



Government Response to the Climate Change Commission Report

Te Urupare a te Kāwanatanga
ki te Pūrongo a He Pou a Rangi

2050 Target Review Recommendations



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Introduction

The New Zealand Government is committed to our contribution to limit the increase in global average temperature and to prepare for and adapt to the impacts of climate change. The Climate Change Response Act 2002 (the CCRA) provides the framework for meeting those goals and guiding our response.

The CCRA sets out New Zealand's long-term domestic emissions reduction targets through to 2050. Targets are supported by a series of emissions budgets that act as stepping-stones towards that goal. To ensure the 2050 target remains up to date and relevant, the CCRA provides for the 2050 target to be reviewed every five years.

He Pou a Rangi | Climate Change Commission (the Commission) has an independent role under the CCRA to advise and monitor key parts of New Zealand's climate change response. This includes the requirement to review the 2050 target to assess whether significant changes have occurred since the target was set in 2019.¹

As part of its first review, the CCRA also required the Commission to consider whether international shipping and aviation emissions should be included in the 2050 target and, if so, how the target should be amended.² The Commission provided its advice and recommendations to the Minister of Climate Change in November 2024, which this response refers to as 'the Commission's 2050 target review'.³

Under the CCRA, the Minister of Climate Change must advise the Commission of the Government's response within 12 months of receiving the Commission's recommendation, including any reasons for departure from the recommendations.⁴ This document sets out the Government's response to the Commission's 2050 target review, including its recommendation on international shipping and aviation emissions.

In line with the National–ACT Party coalition agreement, the Ministry for the Environment (the Ministry) established an independent panel of New Zealand and international scientists to review the science on, and target for, biogenic methane for consistency with the principle of 'no additional warming'. The resulting report, termed 'the Methane Review', was published in December 2024.⁵

In considering options for the 2050 target, the Government has weighed the Methane Review, the Commission's recommendations and officials' advice. The Government has decided to depart from the majority of the Commission's recommendations. Decisions to change the 2050 target are based on our understanding of the evidence about climate change and temperature response to emissions, related economic policy implications and balancing relevant

¹ Climate Change Response Act 2002, section 5S.

² Climate Change Response Act 2002, section 5R.

³ He Pou a Rangi | Climate Change Commission. 2024. *Review of the 2050 emissions target including whether emissions from international shipping and aviation should be included*. Wellington: Climate Change Commission.

⁴ Climate Change Response Act 2002, section 5U.

⁵ Ministry for the Environment. 2024. *Methane Science and Target Review*. Wellington: Ministry for the Environment.

government objectives. Future reviews will consider the balance of government objectives against evidence and information available at that time.

Government strategy to reduce emissions

This Government is committed to delivering on New Zealand’s climate change commitments while growing the economy. New Zealand can have prosperous communities, affordable and secure energy, increasing primary production and exports, and a thriving economy while meeting its climate change commitments.

In 2024, the Government released the Climate Strategy, which outlines the approach for delivering on New Zealand’s climate goals. The strategy is based on five pillars.

Figure 1: Five pillars of the Climate Strategy



New Zealand’s domestic climate change targets

The CCRA legislates New Zealand’s domestic emissions reduction targets, which are that:

- net accounting emissions of greenhouse gases in a calendar year, other than biogenic methane, are zero by the calendar year beginning on 1 January 2050, and for each subsequent calendar year
- emissions of biogenic methane are reduced by 10 percent below 2017 levels by 2030 and are reduced by 24 percent to 47 percent below 2017 levels by 2050, and for each subsequent calendar year.

Response to the Climate Change Commission's 2050 target review, international shipping and aviation

Climate Change Commission's 2050 target review and recommendations

The Commission's 2050 target review report sets out the analysis, findings and recommendations of the review, as required under the CCRA.⁶ In its report, the Commission recommended strengthening the target, as outlined below.

Commission's 2050 target recommendations



Gross emissions of biogenic methane are at least 10 percent less than 2017 emissions by 2030, and at least 35 percent to 47 percent less than 2017 emissions by 2050.



Net accounting emissions of greenhouse gases other than biogenic methane, including international shipping and aviation emissions, * are at least –20 megatonnes of carbon dioxide equivalent by 2050.



There are further reductions and removals of greenhouse gases beyond these levels after 1 January 2050.

* The Commission also made technical recommendations on international shipping and aviation, as outlined in [appendix 1](#).

⁶ He Pou a Rangi | Climate Change Commission. 2024. *Review of the 2050 emissions target including whether emissions from international shipping and aviation should be included*. Wellington: Climate Change Commission.

The Commission found three significant areas of change since 2019, that in its view, justified changing the target:⁷

- Scientific understanding of climate impacts
- Global action
- Intergenerational equity.

As well as an overview of the Commission's finding of significant changes, the target review report contains:⁸

- a summary of the Commission's recommendations for decision-makers
- its approach to reviewing the 2050 target
- a review of whether international shipping and aviation emissions should be included in the 2050 target.

The Government acknowledges the Commission's inaugural 2050 target review and has considered its recommendations.

Methane Review

At the Government's request, the Methane Science and Target Review Panel (the Panel) delivered its independent Methane Review, which was published in December 2024.⁹

The Panel reviewed the latest methane science and the 2050 target for consistency with the principle of 'no additional warming' from agricultural methane emissions, using 2017 as a base year.

Biogenic methane is a 'short-lived' gas with a shorter atmospheric lifetime and different warming impact from other long-lived greenhouse gases, such as carbon dioxide.

The Panel provided an evidence-based assessment on what was required to stabilise the warming impact of biogenic methane emissions at 2017 levels in 2050; that is, no additional warming from the base year of 2017. The Panel was not tasked with recommending a new biogenic methane target.

⁷ He Pou a Rangi | Climate Change Commission. 2024. *Review of the 2050 emissions target including whether emissions from international shipping and aviation should be included*. Wellington: Climate Change Commission, pp 100-102.

⁸ He Pou a Rangi | Climate Change Commission. 2024. *Review of the 2050 emissions target including whether emissions from international shipping and aviation should be included*. Wellington: Climate Change Commission, pp 15 and 25.

⁹ Ministry for the Environment. 2024. *Methane Science and Target Review*. Wellington: Ministry for the Environment.

Our approach to the 2050 target decisions

The CCRA outlined the criteria the Commission's 2050 review must have met, in order to recommend a change to the 2050 target.¹⁰ The Government's response to the Commission must outline the rationale for departure from any recommendations.¹¹

This section of the response outlines how the Government assessed 2050 target options and how this informed our final decisions.

The options were drawn from and informed by the Methane Review, Commission's report and recommendations and officials' advice. Some options are consistent with the Methane Review (including the Government's option), other options were directly informed by the Commission's recommendations.

To guide decisions, we evaluated options against a set of objectives, which included:

- alignment with the Government's economic agenda
- contribution to limiting global temperature rise to 1.5 degrees Celsius
- feasibility of implementation to support New Zealand's transition to net zero by 2050.

We considered economic and climate modelling that used the central scenario and 2024 projections from our second emissions reduction plan (ERP2), which was the most up-to-date data available at the time.¹² New projections have since been released.¹³

This modelling included the Commission's recommendations and highlighted uncertainties around costs and opportunities, which depend on factors such as population growth, technological change and commodity prices.

The Government did not consider fundamental changes, such as removing the target or abandoning the split-gas approach. Retaining the split-gas framework reflects New Zealand's unique emissions profile and the distinct characteristics of short- and long-lived gases.

This approach enabled the Government to weigh trade-offs between its option and the Commission's recommendations, balancing evidence, modelling, and broader policy objectives.

See [appendix 2](#), for further details on the approach to the 2050 target decisions.

Our decisions on the 2050 target

The 2050 target helps provide long-term policy certainty to guide planning and investment decisions. Although climate action and policies can deliver many benefits beyond just

¹⁰ Climate Change Response Act 2002, section 5T (2)

¹¹ Climate Change Response Act 2002, section 5U.

¹² Ministry for the Environment. 2024. *Our Journey Towards Net Zero: New Zealand's Second Emissions Reduction Plan 2026–30*. Wellington: Ministry for the Environment.

¹³ Ministry for the Environment. [New Zealand's Projected Greenhouse Gas Emissions to 2050](#). Retrieved 28 October 2025.

environmental, they can also lead to increased costs on the private sector and households. Setting a target, therefore, requires careful balancing of multiple objectives.

The Government remains committed to the climate change commitments of reaching net zero long-lived gases by 2050 and reducing gross biogenic methane emissions, using a split-gas approach, to our domestic 2050 target.

We have finalised the Government’s response to the Commission’s first review of New Zealand’s 2050 target and made decisions about the 2050 target, which are provided below.

The Government’s 2050 target decisions



Biogenic methane

Update the biogenic methane component to a 14 percent to 24 percent reduction from 2017 levels by 2050.

Maintain the 10 percent below 2017 levels reduction in biogenic methane required by 2030.



Long-lived gases

Maintain the status quo for long-lived gases by 2050 (net zero emissions by 2050).



International shipping and aviation

Maintain the status quo for international shipping and aviation (exclude from 2050 target).



Post-2050 reductions and removals

Maintain status quo for post-2050 emissions reductions and removals

These decisions represent a departure from the Commission’s recommendation on the 2050 target.

The following sections provide further detail on, and rationale for, the Government’s decisions, and on the Government’s approach to considering the Commission’s recommendations.

See [appendix 2](#), for further details on the impact analysis of options.

Biogenic methane component of the 2050 target

Why we are updating the target

The Government has decided to update the biogenic methane component of the 2050 target to be:

- a 14 percent to 24 percent reduction from 2017 levels by 2050, and for each subsequent calendar year.

The target strikes a balance between climate ambition and the economic significance of the agriculture sector (see [appendix 2, table A2.3](#)). It maintains a domestic response to climate change that contributes to New Zealand's international commitments.

New Zealand's primary sector is the backbone of the economy and accounts for 10 percent of gross domestic product (GDP). The primary sector has earned almost \$60 billion in export revenue in the past year, contributing 12.4 percent of overall employment, and totalling 82.5 percent of New Zealand's goods exports.¹⁴ New Zealand farmers are among the most productive and emissions efficient in the world.¹⁵

To support the sector, the Government is already investing more than \$400 million in the primary sector industry to speed up the development and roll-out of tools to cut methane emissions.¹⁶ This is alongside advances in genetics and feed and farm management. Incentive schemes by industry will also help drive emissions reductions.

We considered the views of industry to ensure a practical target was developed that protects food production while also reducing emissions.¹⁷

Balancing economic growth, climate action and feasibility

The Government's decision differs from the Commission's recommendation to increase the biogenic methane target to a 35 percent to 47 percent reduction by 2050 (from 2017 levels).

The Government disagrees with the Commission that the biogenic methane component of the 2050 target should be increased. In reaching this conclusion, we considered the potential impact of the Commission's proposal on the economy and the climate, as well as the feasibility of the policy mix and the technology required (see [appendix 2, table A2.2](#)).

Our economic and feasibility analysis showed that increasing the target as recommended by the Commission would have a negative economic impact on the agriculture sector and risk exacerbating the negative effects of land-use change (see [appendix 2, table A2.3](#)). Having

¹⁴ Ministry for Primary Industries. 2025. *Situation and Outlook for Primary Industries*. Wellington: Ministry for Primary Industries. p 4.

¹⁵ For example, see Mazzetto A, Falconer S, Ledgard S. 2021. *Updating the Carbon Footprint for Selected New Zealand Agricultural Products: An Update for Milk*. Prepared for the Ministry for Primary Industries by AgResearch; and Mazzetto AM, Falconer S, Ledgard S. 2023. Carbon Footprint of New Zealand Beef and Sheep Meat Exported to Different Markets. *Environmental Impact Assessment Review* 98 (January 2023): 106946. <https://doi.org/10.1016/j.eiar.2022.106946>

¹⁶ See, for example, Ministry for the Environment. 2024. *Our Journey Towards Net Zero: New Zealand's Second Emissions Reduction Plan 2026–30*. Wellington: Ministry for the Environment. pp 63–64.

¹⁷ Beehive.govt.nz. 2025. *Statement by Minister Todd McClay following the March 2025 Pastoral Sector Group Meeting*. 25 March. [Press release]. Retrieved 28 October 2025.

considered the potential impact of the Commission’s proposal, the Government chose to depart from the Commission’s recommendation.

Long-lived gases component of the 2050 target

Why we are maintaining the target

The Government has decided to maintain the current target for long-lived gases, which is that:

- net accounting emissions of greenhouse gases in a calendar year, other than biogenic methane, are zero by the calendar year beginning on 1 January 2050 and for each subsequent calendar year.

The status quo, as outlined in chapter 14 of ERP2, presents minimal additional economic costs, compared with the Commission’s recommendation. The current strategy for reducing long-lived gases supports progress towards New Zealand’s 2050 climate targets, achieving net zero emissions by 2050.¹⁸ The current target level offers policy stability and feasibility by enabling businesses to find least-cost pathways – such as through the New Zealand Emissions Trading Scheme (NZ ETS) – to reduce and remove emissions in support of achieving the net zero by 2050 target. Policies as outlined in ERP2 are feasible to implement and provide a foundation for transition.

Our decision differs from the Commission’s recommendation to increase the long-lived gases component of the net zero target to at least net negative 20 megatonnes of carbon dioxide equivalent (Mt CO₂-e) by 2050.

Balancing economic growth, climate action and feasibility

The Government disagrees with the Commission’s recommendation that the long-lived gas component of the 2050 target should be increased. In reaching this conclusion, we considered the potential impact of the Commission’s proposal on the economy and the climate, as well as the feasibility of policy mix and the technology required (see [appendix 2, table A2.3](#)).

Although the Commission’s recommendation would enhance New Zealand’s contribution to limiting warming, it would entail economic costs and is substantially less feasible than alternative pathways.

Economic modelling suggests achieving net negative emissions of 20 Mt CO₂-e by 2050 would have a negative impact on GDP, with modelling indicating that GDP would be 2.2% lower in 2050. Implementing the Commission’s recommended target would also require major policy reform and private sector action. Changes that would be required include more stringent emissions budgets and reform of the NZ ETS, and changes may involve potential risks to agricultural productivity. Compared with the status quo, the Commission’s recommended target presents greater implementation challenges and uncertainty, despite its stronger climate signal (see [appendix 2, table A2.3](#)).

We concluded that the Commission’s proposal does not reflect an appropriate balance of the Government’s overall objectives.

¹⁸ See Ministry for the Environment. 2024. *Our Journey Towards Net Zero: New Zealand’s Second Emissions Reduction Plan 2026–30*. Wellington: Ministry for the Environment. pp 17–18.

International shipping and aviation emissions

Why we are maintaining the current approach

We have decided to maintain the current approach of excluding international shipping and aviation emissions from the 2050 target.

Emissions from international shipping and aviation will continue to be addressed through global cooperation mechanisms. New Zealand actively participates in these efforts through the International Maritime Organization (IMO) and the International Civil Aviation Organization (ICAO).

The Government disagrees that the scope of the 2050 target should be expanded to include international shipping and aviation emissions.

Balancing national economic interests, climate ambition and feasibility

New Zealand relies on foreign-owned shipping for most seaborne trade and international aviation for global connectivity and tourism. As a geographically remote country, with no land-based borders, New Zealand is highly exposed to shifts in the price of sea- and air-based freight and is at an economic disadvantage to increases in freight costs.

Maintaining the current approach helps ensure that countries operate on a level playing field, avoiding a future in which fragmentation of decarbonisation efforts by states increases compliance costs for business. As a small, remote nation, New Zealand relies on functioning and effective multilateral systems to maximise its competitiveness.

This approach aligns with New Zealand's economic interest, including the Government's 'Going for Growth' agenda. It also provides ongoing policy certainty for the shipping and aviation sector that the IMO and ICAO will continue to manage mitigation of emissions in the sector. This decision keeps New Zealand aligned with most other countries.

The Commission's recommendation is likely to involve higher economic costs than the status quo, because it may require domestic measures alongside international ones (see [appendix 2](#), for more information).

We have therefore concluded that retaining the current approach more effectively balances the Government's objectives.

The Commission made other technical recommendations regarding emissions from international shipping and aviation, which will not be progressed, due to the decision not to include these emissions in the 2050 target (see [appendix 1](#), for further information).

Specifying further emissions reductions and removals from 2050 onwards

While we have decided to retain the current legislative framework, we nonetheless acknowledge the strategic importance of aligning post-2050 action with New Zealand's long-term climate strategy and emissions pathways.

The Government did not agree with the Commission that the CCRA should be amended now to require further reductions and removals from the Commission's recommended target levels, from 2050 onwards. It is our view that a detailed framework for post-2050 reductions and removals is best developed closer to 2050.

The CCRA already requires that the 2050 target be met in each subsequent year, this includes maintaining net zero long-lived gases and continued achievement of the biogenic methane target. However, the Government recognises the need for continued action beyond 2050, particularly in light of the 1.5 degrees Celsius temperature goal.

Given the long lead time to 2050, specifying a post-2050 target closer to the time could be beneficial because it would reflect updated evidence, technological advancements and international developments.

Currently, no international consensus exists on what post-2050 targets should entail because few countries have set them. Maintaining the current approach supports near-term policy stability and allows for alignment with evolving global consensus and updated scientific evidence on how best to consider a post-2050 framework. New Zealand will remain engaged in global dialogue, while taking an evidence-based approach to future planning.

Strong reasons exist to consider how the system should best reflect the need to address what happens beyond 2050. Several approaches are possible, including introducing a specific timeframe for revisiting this question, such as a mandatory review provision. This is an important policy consideration, and officials will be tasked with exploring it further when the time is appropriate. See [appendix 2](#), for more information.

How we will implement these decisions

Amendment to the Climate Change Response Act 2002

The Government has agreed to introduce a Bill to Parliament that would amend the biogenic methane component of New Zealand's 2050 target to 14 percent to 24 percent below 2017 levels by 2050. Parliament will then consider the Bill in due course.

Appendix 1: Climate Change Commission’s technical recommendations and Government response summary

Table A1.1: Summary of Climate Change Commission’s technical recommendations on international shipping and aviation

Commission technical recommendation ¹⁹		Summary of Government response
Calculate emissions from international shipping and aviation using the following measures:		
International shipping and aviation	Aviation: refuelling taking place in New Zealand based on bunker fuel use by all international operators.	Based on the decision to retain the current approach to international shipping and aviation, this technical recommendation will not be progressed any further. Note, the New Zealand Greenhouse Gas Inventory already measures and reports on international aviation bunker fuels.
	Shipping: an estimate of 50 percent of the emissions to and from the next overseas port by all international operators and 100 percent of their emissions travelling between ports in New Zealand and while docked.	Based on the decision to retain the current approach to international shipping and aviation, this technical recommendation will not be progressed any further. Note, the New Zealand Greenhouse Gas Inventory measures and reports on international shipping by measuring and reporting on shipping bunker fuels. This approach is different from the Commission’s recommendation.
	and:	
	Reconsider the inclusion of other climate impacts from international shipping and aviation in the 2050 target in future reviews.	Based on the decision to retain the current approach to international shipping and aviation, this technical recommendation will not be progressed any further.
	Develop measures for meeting the 2050 target that ensure a specific focus on gross emissions reductions for international shipping and aviation.	Based on the decision to retain the current approach to international shipping and aviation, this technical recommendation will not be progressed any further.

¹⁹ He Pou a Rangi | Climate Change Commission. 2024. *Review of the 2050 emissions target including whether emissions from international shipping and aviation should be included*. Wellington: Climate Change Commission. p 24.

Appendix 2: Summary of analysis to support decision-making on the 2050 target

This appendix contains further information on options, objectives and a summary of analysis that supported the Government's consideration of the Climate Change Commission's (the Commission's) 2050 recommendations and its decisions.

Additional detail on option impact analysis and modelling of 2050 target options for biogenic methane and long-lived gases, including the Commission's recommendation, can be found in the relevant regulatory impact statement.²⁰

Summary of analysis for biogenic methane and long-lived gas components

Options the Government evaluated

The Government assessed five overall options (described in [table A2.1](#)), including the Commission's option, against the objectives and criteria outlined in the next section.

Table A2.1: Biogenic methane and long-lived gas options

Options	Description
Option 1 (status quo)	The baseline for this analysis is the current legislated targets in the CCRA and assumed policy mix as part of ERP2.
Option 2	Reduce the biogenic methane component of the 2050 target (14 percent less than 2017 emissions), with status quo for long-lived gases (net zero).
Option 3 (Government agreed option)	Reduce biogenic methane target 14 percent to 24 percent below 2017 levels, with status quo for long-lived gases (net zero).
Option 4	Set the biogenic methane target to a 24 percent reduction from 2017 levels only, with status quo for long-lived gases (net zero).
Option 5 (Climate Change Commission's recommendation)	Increase ambition of 2050 target, as recommended by the Commission (35 percent to 47 percent less than 2017 for biogenic methane; negative 20 Mt CO ₂ -e for long-lived gases; further reductions and removals beyond 2050).

Note: CCRA = Climate Change Response Act 2002; ERP2 = second emissions reduction plan; Mt CO₂-e = megatonnes of carbon dioxide equivalent.

²⁰ Ministry for the Environment and Ministry for Primary Industries. Forthcoming. *Regulatory Impact Statement: Updating the 2050 Domestic Climate Change Emissions Target*. Wellington: Ministry for the Environment.

Objectives used to evaluate options

The Government used the objectives and criteria outlined in [table A2.2](#) to consider the Commission’s recommendation and other options for changing the 2050 target.

Table A2.2: Objectives used in the assessment of 2050 target options analysis

Objectives	Criteria	Description
Alignment with the Government’s economic agenda	Economic impact	Economic impact and how costs differ between groups, sectors and regions
	Key impacts on sectors	Sectoral impact analysis based on projection or current policies
The 2050 target contributes to limiting the global average temperature increase to 1.5 degrees Celsius	Contribution to limiting warming to 1.5 degrees Celsius	Temperature outcomes and emissions impact
	International partners comparison	Comparison to international partners often aligned with New Zealand and warming and emissions impact analysis
The target can be feasibly implemented and supports New Zealand’s transition to net zero by 2050	Achievable pathway: ERP2 modelled technological developments, likely policy implications	ERP2-modelled technological developments, risks and uncertainties associated with emissions reductions and removals

Summary of options analysis

The following section provides a summary of the analysis (see [table A2.3](#)) undertaken by the Government on option three (the Government’s option) and option five (the Commission’s recommendation). The option analysis was further informed by economic modelling of gross domestic product impact (assessment of economic impact), as well as temperature response modelling for all options (modelling of how options affect warming over time).

Table A2.3: Summary of analysis of the Government’s option and the Climate Change Commission’s recommendation

Objective	Criteria	Option 3: Methane 14% to 24% below 2017 levels; long-lived gas unchanged (Government’s option)	Option 5: Methane 35% to 47% methane below 2017 levels; net negative 20 Mt CO ₂ -e for long-lived gases (Commission’s recommendation)
Alignment with the Government’s economic agenda	GDP impact	Option 3 would have a small, unquantified positive impact on GDP (relative to the status quo).	Option 5 would have a moderate negative impact on GDP. Modelling indicates that GDP would be 0.4% lower than the status quo in 2035, and 2.2% lower in 2050. Likely co-benefits of further decarbonisation include energy security and improved health outcomes.

Objective	Criteria	Option 3: Methane 14% to 24% below 2017 levels; long-lived gas unchanged (Government's option)	Option 5: Methane 35% to 47% methane below 2017 levels; net negative 20 Mt CO ₂ -e for long-lived gases (Commission's recommendation)
	Key impacts on sectors	<p>Regardless of which part of the range is met, policies to address agricultural emissions will still be needed. However, their stringency and impact will depend on which part of the range is targeted.</p> <p>Depending on which end of the target range is targeted, this option may either shift the burden of emissions reduction efforts to sectors covered by the NZ ETS or require emissions budgets to be amended. Alternatively, NZ ETS sectors will face the same price signals for reducing long-lived gases.</p> <p>Reducing the methane target may provide more certainty for the agriculture sector, but setting a range may affect policy certainty.</p> <p>Impacts on NZ ETS prices or agriculture output therefore depend on which end of the target range is targeted.</p>	<p>Mixed impacts would be likely on land-use change, including increased land area (and associated economic benefits) for horticulture, and native and exotic afforestation, as well as reduced land area for sheep, beef and dairy farming (ie, acceleration of current trends).</p> <p>Sectors covered by the NZ ETS may face increased price signals to reduce net emissions of long-lived gases.</p> <p>Specific impacts (eg, afforestation response, energy transition) are likely to depend on policy settings.</p> <p>Modelling indicates that, with this option, agriculture output would decrease 17% as of 2050, compared with the status quo. Other sectors are modelled to have increased output, including forestry, with a 3.5% increase. Actual sector impacts will depend on government policies.</p>
The 2050 target contributes to limiting the global average temperature	Contribution to limiting warming	<p>The impacts on New Zealand's overall emissions and contribution to warming in 2050 depend on which end of the range is targeted. Current policies from ERP2 assume New Zealand is tracking towards around 25% reduction of methane in 2050, and net zero long-lived gases in 2044 (maintained from 2050).</p> <p>Option 3 would not result in any changes to New Zealand's current impact on warming, relative to the warming associated with projected emissions under ERP2.</p> <p>It would either not increase the gap in current emissions in the third emissions budget (EB3), or it would increase the gap to 18.4 Mt CO₂-e.</p>	<p>Option 5 would improve New Zealand's contribution to limiting global warming to 1.5 degrees Celsius.</p> <p>It would reduce global warming caused by New Zealand around 3.1% to 4.9% by 2050 (and around 19.9% to 26.6% by 2100), relative to the warming associated with projected emissions under ERP2.</p> <p>This option would decrease the current emissions gap in EB3 (around 9.2 Mt CO₂-e) by 15.4 Mt CO₂-e, resulting in overachieving EB3 by roughly 6 Mt CO₂-e.</p>
	International partners comparison	<p>A lower target than comparable countries (generally net zero all-gases).</p> <p>The range, when presented as an all-gases target, would be from 29 Mt CO₂-e to 32.8 Mt CO₂-e.</p>	<p>A higher target than the status quo is more aligned with comparable countries. The upper end of the range recommended by the Commission is consistent in terms of emissions impact with countries that have set net zero all-gases targets.</p>

Objective	Criteria	Option 3: Methane 14% to 24% below 2017 levels; long-lived gas unchanged (Government's option)	Option 5: Methane 35% to 47% methane below 2017 levels; net negative 20 Mt CO ₂ -e for long-lived gases (Commission's recommendation)
The target can be feasibly implemented and support New Zealand's transition to 2050	Achievable pathway: ERP2-modelled technological developments, likely policy implications	This option is feasible with the current pipeline of technology and policies identified in ERP2.	This option will likely require significant policy change, including a greater role for the Government to incentivise uptake of existing and new technologies, and/or further innovation and technology uptake by the private sector. The NZ ETS is not currently configured to deliver net negative carbon dioxide emissions, and new supporting policy measures will be needed.

Note: ERP2 = second emissions reduction plan; GDP = gross domestic product; Mt CO₂-e = megatonnes of carbon dioxide equivalent; NZ ETS = New Zealand Emissions Trading Scheme.

Methane Review: Overview

The Methane Science and Target Review Panel (the Panel) was asked to deliver an independent review of the methane science and the 2050 target for consistency with the principle of 'no additional warming' from agricultural methane emissions from a 2017 base year (Methane Review).²¹

The Panel was not asked to recommend a new biogenic methane emissions target. The report's findings have informed the options considered by the Government, including its agreed option of reducing biogenic methane emissions 14 percent to 24 percent below 2017 levels by 2050.

A 'no additional warming' approach on some target options provided a framework for estimating the level of reduction required to maintain New Zealand's warming contribution from biogenic methane emissions at 2017 levels. This reflects the Panel's findings that New Zealand's warming contribution from biogenic methane emissions is influenced by global emissions and the atmospheric concentration of methane and other greenhouse gases. The baseline year for the biogenic methane review was set at 2017, as this was consistent with existing baseline year of the 2050 target.

Panel's approach and methodology

Terms of reference and methodology

To provide direction on the scope and approach of the Methane Review, in June 2024, the Government issued Terms of Reference to the Panel.²² The Terms of Reference included:

- direction on the overall scope of the review

²¹ Ministry for the Environment. 2024. *Methane Science and Target Review*. Wellington: Ministry for the Environment.

²² Ministry for the Environment. 2024. *Methane Science and Target Review – Terms of Reference*. Wellington: Ministry for the Environment.

- what the final report should cover
- items for consideration
- the approach, including principles to adhere to.

The Panel’s report was delivered to the Government in November and published in December 2024 and included an outline of the overall approach taken and the modelling methodology.²³

Peer review

The Ministry for the Environment commissioned peer reviews, focusing on reviewing modelling undertaken by the Methane Panel, consistency with the Terms of Reference and commentary on the appropriateness of the science, approach taken and conclusions reached. Ministry officials also provided the Panel with feedback to consider. The Panel considered the peer review findings and officials’ feedback and reflected this in the final report.

Panel findings

The Panel’s review of a ‘no additional warming’ target found that a 14 percent to 24 percent reduction in biogenic methane emissions is consistent with stabilising the warming contribution of New Zealand’s biogenic methane emissions at 2017 levels in 2050. This range of reduction in biogenic methane emissions reflects the Panel’s modelling of a range of global background scenarios, representing low (1.5 degrees Celsius) and mid-range (2.0 degrees Celsius) to 2.7 degrees Celsius) global temperature outcomes by the end of the century.

Summary of analysis for international shipping and aviation emissions

Options the Government evaluated

Table A2.4 outlines the options considered – including the Commission’s recommendation – regarding whether to include international shipping and aviation emissions in the 2050 target.

Table A2.4: International shipping and aviation options

Option 1	Option 2	Option 3
Do not include in the 2050 target (status quo)	Including international shipping and aviation emissions in the 2050 target (Commission’s recommendation)	Defer decision, and review in 2031 whether international shipping and aviation emissions should be included in the 2050 target

Objectives used to evaluate options

The following objectives (table A2.5) were used to assess the Government’s option and the Commission’s recommendation. These objectives are broadly consistent with those used for evaluating biogenic methane and long-lived options, but they are adjusted to suit the international nature of emissions and main question of ‘whether international shipping and aviation emissions should be included in the 2050 target’.

²³ Ministry for the Environment. 2024. *Methane Science and Target Review*. Wellington: Ministry for the Environment, pp 9 and 51.

Table A2.5: Objectives used in the assessment of international shipping and aviation options analysis

Objective	Description
Alignment with New Zealand’s economic growth interests, including the Government’s ‘Going for Growth’ agenda (ie, economic impacts and national interests)	Economic growth is a priority for the Government. This objective involves assessment of how climate policy aligns with supporting sustained economic growth.
Certainty of New Zealand’s approach to limiting global warming to 1.5 degrees Celsius	This objective requires analysis of the certainty of New Zealand’s approach to limiting warming under each option. The target sets the ambition for domestic effort to mitigate climate change and indicates the long-term direction of climate change policy and how New Zealand will contribute to limiting warming to 1.5 degrees Celsius.
Implementation feasibility (including availability of technology and implications for government policy)	This objective involves assessing the implementation feasibility of each option. The target is implemented through policies that need to be feasible to achieve climate goals and objectives.

Summary of options analysis

In considering options against these objectives, the Government outlined the following reasons (table A2.6) for the decision to continue excluding international shipping and aviation emissions from the 2050 target.

Table A2.6: Summary of analysis of the Government’s international shipping and aviation option and the Climate Change Commission’s recommendation

Objective	Option 1: Continue excluding international shipping and aviation emissions from the 2050 target (Government’s option)	Option 2: Include international shipping and aviation emissions in the 2050 target (Commission’s recommendation)
Alignment with New Zealand’s economic growth interests, including the Government’s ‘Going for Growth’ agenda (including economic impacts and national interests).	New Zealand relies on foreign-owned shipping for most seaborne trade and international aviation for global connectivity and tourism. As a geographically remote country, with no land-based borders, New Zealand is highly exposed to shifts in the price of sea- and air-based freight and is at an economic disadvantage to increases in freight costs. Supporting multilateral agreements helps to ensure that countries operate on a level playing field, avoiding a future in which fragmentation of decarbonisation efforts by states increases compliance costs for business. As a small, remote nation, New Zealand relies on functioning and effective multilateral systems to maximise its competitiveness. This option also aligns New Zealand with most countries that do not include these emissions in their domestic climate targets.	The Commission’s recommendation is likely to involve higher economic costs than the status quo, because it may require domestic measures alongside international ones. However, including these emissions in the target could send long-term signals to the market, encouraging investment in low-emissions technologies and aligning New Zealand with more ambitious trade partners. Government modelling from the 2050 target review suggests that reducing an additional 10 Mt CO ₂ -e in 2050 (aligned with the higher end of the Commission’s scenarios) could lower GDP growth by around 0.3%. Actual costs and benefits will depend on the timing and design of policies, which must avoid duplicating international pricing and compliance mechanisms.
Certainty of New Zealand’s approach to limiting global	Maintaining the status quo of excluding international shipping and aviation emissions from the 2050 target relies	Including these emissions could provide greater certainty about New Zealand’s

Objective	Option 1: Continue excluding international shipping and aviation emissions from the 2050 target (Government's option)	Option 2: Include international shipping and aviation emissions in the 2050 target (Commission's recommendation)
warming to 1.5 degrees Celsius	instead on multilateral efforts. Efforts are led by organisations like the IMO and ICAO to regulate these sectors and incentivise measures, such as sustainable fuel adoption, to align sector emission pathways to 1.5 degrees Celsius.	approach to limiting warming, offering strategic direction over the long term. The Commission found expanding the long-lived emissions component of the 2050 target to be feasible, with scalable options available to reduce emissions.
Implementation feasibility (including availability of technology and implications for government policy)	There is a risk that the multilateral mechanisms administered through the IMO and ICAO do not reach their own 2050 emission reduction goals. These mechanisms rely on consensus among diverse member states, which differ in their ambition, capacity and political will to implement robust climate measures. To mitigate this risk, both the IMO and ICAO have periodic reviews in place to assess the progress of their emissions reduction mechanisms. The next Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) review will take place in 2028, and, should the IMO Net-Zero Framework come into effect in 2027, as proposed, it will be reviewed in 2032.	The decision to include would have significant implications for domestic policy settings. Including these emissions would likely require further consideration against (but not limited to) existing and future emissions budgets, and if some or all of these emissions are included in the New Zealand Emissions Trading Scheme.

Note: GDP = gross domestic product; ICAO = International Civil Aviation Organization; IMO = International Maritime Organization; Mt CO₂-e = megatonnes of carbon dioxide equivalent.

Summary of analysis for further emissions reductions post 2050

Options the Government evaluated

The following options ([table A2.7](#)) were considered in response to the Commission's recommendation to amend the Climate Change Response Act 2002 to require further emissions reductions and removals from the Commission's recommended levels from 2050 onwards.

Table A2.7: Post-2050 options

Option 1	Option 2	Option 3
Do not amend the Climate Change Response Act 2002 to require further reductions and removals post-2050 (status quo)	Amend the Climate Change Response Act 2002 to require further reductions and removals post-2050 (Commission's recommendation)	Defer decision to require further reductions and removals and review in 2036

Objectives used to evaluate options

The following objectives (table A2.8) were used to assess the Government’s option and the Commission’s recommendation. These objectives are broadly consistent with those used for evaluating biogenic methane and long-lived options.

Table A2.8: Objectives used in the assessment of post-2050 options analysis

Objectives	Criteria	Description
Alignment with the Government’s economic agenda	Economic impact	Pros and cons of option and its alignment with the Government’s economic growth agenda
Contributes to limiting the global average temperature increase to 1.5 degrees Celsius	Contribution to limiting warming to 1.5 degrees Celsius	Pros and cons of option and its contribution to limiting warming to 1.5 degrees Celsius
The target can be feasibly implemented and support New Zealand’s transition to net zero by 2050	Achievable pathway, likely policy implications	Pros and cons of option implementation feasibility

Summary of options analysis

The following section summarises the analysis (table A2.9) undertaken by the Government on option one (option agreed to by the Government) and option two (the Commission’s recommendation).

Table A2.9: Summary of analysis of the Government’s option and the Climate Change Commission’s recommendation

Objective	Option 1: Do not amend the CCRA to require further reductions and removals post-2050 (Government’s option)	Option 2: Amend the CCRA to require further reductions and removals post-2050 (Commission’s recommendation)
Alignment with the Government’s economic agenda	No additional costs compared with the status quo. However, could miss long-term investment signals for some sectors (such as forestry).	May provide clear long-term direction for industry and investment. Supports long-term economic transformation. Some long-term benefits may occur from transitioning early. However, may impose economic costs and adjustment to some sectors.
Contributes to limiting the global average temperature	Focus on short-term actions. Early action may not be necessary. No increased contribution to limiting warming beyond the status quo.	May demonstrate leadership on climate action. May encourage more innovation and early adoption of removal technology. Aligns with evidence that reductions are needed beyond 2050. Increased contribution to 1.5 degrees Celsius. May lock in approaches that later prove to be misaligned with future collective action or technological capabilities, limiting our ability to adapt or take advantage of new opportunities.
The target can be feasibly implemented and support New Zealand’s transition to 2050	Allows time for technological development, future decision-making and international context to evolve. Supports short-term policy stability.	Provides a clear policy signal, which may accelerate planning. Requires a flexible approach to new technologies and international context but is already part of climate policy. Risks being early if the international and technological context is different in 2050. May

	However, may miss an opportunity for early innovation in emissions reduction technologies.	be perceived as diluting focus from nearer term efforts. May require broader shifts in domestic policy, which may benefit from a staged approach.
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Note: CCRA = Climate Change Response Act 2002.