



Initial options for updating New Zealand's first Nationally Determined Contribution under the Paris Agreement (NDC1)

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To Hon James Shaw, Minister of Climate Change	Feedback	8 June 2021

Actions for Minister's Office Staff	Return the signed report to MfE.
Number of appendices and attachments #2	Titles of appendices and attachments: 1. Options to enhance NDC1 in terms of mitigation 2. Options analysis for enhancing NDC1 in terms of mitigation

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Initial options for updating New Zealand's first Nationally Determined Contribution under the Paris Agreement (NDC1)

Key Messages

1. The purpose of this briefing is to provide you with a framework and initial options for updating New Zealand's first Nationally Determined Contribution (NDC1) under the Paris Agreement.
2. Under the Paris Agreement, NDCs must reflect a country's highest possible ambition in light of national circumstances and represent a credible contribution to the global goal set out in the Paris Agreement of limiting warming to well below 2°C and pursuing efforts to limit global average temperature rise to 1.5°C above pre-industrial levels.
3. New Zealand's current NDC1 is to reduce greenhouse gas emissions 30% below 2005 levels by 2030, and can be met through a mixture of domestic emissions reductions, removals, and offshore mitigation.
4. In late 2020, you asked the Climate Change Commission (the Commission) to review whether the current NDC1 is compatible with global efforts to limit the global average temperature increase to 1.5°C above pre-industrial levels and to provide recommendations on any changes to NDC1 required to ensure it is compatible with this global temperature goal.
5. The Commission's final advice is that for NDC1 to be compatible with the global 1.5°C temperature goal, a reduction of much more than 36% below 2005 levels by 2030 (measured on a gross-net basis) would be required. Following receipt of the Commission's draft advice, you and the Prime Minister publicly committed to work to revise NDC1 this year, with a view to updating NDC1 prior to COP26 in November.
6. We have developed a framework for assessing options to update NDC1. We consider there are four key objectives that an updated NDC1 should meet. These are that NDC1 should:
 - a. be a credible contribution to the global effort to limit temperature rise to 1.5 degrees
 - b. meet New Zealand's commitment under the Paris Agreement to reflect its highest possible ambition in light of national circumstances
 - c. demonstrate leadership and contribute to global momentum to reduce emissions
 - d. complement New Zealand's long-term strategy to transition to a low-emissions society.
7. In order to provide you with an early view of possible options and our analysis, this paper sets out initial options for your feedback. These options are focused on the level and ambition of the "mitigation task" for updating NDC1. For each option, we have also shown how different accounting approaches affect the "headline reduction" of NDC1. An assessment of different accounting options is not included in this paper and will be provided to you next week. Options in this paper are expressed using the Commission's accounting approach.
8. We have set out five options, in addition to the current NDC1, ranging from 35% – 70% below 2005 levels by 2030 (using the Commission's accounting approach). These are presented in Appendix 1, where we have provided the emissions budget for each option as well as the volume of offshore mitigation that would be required, including specifying additional purchasing beyond the offshore mitigation required to meet the current NDC1.

9. We have assessed each of these options against three key criteria that align with the overall objectives:

- a. NDC1 is consistent with the global 1.5°C goal, taking into account high-level global equity considerations: We have assessed whether each option could be considered to be consistent with contributing to the global effort to limit warming to 1.5°C, noting there is no formulaic way to define consistency of a national target with a global goal.
- b. The fiscal and economic costs of the meeting NDC1 are manageable: In line with the national circumstances principle, the Government will need to make a judgement on what is an economic and fiscally achievable NDC1. We have used the demonstration pathway in the Commission's advice to forecast domestic emissions reductions and removals that will contribute to NDC1, with the remainder of NDC1 needing to be met through offshore mitigation. Our analysis against this criteria therefore estimates the total costs of purchasing offshore mitigation that would be required to meet the updated NDC1 options. We also provide a net ETS cash flow value, putting the options in the context of the NZ ETS.
- c. It is feasible to deliver NDC1: This criteria ensures we are committing to a level of ambition which we have sufficient confidence is possible to achieve. We have analysed the most likely implementation scenario for each option and the risks, uncertainties and constraints associated with delivering each of these i.e. availability or likelihood of securing sufficient offshore mitigation. Our analysis is based on using ETS links as the likely first avenue for delivering offshore mitigation. Previous work has found that ETS linking arrangements offer the best and most feasible avenue for sourcing offshore mitigation with environmental integrity at scale, as other options are emerging and uncertain (2021-B-07919 refers).

10. Our initial analysis, presented in Appendix 2, demonstrates that:

- a. The stronger the ambition of NDC1 the more consistent New Zealand's effort becomes with the global 1.5°C goal across a broader range of equity principles, but that being consistent with every formulation of equity (e.g. the principles of historical responsibility since 1850 and equal emissions per capita across the NDC1 period) would imply negative emissions. Next week, we will provide you with a more detailed paper on equity considerations for updating NDC1.
- b. The costs of increasing the ambition of NDC1 are significant, with each additional percentage point reduction adding a cost over the NDC1 period of \$300m to \$550m from 36% to 40% below 2005 levels, rising up to \$600m for each percentage point increase above 40% to 50% below 2005 levels. Delivering the volume of offshore mitigation required to meet an updated NDC1 would also reduce auction revenue from the NZ ETS, with an overall negative net ETS cash flows for NDC1 options above 40% below 2005 levels.
- c. There are limitations to the use of ETS linking to import offshore mitigation, even for an updated NDC1 of approximately 40% below 2005 levels. At this level, our ability to access offshore mitigation via ETS linking would be constrained. The limits to the quantity of offshore mitigation that can be supplied via ETS linking are due to the nature of ETS linking arrangements, which require offshore mitigation to stay within the NZ ETS cap. These constraints apply regardless of the form of ETS linking arrangement (i.e. direct participant purchase of offshore units and/or government purchasing). In order to deliver NDC1 scenarios beyond this level, significant over-achievement of domestic emissions budgets and/or additional non-ETS sources of offshore mitigation would be needed. These other sources of

offshore mitigation are emerging and uncertain, and relying on these creates risks for delivering higher ambition NDCs.

11. In MfE's view, a credible emissions reduction target needs to be supported by a viable implementation pathway, and a commitment to achieve this target. Our initial recommendation is that an NDC of 40% below 2005 levels is New Zealand's highest possible ambition as this NDC1 level:
 - a. Strengthens New Zealand's mitigation contribution to the global response significantly above the current NDC1.
 - b. Represents a stretch target – where costs are significant but manageable, and there are feasible delivery options through the ETS linking that we can pursue to ensure New Zealand meets this commitment. Securing ETS links will require resourcing and commitment from Government, including a decision to significantly reduce ETS auction revenue from 2023. If alternative avenues for offshore mitigation are identified, then NDC1 ambition could be revisited.
 - c. Supports/aligns with New Zealand's long term transition and durable climate action over time – in the longer term, MfE considers that New Zealand's NDCs should align with the domestic pathway to ensure that ongoing use of offshore mitigation does not reduce the incentives or resourcing for New Zealand's transition. This does not prejudice the ambition of either future domestic emissions budgets or future NDCs.
12. We consider that delivering NDCs beyond 40% below 2005 levels has significant uncertainties and risks of non-delivery.
13. Following your feedback on this paper, we will prepare draft material for you to present at the Climate Response Ministerial Group (CRMG) meeting on 23 June 2021 and provide this to you next week. Alongside that draft material, we will also provide you with a set of four detailed papers, with one page summaries for you to share with you CRMG colleagues. These papers cover science and high-level global equity considerations, national circumstances, international considerations, and accounting issues.

Recommendations

14. We recommend that you:
 - a. **Note** we have developed four overarching objectives as part of a framework for decision-making for updating New Zealand's first Nationally Determined Contribution (NDC1):
 - a. credibly contributes to the global effort to limit temperature rise to 1.5°C
 - b. meet New Zealand's commitment under the Paris Agreement to reflect its highest possible ambition in light of national circumstances
 - c. demonstrate leadership and contribute to global momentum to reduce emissions
 - d. complement New Zealand's long-term strategy to transition to a low-emissions society
 - b. **Note** these objectives are a consolidation of factors included in the Climate Change Commission's final advice, the Paris Agreement, and the principles on updating NDC1 that you shared with the Climate Response Ministerial Group (CRMG) on 17 April 2021

- c. **Note** we have analysed five options for NDC1 ranging from reducing emissions 36% to 70% below 2005 levels
- d. **Note** the stronger the ambition of NDC1, the more consistent New Zealand's efforts becomes with the global 1.5°C goal across a range of equity criteria
- e. **Note** increasing NDC1 would need to be met through additional offshore mitigation and the costs of this are potentially significant
- f. **Note** there is a limit to the capacity to import units via ETS linking due to the need to remain within the NZ ETS cap, and that options for accessing offshore mitigation above this level are currently uncertain, emerging and may entail delivery risks
- g. **Note** that MfE's view is that an enhanced NDC1 needs to have a viable implementation pathway for it to have environmental integrity
- h. **Note** that MfE's initial view is that an enhanced NDC1 of around 40% below 2005 levels is our preferred option as this represents an increase in New Zealand's contribution to the global mitigation task and is a stretch target that is supported by a viable implementation pathway
- i. **Note** MfE will provide you with the material for the 23 June CRMG meeting (revised version of options for updating NDC1, the four advice papers and the final slide pack) on 10 June
- j. **Meet** with officials to discuss your feedback ahead of preparing material for the 23 June CRMG meeting
- Yes/No
- k. **Discuss** the this advice and updating NDC1 with Hon. Mahuta, Minister of Foreign Affairs
- Yes/No
- l. **Agree** that this briefing and appendices will be released proactively on the Ministry for the Environment's website after Cabinet decisions have been made on updating NDC1, subject to redactions applied consistent with the Official Information Act.
- Yes/No

Signature

Craig Salmon
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Hon James Shaw
Minister of Climate Change

Date

Proactively released

Initial options for updating New Zealand's first Nationally Determined Contribution under the Paris Agreement (NDC1)

Supporting material

Purpose

1. The purpose of this briefing is to provide you with an initial assessment and recommendation on options for updating New Zealand's first Nationally Determined Contribution (NDC1) under the Paris Agreement.
2. We would like to get your feedback on how the options are presented ahead of preparing material for the 23 June Climate Response Ministerial Group (CRMG) meeting.
3. This paper draws from analysis being developed in four longer papers on science and equity considerations, national circumstances, international considerations, and accounting issues, which will be provided to you next week (see next steps for more detail).

Context

New Zealand's first NDC1

15. Under the Paris Agreement, NDCs must reflect a country's highest possible ambition in light of national circumstances and contribute credibly to the global goal set out in the Paris Agreement. This is to limit warming to well below 2°C and pursue efforts to limit global average temperature rise to 1.5°C above pre-industrial levels.
16. In 2016, the Government set a target to reduce greenhouse gas emissions to 30% below 2005 levels by 2030 for New Zealand's first NDC1. This target was developed in 2014-2015 prior to the finalisation of the Paris Agreement at COP21, and the context at that time included that:
 - a. the Paris Agreement was not yet finalised
 - b. there was an international focus on a 2°C temperature goal
 - c. the New Zealand Emissions Trading Scheme (NZ ETS) was the primary domestic policy tool to reduce emissions.
17. NDC1 was set on the basis that it would be achieved through a mix of domestic emission reductions, forestry removals and international cooperation. NDC1 uses a budget approach, meaning there is a constraint put on the quantity of emissions allowed across the 2021-2030 period. That quantity is currently estimated at 596 Mt CO₂-e.

The context has changed considerably since NDC1 was first set

18. Since NDC1 was first set, there have been a number of domestic and international developments on climate change action, including:
 - that we are now operating under the Paris Agreement
 - the publication of the IPCC Special Report on 1.5°C shifted the focus of climate policy to limiting warming to 1.5°C
 - the Zero Carbon Amendment Act put in place a domestic framework for climate change policy and a 2050 target, so that New Zealand's actions contribute to the global efforts to limit warming to 1.5°C.

19. In addition, international momentum to increase the ambition of NDCs has been building following several assessments showing the collective effort of NDCs currently falls short of what is required to limit warming to 1.5°C.

Following advice from the Climate Change Commission, the Government has committed to reviewing the NDC1 this year

20. In 2020, you requested advice on:

- a. whether the NDC1 is compatible with contributing to global efforts to limit global average temperature rise to 1.5°C above pre-industrial levels
- b. recommendations on any changes to the NDC1 required to ensure it is compatible with global efforts to limit global average temperature rise to 1.5°C.

21. On 23 March 2021, the CRMG discussed the Commission's draft recommendation that increasing the ambition of New Zealand's NDC1 to at least 35% below 2005 levels would be more consistent with the 1.5°C temperature goal. The Prime Minister and you committed to enhancing NDC1 this year, following receipt of the Commission's final advice.

22. In its final advice, the Commission's final advice on the NDC is unchanged from the draft advice, and recommends New Zealand's current NDC (30% reduction on 2005 emissions) is not compatible with contributing to the global 1.5°C effort.

23. The Commission recommends NDC1 be strengthened to "much more than 36% below 2005 gross levels by 2030." This is a 1% change from the draft advice (35%) due to methodological changes in the underlying data and does not represent a change in recommended ambition.

24. Figure 21.2 from the Commission's final report (copied below) shows where the -36% figure sits relative to the current NDC1 and upper and lower quartile of the IPCC's 1.5°C pathway, which is on the mid-point of the range.

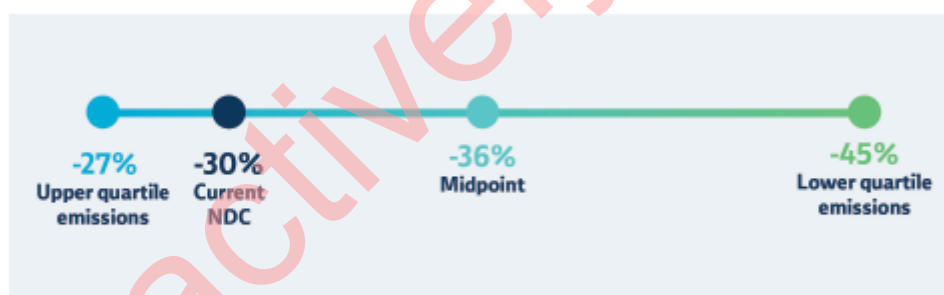


Figure 21.2: The current NDC and NDC targets associated with the IPCC 1.5°C interquartile range

25. The Commission used global emission pathways for limiting global average temperature rises to 1.5°C for carbon dioxide, agricultural methane, nitrous oxide, and synthetic gases to arrive at the 36% figure as a base for New Zealand's contribution to the global effort. The Commission assumes a gross-net approach continues to be used for New Zealand's NDC1 target and did not recommend changes to this approach.

26. The Commission has presented its advice on the NDC1 using conversion factors (for the warming resulting from emissions of different gases) from the 4th Assessment Report of the Intergovernmental Panel on Climate Change (AR4), but has recommended that the Government set its enhanced NDC1 using values from the 5th report (AR5). Updating the NDC1 to be based on AR5 factors will not significantly affect percentage reductions, but will increase the NDC1 budget number associated with a given level of mitigation ambition. The Commission presented its final advice on domestic budget quantities in the AR5

metric. The use of AR5 for the NDC1 would be the same as what New Zealand is required to use for its GHG inventory reporting.

27. The Commission notes the principles of equality, responsibility and capability also need to be considered in coming to a final decision on consistency of the NDC1 level with contributing to the global 1.5°C effort. It does not quantify those for the NDC1 and considers that such equity perspectives and other factors need to be weighed up by the Government of the day.
28. The Commission recommends that any changes to the NDC1 should be developed in partnership with Iwi/Māori, to give effect to the principles of Te Tiriti o Waitangi and align with the He Ara Waiora framework.
29. The Commission reinforced previous advice that offshore mitigation will be critical to meeting the NDC1.
30. The Commission also highlights that Government needs to actively plan for how it will meet the NDC1. This includes recommendations that the Government: reports annually on how it plans to meet the NDC1, including the balance of planned domestic emission reductions, removals, and offshore purchasing; and clearly communicate its strategy for purchasing offshore mitigation to meet the NDC1.

Analysis

A range of factors have been identified as important in assessing the ambition of NDC1

31. There is currently no prescribed framework for how New Zealand should assess and update its NDC1. The Paris Agreement sets out a high level commitments, including highest possible ambition and need for progression, with individual Parties determining their contribution according to their national circumstances.
32. As set out above, the Commission's final report notes the principles of equality, responsibility and capability/need are important considerations but does not quantify these for New Zealand's NDC1.
33. You also presented a set of principles to the CRMG on 17 March 2021 (appended to this briefing for your information), setting out important factors for updating NDC1 in the New Zealand context. These were that:
 - a. our actions should be consistent with 1.5°C
 - b. we are obliged to lead, as a developed country
 - c. our highest possible ambition is shaped by our national circumstances
 - d. NDC1 is not limited by what we do domestically
 - e. our choices about NDC1 need to be durable.

We have developed a set of criteria for guiding decision-making for NDC1

34. We have drawn from the Commission's advice, the principles that you presented to CRMG, and New Zealand's obligations under the Paris Agreement to develop an updated framework for assessing options to update NDC1. This framework includes a set of overarching objectives for an updated NDC1 and key criteria to assess options.
35. Our analysis has identified four key objectives that an updated NDC1 should meet. These are that NDC1 should:
 - a. **Be a credible contribution to the global effort to limit temperature rises to 1.5 °C:** NDC1 needs to be consistent with the purpose Paris Agreement and represent

a credible contribution from New Zealand to global efforts to limit average global temperature rises to 1.5°C above pre-industrial levels, based on global emission pathways set out in the IPCC Special Report on 1.5°C.

- b. **Meet New Zealand's commitment under the Paris Agreement to reflect its highest possible ambition in light of national circumstances:** NDC1 should reflect our highest possible ambition on the basis of common but differentiated responsibility and respective capabilities in light of national circumstances. National circumstances cover a broad range of factors including New Zealand's status as developed country, our emission profile, the acceptability of the costs required to meet the NDC1, and the feasibility of meeting NDC1.
 - c. **Demonstrate leadership and contribute to global momentum to reduce emissions:** New Zealand has committed to leadership at home and abroad on climate change and NDC1 needs to support New Zealand's ability to demonstrate its commitment to the international effort to reducing emissions.
 - d. **Support New Zealand's long-term strategy to transition to a low-emissions society:** NDC1 is a New Zealand's contribution to the global effort, however it and the manner in which we meet it should maintain incentives for New Zealand to transition to a low-emissions society. The accounting approach adopted for NDC1 may raise issues of consistency with how accounting for NDCs and domestic emissions budgets align in the future. This will be addressed in the separate accounting paper.
36. In addition to these objectives, it is important that any decision to update NDC1 reflects the Treaty of Waitangi. The Climate Change Commission's advice describes the importance of the te ao Māori in decision-making and the need to consider and prioritise Māori values. The Commission recommends that any changes to the NDC1 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.
37. We are working to ensure that the early engagement with Iwi / Māori on government's response to the Commission's advice also covers updating NDC1, and will provide you with an update on this work as it progresses.
- We have prepared a set of draft options for analysis*
38. In order to provide you with an early view of possible options and our analysis, we have prepared a set of draft NDC1 options for discussion. These are set out in Appendices 1 and 2.
39. The options presented and associated analysis draws from work developed in four longer papers on science and high-level global equity considerations, national circumstances, international considerations, and accounting issues, to be provided to you next week (see next steps). We are also preparing one-page summaries of these papers for you to share with your colleagues ahead of the CRMG meeting.
40. The approach we have taken for identifying and assessing options to update NDC1 is to focus on the level and ambition of the "mitigation task" first. Alongside initial options for different levels of ambition, we also show what different accounting approaches will look like for each level of ambition. A detailed assessment of these accounting options is not included in this paper and will be provided to you in the subsequent advice paper you will receive on accounting next week.
41. The aim of separating these aspects of the options is to enable New Zealand's contribution to global mitigation to be seen as a first consideration, before separate but related options on how we measure and report progress through accounting are assessed.

We have provided you with a broad range of initial options and some early analysis

42. We have set out five options, in addition to the current NDC1, ranging from 36% to 70% below 2005 levels by 2030 (using the current NDC1 accounting approach). These are presented in Appendix 1, where we have provided the emissions budget for each option as well as the volume of offshore mitigation that would be required, including specifying for each option additional purchasing beyond the current NDC1.
43. In developing these options, the following core elements apply to all options:
 - a. A combination of domestic reductions, removals and offshore mitigation is used to calculate how NDC1 could be met. All NDC1 options require offshore mitigation to supplement domestic efforts (as does the current NDC1).
 - b. We have applied the level of domestic reductions and removals as set out by the Climate Change Commission's advice. This is in lieu of emissions budgets adopted by the Government later this year. We have based the analysis on the Commission's demonstration scenario from the Commission's final advice, but also considered the possibility for overachievement of domestic Budgets in the Commission's Tailwinds scenario.
 - c. The options analysis is based primarily on ETS links as the current feasible option to secure international units towards NDC1. This is based on our assessment that there are no other feasible options available at sufficient scale in the short term, and that at the earliest we expect ETS linking could be available from 2023 (BN 2021-B-07919 refers). This does not reflect the potential to develop other, currently more uncertain, supply options for offshore mitigation over the NDC period.
 - d. The mix of domestic vs international can be flexible over the NDC1 period – while we need to establish access to offshore mitigation to enable achievement of NDC1, we should allow for flexibility for required volumes to change over the NDC1 period according to different circumstances e.g. if new technology allows for more domestic mitigation then a decreased volume would be delivered from offshore mitigation.
44. For the accounting aspect of the initial options, we show how three accounting approaches affect the "headline reduction" of the NDC, for an unchanged level of mitigation ambition. That is, each represents New Zealand making the same contribution toward the global 1.5°C effort (reflected as a common offshore purchase volume across the options). A more detailed assessment of these accounting options will be made in the forthcoming separate paper:
 - a. NDC1 expressed as a percentage reduction on 2005 gross emissions, with the Climate Change Commission's methodology used to relate the mitigation quantity to the target percentage reduction. In this approach, the NDC budget is defined by a line from the previous target level in 2020 (i.e. 5% below 1990 levels) to the 2030 target. This is a minor technical modification to the approach previously used to express New Zealand's NDC budget.
 - b. NDC1 expressed as a percentage reduction on 2005 gross emissions, with a modified approach to relating the NDC1 budget and headline percentage reduction. In this approach, the NDC1 budget is defined by a line from current (2019) net emissions to the 2030 target. This results in a larger percentage reduction for the same mitigation ambition. This approach gives a headline reduction that is more comparable to other countries that express their NDC1s as a single-year target.
 - c. NDC1 expressed as a percentage reduction in 2030 net emissions compared to net emissions in a base year, based on total inventory emissions and removals. This provides a full picture of all changes the atmosphere sees on a year-to-year

basis, whether driven by climate action or business as usual. Since warming is a function of cumulative net emissions over time, some important variations in net inventory emissions do not affect climate warming over the longer term (e.g. cyclical forest planting and harvesting, which balance over time).¹

45. Note that the offshore mitigation purchase volumes associated with each level of ambition are just estimates at this stage. They will likely change as updates are made and new information becomes available. These updates include translation to 100 year global warming potentials from the IPCC's Fifth Assessment Report (AR5) and updates to forestry projections. Offshore mitigation purchase volumes will also be sensitive to the actual domestic emissions pathway set by the Government. For example, if the Government sets a stronger domestic emissions budget than those recommended in the Commission's Demonstration path, offshore mitigation purchase volumes required to meet each NDC1 option will decrease.
46. In particular, for a net-net approach, we expect to see a larger amount of removals over the 2021-2030 period when forestry projections are updated. This will slightly increase the percentage reduction values corresponding to each purchase volume for that option.

We have assessed the ambition options against a set of criteria, consistent with the overarching objectives

47. For the mitigation aspect of the options, we have assessed the options against three key criteria that align with the overall objectives:

- a. NDC1 is consistent with the global 1.5°C goal, taking into account high-level global equity considerations: This criterion assesses whether each approach could be considered to be consistent with contributing to the global effort to limit warming to 1.5°C. There is no "scientific" way to define consistency of a national target with the global goal. Determining consistency requires us to make value or equity judgements about how quickly New Zealand should reduce emissions based on how the global task should be shared between countries.

We have built on the assessment of the Commission and taken an additional step of estimating reductions consistent with a range of equity principles, including equality, capacity to pay and historical responsibility. These allow us to quantify how much of the global burden of reducing emissions New Zealand would need to take on under various equity principles.

- b. Meet New Zealand's commitment under the Paris Agreement to reflect its highest possible ambition in light of national circumstances

- i. The fiscal and economic costs of the meeting NDC1 are manageable: This criterion estimates the total cost of the international purchase requirements to meet NDC1. It is based on equal annual purchase volumes from 2023-2030 and a range of low and high unit price estimates for international linking partners.

We have also assessed the impact of international purchasing on net ETS cash flow. This is because under a direct or indirect linking arrangement

¹ MPI does not support changing our current NDC forestry accounting approach, and notes the Climate Change Commission's reasoning for the appropriateness of the current approach. MPI supports a systematic data led approach to the decision on if, how and when to expand the coverage of the NDC to include non-forest land uses. s 9(2)(f)(iv)

there is a direct or indirect impact on NZ ETS revenue.² The purchase values are based the range of international price estimates and the domestic auction revenue is based on the domestic emissions values from the Commission's budget demonstration path.

These estimates are indicative only. Since they are based on highly uncertain projections of future market prices, they are likely to change over time. The cost estimates here should not be treated as actual costs.

- ii. The feasibility of meeting NDC1: This criterion assesses the feasibility of delivering NDC1 over the 2021-2030 period. s 9(2)(j)

. The key factor we have assessed is whether we consider we can source international units under an ETS linking arrangement to the level required to meet the ambition of each option or whether additional sources of unit supply would be required.

- c. NDC1 complements New Zealand's long-term strategy to transition to a low-emissions society: NDC1 and manner in which we meet it should maintain incentives for New Zealand to transition to a low-emissions society. The accounting approach adopted for the NDC may raise issues of consistency with how accounting for NDCs and domestic emissions budgets and targets align in the future. This will be addressed in the separate accounting paper.

48. In addition to assessing options against the above criteria, we will also provide you with information benchmarking a narrower range of options against actions of other countries across multiple relevant metrics in the next iteration of advice, ahead of the 23 June CRMG meeting. Although other countries' NDCs are not a consideration when setting New Zealand's NDC1, this information will provide you with an understanding of how the NDC1 options compare with other Parties' definition of *their own* highest possible ambition.

Advice

Initial assessment of options

49. We have undertaken an initial assessment of each option against the above criteria, which is set out in Appendix 2 – Initial options analysis for updating NDC1 in terms of mitigation.

50. Our initial view is that an NDC of 40% below 2005 levels represents an ambitious update to NDC1, which is a stretch target for New Zealand while being supported by a viable implementation pathway.

51. This recommendation is based on our initial analysis which shows that:

- a. The stronger the ambition of NDC1 the more consistent New Zealand's effort becomes with a broader range of equity principles, but that it would take very significant reduction in emissions (i.e. a reduction target of more than 70% below 2005 levels) to be consistent with several global equity principles such as capacity to pay and equal emissions per capita, especially if those were to be achieved within the NDC1 period or by 2030.
- b. The fiscal costs of increasing the ambition of NDC1 are significant, with each additional percentage point reduction adding a cost over the NDC1 period of \$300 to \$550m from 36% to 40% below 2005 levels, rising up to \$600m for each percentage point increase above 40% to 50% below 2005 levels.

² Under direct international market linkage, the Government is not directly responsible for the purchase costs of international units, but sees reduced revenue from NZ ETS auctioning.

- c. There are significant feasibility challenges using existing and expected tools as the NDC level rises to 40% below 2005 levels due to capacity constraints of importing international units through the NZ ETS. Implementing an NDC above 40% below 2005 levels would mean either relying on access to offshore mitigation through avenues with greater uncertainty or which need to be developed, or revisiting underlying aspects of our domestic context (e.g. the level of domestic emissions reductions that can be achieved or the role of agriculture in sharing the cost of meeting the NDC), which increases the risk New Zealand does not meet its NDC1.
52. In MfE's view, a credible emissions reduction target needs to be supported by a commitment to achieve this target through the development of a viable implementation pathway. An NDC of about 40% below 2005 levels would:
- a. Strengthen the mitigation contribution of New Zealand to the global response significantly above the current NDC1.
 - b. Represents a stretch target i.e. its ambitious – where costs are significant but manageable, and there are feasible delivery options through the NZ ETS that we can pursue to ensure New Zealand meets this commitment. Securing ETS links will require resourcing and commitment from Government, including a decision to reduce ETS auction revenue from 2023. If alternative avenues for offshore mitigation are identified, then the NDC1 ambition could be reviewed and enhanced.
 - c. Supports/aligns with New Zealand's long term transition and durable climate action over time – in the longer term, MfE considers that New Zealand's NDCs should align with the domestic pathway to ensure that ongoing use of offshore mitigation does not reduce the incentives or resourcing for New Zealand's transition. This does not prejudge the ambition of either future domestic emissions budgets or future NDCs.

We have limited options to access offshore mitigation between now and 2030

53. A key issue for New Zealand in increasing the ambition of NDC1 is the reliance on offshore mitigation and limited options currently available to purchase offshore mitigation.
54. The most feasible option to secure offshore mitigation with high environmental integrity at the volume New Zealand requires is via ETS links. There is, however, a limit to the volume that can be imported via ETS links due to the need to manage this volume within our cap, and therefore the level of NDC1 cost that can be passed on to ETS participants via this channel.
55. s 9(2)(j) [REDACTED]
[REDACTED]
[REDACTED]. Because the NZ ETS has a cap and we want to ensure we maintain the integrity of the NZ ETS in driving emissions to our domestic emission budgets, we need to manage the volume of units purchased within this cap.
56. In practice this means we need to manage the level of offshore mitigation allowed in the NZ ETS to the level that we expect to be able to auction under the revised emission budgets. An NDC1 of 40% below 2005 levels is at the upper limit of what we expect to be possible under these budgets, and in this case offshore mitigation would displace (or need to "back") the majority of auction volume in the NZ ETS from 2023 to 2030. This would mean the majority of supply in the NZ ETS is from international markets.

57. s 9(2)(j) [REDACTED]
[REDACTED]
[REDACTED].

Additional supply options may become available... but they may not

58. There is the possibility that alternative sources of supply do become available before the end of the NDC1 period. This could include the development of a market mechanism under Article 6.4 of the Paris Agreement or the development of a separate bilateral agreement where the Government could directly purchase additional offshore mitigation outside the NZ ETS. If these options become available, the Government could update NDC1 under the Paris Agreement to reflect increased ambition at any time.
59. There is, however, currently no certainty about the development of a market mechanism under Article 6.4 and any non-ETS bilateral arrangements would require significant investment and planning to secure high-integrity units between now and 2030. As such, we do not recommend increasing the ambition of NDC1 beyond 40% below 2005 levels now on the basis that they may be feasible options in the future. To do so would mean the Government is reliant on mitigation options which currently do not represent a credible implementation pathway to meet NDC1.
60. Under the Paris Agreement, Parties are able to enhance their NDCs at any time, as long as the change demonstrates progression beyond previous efforts. The Government could be clear that if further opportunities to access offshore mitigation or increase domestic climate action emerge over the NDC1 period, the Government will then respond by enhancing the NDC accordingly. This could take the form of an in-principal decision or Ministerial Statement that would note that New Zealand is committed to ongoing review and enhancement of NDC1 to ensure it remains highest possible ambition for New Zealand. This idea would require further work and is yet to be tested with agencies.

Consultation and Collaboration

61. We are working other agencies, including Treasury (TSY), the Ministry for Business, Innovation and Employment (MBIE), the Ministry of Foreign Affairs and Trade (MFAT), and the Ministry for Primary Industries (MPI) on the analysis of NDC1 issues. This paper reflects MfE's initial views.
62. Although this paper does not provide an assessment of accounting options, MPI has advised us it does not support changing our current NDC1 accounting approach. MPI supports the Climate Change Commission's reasoning for the appropriateness of the current accounting approach for forestry. MPI also supports a systematic data led approach to the decision on if, how and when to expand the coverage of NDC1 to include non-forest land uses. MPI considers that any changes to NDC1 accounting or ambition should be made jointly with the Climate Response Ministerial Group. MPI notes that the NDC1 accounting and ambition changes have significant implications for domestic policy (including fiscal implications for the Crown).
63. We have been working with Treasury on the cost implications work. Treasury is comfortable with focusing on the fiscal implications of an updated NDC1 ahead of the CRMG meeting on 23 June 2021.

Engaging with other Ministers

64. The 23 June CRMG meeting provides an important opportunity for you to discuss options for updating NDC1 with your colleagues, ahead of seeking Cabinet's agreement to consult of updating the NDC1 in August.
65. We recommend you meet with Hon Mahuta, Minister of Foreign Affairs ahead of the CRMG meeting to discuss the NDC1 update.

Next Steps

Upcoming advice

66. We have identified a series of key considerations for the update of NDC1, and will provide you with a set of longer advice papers, and one-page summaries to share with your CRMG colleagues, on these considerations next week. Note this briefing note has drawn from the analysis within these papers:
- a. **Equity and science considerations:** this paper covers the IPCC's global emission pathways consistent with 1.5°C, and how global equity considerations can help inform the consistency of options to update New Zealand's NDC1. As there is no "scientific" way to choose a 1.5°C aligned target for an individual country, this paper builds on the Commission's advice to look at a range of equity considerations. These include consistency in: the rate of emission reductions, emissions per capita by different dates; contribution to global effort based on capacity to pay; and contribution to overall warming including responsibility for warming from historical emissions.
 - b. **International considerations:** this paper is being co-developed with MFAT. It will provide an overview of the legal obligations and policy context of the Paris Agreement, as well as providing an update on changes in the international context since NDC1 was first developed.
 - c. **National circumstances:** this paper will discuss the domestic policy context and NDC1 implementation choices, including how different options could be delivered through a mixture of domestic reductions, removals and use of offshore mitigation. It will seek to identify the expected mix of domestic reductions, removals and use of offshore mitigation using the Commission's pathways, and provide the likely cost impacts and feasibility of these. This paper will describe the use of international ETS linking, as the most feasible option for accessing offshore mitigation, and discuss the two linking methods potentially available. It will also look how decisions on NDC1 relate to NDC2 and our long-term transition.
 - d. **Definition of and accounting for NDC1:** this paper will unpack the methodological choices for how New Zealand expresses NDC1, tracks progress, and accounts for its achievement. These choices affect the way NDC1 appears but do not affect its ambition/effort. The paper will assess a range of accounting choices, including the calculation methodology for NDC1 budgets; updating for AR5 global warming potentials (GWPs); whether to fix the NDC1 budget (or leave it flexible for inventory updates); and gross-net vs net-net target setting and related forestry accounting. The paper will also cover options for staging decisions on accounting, noting that there are significant practical implications and risks of diverging from current accounting approach in the near term.

Next steps

67. Alongside the above advice papers, we will provide you with supporting material for the 23 June 2021 CRMG meeting.
68. We are currently working towards a process for updating NDC1 that includes public consultation on updating NDC1 before final Cabinet decisions are made in October, to allow communication of an updated NDC1 ahead of COP26 (scheduled to be held in Glasgow in November).
69. We anticipate that you will take a paper to ENV on 5 August seeking approval to publicly consult on the update of NDC1 and what options for updating will be included in the public

consultation. Public consultation will be held in August for six weeks, alongside consultation on New Zealand's first emissions reduction plan.

70. Below is a timeline of upcoming advice and key dates:

When	What
8 June	Discuss at Ministers' weekly meeting
10 June	Officials will provide you with: <ul style="list-style-type: none"> - the four advice papers - draft slide pack for CRMG for your feedback ahead of 23 June
17 June	Officials will provide you with the final material for the 23 June CRMG meeting
23 June	CRMG meeting
1 July	Draft Cabinet paper and discussion document
5 August	Cabinet paper to begin consultation on updating NDC1 to ENV
9 August	Cabinet paper to begin consultation on updating NDC1 to Cabinet

Appendix 1: Options to update NDC1 in terms of ambition

NDC1 ambition options							
	Purchase requirement to meet NDC ambition (Demonstration)	Status Quo: 52 Mt	Option One: 80 Mt	Option Two: 97 Mt	Option three: 120 Mt	Option four: 143 Mt	Option five: 233 Mt
	Budget under CP2 endpoint approach:	596 Mt	568 Mt	551 Mt	527 Mt	505 Mt	70 Mt
	Additional purchasing beyond current NDC1:	-	~28 Mt (roughly x1.5)	~45 Mt (roughly x1.8)	~68 Mt (roughly x2.3)	~91 Mt (roughly x2.8)	~181 Mt (roughly x4.5)
Impact of different accounting approaches for headline number for each option							
Gross-net approaches (relative to 2005 levels)	CP2 endpoint approach (used by the Commission)	30%	36%	40%	45%	50%	70%
	Budget starting from actual emissions/point year	40%	46%	50%	55%	60%	80%
Net-net approach (relative to 2005 levels)	Net-Net (inventory accounting) ^[1]	6%	15%	20%	28%	35%	64%

^[1] The inventory approach counts a larger set of removals, so the budget number is different for a target with an equivalent level of ambition. The net-net numbers are calculated using 2020 projections, which we expect to change due to updated information and methodological improvements. This would result in a slightly greater percentage headline for a level of ambition equivalent to the gross-net options above.

Appendix 2 - Initial options analysis for updating the ambition of NDC1

Purchase requirement to meet NDC ambition	Status Quo: 52 Mt	Option One: 80 Mt	Option Two: 97 Mt	Option three: 120 Mt	Option four: 143 Mt	Option five: 233 Mt
	30% below 2005 levels	36% below 2005 levels	40% below 2005 levels	45% below 2005 levels	50% below 2005 levels	70% below 2005 levels
1.5°C consistency	xx	x	✓	✓	✓	✓✓
-equality	Not consistent with any equity criteria assessed	Potentially consistent with convergence to equal per capita emissions in 2050	Potentially consistent with equal rate of reduction and likely consistent with convergence to equal per capita emissions in 2050	More likely consistent with equal rate of reduction and convergence to equal per capita emissions in 2050	Consistent with equal rate of reduction and convergence to equal per capita emissions in 2050	Consistent with all equity principles except historical responsibility and equal per capita emissions across 2021-2030
-capacity						
-responsibility						
Cost (total cost of purchasing mitigation)³	\$3.8 to \$6.8bn	\$5.9 to \$10.5bn	\$7.1 to \$12.7bn	\$8.8 to \$15.7bn	\$10.5 to \$18.7bn	\$17.1 to \$30.5bn
Net ETS cash flow (+/-)⁴	+\$8.0 to +\$5.0bn	+\$5.9 to +\$1.3bn	+\$4.3 to -\$1.2bn	+\$1.8 to -\$5.0bn plus up to \$0.1bn additional purchasing outside ETS	-\$1.0 to -\$9.0bn plus \$0.4 to \$0.7bn additional purchasing outside ETS	-\$11.7 to -\$21.5bn plus \$5.2 to \$8.8bn additional purchasing outside ETS
Feasibility	✓✓	✓	✓	x	x	xx
	Achievable via current ETS linking options – volume can be accommodated through using international units to back auction volume or direct purchasing	Likely achievable via current ETS linking options – potential need for small use of international units to be used towards industrial allocation	Potentially achievable with existing plans for ETS links – use of international units will have a significant effect on wider ETS settings and would need to be used towards industrial allocation	Not likely to be possible entirely through existing plans for ETS links; other options likely to be necessary for a large amount of units	Almost certainly not possible with existing plans for ETS links; other options will be necessary for a large amount of units	Not likely to be possible via existing plans or other mechanisms

³ Based on an equal annual unit volume from 2023-2030 required to meet total sum of NDC ambition purchase volume s 9(2)(j)

⁴ Net ETS cash flow is made up of: total NZ ETS auction revenue, purchase price of backed auction units, difference in costs between international purchase price and domestic auction price, and purchase price of any free allocation units. For the calculations domestic auction revenue is based on the Commission’s “Demonstration Path” emissions values, and purchase prices s 9(2)(j).