragraph 9.11 above. The chart below compares the draft ERP2 projected emission paths (from Figure 6 of the Technical Annex) with the December 2023 projections in paragraph 9.11. While some of the upward shift is caused by methodology changes and continued operation of the Tiwai Point aluminium smelter, there is also a sharp increase in projected emissions through to 2050 that is attributable directly to the scrapping of the Clean Car Discount and the Government Investment in Decarbonising Industry scheme[64].

62 Draft ERP2 page 14.
63 Draft ERP2 page 14 Figure 0.2.
64 See Table 2, page 16 of the Technical Annex to ERP2.



10.12. The draft ERP2 combines its very optimistic projections of emission trends out to 2050 with a stated expectation that the price of carbon emissions in the New Zealand economy will be held down to $50 per tonne for the fifteen years 2035-2050[65]:

> Assumed New Zealand Emissions Trading Scheme (NZ ETS) prices have changed to reflect changed assumptions about market supply of forestry units. The modelling assumes a price path in which prices continue to rise to $75 per tonne in 2028 but then fall to a long-run price of $50 per tonne (in 2023 dollar values) from 2035. This reflects one view of the broad market dynamics expected in the NZ ETS as the steady tightening of the NZ ETS cap leads to modest price increases in the near term, while over the medium to long term the marginal cost of exotic afforestation is expected to anchor the NZ ETS price.

This represents a radical change from the December 2023 Ministry for the Environment emissions projections, which were based on the assumption that the carbon price in the NZETS would rise to $230 per tonne by 2050[66].

65 Draft ERP2 p.33.
66 Draft ERP2 Technical Annex p.13.

10.13. This dramatic change in future carbon pricing reflects the Government's commitment to what is described as a "least-cost path", where[67]

> 'least cost' refers to minimising the overall cost to the nation, by 2050, of reducing emissions and shifting to a net zero 2050. The costs are costs to businesses and households investing in gross emissions reduction, fiscal costs to the Government, and the wider costs or benefits from changes to the things people value, such as clean air…. [A least cost approach] focuses on net emissions, recognising the relatively low-cost abatement opportunity offered by forestry.

10.14. The notion of "cost" employed here is a narrow one: the short-run private marginal abatement cost of bringing TAN emissions down. It has long been apparent that if short-run cost is the sole concern, and if the choice is between reducing gross emissions and sequestering carbon in growing forests, then forestry is the cheaper option. As the Climate Change Commission observed in February 2024[68]

> The NZ ETS risks initially encouraging increases in forest area at the expense of reductions of emissions at their source. This is a result of the way the scheme rewards carbon dioxide removals by forests, which is usually lower cost than reducing emissions at source.

10.15. The Commission went on to emphasise the need for emissions reduction policy to retain a clear focus on gross-emissions reduction rather than simply relying on forestry absorption[69]:

> Aotearoa New Zealand's climate policies need to encourage both decarbonisation and forest planting, as both are essential in the transition to a low emissions economy. The NZ ETS is a key tool for meeting emissions budgets and the 2050 target, but there are structural issues that prevent it from fulfilling these objectives in a stable way over time…
>
> In the near term, the NZ ETS is likely to encourage extensive afforestation but only limited gross emissions reductions. This is a result of the way it allows carbon

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67 Draft ERP2 p.24.

68 Climate Change *Commission Advice on NZ ETS unit limits and price control settings for 2025-2029* February 2024 https://www.climatecommission.govt.nz/public/ETS-advice/2024/CCC_2024-advice-on-NZ-ETS-unit-limit-and-price-control-settings-2025-2029.pdf accessed 30 July 2024, p.19.

69 *Commission Advice on NZ ETS unit limits and price control settings for 2025-2029* p.34.

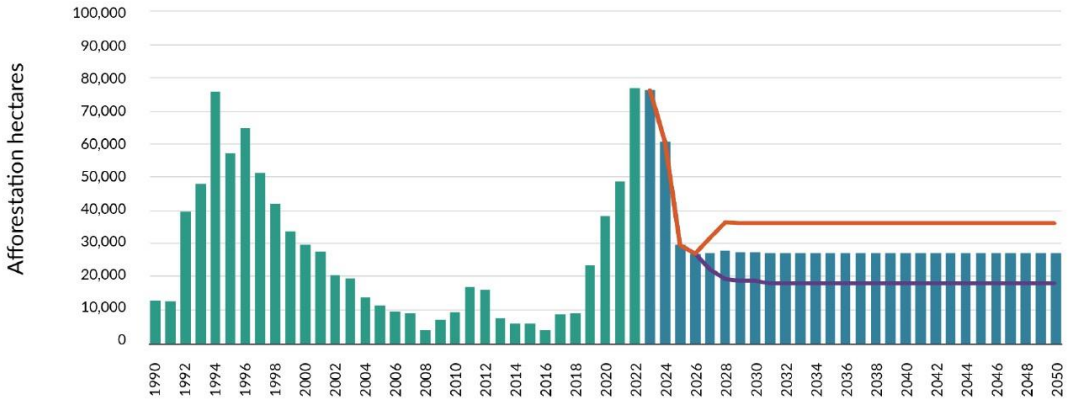
> dioxide removals by forests to undermine the incentive to reduce emissions at their source.
>
> ...
>
> In our advice on the second emissions reduction plan, the Commission recommended amending the NZ ETS to separate the incentives for gross emissions reductions from those applying to forests. If the Government chooses not to pursue this approach, it will be important to clarify how objectives for gross emissions reductions will be achieved, for example through strengthening complementary policies instead.

10.16. I agree with the Commission's argument against over-reliance on forestry as the means of reducing TAN emissions. In the long run, the costs of failing to bring gross emissions down are likely to outweigh the short-run cost advantage of LULUCF absorption. This appears to me to be the central weakness in the draft ERP2, which virtually abandons any non-price means of cutting gross emissions, while relying on massive afforestation to hold down the NZETS price incentive for emissions reduction to a level where cost-competitive abatement options for gross emissions abatement will remain limited.

10.17. I reproduce below Figure 8.1 from page 78 of the draft ERP2. The planned afforestation programme involves planting about 28,000 hectares per year over 25 years to 2050, a total of 700,000 hectares or 2.5% of the total surface area of NZ. New Zealand's net stocked planted production forest covered an estimated 1.79 million hectares as at 1 April 2023[70], so this is roughly a 40% increase, to be achieved without encroaching on productive agricultural land.

[70] https://www.mpi.govt.nz/forestry/forest-industry-and-workforce/forestry-wood-processing-data/new-zealand-forest-data/ accessed 30 July 2024.

Figure 8.1: Actual and projected afforestation rates assumed in the 2024 projections (hectares), 1990–2050



10.18. The draft ERP2's assumption that this surge of afforestation would suffice to hold the NZETS price down to $50 throughout the period to 2050 is a very strong one, and unlikely to be sustainable, in my opinion. Internationally there will be strong pressures at work to drive up the price of carbon emissions and carbon-absorption credits, and insulating the domestic NZETS price paid to forestry owners from this international market trend will be difficult. Only by barring New Zealand forest owners from participating in the international market for carbon credits will it be possible to prevent the local price from rising to the export value of carbon offsets.

10.19. The draft ERP2 acknowledges that meeting the Government's Second Emissions Budget for the years 2026-2030 will require resort to purchases of offshore offsets, and the prediction (on page 33 of the draft ERP2) that the NZETS price will rise to $75 per tonne by 2030 appears to be based on an estimate of the offshore credit price at that time. Thereafter the world price of carbon offsets is likely to rise sharply, raising the opportunity cost (the foregone export earnings) of local forestry credits sold for $50 on the NZETS market. With those opportunity costs factored in, it is likely that gross emission reductions, albeit driven by non-price policies in the short run, will have a substantially higher payoff than is allowed for the draft ERP2.

10.20. I therefore consider that far from representing a least-cost approach, the draft ERP2 in fact just shifts costs onto future generations by deferring gross emissions reductions and covering the resulting gap by using up the limited space for afforestation. In no sense can this strategy be credibly defended as the maximum effort of which New Zealand is capable.

11. Future carbon prices

11.1. The range of carbon taxes modelled in our 1993 work noted in paragraph 1.3 above ran from $33.60 up to $100 per tonne of CO2. Translated to 20**24** dollars using the consumer price index, these correspond to present-day values of $**69** and $**206** per tonne. As an indication of the low degree of ambition in present-day New Zealand policy, I note that the New Zealand Emissions Trading Scheme (NZETS) price of NZUs is (as of 11 July 2024) $53.07[71].

11.2. Recent modelling by the US Environmental Protection Agency shows estimates for the social cost of CO_2 emissions in 2020 ranging from US$110 to US$370 (NZD180-620) per tonne, while the social cost of methane emissions in 2020 ranges from US$470 to US$2,900 (NZD780-4,800) per tonne. By 2030 the social costs of greenhouse gas (GHG) emissions are estimated to rise to US$1,100-3,700 per tonne for CO_2 and US$40,000-110,000 per tonne for methane.[72] In contrast, the NZETS operates with a price cap (the "cost containment reserve trigger price") for 2024 of NZD 230 per NZU, rising to NZD 283 by 2028[73]. However, the draft Second Emissions Reduction Plan (ERP2) published on 17 July 2024 and updated on 19 July[74] foreshadows a price for NZUs that peaks at NZD 75 in 2030, then falls to NZD 50 from 2035 to 2050 as

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71 *Carbon News*, https://www.carbonnews.co.nz/, 11 July 2024

72 *EPA Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances*, https://www.epa.gov/system/files/documents/2023-12/epa_scghg_2023_report_final.pdf (accessed 11 July 2024) page 78 Tables 3.1.1 and 3.1.2. Note that the EPA numbers are per tonne of gas before conversion into CO2-equivalents.

73 https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/ets/nz-ets-market/annual-updates-to-emission-unit-limits-and-price-control-settings/ accessed 11 July 2024.

74 ` https://consult.environment.govt.nz/climate/second-emissions-reduction-plan/ accessed 29 July 2024.

sequestration credits from massive afforestation are unloaded into the New Zealand carbon market at prices that are evidently intended to remain insulated from world carbon markets. That reduction of the planned NZU price in 2050 from last year's NZD 283 to this year's NZD 50 is indicative of a dramatic reduction in ambition.

12. The Zero Carbon Act

12.1. The Climate Change Response (Zero Carbon) Amendment Act was passed into law in November 2019.

12.2. The Act contained a number of symbolically-important steps:

- It adopted a two-basket approach to greenhouse gases, separating biogenic methane from the other gases, and setting separate targets: net emissions of GHGs other than methane to be zero by 2050, and gross emissions of methane to be reduced 10% by 2030 and 24-47% by 2050.
- It required the Minister to set emissions budgets for three periods into the future, and makes him or her politically accountable for achieving them.
- It established the Climate Change Commission to conduct research, review and monitor the emissions budgets, advise the Minister, and recommend required changes.
- It required the Government to prepare risk assessments and a national adaptation plan.

12.3. Substantively, however, the Act does no more than set up a general framework for policy formation, without resolving any of the critical issues. It has several provisions that leave the future radically uncertain and underpin the general lack of serious ambition to address emissions reduction:

- Neither the long term targets, nor the emissions budgets provided for in the Act are legally binding - "no remedy or relief is available for failure"[75]. Both the targets and the budgets are only aspirational and any

[75] Climate Change Response Act 2002 s.5ZM.

accountability is simply political. The lack of a binding requirement in the Act that would force the Minister and the Government to act decisively to reduce emissions renders the Act effectively a dead letter in the face of the political difficulty of enforcing emission reductions against strong opposition from large vested interests. One consequence of this is that, as noted in paragraph 7.14, the New Zealand Treasury, having calculated (in April 2023) the potential fiscal costs of buying-in offshore emission units to meet the domestic and NDC emissions targets for 2030, did not proceed to include any contingent liability for those costs in its *Half Year Economic and Fiscal Update* released in December 2023[76]. As Treasury's April 2023 analysis pointed out, "New Zealand may change its NDC at any time. The total required volume of offshore mitigation could therefore be different than under the currently stated NDC1 if it were to be further updated".

- This lack of binding requirements in the Act mirrors the weakness of the international agreements to which New Zealand is a signatory. As the Climate Change Commission pointed out in its 2024 review of the 2050 emissions-reduction target[77],

> The Paris Agreement imposes a binding obligation on countries to **have** an NDC in force at all times but does not impose an obligation to meet that NDC. NDCs themselves are non-binding. This means changes in the level of Aotearoa New Zealand's NDC are not a change in international obligations.

- The banking provisions in the new s.5ZF of the principal Act allow unused credits to be carried forward without restriction, which means that lower emissions in one period translate to less binding budgets in later periods. Combined with the power given to the Minister to print and sell over-

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76 https://www.treasury.govt.nz/sites/default/files/2023-12/hyefu23.pdf accessed 11 April 2024, pp.84-95.

77 https://www.treasury.govt.nz/sites/default/files/2023-04/cefa23.pdf accessed 11 April 2024, p.82.

budget volumes of emission units, this has resulted in a massive overhang of excess units, that has helped render the NZETS ineffective in its ostensible purpose of limiting emissions. The Climate Change Commission's *Advice on NZETS Unit Limits and Price Control Settings for 2025-2029*, released in February 2024, pointed out[78] "The surplus of New Zealand Units (NZUs) already in the market represents oversupply. The outcomes of all four government auctions in 2023, which were declined with no units sold, support this conclusion. … This unit surplus will not self-correct." The Commission estimated (p.48 Figure 6) that of 160.8 million NZ Units in private sector holdings at 30 September 2023, 68 million units were "surplus" in the sense of not being held to cover future forest-harvesting or other forthcoming surrender liabilities. This surplus represents the carrying-forward of units obtained in the past from forestry planting, industrial free allocation, and importation of foreign units to cover surrender obligations that would otherwise have had to be met with NZUs.

- Offshore emission reductions/offsets may be used to meet emission budgets to an extent that is to be at the discretion of future Ministers (s.5X(4) and s.5Z(2) of the Act), which places radical uncertainty over the future value of emission permits. The Minister's "duty" to ensure that budgets are met applies not to actual gross or net emissions, but to TAN emissions as defined above.

- The Minister and the Commission must have particular regard to "economic circumstances and the likely impact … on taxation, public spending, and public borrowing" (s.5ZC(2)(b)(viii)), a provision which makes climate policy hostage to the economy rather than the other way round.

78 https://www.climatecommission.govt.nz/public/ETS-advice/2024/CCC_2024-advice-on-NZ-ETS-unit-limit-and-price-control-settings-2025-2029.pdf accessed 11 April 2024, p.3.

12.4. The effect of these provisions is to make the targeting and budgeting exercise a matter of political discretion rather than binding rules. There is a conspicuous contrast between the limited role and powers of the Commission (advisory only and with no enforcement powers) and, for example, the Reserve Bank of New Zealand (RBNZ) which exercises genuine authority over the setting of monetary policy.

12.5. The resulting uncertainty over how future policy will work out removes much of the incentive on business and households to act quickly to reduce emissions. The common economic response to uncertainty is to delay decisions on matters such as investment and R&D while individual economic actors wait to see how the Government exercises its discretion in setting budgets and designing actual policies to achieve them.

12.6. The Act's lack of strong provisions to ensure that its targets are met reflects the extreme difficulty of moving serious climate policy forward in a democratic system subject to vigorous vested-interest lobbying and political obstruction.

12.7. This implies that when it promised under the Paris Accord to contribute "to the maximum extent" and with "the highest ambition", the New Zealand Government was offering only what it perceived to be politically achievable within those constraints, as distinct from the maximum effort of which the New Zealand economy could be capable. Rather than exercising its authority to push policy forward, the Government has settled for mere "nudges" to move the national community ahead. That process is inevitably a slow one, while the required response to the pending climate change emergency now needs to be rapid.

13. Climate Change Response (Emissions Trading Reform) Amendment Act 2020

13.1. Passed in June 2020, this Act made some changes to the NZETS but did not fully address the fundamental flaws noted above, and left in place the consequences of the scheme's past lack of integrity.

13.2. Certain privileged large corporate interests now treat as an established property right their access to continued free issues of NZUs, and their freedom to use banked units issued in past years (credits which had been retained by surrendering the cheap imported hot-air credits described in paragraph 7.5 of this affidavit).

13.3. Agricultural interests, having repeatedly succeeded via intensive lobbying in holding at bay both carbon taxes and ETS discipline, yet again secured exemption for agricultural greenhouse gases from the scheme, with no credible sanctions for past failure to reduce emissions. The new s.215 inserted into the principal Act provided for a report into an "alternative pricing system for farm-level agricultural emissions" to be completed by April 2022, but did not require that this report would lead to implementation of such an alternative pricing arrangement. As of the second half of 2024, following several years of working parties and reports on pricing agricultural emissions, agriculture remained exempt from the NZETS.

13.4. The previous NZETS price cap of $25 per tonne was replaced by a "cost containment reserve"[79] which still left the NZETS far removed from the economic concept of cap-and-trade, and rendered it simply a de-facto carbon tax imposed via obscure and complex procedures subject to undue influence from powerful vested interests. Sections 30GB(d) and (e) inserted into the principal Act authorise the Minister to dump reserve units into the NZETS

[79] https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/ets/a-tool-for-climate-change/the-role-of-price-controls-in-the-nz-ets/ accessed 11 April 2024; Climate Change Commission *Nga Kōrero Āhuarangi Me Te Ōhanga/Climate Economic and Fiscal Assessment 2023* pp.60-61.

auctions in order to dampen undesired price escalation. During 2022 this mechanism was triggered, adding substantially to the overhang of surplus units that caused failure of all four NZETS auctions in 2023.

13.5. Section 30IA(2) inserted into the principal Act explicitly allows the Minister to meet emissions targets by offshore purchases, effectively rendering the NZETS uncapped, albeit at the Minister's discretion.

13.6. In my submission to the Select Committee considering the Bill in 2019 I quoted as follows from page 176 of our book *The Carbon Challenge* published in 2010:

> While making no serious inroads into gross emissions, the ETS potentially undermines public willingness to support emissions pricing in future by imposing burdens and distributing benefits in a way that will seem, to many, unfair. The complexity of the scheme also makes it opaque where it should be transparent, and means that it will require continual regulatory fine-tuning.

13.7. I then went on argue that the changes to the NZETS proposed in 2019 (and subsequently legislated)

> add complexity to the NZETS while (i) perpetuating an unfair and distortionary allocation of adjustment burdens, (ii) leaving untouched the perversely anti-decarbonisation effect of interaction between the NZETS and the wholesale electricity market, and (iii) failing to remove private-sector uncertainty over the future quantity and price of allowable emissions. The extensive new requirements placed on the Minister to "consult", combined with the very limited advisory-only powers that Parliament has conferred on the new Climate Change Commission, open the door yet more rent-seeking and capture by the large corporate vested interests that have to date been the main beneficiaries of the NZETS's inadequacies

14. Economics of maximum effort

14.1. At the time in the early 1990s when I and others advocated adoption of a carbon tax by New Zealand, it was reasonable to think that a tax of relatively modest proportions, rising gradually over time, could "nudge" the economy away from reliance on fossil fuels and towards a low- or zero-carbon production system. In my opinion that time has now passed. If climate change is to be halted, the

coming decade will have to bring dramatic policy interventions that go well beyond the gentle introduction of easily-responded-to price signals. The outlook now, under serious policy, would be for both a dramatically increased price on carbon, and a range of non-price measures to force the pace of progress towards net-zero carbon.

14.2. In a report prepared in 2018 for the New Zealand Productivity Commission, Vivid Economics[80] outlined three scenarios of ways to reach net-zero emissions by 2050. All of these relied heavily on a switch to electric vehicles alongside expansion of forestry, with gross emissions falling by 28-43% over the three decades[81]. A notable feature of the Vivid Economics report is its relatively low estimate of the carbon price required to move the economy along these scenario paths: "The initial findings suggest that New Zealand is likely to be able to decarbonise its economy at a cost comparable to that expected in the rest of the developed world. Under a 25 MtCO2e target, the domestic emissions prices required to put New Zealand on track to a net zero emissions economy are below Paris consistent global emissions prices until well after 2035, and below or towards the lower bounds of anticipated Paris Agreement consistent emissions prices in 2050"[82]. While arguably optimistic, these results suggest that New Zealand is not less able than other developed economies to play a full and leading role in the global effort outlined in the Paris Agreement

14.3. A subsequent study conducted by NZIER for the Ministry for the Environment reached more pessimistic conclusions regarding the carbon price, but estimated that zero carbon by 2050 could still be achieved alongside ongoing growth of GDP, albeit at a somewhat lower rate than could be sustained if the

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80 Vivid Economics, *Modelling the transition to a lower net emissions New Zealand: Interim Results*, April 2018, https://www.productivity.govt.nz/sites/default/files/Modelling%20the%20transition%20to%20a%20lower%20net%20emissions%20New%20Zealand_Interim%20Results_Concept%2C%20Motu%2C%20Vivid.pdf .

81 Vivid Economics 2018 p.42.

82 Vivid Economics 2018 p.39.

target were to be abandoned[83]. As the authors note, "under all core scenarios and targets, the economy continues to expand"[84].

14.4. To achieve the goal of zero carbon by 2050 may require the New Zealand economy to forego some GDP growth, but neither study found an unsustainable burden of cost. Both, however, pointed to the need for early action that would have the effect of raising the carbon price quite sharply above its current level. "Maximum effort" would require policy settings under the new legislation to incorporate a far higher level of ambition than New Zealand Governments have exhibited to date.

15. Non-applicability of the Resource Management Act

15.1. The Resource Management Act 1991 (**RMA**) devolved to local authorities the task of issuing consents for new activities, with provision made for central Government to provide guidance on matters of national, as distinct from local, importance by the issuing of National Policy Statements, as provided for in sections 45 and 45A of the Act. Those statements were conceived of as being critical components for the delivery of a sound resource management regime, but they were not forthcoming in any sort of timely fashion. In 1996, the OECD review of New Zealand's environmental performance stated plainly that local government implementation of the RMA was lagging in part due to "the absence of more detailed policy guidance from the central Government" and strongly recommended greater central government support.[85]

15.2. One other process for enabling national concerns to be brought to bear on planning decisions was provided for in the RMA. The Minister for the

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83 NZIER, *Economic Impact Analysis of 2050 Emissions Targets*, June 2018, https://www.mfe.govt.nz/sites/default/files/media/Climate%20Change/NZIER%20report%20-%20Economic%20impact%20analysis%20of%202050%20emissions%20targets%20-%20FINAL.pdf , p.xi Figure 5 shows the carbon price paths and p.18 Figure 13 shows GDP growth rates.

84 *Economic Impact Analysis of 2050 Emissions Targets* p.17.

85 OECD (1996) *OECD Environmental Performance Reviews: New Zealand.*

Environment was given a reserve power to "call-in" projects which raised national issues, and this power was exercised in 1994 when the Electricity Corporation of New Zealand (ECNZ) applied for consent to build the Taranaki Combined Cycle (TCC) plant at Stratford[86]. Following an inquiry, the Minister granted consent on condition that the plant's 1.5 million tonnes of CO2 emissions be mitigated by tree planting or other means. Far from setting a precedent for implementation of the Government's international obligations under the FCCC, however, this has been the only greenhouse-gas-related call-in to date.

15.3. In 2004 the RMA was amended to explicitly prevent local authorities from having regard to climate-change-related issues, which were to be dealt with under separate legislation. The new section 104E read: "When considering an application for a discharge permit or coastal permit to do something that would otherwise contravene section 15 or section 15B relating to the discharge into air of greenhouse gases, a consent authority must not have regard to the effects of such a discharge on climate change, except to the extent that the use and development of renewable energy enables a reduction in the discharge into air of greenhouse gases, either (a) in absolute terms; or (b) relative to the use and development of non-renewable energy.

15.4. A series of court challenges tested whether this left space for an electricity generating plant or a coal mine to be refused consent on the grounds that the activity involved the discharge into the atmosphere of greenhouse gases. In *Greenpeace New Zealand Ltd v Genesis Power Ltd* [2008] NZSC 112, and in *West Coast ENT Inc v Buller Coal* [2013] NZSC 87 the Supreme Court affirmed that the RMA, as it then stood, ruled out consideration of end-use emissions as part of the planning consent process. Consents have therefore been granted for projects with high potential to increase New Zealand's aggregate

86 *Annual Report of the Ministry for the Environment for the Year Ended 30 June 1994* p.5, and *Annual Report of the Ministry for the Environment for the Year Ended 30 June 1995* p.5.

carbon emissions because local authorities had until recently no grounds to withhold consent on this basis.

15.5. Section 104E of the RMA was eventually repealed by section 35 of the Resource Management Amendment Act 2020, which came into force on 30 November 2022. According to a Ministry for the Environment Guidance Note issued at that time, this meant that "from 30 November 2022, the RMA can … be a long-term tool for reducing emissions" and that "local government can now … consider greenhouse gas emissions when they make consent decisions"[87].

15.6. The November 2022 Guidance Note spelled out that (page 18) "When developing RMA-related plans, local government should consider climate change issues and the role that RMA plans have in reducing greenhouse-gas emissions", and that this could extend to, *inter alia*, "banning new low- and medium-temperature coal boilers, and phasing out existing ones by 2037; introducing a consent requirement for processing heat from non-coal devices; [and] requiring high-emission sites to prepare an emissions plan to reduce their emissions over time" (page 20).

15.7. The 2020 RMA amendment also, however, required councils, in preparing their long term plans, to "have regard to … any emissions reduction plan made in accordance with section 5ZI of the Climate Change Response Act 2002"[88]. Given the very limited ambition of ERP2, the effect of this is probably to limit the scope of local government action to promote emissions reduction, even though[89]

> In relation to plans and policies prepared under the RMA, the requirement to 'give effect to' higher order documents such as a national policy

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87 Ministry for the Environment, *National adaptation plan and emissions reduction plan : Resource Management Act 1991 guidance note* https://environment.govt.nz/assets/publications/national-adaptation-plan-and-emissions-reduction-plan-guidance-note.pdf accessed 30 July 2024, p.4.

88 S.61(2)(d) of the RMA.

89 *National adaptation plan and emissions reduction plan : Resource Management Act 1991 guidance note* p.6.

> statement is a stronger statutory requirement than 'have regard to'. Where possible, local government should consider giving effect to these higher order documents in a way that is consistent with relevant parts of the emissions reduction plan or national adaptation plan.

15.8. There has not yet to my knowledge been any legal case testing the legitimacy of a consent being withheld on the basis that the activity concerned would increase GHG emissions.

16. Final comments

16.1. The two most conspicuous features of Aotearoa/New Zealand's policies on climate change have been (i) the lack of genuine ambition that could have been commensurate with the scale of the challenge, and (ii) the rapid retreat from being subjected to any legally binding requirements. At only one point has the New Zealand Government been subject to any legally binding enforceable obligation to deliver on emission reduction; this was the First Commitment Period of the Kyoto Protocol, when New Zealand's opportunistic exploitation of its forestry sinks to avoid reducing gross emissions enabled an empty commitment to be met (with, indeed, a surplus of units carried over from the period of importing low-quality "hot air" units).

16.2. Subsequently New Zealand walked away from the legally binding Second Commitment Period of the Kyoto Protocol, opting simply to set itself an unchallenging "responsibility target" and accepting no legal liability for any failure to meet that target. Once the Paris Accord had been signed, with its non-binding "Nationally Determined Contributions", New Zealand immediately declared an NDC based on gross-net accounting with a base year selected to minimise the stringency of the targets; and now that the cost of purchasing offshore units to fulfil the non-binding targets seems likely to prove substantial, there is an increasing likelihood that New Zealand will walk away from its Paris commitments with no penalty other than some loss of reputation.

16.3. New Zealand's diplomatic position in climate negotiations internationally has been focused on protecting what successive Governments have perceived to be New Zealand's own vital interest in minimising, rather than maximising, this country's commitments to the international community.

16.4. One area in which this has been apparent is the role of forestry planting in New Zealand's commitments. In the early days of the Kyoto Protocol negotiations New Zealand gave an undertaking that it would not rely solely on forestry sequestration as a means of avoiding direct action to reduce gross carbon emissions. That undertaking quickly became a dead letter; Chapter 3 of our 2010 book *The Carbon Challenge* documented the progressive weakening of policy ambition between 1992 and 2008 as the opportunity to rely on forestry instead of reducing gross emissions was seized upon.

16.5. The other notable area in which New Zealand has failed to do its utmost on the international front is the provision of active and effective support for the voices of indigenous communities of the Pacific Islands, as expressed most importantly through the Alliance of Small Island States (AOSIS).

16.6. From the outset the NZETS has been ineffective as a means of driving decarbonisation. The central reason has been that the scheme was and is designed to fail in this task. The crucial design flaws have been evident throughout, and in my opinion have been deliberately included and retained through successive iterations because they cater to the interests and demands of powerful vested interests that believe they stand to lose from effective use of the market mechanism to drive decarbonisation.

16.7. Two speeches by Maori Party MPs in the debates on the original NZETS legislation accurately captured, in my opinion, the essential weakness of the scheme. Tariana Turia said[90]:

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90 *Hansard* 28 August 2008, Vol.648 pp.18087-18089.

> Fundamentally, the emissions trading scheme is limited by being nothing more than an emissions trading scheme, when what we really require is an emissions reduction programme. ... Reducing our emissions is about honouring our commitment to those who have passed on that we will leave this planet in a better state than it is now for those who come after us. The Government acknowledges that this scheme will make almost no difference. ... To make the world a better place we need to live differently, and we all need to live differently….
>
> One of the fundamental issues that has troubled us in the passage of this bill has been the issue of inequity. The inequity exists at several levels. We suggest that the emissions trading scheme is politically sustainable only if it seen to share the Kyoto burden fairly across all sectors at each stage, and all starting at the same time…
>
> The Māori Party does not support the bill. We are of the view that what is needed is a radical rethink of the whole approach. We are opposed to the concept of paying the polluters, of rewarding the corporate lobbyists with huge exemptions, and of the very nature of trading, rather than reducing, emissions.

16.8. Te Ururoa Flavell said[91]:

> We accept that any emissions reduction programme will result in changes to land values and will enable the Government, business, and the public to account for environmental costs on business, including forestry. So that is not the reason why we oppose the bill. The primary reasons are that it is not effective in reducing emissions, it is not transparent, and the polluters do not pay—they receive massive subsidies in the form of corporate welfare. The whole point of economic incentives to cut emissions is defeated.

16.9. There is a longstanding distinction in the economics literature between "rules" versus "discretion" in policy. Rules mean that non-negotiable decisions are taken, to which all players in the economy simply have to adjust; an example is the Official Cash Rate (OCR) set by the RBNZ. Discretion means that policy detail is negotiable and subject to political decisions reflecting the pressures of the moment. Rules provide certainty whereas discretion potentially opens the way to opportunism and rent-seeking, and so tends to foster uncertainty. Both policy approaches have advantages and disadvantages. In the right hands and the right circumstances, discretionary policy is fully defensible. But in the case of emission reduction there is an especially strong argument for maximising certainty and minimising uncertainty. The NZETS, and the accompanying policy stance of the New Zealand Government, seem set to maximise

91 *Hansard* 2 September 2008, Vol 649 p.18136.

uncertainty, and hence to withhold, rather than impose, effective incentives for New Zealand businesses and households rapidly to abate their emissions.

SWORN at this day of 2024 before me:

Ivo Geoffrey Bertram

A solicitor of the High Court of New Zealand

This is the Appendix marked 'A' referred to in the affidavit of Ivo Geoffrey Bertram sworn at Wellington this 26 day of August 2024 before me:

Appendix: Statement of New Zealand's emission reduction targets from the *Fifth Biennial Communication*[92] pages 23-30

2.2 New Zealand's Targets

Aotearoa/New Zealand has committed to the following international and domestic emissions reduction targets.

International targets
2030 target (2021–30)

Under the Paris Agreement, New Zealand has set a headline target for NDC1 to reduce net greenhouse gas emissions to 50 per cent below gross 2005 levels by 2030. The NDC1 target is economy-wide, covering all sectors and all greenhouse gases.

2020 target (2013–20)

New Zealand's 2020 target is to reduce gross GHG emissions to 5 per cent below 1990 levels over the period 1 January 2013 to 31 December 2020.

This target is taken under the United Nations Framework Convention on Climate Change (UNFCCC) while applying the Kyoto Protocol framework of rules. This means we can meet this target through a combination of reducing our emissions, eligible forestry activities and offshore mitigation.

We are on track to meet this target based on the 2022 submission of *New Zealand's Greenhouse Gas Inventory*. This will be formally confirmed following the completion of the international expert review process.

2012 target (2008–12)

In 2015 New Zealand confirmed we had met our 2012 target for the first commitment period of the Kyoto Protocol. This was to reduce greenhouse gas emissions to 1990 levels between 2008 and 2012. New Zealand's 'True-up report' to the UNFCCC9 provides detail on how the target was met.

Domestic targets
In 2019, the Climate Change Response Act 2002 (CCRA) was amended to include new domestic
emissions reduction targets. These legislated targets require:

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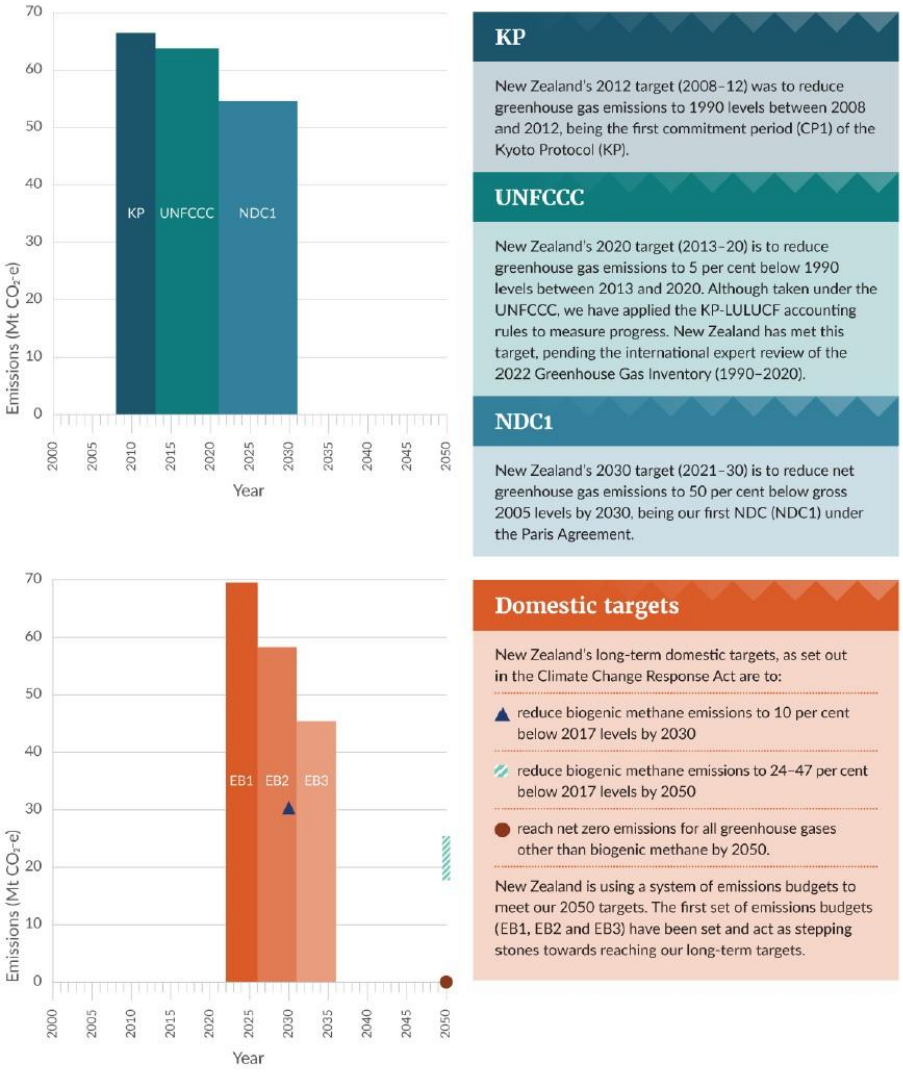
92 https://unfccc.int/documents/624723 accessed April 2024.

• all GHGs, other than biogenic methane, to reach net zero by 2050

• a minimum 10 per cent reduction in biogenic methane emissions by 2030, and a 24 to 47 per cent reduction by 2050 (compared with 2017 levels).

Figure 2.1 shows New Zealand's emissions reduction targets under the Kyoto Protocol for 2008–12 (KP) and under the UNFCCC for 2013–20, along with our first NDC under the Paris Agreement for 2021–30. Figure 2.2 shows New Zealand's domestic targets set under the CCRA[93].

Figure 2.1: New Zealand's emissions reduction targets



Note: The Kyoto Protocol (KP), United Nations Framework Convention on Climate Change (UNFCCC) and Nationally Determined Contribution (NDC) targets are displayed as multi-year budgets. The domestic targets under the CCRA are point-year targets; however, these targets will be achieved using a system of multi-year emissions budgets. GHGs = greenhouse gases; Mt CO_2-e = million tonnes of carbon dioxide equivalent. Budget periods cover the years 2022–25 for EB1, 2026–30 for EB2, and 2031–35 for EB3. Target and budget periods end at 31 December

Note: Shown applying the 100-year time-horizon global warming potentials (GWP_{100}) from the IPCC Fourth Assessment Report (AR4) for comparability purposes.

93 [Figure 2.2 is missing from the document on the UNFCCC website.]

These targets are presented in further detail below.

2.2.1 New Zealand's 2020 target

New Zealand has a quantified economy-wide emission reduction target to reduce emissions to 5 per cent below 1990 gross GHG levels for the period 2013–20. With the submission of *New Zealand's Greenhouse Gas Inventory* (1990–2020) in April 2022, emissions are now reported for the full target period and, following the completion of its review, the final steps required to complete the accounting process will be undertaken. While the target for this period was taken under the UNFCCC, New Zealand has applied the Kyoto Protocol framework of rules.

Based on UNFCCC methodology, this 5 per cent below 1990 target was the equivalent of a Quantified Emission Limitation or Reduction Objective (QELRO) of 96.8 per cent on 1990 gross GHG emissions over the period 2013–20. New Zealand prepared an initial report in 2016 to facilitate the calculation of its exact emissions budget for 2013–20. Based on gross emissions in 1990, as reported in *New Zealand's Greenhouse Gas Inventory* submitted in 2016, this target corresponds to a commitment to reduce emissions to 509.775 million tonnes of carbon dioxide equivalent (Mt CO2-e) for the period 2013–20.

New Zealand has applied the Kyoto Protocol framework of rules in reporting and measuring progress towards its target for the period 2013–20 to ensure that its actions are transparent and have integrity. This includes applying Kyoto Protocol accounting rules that were agreed in Durban in 2011 for land use, land-use change and forestry (see Decision 2/CMP.7). For 2013–20, therefore, New Zealand has included emissions and removals from afforestation, reforestation and deforestation activities, and forest management activities.

See tables 2.1–2.5 (which present common tabular format (CTF) tables 2a–2f) for further information about this target.

Table 2.1: Emissions reduction target: base year and target[a] (CTF Table 2a)

Base year/base period	1990
Emission reduction target	5% below 1990 by 2020
Period for reaching the target	2013–20

Note:

[a] Reporting by a developed country Party on the information specified in the common tabular format (CTF) does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the UNFCCC or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

Table 2.2: Description of quantified economy-wide emission reduction target[a] (CTF Tables 2b and 2c)

Gases covered	Base year	Global warming potential
CO_2	1990	IPCC Fourth Assessment Report
CH_4	1990	IPCC Fourth Assessment Report
N_2O	1990	IPCC Fourth Assessment Report
HFCs	1990	IPCC Fourth Assessment Report
PFCs	1990	IPCC Fourth Assessment Report
SF_6	1990	IPCC Fourth Assessment Report
NF_3	1990	IPCC Fourth Assessment Report
Sectors covered	**Comments**	
Energy		
Transport[b]		
IPPU		
Agriculture		
LULUCF	LULUCF is not included in the target's base year emissions	
Waste		

Note: CH_4 = methane; CO_2 = carbon dioxide; HFCs = hydrofluorocarbons; IPCC = Intergovernmental Panel on Climate Change; IPPU = industrial processes and product use; LULUCF = land use, land-use change and forestry; NF_3 = nitrogen trifluoride; N_2O = nitrous oxide; PFCs = perfluorocarbons; SF_6 = sulphur hexafluoride.

[a] Reporting by a developed country Party on the information specified in the common tabular format (CTF) does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the UNFCCC or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

[b] Transport is reported as a subsector of the energy sector.

Table 2.3: Approach to counting emissions and removals from the LULUCF sector[a, b] (CTF Table 2d)

Role of LULUCF	Comments
Emissions and removals from the LULUCF sector are counted towards achievement of the target	The LULUCF sector is not included in the target's base year emissions
The contribution of the LULUCF sector is calculated applying an activity-based approach	Applying LULUCF accounting rules for the second commitment period of the Kyoto Protocol (ie, afforestation, reforestation and deforestation activities and forest management activities as agreed in Decision 2/CMP.7)

Note: LULUCF = land use, land-use change and forestry.

[a] Reporting by a developed country Party on the information specified in the common tabular format (CTF) does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the UNFCCC or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

[b] All afforestation/reforestation and deforestation activities (Article 3.3) count towards New Zealand's target. Forest management is the only Article 3.4 activity that New Zealand includes in its target accounting quantity. New Zealand has not elected to account for any other Article 3.4 activities.

Table 2.4: Possible scale of contributions of market-based mechanisms[a] (CTF Table 2e)

CERs	NA
ERUs	NA
AAUs[b]	6,544,585
Carry-over units[c]	IE
Other mechanism units under the Convention (specify)[d]	NA

Note: AAUs = assigned amount units; CERs = certified emissions reductions; Convention = United Nations Framework Convention on Climate Change; ERUs = emissions reduction units; IE = included elsewhere; NA = not applicable.

[a] Reporting by a developed country Party on the information specified in the common tabular format (CTF) does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the UNFCCC or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

[b] AAUs issued to or purchased by a Party.

[c] Units carried over from the first to the second commitment period of the Kyoto Protocol, as described in Decision 13/CMP.1 and consistent with Decision 1/CMP.8.

[d] As indicated in paragraph 5l of the guidelines contained in annex I of Decision 2/CP.17.

Table 2.5: Any other information (CTF Table 2f)

New Zealand is applying the Kyoto Protocol's second commitment period rules to its 2020 target. In practice, however, some technical changes may be required to reflect the status of New Zealand's target (as the target is not inscribed in the third column of Annex B of the Doha Amendment to the Kyoto Protocol). New Zealand reserves the right to review the accounting rules it applies to ensure alignment with the Kyoto Protocol and to support a smooth transition to the Paris Agreement.

2.2.2 Zealand's Nationally Determined Contribution

In 2021, the New Zealand Government updated its first NDC to align with the global efforts to limit global warming to 1.5°C above pre-industrial levels. New Zealand has set a target for NDC1 to reduce net greenhouse gas emissions to 50 per cent below gross 2005 levels by 2030.

The NDC1 target is economy-wide, covering all sectors and all greenhouse gases. New Zealand will report on the implementation and achievement of its NDC1 through the Paris Agreement's Enhanced Transparency Framework.

New Zealand's NDC, including a summary of the methodologies used to account for the land use, land-use change and forestry sector, can be found on the UNFCCC Secretariat's website. New Zealand's updated NDC1 of 50 per cent below gross 2005 levels by 2030 is expressed as a 'point-year target' for 2030. This corresponds to 41 per cent when managed using a multi-year emissions budget starting from New Zealand's 2020 emissions target and gross emissions estimates for 2005 as reported in *New Zealand's Greenhouse Gas Inventory* for 1990–2019.

This budget provisionally equates to 571 Mt CO2-e over 2021–30.

New Zealand will meet its emissions budget for the period 2021–30 through a combination of:

- absolute reductions in New Zealand's gross emissions, including all sectors and all GHGs
- net removals of carbon dioxide from eligible forestry activities, following the Kyoto Protocol framework of rules, modified for plantation forests
- offshore mitigation, through Article 6 of the Paris Agreement, ensuring environmental integrity, avoidance of double counting, and transparency, in line with the guidelines for international cooperation under Article 6 of the Paris Agreement.

To help New Zealand meet its NDCs, the CCRA was amended in 2019. For details, refer to chapter 4 of New Zealand's Eighth National Communication.

New Zealand will submit its national greenhouse gas inventory for the period 1990–2021 in April 2023, which will include inventory estimates for 2021, the first year of NDC1. New Zealand, along with other Parties to the Paris Agreement, will track progress towards our NDCs in our Biennial Transparency Reports, the first of which is due by 31 December 2024 at the latest.

In line with commitments under the Paris Agreement, New Zealand will continue to regularly review its contributions to international mitigation action, taking into account, inter alia, the latest science, the periodic stocktakes under the Paris Agreement, development of new technologies, progress by other countries and the commitments New Zealand has made.

2.2.3 Zealand's domestic targets

The Climate Change Response Act 2002 is New Zealand's primary climate change legislation. It provides the legal framework to enable New Zealand to meet its obligations under the UNFCCC, the Paris Agreement and the Kyoto Protocol. It also includes the framework for the New Zealand Emissions Trading Scheme.

In 2019, amendments to the CCRA introduced the Zero Carbon Framework. Under this framework, New Zealand can develop and implement climate change policies that:

- contribute to global efforts under the Paris Agreement to limit the global average temperature increase to 1.5°C above pre-industrial levels
- allow New Zealand to prepare for, and adapt to, the impacts of climate change.

The 2019 amendments:

- established He Pou a Rangi – Climate Change Commission (the Commission) to:

– provide independent advice to the Government on climate change mitigation and adaptation

– monitor and review the Government's progress towards meeting the emissions budgets and 2050 target, as well as the implementation of emissions reduction and national adaptation plans

• set new domestic emissions reduction targets for 2050

• established a system of emissions budgets to step New Zealand towards these 2050 targets

• require the development of an emissions reduction plan for each budget period that sets out the policies and strategies for achieving the emissions budget

• require the Commission to prepare a national climate change risk assessment every six years

• require the Government to develop a national adaptation plan that responds to the Commission's risk assessment.

As required by the CCRA, the Minister for Climate Change set New Zealand's first three emissions budgets for 2022–25, 2026–30 and 2031–35 in May 2022 (table 2.6).

Table 2.6: New Zealand's first three emissions budgets (Mt CO_2-e), 2022–35

	First emissions budget (2022–25)	Second emissions budget (2026–30)	Third emissions budget (2031–35)
All gases, net (AR5)*	290	305	240
Annual average	72.5	61.0	48.0

Note: * Emissions in million tonnes of carbon dioxide equivalent (Mt CO_2-e) are based on the 100-year time-horizon global warming potentials (GWP100) metric values from the Intergovernmental Panel on Climate Change's (IPCC) Fifth Assessment Report (AR5), as required under the Paris Agreement (Decision 5/CMA.3).

Sector sub-targets

For the first three emissions budgets, the Government has set sector sub-targets for key economic sectors.17 Sector sub-targets will help to track progress across these key sectors over each emissions budget period. Unlike emissions budgets, sub-targets are not legislated.

The Climate Change Chief Executives Board is responsible for monitoring and reporting on overall progress towards the emissions budgets, including sector sub-targets. This will involve advising on how to adjust policy settings to manage variances within – and between – sector sub-targets to support meeting the overall emissions budgets.