McGuinness Institute title: [DEV-21-SUB-0208] Agreement to update New Zealand's First Nationally Determined Contribution (NDC1) under the Paris Agreement

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Office of the Minister of Climate Change

DEV - Cabinet Economic Development Committee

Agreement to update New Zealand's first Nationally Determined Contribution under the Paris Agreement

Proposal

1 This paper seeks agreement to increase the ambition of New Zealand's first Nationally Determined Contribution (NDC1), our emissions reduction target under the Paris Agreement.

2 In parallel to this paper, I am seeking Cabinet decisions on accessing offshore mitigation towards NDC1 in the paper *Progressing international cooperation to reduce emissions and complement domestic action*.

Relation to government priorities

3 New Zealand has a strong interest in an effective and ambitious global response to climate change. New Zealand is a small actor and cannot unilaterally prevent the adverse effects of climate change. It is in our interest, as well as those of our Pacific neighbours, for all countries to commit to and deliver ambitious action.

4 The Government declared a climate change emergency on 2 December 2020, agreeing that climate change "demands a sufficiently ambitious, urgent, and coordinated response across government to meet the scale and complexity of the challenge" [CBC-20-MIN-0097 refers]. Increasing our NDC1 complements the other actions our Government has taken and is planning to take to address climate change, including the Climate Change Response (Zero Carbon) Act, New Zealand Emissions Trading Scheme (ETS) reform, and sector-specific approaches for transport, energy, agriculture, and waste.

5 Enabling a just transition to a low-emissions, climate resilient future is also a Government priority. The Cabinet Business Committee has noted the intention to "put the climate at the centre of government decision-making" and agreed that "climate change requires decisive action by all levels of government, the private sector, and communities" [CBC-20-MIN-0097 refers].

Executive Summary

6 The Paris Agreement is a legally binding international treaty that aims to strengthen the global response to the threat of climate change including by holding the increase in the global average temperature to well below 2°C and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels. New Zealand ratified the Paris Agreement in 2016 and took its first Nationally Determined Contribution under the Agreement (NDC1), to reduce

greenhouse gas emissions to 30 per cent below 2005 levels by 2030 using a budget approach that starts with New Zealand's 2020 reduction target.

7 Since our NDC was first set, science has highlighted the impacts of warming greater than 1.5°C and the scale and urgency of emissions reductions needed to avoid this.

8 The Climate Change Commission (the Commission) has advised that our current NDC is not compatible with global efforts under the Paris Agreement to limit the increase in global average temperature to 1.5°C above pre-industrial levels. The Commission has advised that, in order to be so, our NDC would need to be "much more that 36 per cent".

9 I am seeking a decision to update NDC1 now, ahead of COP26[1] beginning on 31 October. This timing would align with the intended outcome of updating NDC1 to influence others to take ambitious action. This paper sets out five options[2] for New Zealand's updated NDC1 and considers them against a range of domestic and international policy considerations. These options are:

- 54 per cent below gross 2005 levels by 2030 (45 per cent on a budget approach) (**Minister of Climate Change's preferred option**)
- 50 per cent below gross 2005 levels by 2030 (41 per cent on a budget approach)
- 49 per cent below gross 2005 levels by 2030 (40 per cent on a budget approach)
- 45 per cent below gross 2005 levels by 2030 (36 per cent on a budget approach)
- 39 per cent below gross 2005 levels by 2030 (30 per cent on a budget approach) (New Zealand's current NDC1)

10 Alongside increasing New Zealand's headline target for 2030, I also propose New Zealand commit to net-zero emissions for all gases by 2050. This would clearly signal our commitment to the global effort to reduce emissions beyond 2030, and put us on an equal footing with countries that have committed to reducing all gases to net-zero by 2050.

11 56 countries (including the UK, EU, and Canada) have either achieved or set in law or policy net-zero 2050 targets, with net-zero targets under discussion in a further 75 countries.[3] New Zealand is, as far as we know, the only country of these 131 that has a split-gas 2050 target. We are seen as an outlier in this regard.

[1] The 26th Conference of the Parties of the United Nations Framework Convention on Climate Change
[2] It is important to note that comparisons of point-year and budget-based reduction targets in the options outlined above are approximate only. This is because the exact relationship between point-year and budget-based reduction targets depends on estimates of New Zealand's 2020 emissions and final data for that year will not be available until early 2022. Appendix 2: Choice of Accounting Methodology sets out the detail and rationale for gross-net targets and the methodology to account for those targets.
[3] According to the Climate & Energy Intelligence Unit, these targets all cover all greenhouse gases or it is unclear/undecided. https://eciu.net/netzerotracker

12 A net-zero all-gases 2050 target was assessed as a part of the development of the Zero Carbon Bill in 2018, and I propose that the NDC is the appropriate place for New Zealand to now make this commitment. The NDC will not change our domestic legislation.

13 Meeting our current and any updated NDC1 will require a mix of domestic climate change action and international cooperation to access offshore mitigation.

14 Domestic initiatives under the emissions reduction plan (ERP) will count towards meeting the NDC, but other actions will also be needed. s 9(2)(f)(iv) [redacted]

15 In addition, we will need to cooperate internationally to access offshore mitigation to meet NDC1. I propose to do this through developing a portfolio of options that support sustainable development in the Asia-Pacific, as set out in the companion paper, *Progressing international cooperation to reduce emissions and complement domestic action*. Offshore mitigation will be required to meet our current NDC1, even if it is not increased.

16 Cost for meeting an updated NDC1 can be estimated based on the potential costs of offshore abatement required to meet the updated NDC1 using linking with emission trading schemes as a proxy for the overall cost of meeting an updated NDC1. These costs are set out in the table below.

Different NDC levels & potential costs					
Point year	54%	50%	49%	45%	39%
Budget approach	45%	41%	40%	36%	30%
Potential costs	$9.3 - $16.3bn	$7.9 - $13.8bn	$7.5 - $13.2bn	$6.0 - $10.6bn	$3.9 - $6.8bn

17 Alongside the updated NDC1, there are two other decisions for Cabinet on how New Zealand will express and account for the updated target. These decisions do not impact the overall ambition of or effort required to meet the updated NDC1. These decisions are to:

- update the global warming potentials used
- clarify how the headline percentage reduction target relates to the budget quantity

18 s 9(2)(f)(iv) [redacted]

s 9(2)(f)(iv)

19 Following Cabinet's agreement, I will announce the updated NDC1 on 31 October, to align with the start of COP26. To complete the formal process, officials will upload the submission to the registry maintained by the UNFCCC Secretariat (Appendix 4).

Background

The Paris Agreement requires countries to take action to prevent dangerous levels of global warming.

20 Under the Agreement, every country is required to set a Nationally Determined Contribution (NDC). The primary purpose of an NDC is to outline the emissions mitigation countries intend to undertake to deliver on the aims of the Agreement. The Agreement states that NDCs will reflect countries' highest possible ambition in light of different national circumstances. Each successive NDC is to represent a progression beyond previous NDCs.

21 New Zealand's current NDC1, lodged by Climate Change Minister Paula Bennett in 2016, is an economy-wide, all gases target to reduce net greenhouse gas emissions to 30 per cent below gross 2005 levels by 2030. Unfortunately this commitment was not supported by government policy designed to achieve it until recently, and we now find ourselves in a more difficult position heading into COP26.

22 This target is managed using a budget approach across the 10 years from 2021 – 2030. Under a budget approach, the NDC1 puts a limit on the total amount of emissions allowed over the 2021-2030 period (rather than a 'point in time' or point year measurement).

23 New Zealand is one of three countries that manage their targets using a budget approach (the others are Australia and Switzerland).

Our Government is taking action on Climate Change

24 In 2019, our Government passed the Climate Change Response (Zero Carbon) Amendment Act (known as the Zero Carbon Act). This introduced a framework to manage New Zealand's transition to a low-emissions and climate-resilient future. This framework includes:

- **a domestic emissions reduction target** that requires emissions of all greenhouse gases (except biogenic methane) to reach net-zero by 2050 and emissions of biogenic methane to reduce to 24-47 per cent below 2017 levels by 2050 (including a 10 per cent reduction by 2030)
- **a system of emissions budgets** that act as interim targets and step progressively towards the 2050 target. As far as possible, emissions budgets must be met through domestic action.
- **successive emissions reduction plans** that set out the policies and strategies for meeting the emissions budgets.

25 In addition to this framework New Zealand has:

- Set an ambitious target for 100% renewable electricity by 2035;
- strongly advocated for the removal of global fossil fuel subsidies, ended new offshore oil and gas exploration permits, and divested default KiwiSaver funds of fossil fuel investments;
- taken significant steps to accelerate the electrification of the transport and industrial sectors through programmes like the Government Investment in Decarbonising Industry, the Clean Car Discount, the Low Emission Transport Fund;
- invested in research to reduce agricultural methane and emerging technologies such as green hydrogen;
- launched the Green Investment Fund and quadrupled the amount it has available to invest in the low carbon technologies of the future;
- become the first country in the world to pass a law that will ensure financial organisations disclose and ultimately act on climate-related risks and opportunities;
- made a four-fold increase in the support it provides to countries most vulnerable to the climate emergency by providing $1.3 billion in Climate Finance, 50% of which will support the Pacific; and
- committed to a Carbon Neutral Government by 2025.

26 These initiatives over the past three years represent a strong contribution by New Zealand to prevent dangerous levels of global warming and support the objectives of the Paris Agreement.

Our NDCs are distinct from our domestic emissions budgets under the Climate Change Response Act 2002

27 NDCs are different to our domestic emissions budgets under the amended Climate Change Response Act 2002 (the CCRA). Emissions budgets under the CCRA drive our domestic transition to a low-emissions economy, whilst NDCs under the Paris Agreement drive our contribution to the global effort.

28 Under the CCRA, domestic emissions budgets set five-yearly limits on domestic emissions to help ensure we are on track to meet our longer term domestic 2050 target.

29 Emissions budgets are based on an assessment by the independent Climate Change Commission as to how far and how fast the domestic economy is able to transition. The Commission has a number of statutory considerations it must factor into its recommendations.

30 In contrast, NDCs are set under the Paris Agreement. NDCs should reflect a country's highest possible ambition in light of national circumstances. NDCs can be met through a combination of domestic action (emissions reductions

and removals[4]) and purchases of mitigation from other countries (offshore mitigation).

31 The process for determining our NDC is not covered by the Climate Change Response Act. It is a Government decision under the Paris Agreement.

There has been a significant shift in global ambition in response to the emerging science

32 A number of major developed countries have significantly increased their targets. Advocacy from these countries, and countries highly vulnerable to the impacts of climate change, including in the Pacific, has also sharply increased.

33 A significant and increasing number of countries have adopted targets of net-zero emissions (all sectors, all gases) by 2050 (with some variances) and steep, although more variable, Nationally Determined Contributions for 2030 in the order of 45-55 per cent on a point in time basis.

34 Over the course of 2020/21, 35 of 38 OECD members have either provided or announced substantive updates to their NDCs, with 33 raising or announcing increasing headline ambition, including the EU, UK, US and Canada.

New Zealand's current NDC1 is not compatible with the 1.5°C global temperature goal

35 In early 2020, I requested advice from the Commission on the compatibility of New Zealand's NDC1 with contributing to global efforts to limit global warming to 1.5°C above pre-industrial levels. The Commission was also asked to recommend any changes to NDC1 that would make it compatible.

36 The Commission advised that the current NDC1 is not compatible.[5]

37 In order to be more likely to be compatible, the NDC should reflect a reduction of net emissions of "much more that 36 per cent below 2005 gross levels by 2030, with the likelihood of compatibility increasing as the NDC is strengthened further". [6]

38 The Commission reached its recommendation of much more than 36 per cent by assuming that New Zealand's emissions should reduce by *at least* at the same rate as global emissions of those gases in the average of pathways consistent with the global pathway to 1.5°C.

Five options for New Zealand's Nationally Determined Contribution

39 The Commission recommended that:

i. in order to be more likely to be compatible, the contribution Aotearoa makes over the NDC period should reflect a reduction of net emissions of much more than 36 per cent below 2005 gross levels by 2030, with

[4] Reductions are a drop in the rate at which emissions are added to the atmosphere. Removals are a drawdown of CO_2 from the atmosphere such as through planting new forests, to lower the rate of concentration of atmospheric CO_2, which causes climate change.
[5] Recommendation 29 of the Climate Change Commission's final advice.
[6] Recommendation 30 of the Climate Change Commission's final advice.

the likelihood of compatibility increasing as the NDC is strengthened further

ii. that how much the NDC1 should be strengthened should reflect the tolerance for climate and reputational risk and economic impact, and principles of effort sharing, which require political decisions and

iii. that any changes to the NDC should be developed in partnership with iwi/Māori, to give effect to the principles of Te Tiriti o Waitangi/The Treaty of Waitangi and align with the He Ara Waiora framework (Climate Change Commission recommendation 30).

40 This paper sets out five options[7] for New Zealand's updated NDC1:

- Option one: 54 per cent below gross 2005 levels by 2030 (45 per cent on a budget approach) (**Minister of Climate Change's preferred option**)
- Option two: 50 per cent below gross 2005 levels by 2030 (41 per cent on a budget approach)
- Option three: 49 per cent below gross 2005 levels by 2030 (40 per cent on a budget approach)
- Option four: 45 per cent below gross 2005 levels by 2030 (36 per cent on a budget approach)
- Option five: 39 per cent below gross 2005 levels by 2030 (30 per cent on a budget approach) (New Zealand's current NDC1)

41 In assessing these options Ministers need to weigh up a range of domestic and international policy considerations.

The 1.5°C temperature limitation goal is increasingly important

42 In 2018, the Intergovernmental Panel on Climate Change (IPCC) published its landmark Special Report on Global Warming of 1.5°C, setting out the risks and impacts of 1.5°C and 2°C of warming and summarising global emissions pathways that limit warming to 1.5°C.

43 In August 2021, the IPCC released the first part of its sixth Assessment Report (AR6) on the physical science of climate change. The report concluded that limiting warming to 1.5°C is still possible and there are co-benefits of limiting temperature increases, but that this goal is only possible through deep, rapid and sustained emission reductions.

[7] It is important to note that comparisons of point-year and budget-based reduction targets in the options outlined above are approximate only. This is because the exact relationship between point-year and budget-based reduction targets depends on estimates of New Zealand's 2020 emissions and final data for that year will not be available until early 2022. Appendix 2: Choice of Accounting Methodology sets out the detail and rationale for gross-net targets and the methodology to account for those targets.

44 The assessment by the IPCC in its 2018 report found that limiting global warming to 1.5°C with no or limited overshoot requires global net greenhouse gas emissions to drop by about 45 per cent by 2030, relative to 2010.

45 The IPCC assessed a broad range of modelled pathways that would limit warming to 1.5°C. These pathways vary in how global emissions need to reduce between now and 2100. Some show very rapid reductions in the short-term followed by more gradual reductions after 2030. Others show lower reductions followed by steeper rates of reduction beyond 2030. The interquartile range (i.e. the 25 to 75 per cent range) of reductions in the modelled pathways ranges from 39 per cent to 51 per cent by 2030 relative to 2010.

46 While these pathways all in principle can limit warming to 1.5°C (depending on further emission reductions beyond 2030), they entail different risks. Pathways with lower rates of reduction in the near-term tend to rely more on large-scale carbon dioxide removal beyond 2030, which could pose challenges to food security and/or relies on technologies that are as yet unproven at global scale.

47 Current commitments are insufficient to achieve such reductions globally. Available NDCs from of all 191 Parties to the Paris Agreement together imply an increase of global greenhouse gas emissions by 2030 of roughly only 16 per cent relative to 2010.

New Zealand's ability to influence other countries to take ambitious action

48 Updating New Zealand's NDC gives us the ability to influence other countries to take sufficient action on climate change. New Zealand has a strong national interest in an effective and ambitious global response to climate change. New Zealand is a small actor and cannot unilaterally prevent the adverse effects of climate change. Our ability to influence depends on us leading by example through delivering effective and ambitious action ourselves.

49 New Zealand can add to the momentum of countries that have already updated their NDCs and encourage greater action. If our NDC is perceived as credible in light of our national circumstances, then our action can be used to pressure action from other significant emitters.

50 Updating NDC1 and action on climate change is critical to New Zealand's broader foreign policy and regional objectives. New Zealand's partners will interpret whether New Zealand is or is not like-minded on climate action, and whether New Zealand's action matches its rhetoric through the lens of our NDC.

New Zealand needs to consider the impact of climate change on the Pacific

51 The impact and severity of climate change is of paramount importance to the Pacific region. It is in our interest, as well as those of our Pacific neighbours, for all countries to commit to and deliver ambitious action consistent with limiting the global temperature increase to 1.5°C.

52 Our Pacific partners will be looking to New Zealand to take decisions on NDC1 that reflect the gravity of climate change impacts in the Pacific.

53 When taking decisions on updating NDC1, New Zealand needs to consider the potential effects of climate change on the Pacific region, and the views of our Pacific partners.

New Zealand's national circumstances

54 New Zealand's emissions profile has a higher proportion of emissions from the agricultural sector (48 per cent of our gross emissions in 2019) than any other developed country.

55 On-farm emissions intensity improvements are already occurring in New Zealand and can increase, but globally, agricultural gases (mainly methane and nitrous oxide) generally have fewer and more expensive technological options for rapid abatement than carbon dioxide for many energy and transport emissions sources, other than reducing stock numbers. This can be seen in modelled pathways that limit warming to 1.5°C, where agricultural gases reduce much more slowly than net carbon dioxide (e.g. from electricity production and transport, but also reduced deforestation), which reach net-zero around 2050 in these pathways.

56 This means that, for New Zealand, achieving the same overall level of economy-wide abatement as countries with a higher proportion of carbon dioxide emissions would require more significant and rapid changes to the structure of our economy which could cause negative social impacts.

57 Table 1 below provides some insight into this by looking at a range of countries' per capita emissions of the three main greenhouse gases: carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O).

	Gross CO_2	Net CO_2	CH_4	N_2O	Total net	Total gross
New Zealand	7.4	2.4	7.2	1.6	11.3	16.3
European Union	6.7	6.1	0.9	0.5	7.5	8.1
United Kingdom	5.7	5.5	0.8	0.3	6.6	6.8
United States	16.6	14.1	2.0	1.4	17.5	19.9
OECD	8.8	8.4	1.2	0.5	10.2	10.5

Table 1. Per capita emissions (t CO2-eq/capita) from a range of countries and groups[8]

58 Table 1 shows that New Zealand has high gross per capita emissions. A large proportion of our emissions come from agriculture and transport. In most other developed countries, carbon dioxide from stationary energy and fuel use dominates emissions, where there are more low-cost options for rapid abatement.

59 Even with ambitious domestic emissions reductions as recommended by the Commission in its Demonstration Pathway, New Zealand's net per capita emissions of all greenhouse gases will still be around 10t CO2e in 2030. This would be around twice the per capita emissions projected for most European

[8] Data are based on UNFCCC inventories for emissions reported in the calendar year 2018, and use IPCC AR4 global warming potentials.

countries based on their NDCs, but comparable to the US and Canada and significantly lower than Australia.

60 However, the table also shows that New Zealand's net emissions of carbon dioxide only (i.e. excluding other greenhouse gases) are low compared to other developed countries, given our significant carbon dioxide removals from forestry. Under the UK's NDC1 of 68 per cent below 1990 levels by 2030, their per capita net carbon dioxide emissions are expected to be around 4.5t per capita by 2030 – around twice New Zealand's per capita net carbon dioxide emissions. Similarly for the EU, although we do not have detailed data on their pathway to 2030, their 55 per cent below 1990 NDC1 will likely still leave them with higher net per capita carbon dioxide than New Zealand.

61 Table 1 demonstrates that challenges New Zealand faces to reduce emissions are fundamentally different to those of some other countries. Other countries, of course, have their own challenges.

Biogenic methane

62 The 2050 target in the Climate Change Response Act 2002 requires:

- all greenhouse gases, other than biogenic methane, to reach net zero
- emissions of biogenic methane to reduce to 24-47 per cent below 2017 levels (including a 10 per cent reduction by 2030).

63 Differentiating between biogenic methane and all other greenhouse gases reflects our unusual emissions profile and acknowledges the different atmospheric lifetimes and warming effects of different greenhouse gases. More specifically, while carbon dioxide is a long-lived gas and persists in the atmosphere for hundreds of years, short-lived gases – like methane – degrade over decades but have a powerful impact over that period.[9]

64 The target range for biogenic methane reflects a commitment to limit warming to 1.5°C. However, it also recognises the uncertainties that surround the actual reduction required to meet the temperature goal and the technological developments that would reduce biogenic methane.

65 The 24-47 per cent target range was based on global reductions in the Intergovernmental Panel on Climate Change (IPCC) Special Report on 1.5°C. This found that in scenarios limiting warming to 1.5°C with limited or no overshoot, the central range of reductions in global agricultural methane emissions by 2050 is 24-47 per cent below 2010 levels.

[9] Methane has a 100-year global warming potential 28 times that of carbon dioxide based on the IPCC's 5th Assessment Report, which will form the basis of emissions reporting during the NDC1 period..

How New Zealand compares to other countries

66 The headline target number of New Zealand's current NDC1 is at the lower end when compared to a range of other OECD countries, as shown in Figure 2 below. The five options are also included in this figure.

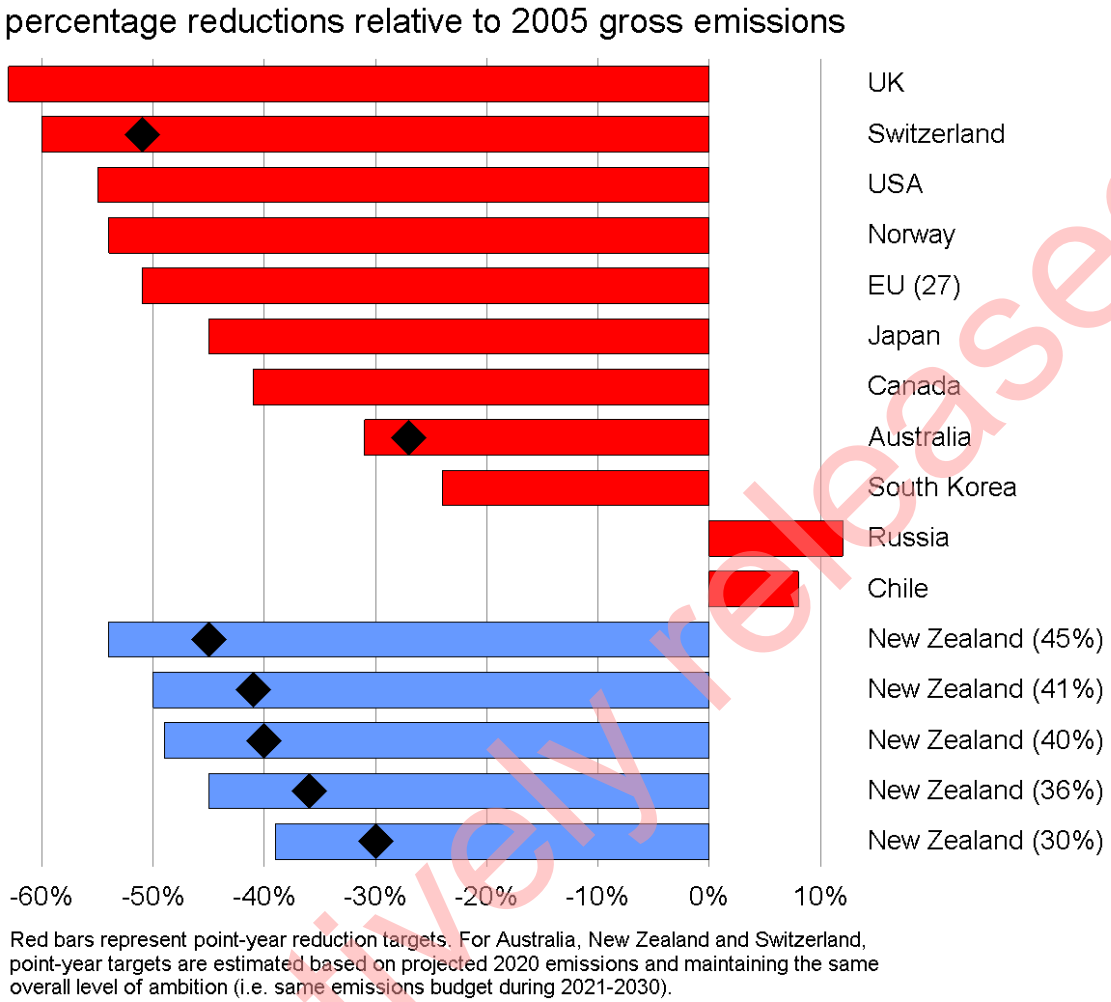


Figure 1. Comparison of NDCs for a range of countries, and a range of NDC1 options for New Zealand, relative to a common reference gross emissions in 2005.

67 Headline target numbers, however, mask the important information on national circumstances that affect how challenging a target is to meet. They also mask information on historical emissions. The different mix of economic sectors and abatement costs and potentials in different countries means that comparing economy-wide domestic emissions reductions cannot be used as a proxy for comparing effort.

68 As discussed above, New Zealand's high proportion of methane emissions provides challenges, whereas a country with high emissions from coal- or gas-fired electricity production is likely to be able to make deep cuts relatively easily and cost effectively by replacing this with renewable energy.

69 Similarly, a country that is expecting rapid population growth will have more difficulty reducing future emissions. These and other factors mean that the headline level of reduction is often very different to the actual level of effort required to meet a target.

Equity

Developed countries should take the lead

70 New Zealand is a highly developed and wealthy country compared to the global average. It has the capacity to identify and take actions to reduce emissions in ways that less developed countries do not.

71 Under the Paris Agreement developed countries are expected to peak and reduce their emissions faster than developing countries and should continue to take the lead by undertaking economy-wide emission reduction targets (i.e. all sectors and all gases). This is in line with global equity principles of responsibility, capacity and reducing the current inequality in terms of per capita emissions.

NDC1 decisions should consider a range of global equity principles

72 Historical responsibility for emissions is one of several ways of considering what should be New Zealand's "fair share" of the global effort according to global equity principles. Others include equality (per capita emissions), capacity (to pay for the cost of mitigation), and the right to sustainable development.

73 Given New Zealand's status as a highly developed country and taking global equity principles into account, the Commission advised that our emissions should reduce at a greater rate than the global average.[10]

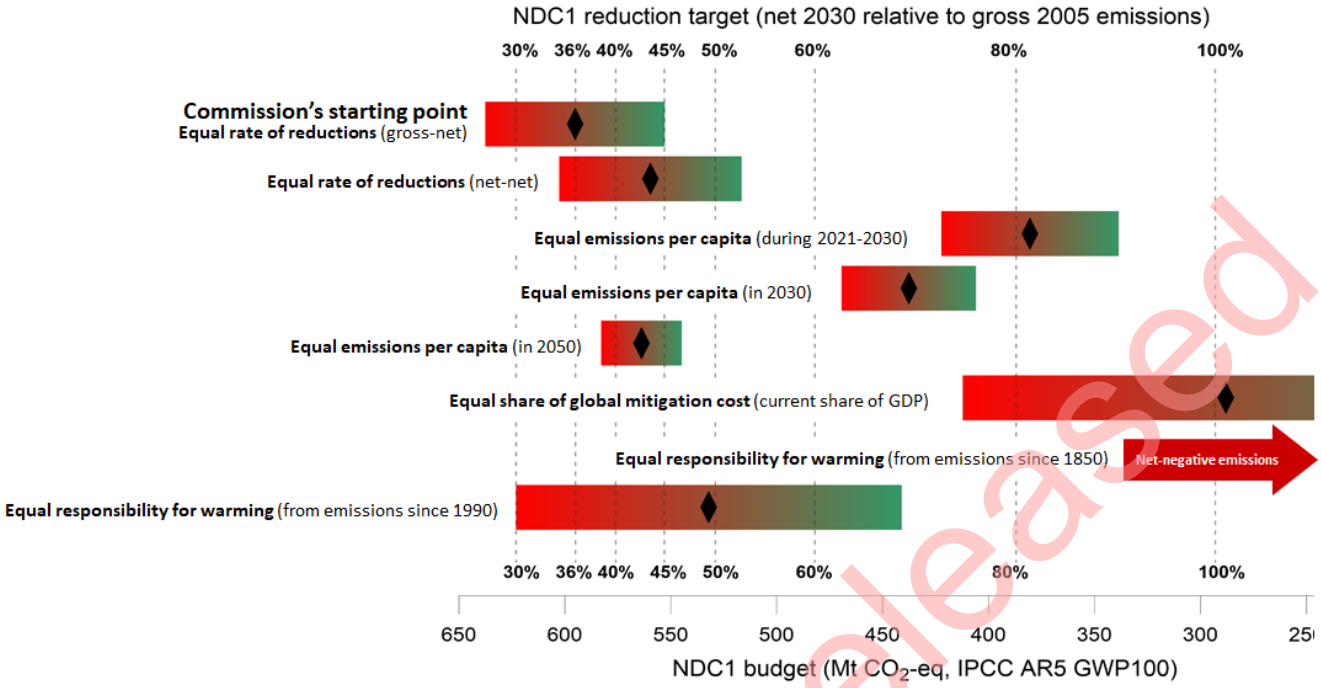
74 This reflects the fact that in general, the greater the reduction in emissions and the higher the ambition of our NDC1, the more likely NDC1 is to reflect global equity principles as it would provide least developed countries more time to reduce their emissions while still achieving the collective, global emission reductions necessary to limit warming to 1.5°C. This should be an important consideration in the Government's decision making on NDC1.

75 Officials have assessed the different ranges of NDC levels that would bring New Zealand's NDC consistent with these global equity principles. These are set out in Figure 1 on the following page.

76 While global equity principles are important and should be considered, they need to be balanced against other factors, including New Zealand's national circumstances. This balancing is a political decision, which is why the Climate Change Commission did not recommend a specific figure for New Zealand's NDC1, stating that how much the NDC should be strengthened should reflect the tolerance for climate and reputational risk and economic impact, and principles of effort sharing, which require political decisions.[11]

[10] p.373, paragraph 97, "Holding the proportional emissions reductions equal across all countries is not an equitable approach. It is also not compatible with the international commitments Aotearoa has made, because it ignores differences in national circumstances, including between developed and developing countries."
[11] Recommendation 30 of the Climate Change Commission's final advice.

Figure 1: NZ NDC levels assessed against global equity criteria



Capacity to deliver

77 There is a clear ambition from the Government, as well as the public, domestic and international stakeholders, that our NDC will be met to the maximum extent possible by investing in our domestic economy. This will be achieved both through reducing emissions (e.g. from energy and transport) and removing emissions (through forestry).

78 New Zealand's failure to bring down emissions in previous decades has left us in the extremely difficult position of now facing a very steep decline in this decade. This also means that we will be reliant on accessing mitigation from offshore to fulfil our global commitments.

79 The Climate Change Commission has undertaken a comprehensive assessment of New Zealand's opportunities to reduce emissions as a part of their advice on setting New Zealand's first emission budgets. This is set out in the Commission's advice as the "demonstration path", and if achieved, would see New Zealand reducing its emissions by 47 Mt between 2021 and 2030 compared to current policies.

80 The Commission also developed a 'tailwinds scenario' where further emission reductions could be achieved through a mix of favourable conditions and additional effort New Zealand society (including the government). This scenario sees much greater reductions in agriculture due to the earlier deployment of a methane inhibitor and more rapid uptake of electric vehicles in the transport sector. If achieved, this could see up to an additional 26 Mt of emission reductions between 2021 and 2030.

81 The emissions reduction plan is under development with the aim of delivering on our first emissions budget, and we need to take further action to achieve the tailwinds scenario.

82 s 9(2)(f)(iv)

83 Achieving the demonstration path or tailwinds scenario contribute to an NDC level of approximately 15 per cent to 22 per cent, with the balance required to be sought through international cooperation.

84 Due to the challenges of reducing emissions domestically, the Commission has advised that New Zealand will need to rely on international cooperation to contribute to the global effort to reduce emissions, even if our NDC were to remain at the same level as when it was lodged in 2016. Other countries have also started developing international cooperation options to use towards meeting their target, most notably Japan and Switzerland. However, it is important to note that on all of the NDC options New Zealand's reliance on international cooperation, as a share of our NDC, will be one of the highest in the OECD.

International cooperation

85 This Government has been clear that our first priority for meeting NDC1 will be domestic climate action, and we have taken a number of decisions and actions to that effect. However it is clear that offshore mitigation will also be needed to meet NDC1.

86 My proposed approach to accessing offshore mitigation is outlined in the accompanying paper *Progressing international cooperation to reduce emissions and complement domestic action*. This sets out a proposal for investment in offshore mitigation that prioritises sustainable development outcomes and resilience in the Asia-Pacific region.

87 Cooperating with countries in our region will support the achievement of the sustainable development goals and have co-benefits. This includes sharing New Zealand's expertise on reducing emissions in areas like forestry, agriculture, strengthening New Zealand's relationship with our partners, and potentially gaining access to new emission reduction technologies that could be applied in New Zealand.

88 This will require work to identify and develop options and partners for this cooperation. We can leverage New Zealand's experience and networks for example, New Zealand's support for the Global Research Alliance to identify options for reducing developing countries' agricultural emissions and carbon accounting assistance provided to developing countries to meet the REDD+[12] qualifying criteria, to help identify viable options for high integrity forestry projects.

89 Any international cooperation will need to meet our high environmental quality standards to ensure any offshore mitigation is accurately quantified,

[12] REDD+ refers to Reducing Emissions from Deforestation and Forest degradation in developing countries, also known as avoided deforestation.

additional, and properly accounted for. An important part of environmental integrity is ensuring that there is no double counting – that any mitigation used towards New Zealand's NDC is not also counted by another country.

Feasibility of delivering an updated NDC1

90 s 9(2)(j) [redacted]

91 s 6(a) [redacted]

92 Risks associated with offshore mitigation increase with higher ambition NDC1 options, as these require larger volumes of offshore mitigation.

93 An important part of environmental integrity is ensuring that there is no double counting – that any mitigation used towards New Zealand's NDC is not also counted by another country. This requires that a "corresponding adjustment" be made to each country's NDC. Ensuring this occurs will require up-front arrangements with partner countries.

94 My intention is to maximise emissions reductions from domestic sources and offshore mitigation options that support sustainable development, s 9(2)(j) [redacted]

95 s 9(2)(j) [redacted], I intend to specifically consider in my report back[13] on progress to access offshore mitigation

- The environmental integrity of any ETS linking arrangement, including:
  - how the proposed arrangement would trigger an equivalent reduction in greenhouse gas emissions,
  - that the mitigation will not be double counted towards another country's NDC
  - s 9(2)(j) [redacted]
  - the impact of the proposed arrangement on the partner's economy and ability to meet their NDC1;

[13] In the paper *Progressing international cooperation to reduce emissions and complement domestic action* I propose to report back on progress made in October 2022, with an interim report back in May 2022.

- s 9(2)(j)

96 s 6(a)

97 s 6(a)

Cost

98 Investing in actions to achieve New Zealand's NDC are aimed at reducing the future fiscal and economic costs of climate change. These future costs are likely to arise from from increasing severity and frequency of extreme weather events affecting homes, businesses, and primary production; and sea level rise leading to population and infrastructure displacement. Our NDC alone will not prevent these costs,but is an important part of a global effort.

99 As the level of New Zealand's NDC increases, the fiscal risk and possible associated economic costs of meeting this target will also increase. Although the Government will have options around how it chooses to fund and finance its NDC commitment over time, it does not fundamentally change the scale of the commitment New Zealand would be making in updating NDC1.

100 There are two key sources of cost associated with meeting an updated NDC:

- Reducing emissions to achieve or outperform New Zealand's domestic emission budgets – s 9(2)(f)(iv)
- Purchasing of offshore mitigation – this includes the direct costs of purchasing offshore mitigation and any associated funding to establish the arrangements and programmes to facilitate this purchasing.

101 Currently, achieving the demonstration pathway domestically would achieve approximately half of the emission reductions required to meet our current NDC level of 30 per cent below 2005 levels by 2030, with the balance expected to be made up by purchasing offshore mitigation.

102 As such, updating NDC1 increases the level of international cooperation required and associated costs of purchasing additional offshore mitigation.

103 s 9(2)(j)

s 9(2)(j)

104 Based on these figures, officials estimate the overall cost of meeting the current or updated NDC will be significant and are set out in the table below.

Different NDC levels & potential costs					
Point year	54%	50%	49%	45%	39%
Budget approach	45%	41%	40%	36%	30%
Potential costs	$9.3 - $16.3bn	$7.9 - $13.8bn	$7.5 - $13.2bn	$6.0 - $10.6bn	$3.9 - $6.8bn

105 Many factors will determine the extent of the eventual fiscal cost, including technology development and the cost of accessing offshore mitigation. It is possible, but not guaranteed, that a broader portfolio approach may identify lower-cost mitigation options in the Asia-Pacific region which may reduce the overall cost of meeting the NDC.

Assessing the options for updating New Zealand's NDC1

106 It is clear that when taking decisions on NDC1 and determining which option constitutes New Zealand's highest possible ambition (as required by the Paris Agreement) we will need to consider a number of factors and issues.

107 The five options for updating NDC1 are compared and assessed in Table 2 below.

108 These options vary in terms of their degree of consistency with 1.5°C and global equity, cost, their likely influence on other countries and their reflection of New Zealand's national circumstances.

109 Option one would be more consistent with 1.5°C compared to options three and four. The compatibility with 1.5°C increases the more the NDC is strengthened.

110 This also means that option one provides the greatest ability to influence as it represents a considerable increase in ambition from the current NDC1. However, option one also means the majority (72 per cent) of the target would be delivered through international cooperation, at a significant cost of $9.3 and $16.3 billion between now and 2030 and attendant risks of delivery due to uncertainty that New Zealand will be able to access the high volume of offshore mitigation required.

111 In comparison option two and three also increases consistency with 1.5°C compared to option four (though to a lesser degree than option one) and would increase our ability to influence as it is more comparable to the level of ambition of other countries. Option three has a potential cost of up to approximately $7.5 to $13.2 billion between now and 2030, which reflects that 67 per cent of the target would be delivered through international cooperation.

The feasibility of delivering this volume of offshore mitigation is uncertain, but higher than option one.

112 Options four and five are the least consistent with 1.5°C as New Zealand's reduction would not go beyond the global average, and of the five options, these would be least likely to influence other countries. Option five, retaining the current NDC (i.e. not increasing ambition), would likely be highly criticised by other countries.

113 These options do reflect key aspects of New Zealand's national circumstances (in terms of ability to reduce emissions domestically in the near term) and have the least potential fiscal costs. The fiscal costs for option four are $6.0 and $10.6 billion between now and 2030 and for option five $3.9-$6.8 billion between now and 2030.

114 However, both, options four and five would still require delivery through international cooperation, although with lower feasibility and delivery risks than options one, two and three.

115 It is also important that we consider these options in relation to the Commission's advice to Government:

- Option one (54 per cent reduction on 2005 levels/ 45 per cent on a budget approach) provides the highest degree of consistency with 1.5°C out of those 5 options, and therefore is the most consistent with the Commission's advice.
- Option two (50 per cent reduction on 2005 levels/ 41 per cent on a budget approach) improves consistency with 1.5°C and provides a target that is in-line with the Commission's advice.
- Option three (49 per cent reduction on 2005 levels/ 40 per cent on a budget approach) improves consistency with 1.5°C and provides a target that is in-line with the Commission's advice.
- Option four (45 per cent reduction on 2005 levels/ 36 per cent on a budget approach) does not reflect the Commission's advice that New Zealand's NDC1 should be "much more than 36 per cent" to be compatible with 1.5°C.
- Option five (39 per cent reduction on 2005 levels/ 30 per cent on a budget approach) does not reflect the Commission's advice that New Zealand's NDC1 is not compatible with 1.5°C and should be "much more than 36 per cent" to be compatible with 1.5°C.

I consider option one to be the most appropriate NDC for New Zealand to take based on the criteria

116 Setting an ambitious NDC requires balancing a number of implications and consideration. I am seeking Cabinet's agreement to update New Zealand's NDC1 to option one: to reduce emissions 54 per cent below 2005 levels by 2030. I consider this to be the most appropriate option as it would satisfy the following criteria:

- It would be consistent with the advice of the Commission that for the NDC to be compatible with the 1.5°C goal, it would need to reflect emissions reductions much more than 36 per cent below 2005 levels by 2030.
- It would take into account our responsibility for global warming caused by emissions since 1990.
- It would be consistent with New Zealand achieving the same net per capita emissions of greenhouse gases as the global average by 2050.
- It will move New Zealand's NDC from one of the lowest in the OECD to a level more comparable with the European Union, the United States and Japan.
- It would allow New Zealand to influence other countries to lift their ambition as our ability to influence depends on us taking ambitious action consistent with what we need others to do.
- Allow New Zealand to respond to the gravity of climate change impacts in the Pacific.
- It would represent an NDC consistent with our values, and our values-based approach to foreign policy.

117 In my view, this would represent both a positive contribution towards limiting the average global temperature rise to 1.5°C; as well as New Zealand's highest possible ambition in light of national circumstances.

118 I should note that the Ministry for the Environment recommended updating NDC1 to 49 per cent below 2005 levels by 2030.

119 I recommend a target which situates New Zealand in the quartile of pathways providing the most certainty of limiting warming to 1.5˚C (whereas a 40% NDC would only be in the second quartile). The Commission noted that "More ambitious NDCs (closer to the lower quartile of emissions in the IPCC pathways) are associated with pathways with larger reductions in emissions, and which are less likely to overshoot".[14] I consider this target to be most consistent with the Climate Commission's advice and the additional costs associated with meeting this target to be manageable.

[14] The Climate Change Commission's final advice, p 356, paragraphs 32.

Table 2: NDC options assessment[15]

		Option 1	Option 2	Option 3	Option 4	Option 5 (status quo)
NDC level:	Point year	54 %	50%	49 %	45 %	39%
	Budget approach	45 %	41%	40 %	36 %	30%
	International purchasing	120Mt	102Mt	97Mt	78Mt	50Mt
Criteria:	Consistency with global reductions to limit warming to 1.5°C	New Zealand's emission reductions would be in the upper quartile of the global rate of reductions indicated in modelled IPCC pathways	New Zealand's emission reductions would be greater than the global average, in the second quartile of modelled IPCC pathways	New Zealand's emission reductions would be greater than the global average modelled by the IPCC, in the second quartile of IPCC pathways	New Zealand's emission reductions would be the same as the average of the modelled global rate of reductions of IPCC pathways	New Zealand's emission reductions would be lower than the global average, in the third quartile of modelled IPCC pathways
	Ability to influence others	Highest influence and New Zealand among climate leaders	Increased ability to influence due to significantly increased ambition and greater comparability with other developed countries	Increased ability to influence due to increased ambition and greater comparability with other developed countries	Increased ambition from current NDC1 but limited influence, as we would not be delivering on expectations of developed countries to do more than developing countries.	Limited or no ability to influence others
	Capability to deliver	Least certain pathway to delivery	Challenging pathway to delivery s 6(a)	Challenging pathway to delivery s 6(a)	Achievable pathway to delivery s 6(a)	Achievable pathway to delivery s 6(a)
	Potential costs between now and 2030	$9.3bn - $16.3bn	$7.9bn - $13.8bn	$7.5bn - $13.2bn	$6.0bn - $10.6bn	$3.9bn - $6.8bn

[15] It is important to note that comparisons of point-year and budget-based reduction targets in this table are approximate only. This is because the exact relationship between point-year and budget-based reduction targets depends on estimates of New Zealand's 2020 emissions and final data for that year will not be available until early 2022.

Committing to net-zero all gases by 2050 in our NDC will put New Zealand on an equal footing with other countries internationally

120 Separately I propose that New Zealand commits to net-zero emissions for all gases by 2050. This would be a separate commitment to our target under the Zero Carbon Act.

121 Around one hundred and thirty countries have now set or are considering net-zero all-gases target, with 56 countries having set net-zero 2050 targets in law, proposed legislation, or policy documents.[16]

122 New Zealand's domestic 2050 target under the Climate Change Response Act 2002 requires New Zealand's net emissions of greenhouse gases, other than biogenic methane, to be zero by 1 January 2050. Expressed as an all-gases target, New Zealand's 2050 target is the equivalent of a 58-71 per cent reduction below gross 1990 levels, rather than net-zero.

123 Biogenic methane is treated differently for domestic emission targets under the CCRA. This aligns with information contained in the Intergovernmental Panel on Climate Change Special Report on Global Warming of 1.5°C.

124 This means, however, that New Zealand is an outlier internationally as other countries have committed to or are considering domestic net-zero targets for all gases by 2050, including for biogenic methane. This includes Ireland, which has the next highest proportion of agricultural emissions (30 per cent of its total) among OECD countries in its national emissions profile. Ireland is currently considering a bill to put into law a target for a climate-neutral economy by no later than 2050.[17]

125 There is a risk that our split-gas domestic target to 2050 may cause some reputational damage.

Moving to net-zero all gases was assessed as a part of developing the Zero Carbon Act

126 A net-zero all gases target was considered as a part of the development of the Zero Carbon Act (ZCA) in 2018, and was consulted on as one of three options to be included in domestic legislation.

127 The regulatory impact analysis for the ZCA concluded that a net zero all-gases target *"would represent considerable international leadership and put New Zealand front and centre among the countries making every possible effort to keep the world on a trajectory that is consistent with holding the global average temperature to 1.5 degrees Celsius above preindustrial levels. This option was also preferred by a clear majority of submissions (99.9 percent form submissions; 58 percent non-form; 90.6 percent overall).*

[16] According to the Climate & Energy Intelligence Unit, 131 countries have targets achieved, in law or proposed legislation, in policy documents, or under discussion for net-zero 2050 (all GHGs or undecided/unclear all gases). Just over 50 of these countries have already set targets in law or policy. (https://eciu.net/netzerotracker)

[17] https://www.gov.ie/en/publication/984d2-climate-action-and-low-carbon-development-amendment-bill-2020/

However, it does not explicitly acknowledge the scientific basis for different pathways for different gases. The level of ambition also carries with it the risk of the most significant economic impacts, which could exacerbate the risks of uneven distributional impacts and require greater measures in support of a just transition. While these risks could, to an extent, be mitigated by the use of international units, this would come to the detriment of a clearly signalled transition to a low-emissions economy domestically".

128 While this option was not preferred for domestic legislation, I consider including a net-zero all-gases target in our NDC is the appropriate place for New Zealand to now make this commitment.

129 Officials consider that establishing a new 2050 international target as a part of setting NDC1, rather than through a separate policy process, may risk creating confusion about New Zealand's long term climate change objectives and the durability of New Zealand's policy architecture, particularly given the short period of time our existing 2050 target has been in place.

130 However, adding a net-zero emissions 2050 target to our NDC would not change the split-gas target for our domestic emissions under the CCRA. It would, however, both bring us into line with major economies that have adopted domestic net-zero all-gases targets, whilst preserving our ability to manage our domestic economic transition using the split-gas targets under the CCRA.

131 It would also not change the domestic emissions budgets that will form the basis of the upcoming emissions reduction plan.

132 This is because the NDC represents a contribution, in addition to the domestic emissions budgets under the CCRA, to the global effort to limit global warming to 1.5˚C. It involves a net reduction in greenhouse gas emissions globally, rather than a specific reduction in methane (CH_4) domestically.

133 In addition to updating our commitment to reducing emissions by 2030, I also consider committing to achieving net-zero emissions by 2050 will further demonstrate:

- New Zealand's commitment to the global goal to pursue efforts to hold global temperature rise to 1.5°C
- Our capability and capacity to achieve the same level of emissions reductions in the long term as other developed countries

To finalise the update of NDC1, there are other decisions for Cabinet to take

134 As part of updating our NDC1, there are two decisions for Cabinet on how New Zealand will express and account for the updated target. These decisions do not impact the overall ambition or effort required from New Zealand to meet the updated NDC1. These decisions are to:

- update the global warming potentials used

- clarify how the headline percentage reduction target relates to the budget quantity

135 In communicating these decisions, we will need to demonstrate transparently that the enhanced NDC1 is more ambitious (i.e. requires additional effort), and does not just look more ambitious via a changed accounting approach.

136 Updating the global warming potentials[18]: I propose New Zealand updates NDC1 using the global warming potentials from the IPCC's fifth assessment report.[19]

- This change will reflect the latest available science, best practice align with international reporting requirements and the Commission's advice[20].

137 Clarifying how the budget approach is defined: New Zealand manages our NDC1 as a multi-year budget across the 2021 – 2030 period, an approach with high environmental integrity. We have not yet formally specified the methodology for relating our headline target to a budget quantity.

- I propose that we follow the approach used by the Climate Change Commission in its advice, which defines the budget using a line from the previous target (for NDC1, this is New Zealand's 2020 target to reduce emissions 5 per cent below 1990 levels).

- This approach is simple to understand, easy to explain internationally and is only a minor modification from what we used previously under the Kyoto Protocol.

Next steps

138 I recommend the updated NDC1 is announced on 31 October, to align with the start of COP26. Alongside the announcement, officials will formally submit the NDC by uploading it to the online public NDC registry maintained by the UNFCCC Secretariat.

139 The formal submission of the updated NDC1 includes a technical appendix containing information necessary to facilitate clarity, transparency and understanding.

140 This information is set out in Article 4.8 and Decision 4/CMA.1 – submitting it is consistent with the current best practice of other countries. The submission and the technical appendix are included in Appendix 4.

[18] Global Warming Potentials (GWPs) allow comparisons of the global warming impacts of different gases. Specifically, it is a measure of how much energy the emissions of one tonne of a gas will absorb over a given period of time, relative to the emissions of one tonne of carbon dioxide (CO2).
[19] New Zealand's current NDC1 uses GWPs from the IPCC's fourth assessment report. Inventory reporting under the Paris Agreement must use GWPs from the IPCC's fifth assessment report.
[20] The Commission recommend that the Government should continue to define the NDC on the basis of all greenhouse gases using the most recent IPCC global warming potentials adopted by the Parties to the UNFCCC (recommendation 32).

Financial Implications

141 The purpose of an NDC is to contribute to the global effort to reduce the potential future costs of climate change. While the science is clear that global warming above 1.5 degrees will cause costly damages which impact on the Crown's fiscal position, predicting the exact nature and timing of these costs is extremely difficult and not accounted for by the Treasury.

142 The Treasury has advised that the NDC target represents a long-term fiscal risk rather than a present liability in the Financial Statements of Government.

143 Achieving any of the options for an updated NDC1 (including the current target) will involve investment both domestically and in international cooperation. International cooperation provides a cost-effective option for New Zealand to reduce more emissions than is possible domestically.

144 In addition to the costs of meeting the domestic emissions reduction plan, international purchasing currently falls to the Crown as a fiscal risk. s s 9(2)(j)

145 In addition to any direct fiscal costs incurred by the Crown, evidence indicates that there will be flow-on indirect macro-economic costs (for example, through increases in tax or as a result of foregone domestic expenditure). These impacts will include a fall in New Zealand's Real Gross National Disposable Income and an increase in the current account deficit.

146 The costs of offshore abatement as a result of international cooperation in Asia and the Pacific are less certain and may be lower depending on the types of purchasing arrangements and level of emissions reduction opportunities available.

147 There will be additional costs associated with establishing cooperation programmes in Asia and the Pacific, and these are outlined in more detail in the accompanying Cabinet paper *Progressing international cooperation to reduce emissions and complement domestic action*.

148 Officials have also been asked to explore what options there may be for international investment opportunities that may support technology development internationally that could then be applied in New Zealand.

Legislative Implications

149 This proposal has no legislative implications.

Te Tiriti o Waitangi Implications

150 Iwi/Māori have strong interest in New Zealand setting and meeting an ambitious NDC due to their vulnerability to the impacts of climate change. The key points that were made during previous consultation processes and the engagement with Ihirangi are summarised below.

151 Recent engagement, previous consultation and information provided as part of the Commission's final advice all identify the disproportionate impact of climate change on Māori, the importance of the environment to Māori (with a holistic and intergenerational focus) and concern about the threat of climate change to cultural values and practices, food sources and taonga. These considerations support a strongerNDC.

152 The Commission's final advice describes the importance of te ao Māori in decision-making and the need to consider and prioritise Māori values, including concepts of whakapapa, whenua, whanaungatanga and tikanga such as kaitiakitanga, manaakitanga, kotahitanga.

153 Officials provided an online option of early engagement with iwi/Māori, seeking perspectives on the Commission's advice and ambition level of the NDC. In August 2021, Cabinet agreed not to consult the public on the update of NDC1 [CAB-21-MIN-0311 refers], however, directed officials to engage under Pou Take Āhuarangi of the National Iwi Chairs Forum on the NDC process.

154 Officials engaged with Ihirangi, the operational arm of Pou Take Āhuarangi, which provided overarching feedback on the climate change work programme.

155 During the formulation of NDC1 in 2015 and Commission's consultation, there was strong interest expressed by iwi/Māori on

- As a Te Tiriti partner the Crown must engage fully and early with iwi/Māori
- A call for political leadership on climate change through an ambitious target
- Wide support for an ambitious target to protect vulnerable communities and future generations.
- Need to commit to a national position/target and focus on a low emission economy should be our first priority
- A strong understanding te ao Māori (Māori belief system and values) is needed by the Crown to understand the role of tāngata whenua and their connection to the taiao (environment) as its kaitiaki (guardian)
- Need to think intergenerationally
- Support for an integrated holistic approach that uses environmental, cultural, social, and economic indicators
- Focussing on what's right for the environment over and above economic benefit is paramount
- In relation to purchasing international units, the critical role of indigenous environmental views in reducing carbon emissions globally

was acknowledged as well as the opportunity to use a tikanga Māori (traditional Māori customs and beliefs) framework, unique to Aotearoa, based on the principle of "kaitiakitanga" (guardianship)

- Cultural impacts for iwi/Māori and how climate change affects their ability to demonstrate and uphold their cultural values and practices
- Iwi submitters were also concerned about climate change threats for their culture, environment, food sources and taonga and the potentially disproportionate impact on Māori households.
- The disproportionate impacts on iwi/Māori, particularly on those Māori communities in the Northland, wider Central North Island and East Coast regions

156 Ihirangi endorsed officials' analysis of the key themes from Māori/iwi submitters during previous NDC consultations.

157 In addition, Ihirangi further added that they support an approach to addressing climate change using the following principles:

- *Spatial impact:* The direct impacts of physical climate risk need to be understood in the context of a geographically defined area.
- *Increasing:* The level climate risk increases exponentially by 2030 and further by 2050 – speed and scale are required.
- *Under-preparedness:* The pace and scale of adaptation need to significantly increase to manage rising levels of climate risk. Early investment is crucial.
- *Non-stationary:* As the Earth continues to warm, physical climate risk is ever-changing or non-stationary.
- *Nonlinear:* Socioeconomic impacts are likely to propagate in a nonlinear way as hazards reach thresholds beyond which the affected physiological, human-made, or ecological systems work less well or break down and stop working altogether. This is because such systems have evolved or been optimised over time for historical climates.
- *Systemic:* While the direct impact from climate change is local, it can have knock-on effects across regions and sectors, through interconnected socioeconomic and financial systems
- *Regressive:* The poorest communities and populations are the most vulnerable.

Impact Analysis

Regulatory Impact Statement

158 There are no regulatory proposals in this paper, and therefore Cabinet's impact analysis requirements do not apply.

Climate Implications of Policy Assessment

159 The Climate Implications of Policy Assessment (CIPA) team has been consulted and confirms that the CIPA requirements do not apply to this proposal as setting or updating a target in and of itself does not have a direct or quantifiable impact on emissions.

160 Increasing the ambition of NDC1 is likely to indirectly lead to more emissions reductions over time as action is taken to meet the target; however, it is not possible to quantify this impact until these actions are developed in detail.

161 Emissions analysis on the impact of measures and actions to meet the updated NDC will be undertaken and disclosed to Cabinet as proposals are advanced, as appropriate.

Population Implications

162 The update to NDC1 itself will not have any disproportionate impacts.

Human Rights

163 There are no human rights implications of this proposal.

Consultation

General public

164 Although the Government did not undertake public consultation for the 2021 update of the NDC, the public have been engaged with on the NDC through the 2015 consultation on the intended NDC, and through the Commission's consultation in early 2021 [CAB-21-MIN-0311 refers].

165 Cabinet did note that the Ministry for the Environment will undertake targeted engagement with Business NZ and the Sustainable Business Council on the current NDC1 process [CAB-21-MIN-0311]. Officials have engaged with both Business NZ and the Sustainable Business Council on the process for updating NDC1.

166 Themes from the 2015 public consultation on the NDC included a strong call for an ambitious target, to show leadership, and that this needs to be underpinned by a domestic plan.

167 In 2017 the Productivity Commission consulted the public on their *Low-emissions economy* report. 269 submissions were received. A number of submitters felt it was important to focus on global emissions, not just domestic

emissions, although others supported focussing on addressing domestic emissions first.

168 The public were also able to provide submissions on NDC1 to the Commission on their draft report in early 2021. The Commission reports that submitters responding to its draft advice generally agreed that the current NDC1 was not compatible with 1.5°C. However, the Commission also reports that submitters were split on the level of ambition, with some wanting much deeper emissions reductions and some wanting less action on climate change overall. However, only a few submitters engaged on the specific approach taken by the Commission to assess compatibility with contributing to the global effort to limit average global temperature rise to 1.5°C.

169 In developing these proposals I have given consideration to the impacts of climate change on Tokelau. Tokelau's emissions are currently covered by New Zealand's NDC1, and updating NDC1 does not change the arrangement we have with Tokelau. MFAT has engaged with Tokelau on the process for updating NDC1.

170 As Tokelau's emissions are minimal, there is no direct impact on Tokelau of the update of New Zealand's NDC1. However, given Tokelau comprises low-lying atolls, it is one of the places in the world most vulnerable to the impacts of climate change. Tokelauans will therefore be among the most impacted by the consequences of failing to meet the Paris Agreement's global temperature goals that underpin the proposals in this paper."

Departmental consultation and comments

171 The Treasury, the Ministry of Foreign Affairs and Trade, the Ministry for Primary Industries, the Ministry for Business, Innovation and Employment, the Ministry of Transport, Te Puni Kōkiri, the Office for Māori Crown Relations – Te Arawhiti, and the Ministry for Housing and Urban Development were consulted on this paper.

172 The Department of Prime Minister and Cabinet was informed.

Treasury departmental comment

173 The Treasury agrees that New Zealand has a strong interest in encouraging an effective global response to climate change. However, we do not support the proposal to increase New Zealand's NDC1 target to a 45 per cent reduction from 2005 levels. If Ministers wish to increase the NDC1 to support international efforts, we would recommend a smaller increase from our present NDC1, based on the following rationale:

- First, the Paris Agreement allows nations to take their national circumstances into account when setting NDC targets. In the Treasury's view, New Zealand's national circumstances, while referenced, are underweighted in this analysis. While direct comparison of economic 'effort' is methodologically difficult, on the balance of available evidence we consider that New Zealand faces a more costly and uncertain path to reaching a given headline target

compared to other developed nations, including our high proportion of hard-to-abate agricultural emissions (50 per cent of emissions), and an especially heavy reliance on accessing offshore mitigation (over 70 per cent of total mitigation would be required from offshore if New Zealand adopted the proposed 45 per cent target reduction).

- Secondly, the Treasury has serious concerns over the feasibility of accessing the required volumes of offshore mitigation to reach a 45 per cent reduction target (120 million tonnes in the period to 2030, compared to 47 million tonnes mitigated domestically). New Zealand does not currently have any access to offshore mitigation, and the third-party and NZ-led initiatives, in particular, have not been adequately scoped in terms of volume or price. This introduces significant fiscal and economic risk, which could be managed down by adopting a lower NDC1 target than the proposed 45 per cent. The fiscal costs of increasing our target from its previous level will have to be met by higher taxes and/or the offsetting of other government expenditure, and are in addition to the costs of achieving the current level of our NDC (30 per cent), domestic reductions, and meeting climate finance commitments associated with the Paris Agreement.

- Thirdly, we consider that a lower NDC1 target enhancement could be still be effectively communicated by including an explanation of our national circumstances, and providing the equivalent point-year target as used by many other developed nations and as suggested in recommendation 28. For example, New Zealand's current target of 30 per cent reductions is equivalent to a 40 per cent reduction in point year terms. In short, even a modest increase in our current NDC, expressed in equivalent terms to many other developed nations, will clarify New Zealand's global position in a way that better illustrates the effort and ambition associated with our commitments.

174 The Treasury does not support the proposal to include an additional net zero, all gases target for 2050 in our NDC at this time. The existing split gas approach, captured by our domestic targets, is consistent with IPCC pathways to limit warming to 1.5°C. The proposal goes beyond the advice offered by the Climate Change Commission and there been no impact analysis or consultation. The Treasury would recommend more robust analysis and consultation, both with the Climate Change Commission and with others, to support any proposal to include a net zero, all gases target for 2050 in our NDC, if such a proposal were to be put forward at a point in the future.

MFAT departmental comment

175 MFAT supports an ambitious increase to New Zealand's NDC which is seen as credible by the international community and supports the success of the Paris Agreement. New Zealand's ability to influence global action is built upon New Zealand delivering ambitious action itself.

176 International science gives us both the scale and urgency of emissions reductions needed to limit the temperature increase. Global emissions need to

decrease by 45 per cent by 2030 in order to limit the temperature increase to 1.5°C. There is a significant gap between current aggregate global ambition and what is needed; and a very narrow window in which to close this gap. Without decisive action, limiting the temperature increase to 1.5°C will be out of reach.

177 An ambitious contribution will reinforce momentum behind the global transition and in that way contribute to closing the gap.

178 New Zealand has committed, through the Paris Agreement, to prepare an NDC that reflects its highest possible ambition in light of national circumstances. Determining what is possible for New Zealand will take account of Article 6 of the Paris Agreement's which recognises that countries may cooperate in order to increase the ambition of their contributions to the global climate effort (e.g. to overcome a reliance on limited or excessively costly domestic mitigation options). New Zealand has the ability to cooperate and create international carbon market linkages to access offshore mitigation. Other countries can and are doing this at scale, and New Zealand can do likewise.

The Ministry of Business, Innovation and Employment departmental comment

179 The Ministry of Business, Innovation and Employment fully supports the transition to a low emissions economy. However, we are concerned that insufficient analysis has been undertaken to understand the fiscal and social impacts of updating New Zealand's NDC to 45 per cent below 2005 levels by 2030.

180 We note:

- There is already a significant gap between our current NDC and projected emissions reductions which (as noted in the paper) will require government to purchase off-shore mitigation at an estimated cost of $3.8 to $6.8 billion. A more ambitious target will add to that cost (increasing it to between $9.3-$16.3 billion).
- The availability of international credits is highly uncertain. This creates a real risk that New Zealand will sign-up to targets that cannot be met.
- Achieving the targets will require transformative change. Many of the initiatives listed in Appendix 3 would facilitate this change, but these initiatives are not yet agreed and many require significant further development. They are too uncertain to be relevant to the decision about whether to significantly increase our international commitments.

Ministry for Primary Industries departmental comment

181 The Ministry for Primary Industries (MPI) does not support the proposal to include an additional net-zero, all gases target for 2050 in our NDC.

182 The Government has adopted a split gas approach for its domestic emissions reduction targets in recognition of the differences in warming effects of short-lived gases, such as methane, and long-lived gases, such as carbon dioxide.

183 This approach reflects the Intergovernmental Panel on Climate Change's (IPCC) advice that pathways consistent with limiting global warming to 1.5°C above pre-industrial levels require global carbon dioxide emissions to reach net-zero by 2050, but biogenic methane emissions will not need to reduce to net-zero because of the gas's short-lived nature. The IPCC also recognises that there is a limit to possible emissions reductions in agricultural systems, due to their integral role in the global food supply.

184 While our NDC does not use the split gas approach, it is still critical to understand how this target would impact our transition pathway to 2050. There has been no impact analysis of this approach, and it would be extremely high risk to adopt this target with no assessment of the policy and fiscal implications, particularly when our offshore mitigation options are at an early stage of development and still highly uncertain.

185 There has also been no consultation or engagement on this proposal. The Climate Change Commission's advice on updating our NDC only covered the period to 2030, and the Government has not undertaken any additional consultation. s 9(2)(g)(i) [redacted]

Ministry for the Environment departmental comment

186 In summary:

- MfE recommends updating NDC1 from 30 per cent to 40 per cent below 2005 levels by 2030
- In MfE's view, a credible emissions reduction target needs to be supported by a commitment to achieve the target and a viable implementation pathway (both domestically and internationally)
- MfE does not support committing to a new international target to reduce all-gases to net zero by 2050
- MfE considers that taken together, New Zealand's commitment to domestic emission reductions (including establishing a long term 2050 target, developing a comprehensive emission reduction plan to meet our emission budgets, reforming the ETS, and pricing agricultural emissions) alongside an updated NDC and increased climate finance represent a credible package of action to address climate change

The evidence is clear that countries need to act with greater urgency if we are to limit global warming to 1.5℃

187 MfE agrees with the advice from the Climate Change Commission and Intergovernmental Panel on Climate Change (IPCC) that greater urgency and action is required this decade to reduce emissions consistent with 1.5°C

188 MfE supports the advice from the Climate Change Commission that New Zealand's current NDC is not consistent with an objective of limiting global warming to 1.5°C

189 MfE recommends updating NDC1 to 40 per cent below 2005 levels by 2030, because an NDC at this level:

- Strengthens New Zealand's contribution to the global response to climate change including towards efforts to limit global warming to 1.5°C
- Represents a stretch target where the fiscal and economic costs of action are significant but can be managed over time
- Has a viable implementation pathway that supports New Zealand's long-term transition

New Zealand will need to rely on significant levels of international cooperation to meet our existing or updated NDC

190 MfE considers the most important element for NZ in meeting its NDC is reducing its emissions domestically (including advancing key initiatives to accelerate the transition)

191 MfE recognises that the use of international cooperation under the Paris Agreement is necessary and expects an updated NDC of 40 per cent will require a mix of international sources of offshore mitigation, including ETS linking.

192 A key priority for MfE is ensuring that any offshore mitigation used towards meeting NDC1 meets New Zealand's standards for environmental integrity and does not impact New Zealand's domestic transition. These are key lessons from our experience in the Kyoto Protocol.

193 We support cooperation in the Asia-Pacific region for offshore mitigation that also promotes sustainable development outcomes. We note that these options are emerging and uncertain at this stage and require significant work and time to identify, develop and implement.

194 New Zealand, along with all other countries, will be expected to set their second NDC in 2025.

The Ministry for the Environment does not support committing to an international net-zero all-gases target by 2050 as a part of updating NDC1

195 A net-zero all gases 2050 target was considered as a part of setting the 2050 target in legislation in 2019. This option was not advanced in favour of taking a split gas approach, based on the IPCC pathways to limit warming to 1.5°C.

196 MfE considers that establishing a new 2050 international target as a part of setting NDC1, rather than through a separate policy process, risks creating

confusion about New Zealand's long term climate change objectives and the durability of New Zealand's policy architecture, particularly given the short period of time our existing 2050 target has been in place.

Green Party

197 The Green Party supports the Minister of Climate Change's recommendation.

Communications

198 I intend to announce the update of NDC1 on 31 October, to align with the start of COP26, (beginning 31 October 2021). This approach aligns with the objective to contributing to global ambition and the push for other countries to enhance their NDCs.

199 New Zealand's NDC1 is managed and communicated as a budget. Under a budget approach, the NDC1 puts a limit on the total amount of emissions allowed over the 2021-2030 period, beginning from our previous target. This is a different approach to that taken by most other countries. Most countries express their target as a point-year.

200 I propose that, for transparency and comparability with other countries' targets, we also communicate the updated NDC1 as a point-year target, beginning from current net emissions.

201 New Zealand's updated NDC1 of 54 per cent below 2005 levels equates to a target of 45 per cent below 2005 levels by 2030 when using a budget approach.

202 There is a risk that communicating the NDC1 as a budget and a point-year target could be perceived as reframing our NDC just to look more ambitious. However, this risk would be minimised as we would be communicating an updated NDC1 that clearly demonstrates progression as it is an increase in ambition from the current NDC1.[21]

Proactive Release

203 This paper will be proactively released and is subject to redaction as appropriate under the Official Information Act 1982.

Recommendations

The Minister of Climate Change recommends that the Committee:

1. **note** that the Paris Agreement requires New Zealand to set progressively more ambitious Nationally Determined Contributions (NDCs) with a view to

[21] Communicating NDC1 as both a budget and a point-year target would be a similar approach to Switzerland. Switzerland's NDC is to reduce its greenhouse gas emissions by at least 50 percent by 2030 compared with 1990 levels, corresponding to an average reduction of greenhouse gas emissions by at least 35 percent over the period 2021–2030.

achieving the purpose of the Agreement, including the aim to hold the increase in the global average temperature to well below 2°C and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels;

2. **note** New Zealand's current first Nationally Determined Contribution (NDC1) is an economy-wide, all gases target to reduce emissions by 30 per cent below 2005 levels by 2030, based on a budget approach;

3. **note** that the Climate Change Commission has advised that the current NDC1 is not compatible with Aotearoa making a contribution to global efforts under the Paris Agreement to limit the increase in global average temperature to 1.5°C above pre-industrial levels (Climate Change Commission recommendation 29);

4. **note** that the Commission recommended that:

    4.1. in order to be more likely to be compatible, the contribution Aotearoa makes over the NDC period should reflect a reduction of net emissions of much more that 36 per cent below 2005 gross levels by 2030, with the likelihood of compatibility increasing as the NDC is strengthened further;

    4.2. that how much the NDC1 should be strengthened should reflect the tolerance for climate and reputational risk and economic impact, and principles of effort sharing, which require political decisions;

    4.3. that any changes to the NDC should be developed in partnership with iwi/Māori, to give effect to the principles of Te Tiriti o Waitangi/The Treaty of Waitangi and align with the He Ara Waiora framework (Climate Change Commission recommendation 30);

5. **note** the Commission recommended that the Government should:

    5.1. continue to enable the NDC to be met through a combination of domestic emission reductions, domestic removals, and the use of international carbon markets;

    5.2. report annually on how it plans to meet the NDC, including the balance of planned domestic emission reductions, removals, and offshore purchasing;

    5.3. clearly communicate its strategy for purchasing offshore mitigation to meet the NDC and how it will identify and manage fiscal and other risks and their consequences (Climate Change Commission recommendation 31)

6. **note** the Commission recommended that the Government should continue to define the NDC on the basis of all greenhouse gases using the most recent IPCC global warming potentials adopted by all Parties to the UNFCCC; and that if the NDC is updated, the Government should express it on a basis that is consistent with how emissions will be reported in the national greenhouse

gas inventory from 2021 – 2030 (Climate Change Commission recommendation 32);

7. **note** that, in response to the Commission's advice, the Government has publicly stated it will update NDC1 this year;

8. **note** that officials have provided advice on a range of equity considerations for NDC1 and that the further below 36 per cent our emission reductions, the more consistent our NDC1 would be with global efforts to limit temperature rise to 1.5°C

9. **note** that the Minister of Climate Change recommends NDC1 be updated to a new headline target to reduce net emissions 54 per cent below gross 2005 levels by 2030, to represent a credible contribution to the global goal to pursue efforts to hold temperature rise to 1.5°C.

10. either:

    i. **agree** for the Government to update NDC1 to a new target to reduce net emissions by 54 per cent below gross 2005 levels by 2030, equating to an emissions budget of 553 Mt CO_2e (**Minister of Climate Change's preferred option)**;

    or

    ii. **agree** for the Government to update NDC1 to a new target to reduce net emissions by 50 per cent below gross 2005 levels by 2030, equating to an emissions budget of 571 Mt CO2e

    or

    iii. **agree** for the Government to update NDC1 to a new target to reduce net emissions by 49 per cent below gross 2005 levels by 2030, equating to an emissions budget of 576 Mt CO_2e

    or

    iv. **agree** for the Government to update NDC1 to a new target to reduce net emissions by 45 per cent below gross 2005 levels by 2030, equating to an emissions budget of 595 Mt CO_2e

    or

    v. **agree** for the Government to retain the current NDC1 of reducing net emissions 39 per cent below gross 2005 levels by 2030, equating to an emissions budget of 623 Mt CO2-e

11. **note** that the Minister of Climate Change proposes that the NDC1 includes that New Zealand will commit to net-zero, all gases by 2050.

12. **agree** for the Government to include that New Zealand will commit to net-zero, all gases by 2050 in the NDC.

13. **note** that meeting an updated NDC1 to reduce net emissions 54 per cent below gross 2005 levels by 2030 will require 167 Mt of emissions reductions between now and 2030, with 47Mt domestic abatement expected if the Commission's demonstration pathway is achieved.

14. **note** that the emissions budgets and the emissions reductions plans, set under the Climate Change Response Act 2002, will set the trajectory for domestic emissions reductions and removals.

15. s 9(2)(f)(iv) [redacted]

16. s 9(2)(f)(iv) [redacted]

17. **note** the Commission advised that the current or an updated NDC1 cannot be met through domestic climate change action alone and requires international cooperation.

18. **note** that the remaining abatement required, beyond domestic emissions reductions and removals, to meet the updated NDC1 will need to come via international cooperation.

19. **agree** to complement domestic action with international cooperation to access offshore mitigation, taking a portfolio approach that focuses on sustainable development.

20. **note** that officials have provided estimates of the potential costs of offshore abatement required to meet the updated NDC1 using linking with emission trading schemes as a proxy for the overall cost of meeting an updated NDC1.

    20.1. For an NDC1 of 54 per cent, this is in the range of $9.3-$16.3 billion between now and 2030.

    20.2. For an NDC1 of 49 per cent, it is in the range of $7.5 to $13.2 billion between now and 2030.

    20.3. For an NDC1 of 45 per cent it is in the range of $6 – $10.6 billion between now and 2030.

21. **note** that the accompanying Cabinet paper *Progressing international cooperation to reduce emissions and complement domestic action* seeks further decisions from Cabinet on international cooperation to access offshore mitigation.

22. **agree** to technical decisions on how New Zealand will express and account for the updated NDC1, including that:

    22.1. New Zealand updates NDC1 using the global warming potentials from the IPCC's fifth assessment report

    22.2. New Zealand defines the NDC1 budget using a line from the previous target (for NDC1, this is New Zealand's 2020 target to reduce emissions 5 per cent below 1990 levels)

23. **note** that Cabinet noted that there has already been engagement with the public on NDC1, including the government's 2015 consultation prior to setting the current NDC and the Climate Change Commission's consultation on its draft advice in early 2021, and agreed to not undertake a public consultation process on updating NDC1 [CAB-21-MIN-0311 refers]

24. **note** that the current NDC1 update has been discussed at the National Iwi Chairs Forum and that Cabinet directed officials to continue to engage under Pou Take Āhuarangi of the National Iwi Chairs Forum on the NDC process [CAB-21-MIN-0311 refers]

25. s 9(2)(f)(iv) [redacted]

26. **agree**, for transparency and comparability, to communicate the updated NDC1 as both an emissions budget and a point-year target against baseline years 1990 and 2005.

27. **agree** that an updated NDC1 should be announced on 31 October, to align with the start of the next meeting of the Parties to the Paris Agreement and the 26th Conference of the United Nations Framework Convention on Climate Change (COP26) which will be held in Glasgow from 31 October 2021.

28. **approve** the attached submission (Appendix 4) to the United Nations Framework Convention on Climate Change as New Zealand's updated NDC1, to be uploaded to the NDC registry once the updated NDC1 has been announced, subject to minor editorial or technical changes if needed.

Authorised for lodgement

Hon James Shaw

Minister of Climate Change

Appendix 1 – Comparison of options for updating NDC1[22]

NDC level – point year	39%	45%	49%	50%	54%
NDC level - budget approach	30% (current NDC)	36%	40%	41%	45%
Total Budget	623 Mt CO_2-e	595 Mt CO2-e	576 Mt CO_2-e	571 Mt CO_2-e	553 Mt CO_2-e
Total abatement to forecast emissions (720mt)	97 Mt	125 Mt	144 Mt	149 Mt	167 Mt
International abatement compared to domestic demonstration path budget (673mt)	50 Mt	78 Mt	97 Mt	102 Mt	120 Mt
International abatement compared to domestic tailwinds scenario budget (646mt)	23 Mt	51 Mt	70 Mt	75 Mt	93 Mt
Costs of international purchase for demonstration path budget (from 2024)	$3.9-$6.8	$ 6.0- $10.6b	$7.5-$13.2b	$7.9-$13.8b	$9.3-$16.3b
Cost of international purchase for tailwinds scenario budget	$1.8-$3.2	$4.0-$7.0b	$5.5-9.6b	$5.8-$10.2b	$7.2 – $12.7b

[22] It is important to note that comparisons of point-year and budget-based reduction targets in this table are approximate only. This is because the exact relationship between point-year and budget-based reduction targets depends on estimates of New Zealand's 2020 emissions and final data for that year will not be available until early 2022.

Appendix 2: Choice of accounting methodology

1 The proposed NDC emissions reduction targets are expressed on a gross-net basis, i.e. they commit New Zealand to reduce its net emissions in the target year (or budget period) relative to gross emissions in the reference year. This is the basis on which the Climate Change Commission gave its advice on the NDC, and is the basis on which New Zealand's first NDC was expressed. It is also the basis on which New Zealand stated and reported against its international emissions reduction target under the Kyoto Protocol in 2008-2012, and in its target under the Convention in the period 2013-2020.

2 Monitoring and demonstrating achievement of these targets is done using a target accounting approach. Target accounting uses gross emissions estimates from the national inventory report but accounts for land emissions differently: it excludes removals from pre-1990 forests unless they result from changes in forest management, and it excludes emissions or removals occurring on non-forest land for which data are currently limited and have high uncertainty. The removals used for target accounting are a subset of total removals and are part of the annual New Zealand Greenhouse Gas Inventory. In addition, New Zealand has stated that for accounting under the Paris Agreement, it will apply averaging to removals on commercial forest land. This smooths out peaks and troughs arising from forest harvest and replanting. This accounting approach formed the basis for the Commission's advice on domestic emission budgets and the NDC1.

3 An alternative way to account for New Zealand's NDC target would be on a net-net basis that considers all land-based emissions and removals, including removals occurring in forests planted before 1990. It can be argued that accounting on a net-net basis is more consistent with the approach taken by the IPCC in its 2018 Special Report that provided global pathways for reaching the 1.5º C goal, because the IPCC used a global net-net calculation for the global pathways. However, the methodology to determine net carbon dioxide emissions in these global pathways is not identical to that used in country inventories.

4 If the Commission had used a net-net approach, this would have resulted in a different recommendation regarding the NDC emission target. In short, this is because if the emissions figure for the baseline year is calculated on a net basis (i.e. taking into account all land use, land use change, and forestry emissions and removals in the baseline year), there is a lower floor from which further reductions must be made. Accounting towards such a net-net target would also need to include removals on forest land planted prior to 1990.

5 Officials have considered whether a net-net approach should be used and, on balance, recommend that the gross-net target formulation and target accounting method be used because

   i. New Zealand's contribution towards global efforts ultimately depends only on the actions New Zealand takes to reduce emissions domestically and offshore, not on how it expresses its target.

ii. The emissions budget implied in the updated NDC constitutes New Zealand's highest possible ambition, having given due consideration of all relevant opportunities and risks. How this target is expressed (gross-net or net-net) is a matter of communication as it does not change our national ambition and contribution to global efforts.

iii. The purpose of the target accounting is to drive action, so it is appropriate to adopt it as a measurement framework designed to count (and provide an incentive for) emissions-reducing actions. In New Zealand's case, there are large business-as-usual changes (e.g. through planting and harvest cycles) in the level of emissions and removals from pre-1990 forests that if not "factored out" would dominate net emissions trends and delink the measurement framework from the results of later actions.

iv. The target accounting approach is consistent with three objectives, to provide:

(1) a continued incentive to establish new forests

(2) a disincentive to deforest

(3) an incentive to increase carbon stocks of pre-1990 forest above BAU

v. Gross-net target setting and accounting recognises that countries with significant removals in the reference year would be significantly disadvantaged. A country with high removals in the base year would have to continue planting trees just for its net emissions to remain constant, whereas a country with no removals in the base year would have to take no additional action for its emissions to remain constant. Targets that represent comparable effort between countries would therefore appear weaker in terms of headline rates of reduction for countries with high rates of removals in the base year, which is challenging to communicate internationally.

vi. The target accounting approach captures the key actions being undertaken on land after the reference year that affect emissions and removals, and for which scientific uncertainty is limited.

6 Fundamentally, using a gross-net approach to compare New Zealand's rate of reduction with those in global emission pathways assessed by the IPCC is not a simple mathematical calculation, but requires New Zealand to exercise its judgment about the appropriate level of burden sharing between countries with different amounts and types of emissions and removals. Officials note that, as a result, the 36% median rate of reduction calculated by the Commission (as well as any greater reduction expressed as a gross-net target) necessarily includes some of the value judgments set out above.

9(2)(f)(iv) [redacted]

[redacted]

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	9(2)(f)(iv)	

Appendix 4: New Zealand's updated first Nationally Determined Contribution under the Paris Agreement – submission for the United Nations Framework Convention on Climate Change