



Reforming the New Zealand Emissions Trading Scheme: Proposed settings

Consultation document



Ministry for the
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Manatū Mō Te Taiao

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Message from the Minister

On 7 November 2019, the Zero Carbon Bill was unanimously voted into law by the New Zealand House of Representatives. This sets a framework for the country to reach net zero carbon emissions by 2050.

Now the challenge begins.

The New Zealand Emissions Trading Scheme (NZ ETS) is our key tool to reduce emissions and meet our targets. We need effective emissions pricing to encourage businesses to reduce emissions, innovate and invest in solutions. The Climate Change Response (Emissions Trading Reform) Amendment Bill currently progressing through Parliament will help us achieve this.



The Emissions Trading Reform Bill will restructure the NZ ETS to allow us to put a cap on emissions covered by the scheme and to reduce that cap over time in line with our targets. The reforms support the framework for a credible and robust scheme that provides certainty to the market. However, the Bill will not specify the particular settings of the scheme, which will be set through regulations. The NZ ETS settings are some of the most important factors in truly influencing the operation of the scheme. This includes the cap, the specific volume of emissions units that will be available to auction annually, and the price controls that will be set to ensure predictability and stability within the market.

The Zero Carbon Act establishes an independent Climate Change Commission that will provide recommendations to the Government on emissions budgets and related NZ ETS settings. The Commission is expected to provide its first budget recommendation in 2021 for the period 2022–25. However, to ensure the NZ ETS can begin its important role in reducing emissions as soon as possible, the Government intends to set initial regulations that will allow auctioning to begin under the reformed scheme at the end of 2020 or early in 2021.

The regulation settings proposed in this consultation document set out initial building blocks to ensure the NZ ETS plays its central role in supporting our transition to a low-emissions climate-resilient Aotearoa. In early 2021 the Climate Change Commission will advise the Government on NZ ETS settings over a longer term.

It is important to start consultation on these provisional settings now, so we can take into account your feedback and release the details of the NZ ETS settings regulations as soon as possible. This will provide forward visibility to the market over what to expect and plan for in regard to emissions unit supply and prices in the short to mid-term.

I invite you to review the proposals we have put forward and let us know whether you think they are the right NZ ETS settings to ensure a stable and effective scheme that will set Aotearoa New Zealand on track to meet our Zero Carbon Act targets, and to tackle the biggest challenge of our time.

A handwritten signature in black ink, which appears to read 'James Shaw'. The signature is fluid and stylized, with a long horizontal line extending from the end.

Hon James Shaw
Minister for Climate Change

About this consultation

This document seeks your feedback on proposed NZ ETS settings

You have a part to play in determining the role of the New Zealand Emissions Trading Scheme (NZ ETS) in meeting our climate change targets and helping us transition to a low-emissions Aotearoa New Zealand.

The Climate Change Response (Emissions Trading Reform) Amendment Bill is currently going through Parliament. If passed it will amend the Climate Change Response Act 2002 to enable the Government to put a limit, also known as a 'cap', on emissions covered by the NZ ETS.

The Government will need to make decisions on the level of the cap and set price controls in the NZ ETS. These decisions will be an important influence for the price of NZ ETS units (NZUs) over that period.

Underpinning these decisions will be a 'provisional emissions budget'. This provisional emissions budget will cover the period 2021 to 2025, and set a pathway for how we want New Zealand's emissions to track out to 2025. The provisional emissions budget will be superseded in 2022 when the Government sets its first full emissions budget, following advice from the Climate Change Commission established in the Zero Carbon Act.

This document sets out the Government's proposals for these provisional settings, and seeks your feedback on:

- the provisional emissions budget for 2021 to 2025
- the overall limit on emissions in the NZ ETS over the period 2021 to 2025
- how many NZUs are auctioned into the scheme by the Government over the period 2020 to 2025. Auctioning is planned to start at the end of 2020, slightly before the start of the provisional emissions budget on 1 January 2021. The auction(s) held before the end of 2020 would primarily be to test the operation of the auctioning system, rather than to provide substantive volumes to the market
- whether a price floor in the NZ ETS is needed over the period 2020 to 2025
- the level of the potential price floor over the period 2020 to 2025
- the level of the price ceiling over the period 2020 to 2025.

Note that the Climate Change Commission will provide advice to the Government in early 2021, and may recommend different NZ ETS settings, including the price floor and ceiling.

What this consultation document covers

A stand-alone [executive summary](#) includes background information on New Zealand's emissions reduction targets, policies, the NZ ETS, a summary of the proposals for future NZ ETS settings, including unit supply and price controls, and next steps.

The executive summary is followed by the full consultation document, split into eight sections.

Section 1: Introduction and context

- [Section 1](#) outlines New Zealand’s climate change goals and the role of the Paris Agreement and the Climate Change Response (Zero Carbon) Amendment Act 2019 (the Zero Carbon Act). It provides a summary of how the NZ ETS works and how it will play a role in achieving our emissions reduction targets. Section 1 also explains how the proposals in this document link to legislative changes proposed in the Emissions Trading Reform Bill to improve the NZ ETS that is currently going through Parliament.

Section 2: The provisional emissions budget

- [Section 2](#) sets out a proposal for a provisional emissions budget over the period 2021–25, how it was determined, and when it will be reviewed. It also outlines the analysis used to set the budget, other emissions reduction policies available, and expected impacts on the economy at a high level.

Section 3: Unit supply settings

- [Section 3](#) sets out the proposal for determining the NZ ETS emissions cap, and the steps taken to reach the final proposed NZU annual auction volumes. This section gives an overview of how the NZ ETS cap is set and discusses the additional factors that must be considered when determining unit supply.

Section 4: Price controls

- [Section 4](#) includes proposals for the price controls within the NZ ETS. This includes an auction reserve price floor, the phase out of the fixed price option, the introduction of a new price ceiling mechanism called the cost containment reserve, the cost containment reserve trigger price, and the volume of units held within the reserve.

Section 5: Impacts

- [Section 5](#) describes the potential impacts on households and business from the suite of proposals in this consultation document.

Section 6: Process for the release of NZ ETS settings information

- [Section 6](#) describes the process for how annual NZ ETS settings will be released to the public.

Section 7: Consultation process

- [Section 7](#) contains information on how to make a submission, closing dates, publication of submissions, and upcoming meetings and hui.

Section 8: Questions to guide your feedback

- [Section 8](#) contains a combined summary of the consultation questions asked throughout the document.

What is not covered in this consultation

This consultation does not include decisions about the long-term emissions reduction targets for New Zealand. These decisions have already been made in the form of the Paris Agreement Contribution and the targets within the Zero Carbon Act.

This document does not include proposals for setting the rules for auctioning New Zealand Units (NZUs). The Government has consulted separately on regulatory proposals to set the rules governing the auction of NZUs. Some of the proposals released within the separate auctioning consultation document were related to parts of the current document, notably the section on price controls. Auctioning proposals relate to how price controls will be implemented, while this document consults on the level(s) at which they should be set.

This document also does not include any regulatory proposals related to forestry under the NZ ETS. The Government is consulting separately on regulatory proposals to improve the NZ ETS for forestry, with submissions closing on 20 December 2019. To submit on these, refer to *A Better Emissions Trading Scheme for Forestry: Proposed Changes to the Climate Change (Forestry Sector) Regulations 2008*.

Next steps

This consultation will run until Friday 28 February 2020. To find out how to participate and make a submission see [section 7](#).

We will include your submission in a summary of submissions that will be published in early 2020. The results from this consultation, alongside further policy analysis, will inform advice to Ministers about regulations. Ministers cannot make final policy decisions for these regulations until Parliament enacts the Emissions Trading Reform Bill in mid-2020.

After Parliament enacts the Bill and Ministers announce their final regulatory policy decisions, we will draft regulations that will be implemented later in 2020.

To find more information

- Visit the website at <https://www.mfe.govt.nz/consultations/nzets-proposed-settings>
- Ask the NZ ETS team at etsconsultation@mfe.govt.nz.
- Attend one of the events and hui held around the country and online.

Executive summary

New Zealand is committed to limiting global temperature rise to 1.5°C.

New Zealand, together with the rest of the world, is committed to taking action on climate change. In 2015, almost every nation agreed to take action together by adopting the Paris Agreement. The Paris Agreement was designed to ensure all countries, no matter how big or small, contribute to keeping average global temperature increase to well below 2°C above pre-industrial levels, with an aim to limit the increase to 1.5°C.

Under the Paris Agreement, each government put forward a proposal for their highest level of ambition towards contributing to the 1.5°C goal by proposing a nationally determined contribution that they intend to achieve. Governments agreed on the need for global emissions to peak as soon as possible, and to undertake rapid reductions thereafter.

New Zealand will contribute to the Paris Agreement by reducing our domestic emissions across all sectors and greenhouse gases, increasing carbon dioxide removal through forestry, and cooperating with other countries to support the most efficient global emissions reductions.

To drive emissions reductions and encourage tree planting in New Zealand, the Government introduced the Climate Change Response (Zero Carbon) Amendment Bill 2019 (Zero Carbon Act), which passed in November 2019.

The Zero Carbon Act sets a target for 2050 that is consistent with the global 1.5°C goal and will help to drive our transition to a low-emissions, climate-resilient Aotearoa. It also establishes a Climate Change Commission (the Commission), which will provide independent advice to the Government to help inform decisions about what policies are needed to reduce our emissions and increase tree planting to meet our target.

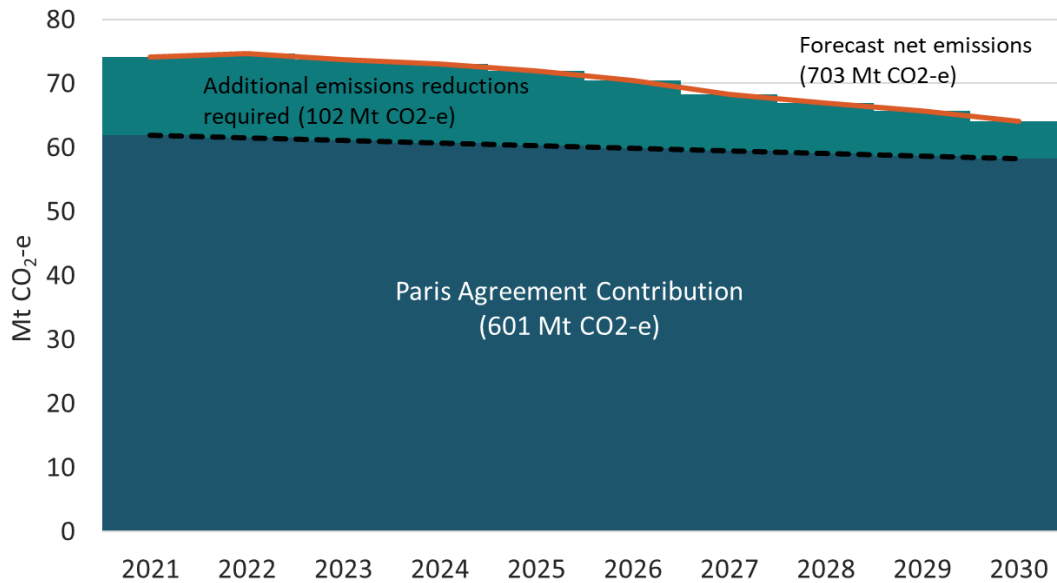
A series of emissions budgets will act as ‘stepping stones’ towards our 2050 target. A gradual and deliberate transition will be less disruptive than abrupt changes and will allow us to take advantage of the opportunities along the way. The appointed Commission will advise the Government on the first emissions budget under the Zero Carbon Act in late 2021.

Our emissions forecasts based on current policies do not align with the 2030 goal we set for ourselves within the Paris Agreement.

Current net emissions forecasts show that without significant additional action, New Zealand is not currently on track to achieve our emissions reduction targets.

Figure 1 shows the current difference in our forecast emissions and our 2030 Paris Agreement Contribution emissions budget.

Figure 1: Forecast emissions and Paris Agreement Contribution emissions budget



Mt CO₂-e = million tonnes of carbon dioxide equivalent.

We need to start reducing our emissions now.

We have already started to take action to reduce domestic emissions through policies such as the One Billion Trees Programme, the renewable energy strategy, the proposed Clean Car package, and expanding the waste levy. There are also many more emissions reductions options available, such as through direct investment opportunities and other regulatory measures and sector-specific policies. However, most of these options will take time to deliver and only have recognisable impacts on emissions reductions in the medium-to-long-term.

The New Zealand Emissions Trading Scheme (NZ ETS) is one of the most important tools the Government already has available to drive emissions reduction in New Zealand. Pricing emissions is an efficient and effective tool that works as part of a wider policy package to ensure a cost-effective and just transition.

The NZ ETS is undergoing a structural reform to allow for setting an overall limit, or a 'cap', on the total number of emissions that are available to be traded within the scheme and replacing the current price ceiling mechanism, the fixed price option. Emissions are traded through New Zealand units (NZUs) which represent the right to emit one tonne of carbon dioxide equivalent (CO₂-e) emissions.

An initial short-term emissions budget will be key in determining what these new NZ ETS settings will be. By putting in place revised NZ ETS settings, we can encourage emissions reduction action now by effectively informing business planning decisions and incentivising more immediate investments in low-emissions technologies and behaviour change.

This consultation document proposes a provisional emissions budget that can be used to develop a proposed package of NZ ETS settings.

The provisional emissions budget will help to set the limit of emissions within the NZ ETS cap over the period 2021–25. It is important to make sure the amount of emissions permitted in the NZ ETS reduces over time in line with our targets.

The Government proposes initially setting a provisional emissions budget that follows annual emissions reductions with an approximate straight-line trajectory from 2022 towards the 2050 target. Over the five years of the provisional budget period, this results in an overall emissions budget of 354 Mt CO₂-e. The provisional emissions budget will be superseded by the first official emissions budget when it is agreed on by the Government after advice from the Commission in 2021.

After the provisional emissions budget is set, several connected steps must be taken to reach the proposed volume of NZUs that will be available to auction annually within the NZ ETS.

The first step is to determine the total volume of emissions that fall under the NZ ETS cap. This is calculated by removing emissions sectors that are not currently required to surrender units within the scheme from the total provisional emissions budget volume. Other steps must then be taken to:

- make technical volume and forestry adjustments
- account for free NZU allocation volumes.

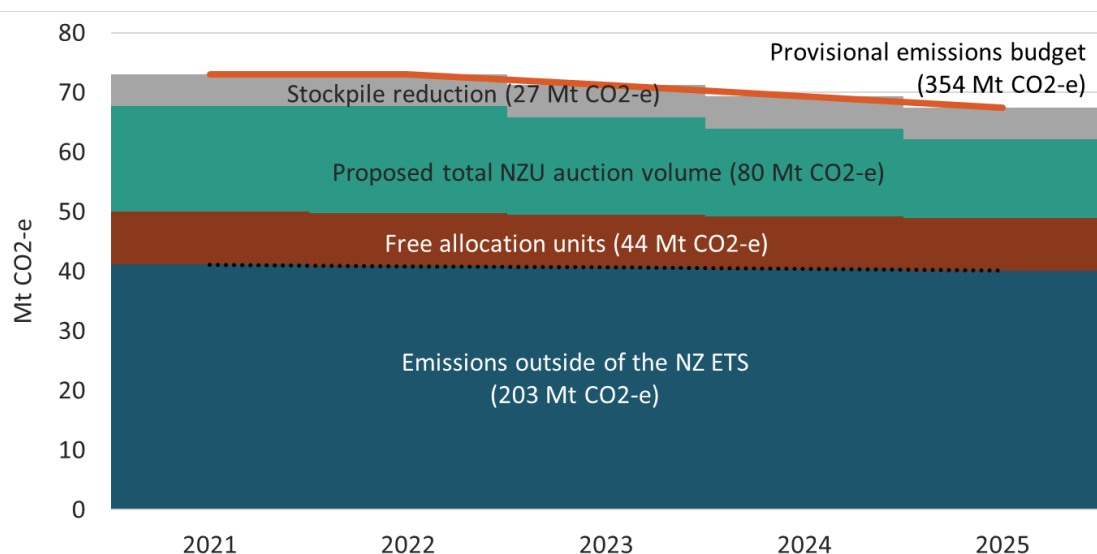
A decision must then be made on how to address the current issue of NZU oversupply within the NZ ETS. The Government proposes to reduce the volume of NZUs available to auction annually, so that a portion of emissions obligations must be met using stockpiled NZUs.

Although the NZ ETS is closed to international carbon markets, the process of determining NZ ETS settings must consider how international units would be included in the scheme if it reopened to international carbon markets, such as a limit on the volume of international units that could be used.

Finally, calculations are made based on the previous steps to determine how many NZUs are remaining available to be auctioned annually. The total remaining supply based on the proposed settings is 80 million NZUs over 2021–25.

Figure 2 shows how these factors work together to determine the proposed NZU auction volume that remains within the provisional emissions budget.

Figure 2: Final proposed NZU auction volume within the provisional emissions budget



NZ ETS price controls will provide the Government with a mechanism to help manage unacceptably low or high NZU prices in the NZ ETS.

The provisional emissions budget, volume of NZUs available to be auctioned annually and use of the NZ ETS stockpile will be the primary drivers of the NZU price. However, the NZ ETS also includes price control mechanisms to provide additional measures to manage the NZU price.

The price controls that will be used within the NZ ETS are:

- the fixed price option
- an auction reserve price floor
- a cost containment reserve involving a price trigger and additional NZU reserve volume.

This document proposes provisional settings for NZ ETS price controls between 2020–25. However, the Commission will provide advice to the Government in early 2021 that may include different price floor and ceiling settings.

The Government proposes that the fixed price option remains in place for emissions produced in 2020, but is increased to \$35.

The fixed price option is where NZ ETS participants with obligations to surrender NZUs can purchase these from the Government for immediate surrender at a fixed rate. The proposed rise in the fixed price option is \$10, and will be set as an average between the proposed price floor and price ceiling. The rise indicates the Government's intention to allow NZU prices to increase in order for abatement opportunities to become economical. It will provide cost certainty for participants while the auctioning system is implemented but not yet fully operational.

The Government proposes introducing a price floor of \$20 through an NZU auction reserve for the period 2020 to 2025.

A price floor is proposed to help ensure prices do not drop below a level required to meet the emissions budget through investment in low emissions technologies and practices. It will also help provide a level of assurance to participants looking to invest in forestry or low-emissions technologies and practices.

The Government proposes to introduce a cost containment reserve price ceiling mechanism that has a price of \$50 for the period 2020 to 2025.

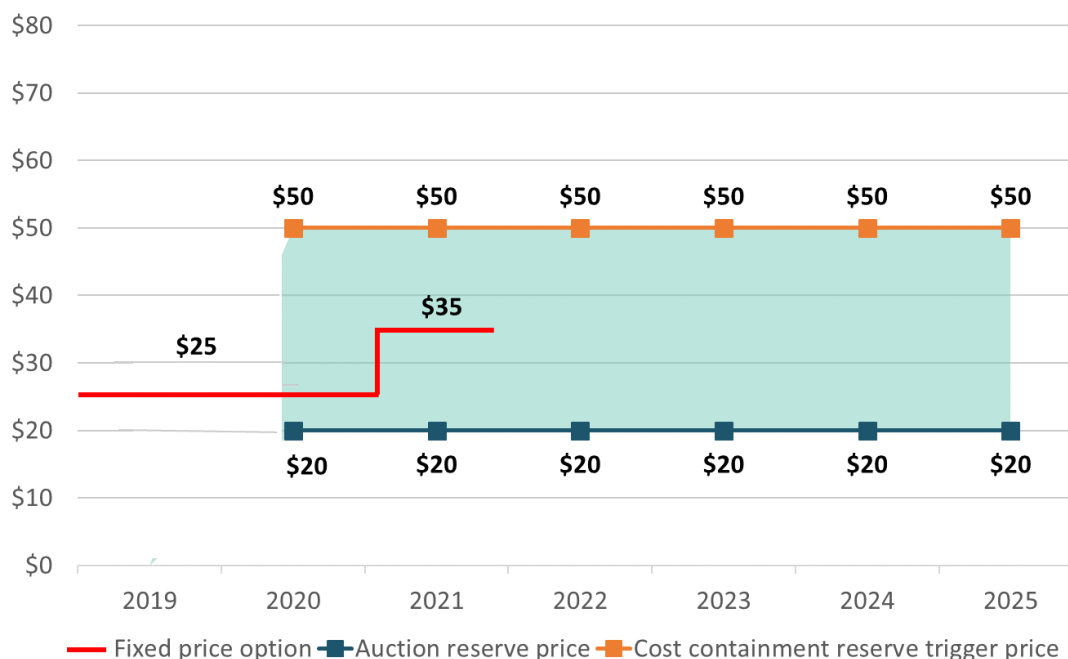
The new price ceiling mechanism to replace the fixed price option will be implemented through the use of a cost containment reserve. The cost containment reserve works by releasing additional NZUs into the NZ ETS market if the trigger price is hit, thereby increasing the supply of NZUs and reducing the pressure on price.

The cost containment reserve is designed to be set at an unexpectedly high NZU price outside of the predicted price path, and therefore only released in extreme circumstances. The NZU reserve comes from outside of the NZ ETS cap, but must be 'backed' by other legitimate emissions reductions.

The proposal for the volume of NZUs available within the cost containment reserve is based on the estimated difference between projected emissions forecasts and the volume of NZUs being supplied to the scheme.

Figure 3 shows the proposed NZ ETS price controls and how they relate to each other and the potential NZU price path.

Figure 3: Proposed NZ ETS price controls



Analysis regarding increases in the NZU price need to balance the potential short-term versus long-term impacts.

Although consumers may appear to benefit in the short-term if the provisional emissions budget and price controls are set in a way that delivers a low NZU price, the consequences of this may be more costly for New Zealand in the long-term. This would be due to the increased pressure to deliver emissions reductions more quickly later in the decade to meet our emissions reduction targets.

The short-term impacts on households based on proposed increases in the NZU price are likely to be moderate and reduce over time.

The moderate impact on households is largely due to the small proportion of household expenditure that is typically allocated towards emissions intensive goods, and the low coupling between emissions and food costs. Initial estimates, where no significant emissions reducing behaviour changes are assumed, show that a doubling of the current carbon price from \$25 to \$50 (for example) would increase costs for middle-income households by \$3.40 per week.

Impacts of emissions pricing are also likely to reduce over time as households are increasingly able to take advantage of low-emissions alternatives to the current predominantly fossil-based technologies.

The impacts of increased NZU price on businesses is also limited by factors such as industrial free allocation and the ability to pass-on costs to consumers.

Currently, businesses that are emissions intensive and face competition from overseas, receive a proportion of their emissions obligations for free, which minimises any adverse impacts of rising NZU prices. Other businesses that do not face international competition are generally able to pass on the costs of emissions prices to consumers. This means that businesses that are

the least emissions intensive may see an increase in net profits, whilst high emissions intensive businesses could see a net reduction in profits, encouraging investment in better practices.

Increases in emissions prices are likely to have a significant impact on increases in afforestation and commercial forestry.

Your feedback will contribute towards determining the reformed NZ ETS settings that will help us meet our emissions reduction targets and transition to a low-emissions, climate-resilient Aotearoa.

Section 1: Introduction and context

SUMMARY

- New Zealand is committed to limiting global temperature rise to 1.5°C.
- Our emissions reduction targets are ambitious and will require immediate action and a range of policies to achieve them.
- Our target under the Paris Agreement is to limit our emissions to 601 million tonnes of carbon dioxide equivalent between 2021 and 2030.
- The Zero Carbon Act, which passed in November 2019, sets out our domestic emissions reductions goals, including an aim for all gases other than biogenic methane to be net zero by 2050.
- The New Zealand Emissions Trading Scheme (NZ ETS) is a key tool currently available to the Government to help to reduce emissions.
- The NZ ETS is currently undergoing reforms that will allow us to implement an emissions unit auctioning system, set a cap on the emissions covered by the scheme and introduce revised price control mechanisms.

Emissions reduction targets

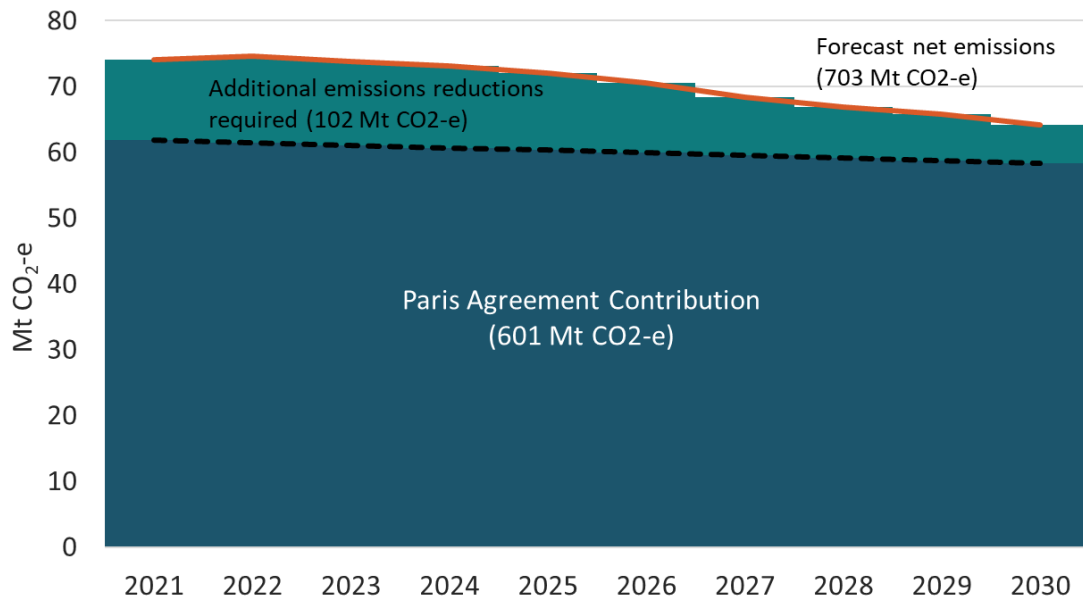
New Zealand, together with the rest of the world, is committed to taking action on climate change. In 2015, almost every nation agreed to take action and aim to keep global average temperature rise to 1.5°C above pre-industrial levels by adopting the Paris Agreement. The Paris Agreement was designed to ensure all countries, no matter how big or small, contribute to keeping temperatures below the 1.5°C global average temperature increase threshold. Although New Zealand's share of global emissions is very small (0.17 per cent), small countries like us make up around 30 per cent of total emissions.

The key part of the Paris Agreement is the contribution each country makes to respond to climate change. These contributions represent each country's highest level of ambition to reduce global emissions. These contributions are expected to show a progression on previous efforts, and to be more ambitious over time.

Our Nationally Determined Contribution, or 'Paris Agreement Contribution', is to reduce greenhouse gas emissions by 30 per cent below 2005 levels by 2030 by using a carbon budget approach over 2021–30. This means that progress towards this target is measured by accounting for emissions in all the years of the target period. New Zealand has set itself an emissions budget of 601 Mt CO₂-e over the period 2021–30.

New Zealand will play our part towards the 1.5°C goal by reducing emissions at home, planting more trees and working with other countries to reduce emissions. However, emissions forecasts based on our current policies show that we are not on track to meet this target. We will need a much greater reduction in emissions to meet our commitment. Figure 4 shows this difference between the Paris Agreement Contribution target, and our current emissions projections.

Figure 4: Paris Agreement Contribution and current forecast emissions



The Zero Carbon Act

The Climate Change Response Act 2002 was recently amended by the Climate Change Response (Zero Carbon) Amendment Bill 2019 (Zero Carbon Act). This will provide a framework for New Zealand to develop and implement clear, stable and enduring climate change policies that contribute to the global effort under the Paris Agreement to limit the global average temperature increase. The Zero Carbon Act will ensure our transition to a low-emissions, climate-resilient Aotearoa.

The Zero Carbon Act does five key things:

1. Sets a new 2050 greenhouse gas emissions reduction target.
2. Establishes a framework of emissions budgets that act as stepping stones towards the long-term target.
3. Requires the Government to develop and implement policies for reducing emissions.
4. Introduces adaptation and resilience measures to identify and prioritise key risks and develop a plan to address them.
5. Establishes a new, independent Climate Change Commission (the Commission)

The Commission will provide expert advice to future Governments and monitor progress towards emissions budgets, the 2050 target, and the success of the emissions reduction plan. Annual reports will be prepared and published, and once a budget period has ended, the Commission will review the success of the entire emissions budget.

The target in the Zero Carbon Act is to reduce:

- biogenic methane to 10 per cent below 2017 levels by 2030
- biogenic methane to 24–47 per cent below 2017 levels by 2050
- all other gases to net zero by 2050.

These targets will guide New Zealand's domestic emissions reduction transition. A gradual and deliberate transition will be less disruptive than abrupt changes and will allow us to take advantage of the opportunities along the way. These measures need to be supported by a stable policy environment that provides certainty about where we are going, and flexibility for how we get there.

The transition will be guided by the following objectives:

- a sustainable and productive economy: continuing to develop and diversify the economy, while limiting greenhouse gas emissions and responding to the impacts of climate change
- global and local leadership: leading at home and internationally, with an ambitious and clear goal that stimulates innovation and is the main way for New Zealand to influence the global climate action response
- creating a just and inclusive society: managing the pace of the transition, supporting Māori, regions and communities affected by transitional policies and inequities, and those affected by the damaging impacts of climate change.

Emissions budgets

Emissions budgets under the Zero Carbon Act will be set with a view to meeting New Zealand's 2050 domestic target. Each emissions budget will set the amount of greenhouse gases we can emit over a five-year period, except for the first emissions budget which will cover a four year period from 2022-25. The Minister for Climate Change will set the emissions budgets, but will be provided advice in advance from the Commission.

The volume of emissions allowed in each period will reduce in each emissions budget, enabling New Zealand to move progressively towards the 2050 target and manage the transition to a low-emissions future. A minimum of three emissions budgets will be in place at any one time, which will help provide clarity to businesses, investors and households over the medium-term.

Emissions budgets will be met primarily through domestic action. However, the Zero Carbon Act allows the Government to source reductions from overseas (offshore mitigation), but only as a last resort, and not a first choice.¹ When advising the Government on emissions budgets, the Commission will recommend a limit on the amount of offshore mitigation. However, the final decision on how much (if any) offshore mitigation should be used to meet an emissions budget will not be made until after a budget period has ended.

The Minister for Climate Change must publish an emissions reduction plan before each budget period. It will include policies and strategies for achieving the reductions to meet the budgets, including sector-specific policies and a multi-sector strategy, and will also help ensure a just transition.

¹ Offshore mitigation is defined as genuine emissions reductions or removals achieved outside New Zealand and counting them towards achieving New Zealand's emissions budgets and the net zero component of the 2050 target.

The provisional emissions budget

We need policies to start transitioning now because it takes time for results to be seen. Therefore, the Zero Carbon Act called for the setting of a ‘provisional emissions budget’ for the period 2021–25 to signal the early transition pathway. The provisional emissions budget will be superseded and replaced by the first full set of emissions budgets based on recommendations from the Commission, when they are adopted by the Government. These are not expected before 2021 because it will take time for the new Commission to develop their advice on them, and the Government will need time to respond to this advice.

The provisional emissions budget will provide a quantitative basis for decisions on NZ ETS settings, as well as the package of other policies needed to drive emissions reductions. This will help businesses make decisions on investments and practices to reduce their emissions. The provisional emissions budget is one of the proposals within this document and is discussed in [section 2](#). The provisional emissions budget is based on the emissions reduction targets that are now set in legislation through the Zero Carbon Act. Therefore, the primary purpose of the provisional emissions budget is to determine how quickly we aim to set ourselves on the path to reaching this target.

Wider work needed for a successful transition to a low-emissions economy is already underway. For example, the Ministry of Business, Innovation and Employment has begun developing a renewable energy strategy for New Zealand. Work on this includes consultation on how to lower emissions from process heat, and a consultation currently underway on how the use of hydrogen can contribute to a low emissions economy. Consultation will also begin soon on options to accelerate the deployment of renewable electricity generation, and to improve the efficiency of process heat and accelerate its transition to lower emissions. Another example of work already taking place is the Ministry of Transport’s consultation on proposals for a Clean Car Standard and a Clean Car Discount, and on options to reduce emissions from road freight.

Early progress and ongoing commitment are essential, as action taken now can reduce costs more effectively than actions taken later. Even delays of a few years can increase overall costs. For example, forestry planting that occurs in the early 2020s will contribute more towards the achievement of our Paris Agreement Contribution than planting later in the decade.

Understanding the potential price of emissions can help inform discussions on all emissions reduction package policies, both inside and outside of the NZ ETS. It can help to guide decisions on the most cost-effective investments, beginning with emissions reductions opportunities that are of the highest benefit to our economy.

The New Zealand Emissions Trading Scheme

Emissions trading schemes are a tool for sending price signals to businesses and consumers to incentivise behaviour change and low-emissions investments. The NZ ETS is one of 20 emissions trading schemes operating across 27 jurisdictions in the world. Generally, these schemes operate to limit the supply of emissions units into a trading market, where market participants determine the price of the emissions units based on their views of supply and demand. Participants in the schemes need to surrender units for the emissions they generate back to the government. Where they can reduce their emissions, they will save on having to buy units for surrender to the Government.

Emissions trading schemes are also known as ‘cap and trade’ schemes. They are designed so that the quantity of units supplied into the scheme can progressively be restricted. The fewer the NZUs that are available in the market, the more expensive they become to purchase and the stronger the incentives are to reduce emissions.

The NZ ETS was introduced in 2008. To date, it has not had a cap on the number of units being supplied into the market, as the scheme was originally designed to operate within a broader global cap set by the Kyoto Protocol. The Government reviewed the NZ ETS in 2015/16 and found that changes were needed for the scheme to be fit-for-purpose beyond 2020, which is when the Paris Agreement period begins. A package of reforms were required to adequately control the supply of units into the scheme to effectively reduce New Zealand’s emissions.

The outcomes of the review led to decisions to strengthen the framework of the scheme. They included decisions in relation to:

- **auctioning** – supporting the introduction of auctioning of NZUs in a way that aligns the supply of NZUs in the NZ ETS to our emissions reduction targets
- **limiting international units** – retaining the ability to limit international units if and when the NZ ETS reopens to international carbon markets
- **price controls** – replacing the current price ceiling mechanism (the \$25 fixed price option) with a cost containment reserve through auctioning, and investigating a price floor
- **coordinated decision-making process** – providing the framework for making unit supply settings in the NZ ETS over a five-year rolling period.

Together these improvements will enable an overall cap to be placed on emissions covered by the scheme and for the cap to be gradually reduced to align with our emissions targets.²

The Emissions Trading Reform Bill

The legislative amendments to make the above changes and improvements to the NZ ETS are currently going through Parliament as part of the Climate Change Response (Emissions Trading Reform) Amendment Bill (the Emissions Trading Reform Bill). The Bill is expected to come into force in mid-2020. The Bill does not include specific volumes or price settings for the NZ ETS. These will be set through regulations rather than through legislation after the Bill is enacted. The purpose of this consultation document is to set out the Government’s proposals for NZ ETS NZU supply volumes and related price control settings.

The Government is running this consultation alongside the Parliamentary process for the Emissions Trading Reform Bill, so stakeholders can review and provide feedback on the legislative and regulatory proposals at similar times. However, because the Bill is not yet law, there is a chance that changes to the Bill may impact on the processes and proposals in this document. To manage this, the Government will ensure that feedback provided to the Select Committee on the Bill and feedback provided through this consultation will all be taken into account when making final decisions on NZ ETS settings in 2020.

² See www.mfe.govt.nz/climate-change/proposed-improvements-nz-ets for further details about the proposed improvements to the NZ ETS.

Section 2: The provisional emissions budget

SUMMARY

- The Government proposes to set a provisional emissions budget of 354 Mt CO₂-e over 2021–25.
- This budget will require New Zealand to stabilise and then reduce net emissions over this period in a straight line towards the Zero Carbon Act targets.
- Achieving the budget will require emissions reductions of approximately 13 Mt CO₂-e above what is currently forecast with existing policy measures.
- In 2021, the Commission will advise on the first full set of emissions budgets, which will extend through to 2035.
- The provisional emissions budget will then be superseded by the full emissions budget in 2022.

Context

The provisional emissions budget is the total volume we aim to limit New Zealand's net emissions to over the period of 2021–25. The provisional emissions budget volume should be set at a level less than the total volume of emissions currently forecast and should start to align our emissions with our national emissions reduction targets set out in the Zero Carbon Act.

The Commission is expected to be established by early 2020 and to provide its recommendations for the first three emissions budgets in early 2021. These emissions budgets will cover the periods 2022–25, 2026–30 and 2031–35. The Government will then accept or modify these recommendations and set the emissions budgets in late 2021.

However, until then there will be no full emissions budget in place. As the NZ ETS is moving to an arrangement where the emissions within the scheme are capped and NZU supply is provided through government auctioning, a provisional emissions budget is needed to guide both the amount of NZUs that should be auctioned annually and the required price control settings. For the period between now and 2022, the Government is setting a provisional emissions budget that will:

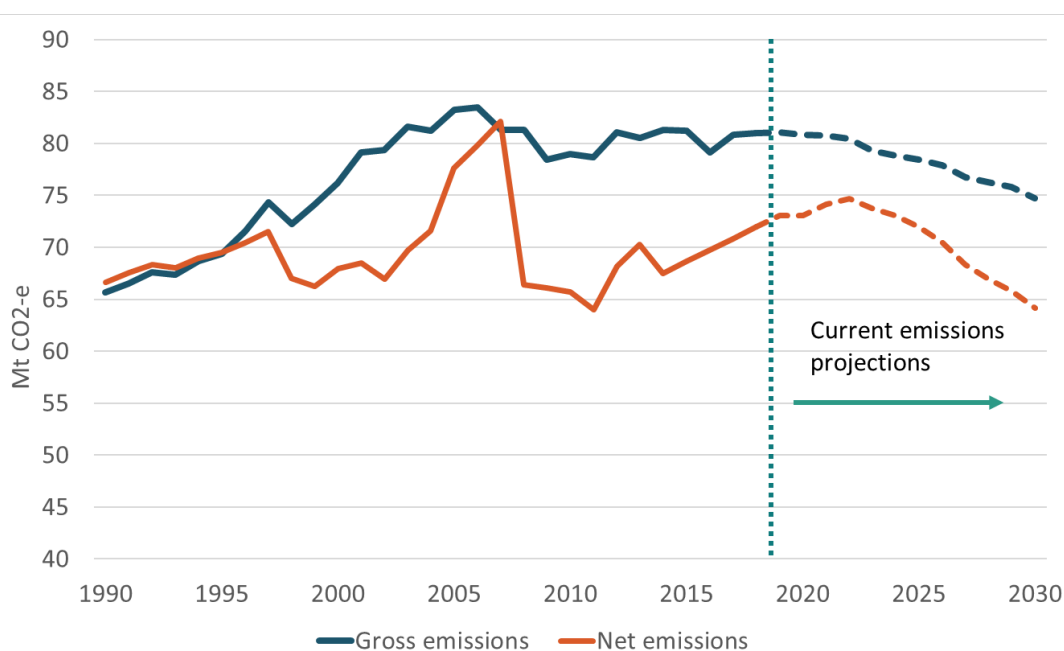
- guide NZU supply and price control settings within the NZ ETS
- provide businesses with confidence on the direction of travel of NZ ETS settings and prices
- guide wider government climate change policy decisions.

New Zealand's emissions trends

New Zealand's gross emissions comprise greenhouse gas emissions from all sectors excluding land use, land-use change and forestry (LULUCF).³ Net emissions comprise greenhouse gas emissions from all sectors including LULUCF, which means that net emissions are lower than gross emissions because the LULUCF sector currently removes more greenhouse gasses from the atmosphere than it emits through emissions sequestration from forestry.

Gross emissions rose steadily between 1990 and 2006, peaking at 83 Mt CO₂-e. Since 2006, gross emissions have fallen slightly and then levelled off, remaining steady at approximately 81 Mt CO₂-e per year. Net emissions, however, have risen since 2015 due to increased levels of deforestation compared to 1990 levels and as forests planted in the 1990s are harvested. Net emissions are expected to continue to increase for several further years before falling after 2022 (see figure 5).

Figure 5: Gross and net emissions in New Zealand 1990–2030

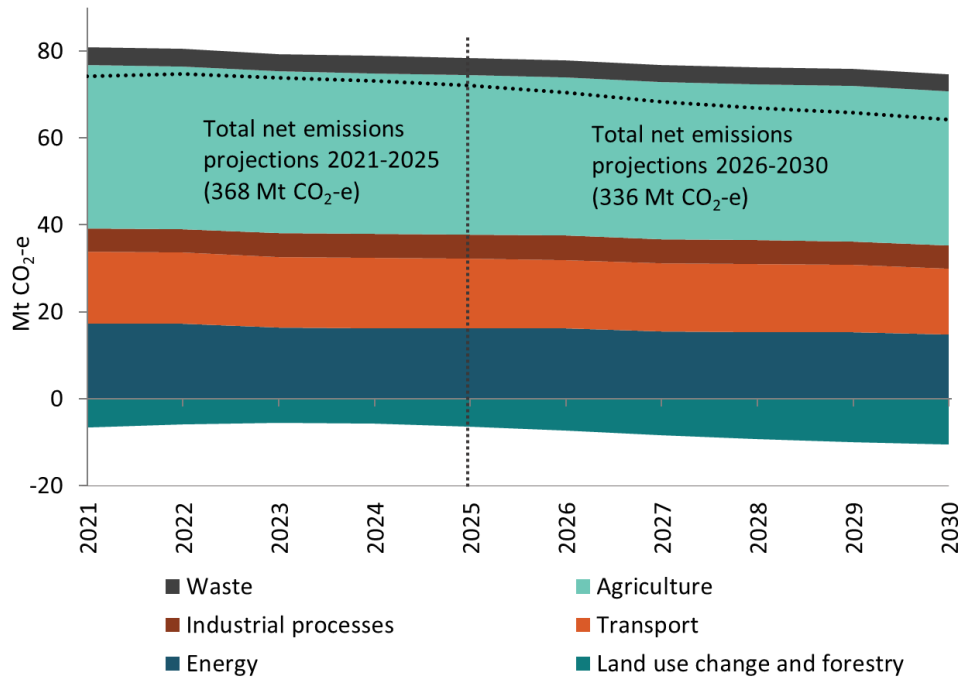


The latest available emissions projections and removals out to 2030 broken down by sector are shown in figure 6. These projections give total forecast net emissions of 368 Mt CO₂-e over the 2021–25 period, and 336 Mt CO₂-e from 2026–30.

These reflect the current best available estimate of future emissions under policies already in place. These are provisional and subject to change as agencies are currently in the process of formally updating sectoral projections.

³ Including forest land, cropland, grassland, wetlands etc.

Figure 6: Provisional baseline emissions and removals under current policies

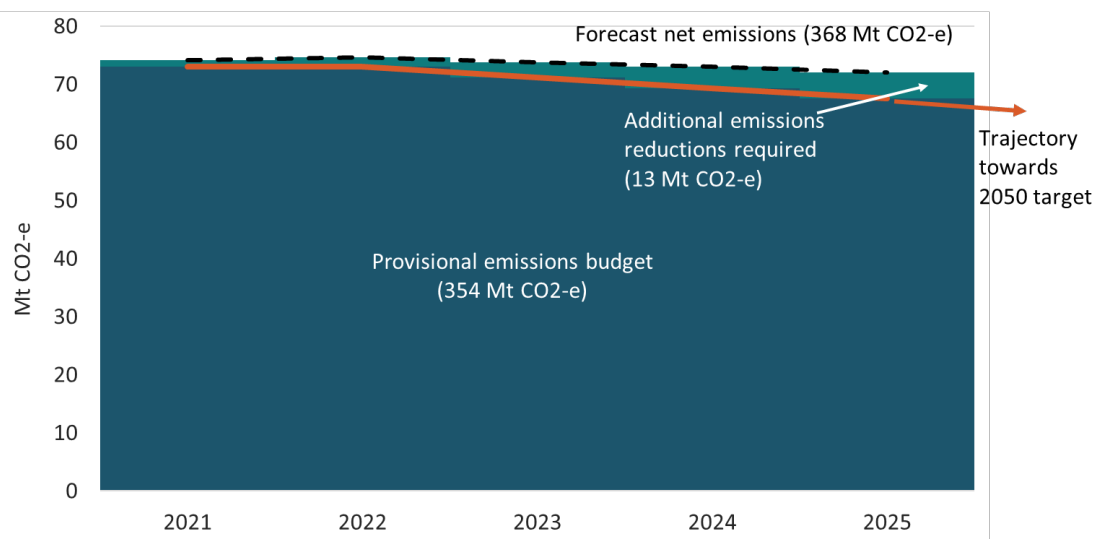


Proposal

The Government proposes to set the provisional emissions budget so it holds net emissions steady at projected 2020 levels for two years (halting a projected increase in net emissions) and then tracks towards a direct path from current emissions levels to the 2050 target in the Zero Carbon Act.⁴

This pathway will require 13 Mt CO₂-e of additional domestic emissions reductions (or removals) below current projected levels over the period 2021–25 (see figure 7). This results in a provisional emissions budget of 354 Mt CO₂-e for the 2021–25 period.⁵

Figure 7: Provisional emissions budget vs. forecast net emissions



⁴ Based on the mid-point of the methane target range and net zero of all other gases.

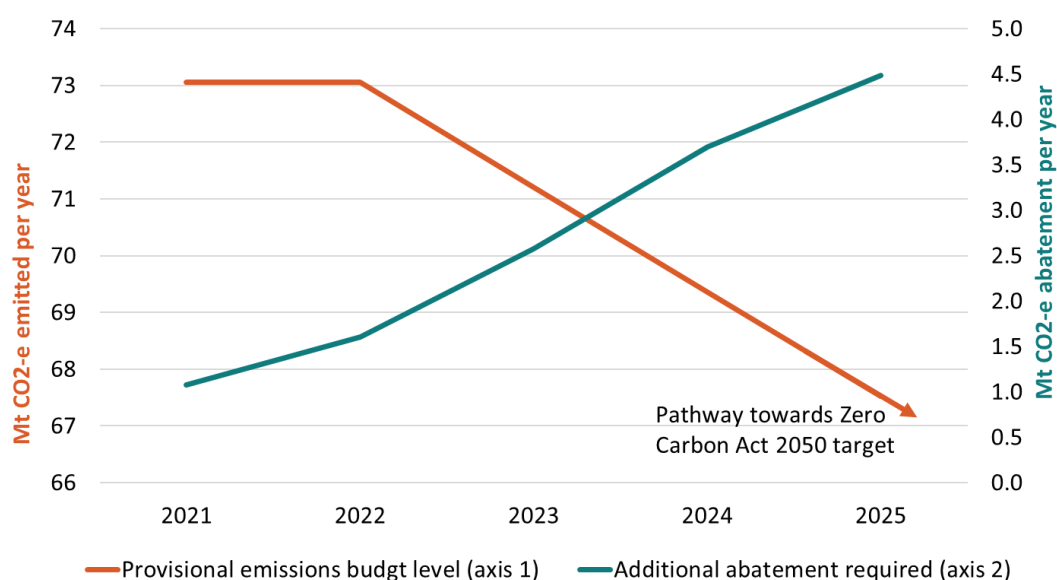
⁵ Totals presented throughout this document may not add up due to rounding.

This approach acknowledges three key considerations:

1. Emissions budgets should be set in a way that is consistent with our long-term emissions reduction targets.
2. New Zealand's gross emissions have risen over the past 30 years and net emissions are projected to increase in the short-term, therefore turning that trend around fast is challenging.
3. Emissions reductions need to begin now to ensure we make progress towards both our domestic and international emissions reduction targets.

Because the contribution forestry is making in offsetting New Zealand's emissions is decreasing in the beginning years of the budget, holding the emissions budget steady for the first two years requires an increasing level of emissions abatement from the very beginning of the period (see figure 8).

Figure 8: Proposed total emissions and abatement required trajectories to 2025



The provisional emissions budget is not intended to set the direction for the entire period to 2030. The purpose of the provisional budget is to ensure New Zealand's net emissions reverse their currently increasing trend and begin to decrease. In recommending full emissions budgets, the Commission will advise on the speed and shape of the longer-term emissions reduction pathway. It will take time for additional policies and projects to reduce emissions to take effect, so reductions below the current forecast levels may be relatively small in the short-term.

Balancing these factors has led the Government to decide to align the provisional emissions budget with a straight-line path from current levels of emissions to the 2050 target in the Zero Carbon Act. Making emissions reductions more slowly than this straight-line approach would risk us having to make a more abrupt and potentially disruptive transition further into the future. Going faster would be challenging to achieve given the limits to the speed with which physical assets can be replaced in a short time, such as vehicles and factory equipment. In the medium term beyond 2025, faster action will be possible as emissions reduction opportunities that require a longer lead time take effect (such as new wind farms) and conversions away from coal in industrial and commercial heating begin.

The provisional emissions budget and the Paris Agreement Contribution

The provisional emissions budget is our goal for what New Zealand will do domestically in the short-term and is a first step towards our 2050 target set by the Zero Carbon Act. It reflects that the transition to reducing emissions levels will only be starting over the coming years. The domestic emissions pathway proposed by the provisional emissions budget will mean that unless there are significant reductions in the second half of the 10-year period, we will need to find additional emissions abatement to meet our Paris Agreement Contribution over the period 2021–30. For example, if the emissions budget continued on the straight-line pathway towards the Zero Carbon Act 2050 target, an additional 63 Mt CO₂-e of abatement would be required to meet the Paris Agreement Contribution budget of 601 Mt CO₂-e between 2021–30. This difference in volume could potentially be achieved through international cooperation.

Considerations and impacts

Reducing net emissions in the first few years of the provisional emissions budget will be a challenge because the amount of carbon removed by forests (carbon sequestration) is expected to decline in the early part of the 2020s. The decline is due to the age profile of forests planted in the 1990s and early 2000s. Most of the large forests planted in the 1990s have passed their peak age for emissions removals, so a decreasing proportion of them will be contributing to carbon sequestration under our international forestry accounting methodology. As forests planted later in the 2000s mature, they are forecast to begin to sequester more significant amounts of carbon, increasing net removals later in the 2020s.

Cost-effective emissions reductions are possible across the New Zealand economy

The Government is identifying emissions reduction opportunities across all sectors. Work to date has identified opportunities available at low-to-moderate costs that could collectively deliver substantial emissions reductions.

Several opportunities exist that can deliver net cost savings to the New Zealand economy, even without pricing emissions. These include:

- improving energy efficiency in process heat and electricity use
- improving vehicle fuel efficiency and adopting electric vehicles (EVs)
- productivity gains in agriculture that enable the same production from fewer animals.

Some of these changes can be adopted in the short- to medium-term to 2025. Once all of these changes have been adopted, they would collectively reduce annual emissions by up to 5 Mt CO₂-e per year. Accelerating the switch to EVs will require a much longer timeframe beyond 2025 but will increase the amount of emissions reduced per year further over time as the proportion of EVs in the vehicle fleet grows. EVs are projected to become cheaper than internal combustion engine vehicles on a lifetime basis within the next few years as production and battery costs continue to fall.

Further opportunities exist with abatement costs⁶ in the range of \$0–\$100 per tonne of emissions saved (or removed). These include:

⁶ The abatement cost is the net economic cost per tonne of emissions saved.

- building wind farms or geothermal power stations to displace gas- and coal-fired electricity generation
- switching from coal and diesel to biomass or electricity for low- and medium-temperature process heat
- extending forestry harvest rotations, avoiding deforestation and planting new forests.

Currently assessed options in this cost range could deliver up to around 8 Mt CO₂-e per year in gross emissions reductions, alongside large potential emissions removals from forestry.

Achieving the provisional emissions budget is ambitious but feasible

The provisional emissions budget described here is ambitious and will require immediate efforts to scale up and deliver significant emissions reductions. But this can be achieved with strong action now from businesses, government and communities.

To illustrate that the provisional emissions budget is achievable, we outline here one possible scenario that could deliver the overall level of emissions reductions required to meet the provisional emissions budget:

- a faster phase down of fossil electricity generation through a combination of building new renewables and deploying energy efficient technologies (eg, LED lighting, insulation, and heat pumps)
- increasing the rate of uptake of energy efficiency improvements and fuel switching in industrial processing plants (factories)
- additional fuel switching away from natural gas, liquefied petroleum gas (LPG), and coal to electricity or biomass for space and water heating
- faster uptake of EVs and fuel-efficient light vehicles through the proposed Clean Car Standard and Clean Car Discount programmes, plus some increased mode-shifting from private vehicles to public transport, cycling and walking
- accelerated efficiency improvements in agriculture and/or additional emissions reductions on farms
- reducing landfill emissions through faster uptake of clean technologies and/or reducing the volume of degradable waste sent to landfill
- increased levels of carbon sequestration through forestry.

We estimate that getting these measures underway – taking into account the time required to scale up as well as changes already happening in the baseline – could deliver the 13 Mt CO₂-e of abatement necessary over the 2021–25 period to meet the provisional emissions budget.

Table 1 shows an example breakdown by sectors for actions that would be required to meet the provisional emissions budget. To deliver the 13 Mt CO₂-e, requires that a wide range of abatement options so far identified be adopted between now and 2030. These include all of the options that are negative cost (ie, of net economic saving) and many of the options available at moderate costs be taken up across agriculture, energy and transport. Additional measures to encourage forestry will play a role in the longer term, but are unlikely to make a strong difference to net emissions in the period 2021–25 as forests planted now will take some years before they begin sequestering significant amounts of carbon.

Table 1: Potential opportunities for sectors to deliver abatement to contribute towards meeting the provisional emissions budget of 354 Mt CO₂-e

Sector	Change by 2025	Emissions abatement per year in 2025 (kt CO ₂ -e)
Agriculture	Half of the opportunities to reduce emissions that would improve profitability identified by the Biological Emissions Reference Group (BERG) have been adopted	750 ⁷
Transport	One third of the projected impact by 2030 of the currently proposed transport package has been achieved through a combination of greater electric vehicle uptake, higher efficiency internal combustion engines, and mode shift	500
Space and water heating	One sixth of space and water heating in commercial and residential buildings that currently uses coal, LPG or gas switched to biomass or electricity	300
Process heat for food processing	Half of the identified energy efficiency opportunities that are of net benefit are adopted 25 per cent of process heat that currently uses coal or gas has switched to biofuels or electricity	450 700
Other heavy industry	The process efficiency improvements that would require a carbon price less than \$50/tCO ₂ are implemented by 2024 for steel, cement, refining and kraft pulp	1,000
Electricity	One-third of the electricity efficiency potential identified by EECA is implemented Additional wind and geothermal renewable stations are built to displace the remaining baseload gas-fired power station by mid-2024 ⁸	450 1,100
Waste	25 per cent of landfills using bio-stabilisation or equivalent emissions reduction from diversion and greater capture and destruction of landfill gas	300

Policies and plans to deliver the provisional emissions budget

Bringing New Zealand's emissions down in line with the provisional emissions budget will require significant changes to begin in the New Zealand economy. Some of these changes will require a higher price in the NZ ETS to be economically viable. Others will require targeted government policies to ensure they happen.

Complementary policy measures

The provisional emissions budget and the analysis of possible opportunities will help inform the volume of NZUs to be auctioned and price control settings of the NZ ETS. This is discussed in more detail in section 3 and section 4. However, ensuring that the cost-effective opportunities to reduce emissions are taken up will require more than just the NZ ETS alone – it will also require a package of suitable complementary policies.

⁷ Assumes half of the identified abatement from the BERG report is already included in existing emission projections.

⁸ The other gas-fired power station is assumed to be retired by 2023 in existing emissions projections.

Some cost-effective emissions reduction policies are not taken up due to barriers outside of price. A suite of policies will be needed to remove barriers to the price being effective and/or to drive emissions reductions directly where the price is unlikely to be sufficient.

The Government has some policies in place and further policies in development that will support emissions reductions in line with the provisional emissions budget. Delivering the provisional emissions budget will require further policies to ensure the changes described above happen at the necessary speed. Many of those policies are in development.

The following key programmes discussed below are already underway.

Moving towards 100 per cent renewable electricity and reducing industrial emissions

- The Government's renewable energy strategy work programme includes examining how we can grow our renewable electricity as well as seeking to decarbonise process heat through encouraging energy efficiency and the uptake of renewable fuels (eg, electrification and biofuels).
- The Government is also currently consulting on how New Zealand can maximise the current and future opportunities that green hydrogen presents in our energy, transport and export sectors.

Decarbonising our transport sector

- The Government has redirected an additional \$1.15 billion in transport investment towards public transport, rapid transit, walking and cycling.
- The Government is developing a package of measures to reduce emissions from light vehicles, including the proposed Clean Car Standard and Clean Car Discount.
- The Government has committed \$7 million per year to a contestable fund to support low-emissions vehicle projects.

Supporting agriculture to improve its productivity and sustainability

- The Government is supporting greater adoption of low-emissions practices on farms with a \$229 million package in Budget 2019 to support sustainable and productive land use.
- The Government is considering how agricultural emissions could be priced.

Measures to encourage forestry

The Government is doubling new tree planting to reach one billion trees by 2028 by:

- investing \$480 million to incentivise new tree planting through afforestation grants and partnerships
- making the NZ ETS easier for foresters and land owners to participate in and simplify and de-risk the trading of NZUs
- developing joint ventures between the Crown and land owners to plant commercial plantation forests.

Alternative options

The provisional emissions budget could be set at a higher (less ambitious) or lower (more ambitious) volume than the 354 Mt CO₂-e that has been proposed.

One of the main limitations on setting a more ambitious budget for the period 2021–25 is not cost, but how fast changes in physical infrastructure can be made. It takes time to identify a new technology, establish how it will fit within an existing process, develop a business case, acquire funding, and implement changes.

The current provisional emissions budget proposal requires rapid improvements in energy efficiency, process heat use, on-farm practices, and landfill technology. It may not be possible to make changes more quickly in the first five years; however, we expect emission reductions would accelerate in the period after the provisional emissions budget as capability and capacity grows.

Lower provisional emissions budget alternative (more ambitious)

A provisional emissions budget of 349 Mt CO₂-e would be a higher level of ambition. This would require approximately 18 Mt CO₂-e of emission reductions over 2021–25 below baseline projections to ramp up the level of change.

Table 2 shows an example breakdown by sectors for actions that would be required to meet a more ambitious emissions budget and achieve 18 Mt CO₂-e of additional abatement. It would be challenging to bring about these changes in the period between now and 2025.

Table 2: Potential opportunities for sectors to deliver abatement to contribute towards meeting a more ambitious emissions budget of 349 Mt CO₂-e

Sector	Change by 2025	Emissions abatement per year in 2025 (kt CO ₂ -e)
Agriculture	Two thirds of the opportunities to reduce emissions that would improve profitability identified by the Biological Emissions Reference Group have been adopted	1,000
Transport	Two thirds of the projected impact by 2030 of the currently proposed transport package has been achieved through a combination of greater electric vehicle uptake, higher efficiency internal combustion engines, and mode shift	1,000
Space and water heating	One third of space and water heating in commercial and residential buildings that currently uses coal, LPG, or gas switched to biomass or electricity	600
Process heat for food processing	90 per cent of the identified energy efficiency opportunities that are of net benefit are adopted	800
	45 per cent of process heat that currently uses coal or gas has switched to biofuels or electricity	1,250
Other heavy industry	The process efficiency improvements that would require a carbon price less than \$50/tCO ₂ -e are implemented by 2023 for steel, cement, refining and kraft pulp	1,000
Electricity	40 per cent of the electricity efficiency potential identified by EECA is implemented	550
	Additional wind and geothermal renewable stations are built to displace the remaining baseload gas-fired power station by mid-2023.	1,100
Waste	40 per cent of landfills using bio-stabilisation or equivalent emissions reduction from diversion and greater capture and destruction of landfill gas	500

Higher emissions budget alternative (less ambitious)

The provisional emission budget could alternatively require a lower level of abatement over the first five years, resulting in a higher emissions budget volume. If the emissions budget required only 6 Mt CO₂-e to be reduced over the period 2021–25, the emissions budget would be 361 Mt CO₂-e and the changes required would be slower than the existing proposal. Table 3 shows an example, of the changes that could be required.

Table 3: Potential opportunities for sectors to deliver abatement to contribute towards meeting a less ambitious emissions budget of 361 Mt CO₂-e

Sector	Change by 2025	Emissions abatement per year in 2025 (kt CO ₂ -e)
Agriculture	A quarter of the opportunities to reduce emissions that would improve profitability identified by the Biological Emissions Reference Group have been adopted	400
Transport	Only 7 per cent of the projected impact by 2030 of the currently proposed transport package has been achieved through a combination of greater electric vehicle uptake, higher efficiency internal combustion engines, and mode shift	100
Space and water heating	25 per cent of space and water heating in commercial and residential buildings that currently uses coal or gas switched to biomass or electricity	450
Process heat for food processing	A quarter of the identified energy efficiency opportunities that are of net benefit even before emissions prices are included are adopted	250
	10 per cent of process heat that currently uses coal or gas has switched to biofuels or electricity	300
Other heavy industry	Half of the process efficiency improvements that would require a carbon price less than \$50/tCO ₂ are implemented by 2025 for steel, cement, refining and kraft pulp	500
Electricity	15 per cent of the electricity efficiency potential identified by EECA is implemented	200
	Insufficient wind and geothermal renewable stations are built to displace the remaining baseload gas-fired power station by 2025	0
Waste	15 per cent of landfills using bio-stabilisation or equivalent emissions reduction from diversion and greater capture and destruction of landfill gas	200

These changes are achievable, particularly with additional government policies and programmes supporting them to occur, and it is likely that New Zealand can reduce emissions by more than this over the 2021–25 period. Further, by not reducing emissions by as much in the period to 2025 there is increased likelihood that New Zealand will face greater costs when measured over the long-term through need to:

- purchase international units in the future to meet our climate change targets at a higher cost than could have been achieved with early domestic abatement
- undertake costly future investments to try and rapidly reduce our emissions to get back on track towards our 2050 target.

The [appendix](#) provides a table that compares the potential options required to achieve the proposed provisional emissions budget, a more ambitious, or less ambitious budget.

QUESTION

1. Do you agree with the proposal to set a provisional emissions budget of 354 Mt CO₂-e for the 2021–25 period? If not, why not?
 - Please include your views on:
 - using a straight-line approach towards the 2050 target
 - the considerations that were included in proposing the provisional emissions budget.

Section 3: Unit supply settings

SUMMARY

- The Climate Change Commission will independently recommend NZ ETS settings to the Government once it is established.
- The Emissions Trading Reform Bill lays out considerations that must be made when determining unit supply settings.
- The Government proposes six key steps in setting annual NZU auction supply:
 1. Set the NZ ETS cap.
 2. Consider technical and forestry adjustments.
 3. Forecast annual free allocation volumes.
 4. Set the annual stockpile reduction volume.
 5. Set the international unit limit.
 6. Calculate the remaining available annual auction volume.

Context

The Zero Carbon Act was passed in November 2019, which has enabled the Government to set annual emissions caps on the NZ ETS that look out five years into the future. Capping emissions in the scheme to align with our climate change targets is key for ensuring we meet these targets.

The NZ ETS cap is translated into NZUs, which are the ‘currency’ of the NZ ETS. Each NZU in the scheme represents the right to emit a tonne of CO₂-e emissions. Emitters with compliance obligations in the NZ ETS must provide to the Government NZUs equivalent to the amount of emissions they have made. By limiting the number of NZUs supplied into the scheme, the amount of emissions participants can emit is also limited. The cap does not determine the number of NZUs supplied to foresters for carbon absorbed by their forests as their trees grow.

The cap determines the total number of units that will be supplied into the scheme, without limiting the number of units provided for emissions removals. Therefore, the cap will limit the emissions produced from sectors covered by the NZ ETS, but it does not determine the number of NZUs supplied to foresters for carbon absorbed by their forests as their trees grow.

The emissions budget for New Zealand’s Paris Agreement Contribution and the domestic emissions budgets (initially the provisional emissions budget) will guide decisions that set the overall level of the cap on emissions covered by the NZ ETS.

Considerations

The Emissions Trading Reform Bill sets out the considerations the Minister must make when setting unit supply and price control regulations. The key considerations are:

- emissions budgets and the Paris Agreement Contribution

- projected trends in greenhouse gas emissions
- the proper functioning of the NZ ETS (such as supporting efficient functioning of the market to helping the NZ ETS in meeting its objectives)
- international climate change obligations and contracts with other carbon markets
- recommendations of the Commission, including a desirable carbon price path (if available)
- forecasts on the availability and costs of ways to reduce greenhouse gas emissions.

These considerations have also been applied to the settings proposed throughout this document.

Steps in reaching the proposed NZ ETS unit supply settings

To reach the final proposal for the number of NZUs available to be auctioned annually within the NZ ETS, a series of consistent steps will be followed.

The Government seeks feedback on its proposal to determine annual NZU supply through the following six steps:

1. Set the NZ ETS cap.
2. Make technical volume and forestry adjustments.
3. Account for free NZU allocation volumes.
4. Set the unit oversupply reduction volumes.
5. Set the international unit limits.
6. Calculate the remaining available annual auction volumes.

The NZU volume available for auction that results of these six steps is predominantly determined by flow-on calculations based on data and forecasts that have already been made. Step four which determines how to manage the current NZ ETS NZU stockpile has the potential for different policy approaches to be taken, and we seek specific feedback on the proposed methodology of this step independently.

Step 1: Set the NZ ETS cap

SUMMARY

- Emissions covered by the NZ ETS will make up the overall emissions cap in the scheme.
- Emissions not covered by the NZ ETS include agriculture, some of the waste sector, some of the forestry sector, and gases covered by the synthetic greenhouse gas (SGG) levy. Together these account for approximately 57 per cent of total New Zealand emissions that must be removed from the NZ ETS emissions cap.
- The volume of emissions covered by the NZ ETS cap over 2021–25 is 151 Mt CO₂-e.

Context

The volume of the provisional emissions budget is the primary driver of what the volume of emissions available under the NZ ETS cap will be. Once the overall budget is set, the NZ ETS cap is determined by removing the forecast volume of emissions not covered by the NZ ETS.

The major categories of emissions in New Zealand are:

- stationary energy
- liquid fossil fuels
- industrial processes
- waste
- agriculture
- synthetic greenhouse gases (SGGs)
- forestry.

Of these categories, the emissions from stationary energy, liquid fossil fuels, and industrial processes are fully covered by the NZ ETS. Emissions from waste, forestry and SGGs are partially covered by the NZ ETS. Agricultural emissions are not covered, although some activities have reporting obligations in the NZ ETS. Below we discuss each of these categories further.

Stationary energy

Stationary energy includes the emissions from electricity generation and from the generation of heat for industrial processes. Firms that import or mine either coal or gas, use geothermal liquid, combust waste for the purpose of electricity or industrial heat, or refine petroleum have obligations in the NZ ETS.

This sector is currently made up of 84 participants and is responsible for approximately 22 per cent of New Zealand emissions reported under the NZ ETS.⁹ All stationary energy emissions fall within the cap of the NZ ETS.

Liquid fossil fuels

The liquid fossil fuels sector encompasses the emissions from petrol and diesel suppliers. Firms that import or take significant quantities of fuel from a refinery have NZ ETS obligations. Currently, the sector has four mandatory participants in the NZ ETS and accounts for approximately 26 per cent of NZ ETS emissions.

Industrial processes

The emissions from the physical and chemical transformation process to produce some industrial products are covered by the NZ ETS. Examples of these processes include the production of iron or steel, aluminium, cement, lime, glass and gold. Forty-three participants have obligations for their industrial processes emissions. Approximately 4 per cent of domestic emissions reported within the NZ ETS are from this sector.

⁹ All data within this section relating to NZ ETS categories is based on 2018 emissions published by the Environmental Protection Authority. It includes agricultural emissions which are required to be reported, even though they are not required to surrender units.

Waste

Operators of waste disposal facilities and landfills are responsible for the methane emitted through the breakdown of organic waste. There are 33 participants in the waste category. They produce approximately 2 per cent of NZ ETS emissions.

Part of the waste sector is also outside of the NZ ETS. This includes emissions from wastewater treatment and cleanfills. Other greenhouse gases from landfills and other methods of waste disposal (such as CO₂ from waste decomposition) are not covered by the NZ ETS.

Agriculture

The largest sector currently excluded from NZ ETS pricing of emissions is agriculture. Agricultural processors as well as importers and manufacturers of fertilisers are required to report emissions within the NZ ETS, but not to surrender NZUs. Emissions in this sector are methane and nitrous oxide. Methane emissions are produced by ruminant animals and animal waste, while nitrous oxide emissions come from urine, excreta and nitrogen fertiliser. There are 75 agricultural participants with reporting obligations.

Synthetic greenhouse gases (SGGs)

In New Zealand, all SGGs are subject to an emissions price. However, the application of this price depends on the activity responsible for domestic SGG emissions. Bulk importers of hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs) and users of sulfur hexafluoride have reporting and surrender obligations under the NZ ETS.

Exporters and entities that destroy SGGs are eligible to receive NZUs for removing these emissions. In 2018, there were 17 participants within the NZ ETS that removed SGGs in New Zealand.

Importers of HFCs and PFCs contained in goods and motor vehicles face an emissions price through the SGG levy. The levy is based on the amount of SGGs contained in an item, the global warming potential of the gases, and the average price of NZUs surrendered in the NZ ETS. The levy rates are updated every year to align with the prevailing market price for NZUs in the NZ ETS. These emissions are not covered by the NZ ETS.

Forestry

The emissions and emissions removals from forestry are partially covered by the NZ ETS. This is because forested land planted before 1990 (pre-1990 forest land) and after 1989 (post-1989 forest land) have different obligations in the NZ ETS.

Owners of pre-1990 forests become mandatory participants in the NZ ETS if they deforest. Units must be surrendered for deforestation emissions if more than 2 hectares of non-exempt forest is deforested in any five-year period. While pre-1990 forests cannot earn NZUs for increases in carbon stock (as the carbon stored in pre-1990 forests is counted within New Zealand's baseline emissions), the owners of this land were given a one-off allocation to compensate for the loss of land value associated with the introduction of the NZ ETS. As of 2018, 1,227,051 hectares of pre-1990 forest land had received an allocation, with nearly 48 million pre-1990 forestry NZUs allocated.¹⁰

¹⁰ Environmental Protection Authority: New Zealand Emissions Trade Scheme Facts and Figures 2018.

Owners of post-1989 forests can voluntarily participate in the NZ ETS and earn NZUs for increases in carbon stock. However, they are required to surrender NZUs for any emissions relating to harvesting and deforestation, net carbon losses, or deregistration. Approximately 48 per cent of New Zealand's total post-1989 forestry is currently represented within the NZ ETS, equating to approximately 320,000 hectares. With around 2,100 participants. Owners of post-1989 forests make up the largest group of participants in NZ ETS.

In future, a decision will need to be made about how forestry that is not registered within the NZ ETS is accounted for within the NZ ETS cap. However, this work and the consistent forecasts required to complete it are still underway. This work will need to take into account the options available for, and choices likely to be made by, post-1989 foresters within the NZ ETS.

A new approach – averaging accounting – will be implemented in post-1989 production forests from 2021 to align with our accounting at the national level under the Paris Agreement. This approach enables participants to claim NZUs up until their forest reaches its long-term average carbon stock, thus limiting gains and avoiding losses from harvesting. These participants will still need to surrender NZUs for deforestation.

To complement the introduction of averaging, there is the introduction of a new permanent post-1989 activity, where land owners can receive NZUs on the stock change approach but will not be able to clear-fell harvest for 50 years.

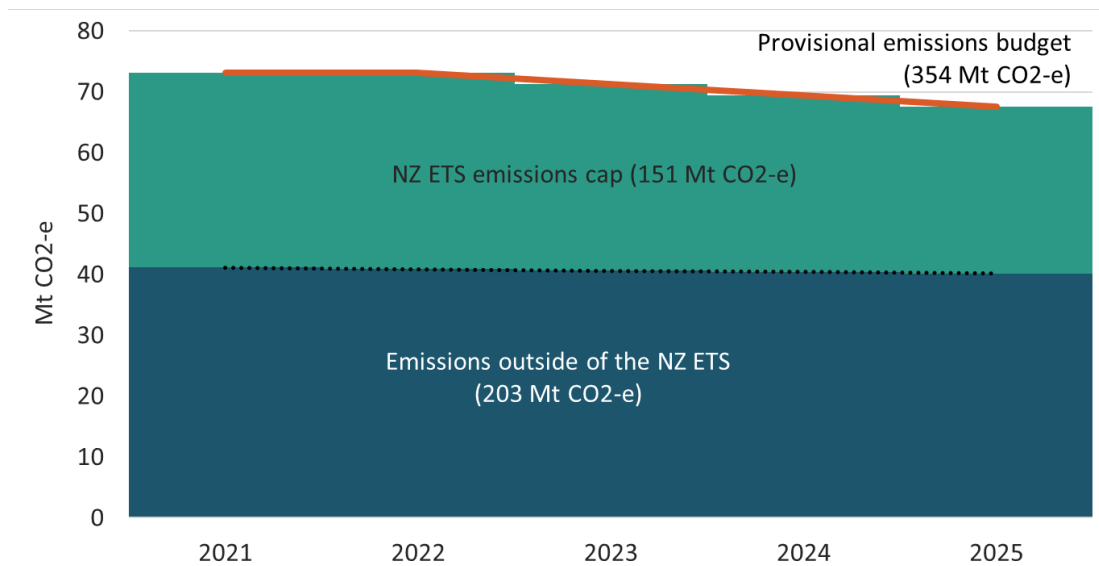
Determination

The overall NZ ETS cap is calculated by removing the forecast emissions in sectors that are not covered (agriculture, waste emissions outside the NZ ETS, SGGs covered by the levy) from the proposed provisional emissions budget. These calculations are set out in table 4 and shown within the context of the overall provisional emissions budget in figure 9.

Table 4: Setting the NZ ETS cap

Emissions Mt CO ₂ -e	2021	2022	2023	2024	2025	Total
Proposed provisional emissions budget	73.1	73.1	71.2	69.4	67.5	354.2
Agriculture emissions projections	37.7	37.4	37.2	36.9	36.7	185.8
Waste outside of the NZ ETS	2.7	2.7	2.7	2.7	2.7	13.7
SGG levy	0.7	0.7	0.7	0.7	0.7	3.7
Total emissions outside of the cap	41.1	40.8	40.6	40.3	40.1	203.2
Remaining emissions covered by the NZ ETS cap	31.9	32.2	30.6	29.0	27.4	151.0

Figure 9: Breakdown of NZ ETS versus non-NZ ETS emissions within the provisional emissions budget



Step 2: Make technical volume and forestry adjustments

SUMMARY

- Consideration should be made to certain technical adjustments if they could have a significant impact on the NZ ETS cap.
- These potential considerations include adjustments for non-compliance, voluntary offsetting, differences in accounting, uncertainty in projections, and forestry accounting.
- Currently, the Government considers that there is no need or evidence to make any changes to the NZ ETS cap based on technical adjustments.
- As more evidence is developed or relevant policy decisions are made, these technical adjustments may become necessary.

Context

After determining the NZ ETS cap, the Government needs to consider the potential need to make a range of technical volume adjustments to this volume.

Potential technical considerations include:

- adjustments where NZ ETS participants have been non-compliant or accounts have closed
- voluntary offsetting (the retirement or cancellation of NZUs to reduce or offset emissions)
- differences in accounting internationally and within the NZ ETS
- uncertainty in projections of emissions that are not covered by the NZ ETS
- forestry accounting misalignment
- uncertainty in projections of forestry emissions.

Below we discuss each of these considerations in further detail.

Emissions where NZ ETS participants have been non-compliant or accounts have closed

The Government has considered whether to make an adjustment to the overall cap for non-compliance by NZ ETS participants. These emissions should be covered by the cap because these participants have obligations to surrender NZUs in the scheme. However, if participants fail to surrender NZUs, their emissions would be outside the cap.

The Climate Change Response Act creates strong incentives for liable entities to comply and surrender eligible NZUs. The Emissions Trading Reform Bill improvements currently going through Parliament are intended to make these incentives stronger.

Voluntary offsetting

Voluntary carbon offsetting requires balancing a measured amount of a business's own CO₂-e emissions through an equivalent measured amount of removals or reductions elsewhere.

Entities are able to 'cancel' NZUs in the NZ ETS Register, which removes the unit from further use. This should only constitute offsetting if it meets certain criteria, including that any associated emissions reduction is not double counted by the Government to help meet its international target.

There is growing interest in voluntary emissions offsetting among New Zealand organisations wanting to claim carbon neutrality or meet self-imposed targets to reduce their carbon footprint. From 1 January 2021, the mechanism that currently exists for voluntary offsetting in New Zealand will not be available under the Paris Agreement. This is because there is no process to remove emissions reductions that have already been claimed for voluntary offsetting from an organisation or individual from the Crown accounts. This process is the way in which double claiming is currently avoided. This is described in the *Guidance for Voluntary Emissions Offsetting until 31 December 2020*.¹¹

Work is needed to develop a mechanism to provide for robust voluntary offsetting from 1 January 2021 onwards. A critical output of this work will need to be a method by which unit supply within the NZ ETS can be adjusted to provide this voluntary offsetting mechanism.

Differences in non-forestry related accounting internationally and within the NZ ETS

Accounting for emissions can be technically complicated, and sometimes there are differences between how they are calculated domestically and internationally. Technical adjustments to the NZ ETS cap may therefore be needed to account for these differences. One potential source of misalignment is to do with the timing of emissions measurement and compliance with the NZ ETS. For example, coal incurs an NZ ETS liability at a single point in time when it is mined or imported, but New Zealand's international accounting considers the emissions from coal both when it is mined (fugitive emissions) and when it is used/combusted. Waste and refrigerant gases are other sectors where there may be a considerable time delay between different accounting approaches.

¹¹ www.mfe.govt.nz/publications/climate-change/guidance-voluntary-emissions-offsetting-until-31-december-2020.

Uncertainty in projections of emissions that are not covered by the NZ ETS

The provisional emissions budget is based on projected future levels of emissions. Actual emissions will inevitably differ from these estimates. If actual emissions in sectors that are not covered by the NZ ETS are higher than estimated, the cap would not prevent New Zealand's emissions from exceeding the provisional emissions budget. If actual emissions in these sectors are lower, and the cap is not adjusted for this, New Zealand would more than meet its budget.

Forestry accounting misalignment

Differences in how forests are accounted for within the NZ ETS and internationally can create volume misalignments. The Government has decided that any new forestry registrations within the NZ ETS will need to use the same accounting approach that we use internationally ('averaging'), but many existing forests will remain on the previous 'stock change' accounting system. In addition, the owners of forests planted after 1989 have the option of participating in the NZ ETS or exiting the NZ ETS, and this creates further issues with volume alignment.

Uncertainty in projections of forestry emissions

The level of uncertainty associated with forestry emissions is expected to increase over the provisional emissions budget period as a larger proportion of the post-1989 forest estate nears harvest maturity. It is hard to forecast at a national level when NZ ETS registered production forests will be harvested and the potential lag between the harvest event and forest owners actually submitting an emissions return. Accordingly, it will be difficult to predict exactly when this cohort of forests stops storing carbon.

Estimates are further uncertain because a proportion of harvest surrenders will be netted against forest growth within a return. Forest owners can have various age classes within their forest estate, and the growth of these forests can help to offset harvest surrenders. From a forecasting perspective, this adds additional complexity in separating out entitlement and surrenders forecasts.

Forecasts are also sensitive to assumptions around the proportion of registered forests that will have a voluntary emissions return submitted. This could affect when forest owners report to the Government changes in carbon stock.

Determination

The Government proposes that no adjustments are currently necessary to the overall NZU auction supply for the current period due to technical considerations and forestry.

The major reasons for this are:

- issues related to non-compliance are unlikely to have a measurable impact on emissions within the cap as it is very rare for obligations to remain unmet for any significant length of time
- the demand for voluntary offsetting in future is hard to predict and a method for making a suitable adjustments has not yet been developed
- the NZ ETS cap is based on the best available forecasting at the time, and potential errors cannot be adjusted for in advance, but can be addressed through reviewing the actual emissions results and adjusting future settings

- there is currently no consistent methodology to account for differences between domestic and international accounting standards
- volume misalignment within the forestry sector is technically complicated and does not currently have a suitable methodology to address it.

QUESTIONS

2. Do you support the decisions made regarding the technical volume adjustment decisions? If not, why not?
3. Are there other adjustments that need to be considered?

Step 3: Account for free NZU allocation volumes

SUMMARY

- The forecast volume of free allocation over the provisional emissions budget period needs to be removed from the NZ ETS cap because it should not be available for auction.
- Forecast free allocation over 2021–25 is 44 million NZUs.

Context

Some NZUs are currently freely allocated to the market through industrial allocation and negotiated greenhouse agreements. Free allocation is the provision of NZUs to firms that are trade exposed and carry out eligible industrial activities. The purpose of industrial allocation is to reduce the risk of emissions leakage.

Emissions leakage could occur if New Zealand businesses were to lose market share or shift overseas as a result of emissions pricing in New Zealand. It is an important consideration because of its potential economic and employment impacts, as well as the risk that it would increase total global emissions due to production moving to countries with laxer emissions constraints and lower emissions efficiency.

Free allocation within the NZ ETS is currently provided on an output basis, meaning it adjusts with firms' production levels. Decisions about free allocation and how it is determined are provided under Part 4, Subpart 2 in the Climate Change Response Act.

Industrial allocation

There are 26 activities eligible for industrial allocation because they are both emissions-intensive and trade-exposed (EITE). Ten are highly emissions-intensive and receive an allocation equivalent to 90 per cent of their exposure to NZ ETS costs.¹² Sixteen other activities are moderately emissions-intensive and receive a level of assistance of 60 per cent.

¹² These activities include some very large emitters; in particular, steel, aluminium and methanol production. Nearly 95 per cent of the units allocated each year go to highly emissions-intensive industries.

The Emissions Trading Reform Bill proposes that industrial allocation will begin to phase-down from 2021. The minimum and activity-specific phase-down rates will work as follows.

- A minimum phase-down rate for all eligible industrial activities will be set as an annual reduction of 1 per cent in levels of allocation each year from 2021–30, increasing to 2 per cent for the years 2031–40 and 3 per cent for the years 2041–50.
- A legislated process will enable the Minister for Climate Change to apply higher phase-down rates for industrial activities that are at low risk of emissions leakage, based on advice from the Commission.¹³

Negotiated greenhouse agreement

The Crown has one negotiated greenhouse agreement with Refining NZ. Under this agreement the firm receives full exemption from emissions surrender obligations in the NZ ETS and receives NZUs for indirect costs that it incurs from the NZ ETS, in exchange for reducing emissions intensity to world's best practice levels.

The negotiated greenhouse agreement between the Government and Refining NZ is set to end in 2022.

Determination

The volume of NZUs forecast to be allocated per year through industrial allocation and negotiated greenhouse agreements will be removed from the volume of NZUs available to auction and set aside for the purpose of protecting the competitiveness of emissions-intensive trade-exposed participants.

The current forecast volume is for 44 million NZUs to be freely allocated over the period 2021–25. The forecasts for free allocation over 2021–25 were determined using a combination of an individual assessment of the likely emissions projections for the largest four emitters,¹⁴ and 1 per cent growth in emissions for the remaining aggregated businesses based on estimated increases in production levels. The projections include the phase-down rate of 1 per cent per year, beginning in 2021, but do not include a change to the electricity allocation factor (EAF) that the Government is currently reviewing.

The EAF is an important component of the allocation rates to eligible industrial activities. It estimates the future impact of the NZ ETS on the costs of consuming electricity after modelling electricity demand, supply-side changes, and fuel costs. Any reduction in the electricity allocation factor would reduce allocations thereby increasing the number of NZUs available for auction.

The significant impact that the accuracy of free allocation forecasts may have on NZUs available to auction means it will be important to review the accuracy of forecasts and make updates based on any unforeseen changes to the market.

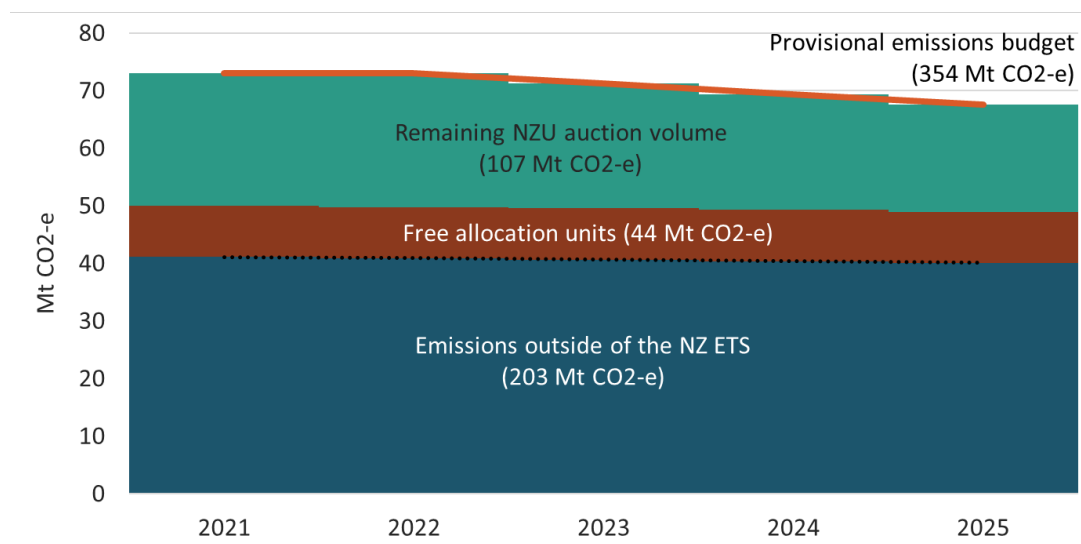
Table 5 shows the forecast volumes per year, and figure 10 shows how this volume fits within the overall provisional emissions budget and unit allocation.

¹³ The Commission will not be able to recommend a minimum phase-down rate less than 1 per cent up to 2040 or less than 2 per cent from 2041–50.

¹⁴ New Zealand Steel, New Zealand Aluminium Smelter, Methanex and Refining NZ.

Table 5: Current projections for free allocation volumes¹⁵

	2021	2022	2023	2024	2025	TOTAL
Projected free allocation (million NZUs)	8.8	8.8	8.9	8.9	8.8	44

Figure 10: Remaining NZU auction volume after removal of free allocation

Step 4: Set the unit oversupply reduction volumes

SUMMARY

- There is currently an oversupply of NZUs within the NZ ETS.
- 132 million NZUs are currently held within NZ ETS participant accounts.
- The policy decision on how to address the reduction of the stockpile will have flow-on impacts to the price of NZUs, and whether emissions budgets will be met.
- The Government proposes that the stockpile is initially addressed by reducing the number of NZUs that go onto the NZ ETS market via auctioning.
- Over the period 2021–25, the Government proposes to reduce auction volumes by 27 million NZUs

Context

NZ ETS account holders are able to ‘bank’ NZUs in their accounts. This ability to bank is a valuable feature to help reduce price volatility, ensure the NZU price is forward-looking, and support participants to manage their future liabilities. For these reasons, all emissions trading schemes in the world allow banking.

¹⁵ Projections include Refining NZ negotiated greenhouse agreement volumes from 2020–22 and industrial allocation after it enters the NZ ETS in 2023 when its negotiated greenhouse agreement with the Government ends.

Previous settings within the NZ ETS have led to considerably more NZUs accumulating in private accounts than is needed for participants to meet their obligations. This has resulted in an oversupplied scheme with a large 'stockpile' of NZUs. The main factor that contributed to building the stockpile was when the NZ ETS was fully open to international markets under the Kyoto Protocol and participants were able to purchase and surrender an unlimited volume of international emissions units at a lower cost than NZUs. Participants were then able to use these international units to meet their obligations and bank any NZUs they earned through forestry or free allocation. The NZ ETS was subsequently closed to international units in 2015.

Use of the \$25 fixed price option in 2019 has also contributed to the expansion of the NZU stockpile. The fixed price option gives participants the choice of meeting their obligations by paying cash directly to the Crown in place of surrendering NZUs. This becomes a viable option when the NZU market price reaches this level, which occurred in September 2018. Use of the fixed price option means that while NZUs are entering the scheme through free allocation and forestry, they are not subsequently being removed through unit surrenders, causing the stockpile of NZUs to increase.

The volume of NZUs held within NZ ETS accounts (as of June 2019) was 132 million.

The volume of 132 million NZUs is approximately four times the number of NZUs surrendered in 2019. The large stockpile has the potential to limit the effectiveness of the NZ ETS in supporting New Zealand to meet its climate change targets. This is because:

- participants will be able to use currently stockpiled NZUs to meet their future surrender obligations; however, stockpiled NZUs are not included in emissions budgets and will not contribute towards meeting future emissions reduction targets
- surplus NZUs may dampen the price to a level that is not sufficient to incentivise effective emissions reductions.

The stockpile also represents fiscal costs to the Government. This is because:

- the Government will receive less cash revenue from auctioning NZUs because to account for reduction of the stockpile there will be fewer NZUs available to auction from within the NZ ETS cap
- any impact that the stockpile has on reducing the ability of the NZ ETS to meet emissions reduction targets will increase the likelihood of imposing costs associated with needing to source additional emissions abatement to ensure targets are met.

NZUs within the stockpile can be held for a variety of purposes across different sectors. To judge the appropriate level for the NZ ETS stockpile, it is important to understand the different purposes for which NZUs may be held. This is challenging, as there is limited information available about the volume of units in specific NZ ETS participants' accounts, or intentions for their unit holdings, due to commercial confidentiality. However, it is possible to provide a high level break-down of potential different reasons why people may hold NZUs.

Table 6 shows the current stockpile of privately held NZUs within the NZ ETS, broken down by three basic categories of holder.

Table 6: NZUs in the NZ ETS stockpile

Category	Total NZU holdings as at 30 June 2019 (million)
Post-1989 forestry participants	51 (39%)
Non-forestry participants	27 (20%)
No direct surrender obligations	54 (41%)
Total	132¹⁶

Post-1989 forestry participants have earned NZUs through growing forests but face a substantial obligation if the forest is harvested, meaning that the majority of NZUs held will not be able to be freely sold unless they decide to permanently forgo harvesting the land. Therefore, these NZUs are legitimately required to be held within the NZ ETS stockpile.

Non-forestry participants cover the liquid fossil fuels, stationary energy, industrial processes and waste sectors, which carry out activities covered by the NZ ETS and are required to surrender NZUs to cover their emissions. Some emitters will pre-purchase NZUs at the same time as they fix their prices with their customers to manage their NZU price risk. This is referred to as hedging. The extent to which NZ ETS participants engage in such hedging activities will vary both by sector and company, but it can vary from hedging 6 months to up to 3 years in advance.

No direct surrender obligations are NZUs held by individuals or organisations who are not mandatory participants in the NZ ETS and includes foresters who received pre-1990 unit allocations. These NZUs are not specifically held for purposes of meeting future surrender obligations.¹⁷ Therefore, these NZUs are able to be traded on the secondary market to participants needing to purchase NZUs.

Proposal

The objective of reducing the NZ ETS stockpile is to reach a level that is effective for the long-term functioning of the NZ ETS and supports New Zealand to meet its emissions reduction targets.

The policy decision on how to address the current NZ ETS unit stockpile will have flow-on impacts to the price of NZUs and whether required emissions reductions to meet emissions budgets are met.

The Government proposes to reduce the annual volume of NZUs available by auction to require participants to use NZUs from the stockpile to meet their obligations. The Government proposes to reduce the stockpile by approximately 54 million surplus NZUs by 2030 through a steady reduction in the number of NZUs available for auction annually. **Over the 2021–25 period this results in a removal of 27 million NZUs from total auction volumes.**¹⁸

¹⁶ The total overall stockpile figure is likely to increase if there is high use of the fixed price option in 2020. For example, if the fixed price option is used to meet 80 per cent of surrender obligations, the stockpile would grow to approximately 138 million units.

¹⁷ Unless P90 foresters choose to permanently deforest land.

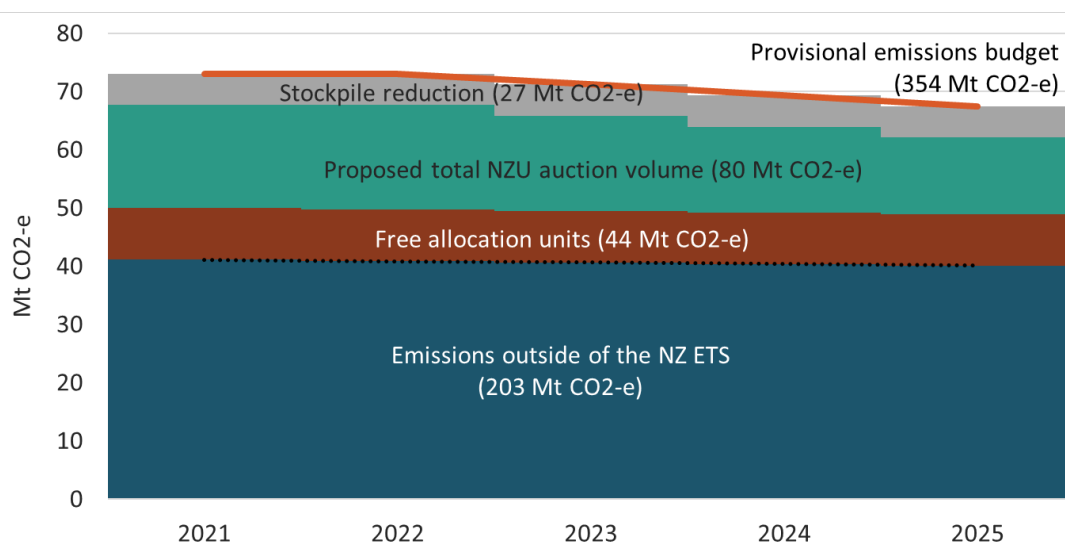
¹⁸ A reduction in NZUs available for auction due to reduce the stockpile will not occur in 2020, as auctioning will only begin at the end of the year with a comparatively small volume.

Table 7 shows the annual unit volume that will be removed from auction supply and figure 11 shows how stockpile adjustment fits within the overall provisional emissions budget.

Table 7: Annual NZUs removed from auction to reduce the stockpile

	2021	2022	2023	2024	2025	Total
Stockpile adjustment volume (million NZUs)	5.4	5.4	5.4	5.4	5.4	27

Figure 11: Auction volumes after stockpile adjustment



Considerations and impacts

When assessing the issue of unit oversupply in the NZ ETS, the key considerations made were about:

- stable and predictable price development
- the ability of the NZU price to reflect emissions abatement
- Crown finances, both for the cash received through NZU auction revenue and the future fiscal risks associated with a large stockpile.

Other options on addressing the unit oversupply include:

- having no specific stockpile reduction policy
- removing NZUs available from auction more slowly than proposed
- removing NZUs available from auction more quickly than proposed
- not removing NZUs available from auction, but using other policy measures, for example, putting a time limit on the use of NZUs.

The Government has proposed removing 27 million NZUs from auction volume by 2025 for several reasons. First, targeting the same volume as held by individuals or businesses with no direct surrender obligations provides assurance that these NZUs are available to be sold.

Although there is also a surplus of NZUs held amongst participants that do have future surrender obligations (ie, many participants may hold enough NZUs to cover their surrender obligations for multiple years in advance), it is more challenging to target a specific volume to

be reduced within this category due to the different sector and business hedging practices and the commercially confidential nature of this information.

Targeting the volume related to holdings with no direct surrender obligations balances the need to reduce the stockpile with the need to provide the market with a large enough volume of auction NZUs to allow for market predictability and stability.

The Government has proposed to target the volume relating to participants with no direct surrender obligations over 10 years, as opposed to five, is related to the fact that larger and more immediate reductions in the NZUs available to auction could give current unit holders too much control over the supply and price of NZUs, as well as limiting the Government's revenue from NZU auctioning. The reduction period of 10 years allows for greater flexibility in regard to future adjustments that need to be made to react to any unexpected market trends that occur under the new auctioning structure.

QUESTIONS

4. Do you agree with the proposal to address the NZ ETS unit stockpile by reducing the annual volume of NZUs available for auction? If not, why not?
5. Do you agree with 27 million NZUs being removed from auction volume between 2021–25? If not, why not?

Step 5: Set the international unit limits

SUMMARY

- The NZ ETS is not currently able to access additional emissions units through international carbon markets; however, the Government is committed to keeping this option open for the future.
- The limit on the volume of international units that can be used in the NZ ETS over the 2021–25 period will be set at zero.
- This limit could be revisited under certain circumstances, including if there is a decision for New Zealand to access international carbon markets.

Context

Although the NZ ETS is currently closed to international carbon markets, it is important that the Emissions Trading Reform Bill and NZ ETS settings take into account how international units would be included in the scheme if it were to reopen to international carbon markets in future.

Decisions on New Zealand's domestic emissions pathway towards our Zero Carbon Act targets will influence the extent to which New Zealand may use offshore mitigation towards meeting its climate change targets in the future. If the NZ ETS is reopened to international carbon markets, access for participants will be different than from under the Kyoto Protocol. In the past, the NZ ETS was uncapped, and participants were able to purchase unlimited volumes of Kyoto Protocol units. Because there is currently no single, centralised market established

under the Paris Agreement, the Government would determine which international units might be appropriate for use in the NZ ETS, and the circumstances for their use.

International carbon markets in the Paris Agreement

Article 6 of the Paris Agreement is about the many ways countries can cooperate to reduce emissions and increase climate change action. Examples of this cooperative action include:

- emissions trading schemes which link to each other
- project based mechanisms which could provide crediting to other countries
- a specific mechanism established by the Paris Agreement (but which is not yet operational).

The Paris Agreement changes the context within which international carbon markets operate. Any trade of emissions reductions that may be used towards countries' targets must have environmental integrity, be accounted for (and not double counted), and be authorised by the countries involved. International units may come from either bilateral or regional arrangements, or from a central United Nations mechanism.

As long as emission reductions are real and have environmental integrity, it does not matter to the global climate where in the world they happen. World Bank analysis shows that by the middle of the century, cooperation between countries through international carbon markets has the potential to reduce global mitigation costs by more than 50 per cent (meaning that more action can be taken for the same cost), and this cost reduction could help the world to meet the 1.5 degree goal.

However, purchasing international units could delay the domestic transition. Governments face choices about whether to invest in emissions reductions at home or overseas.

The Government is involved in international efforts to ensure the environmental integrity of international carbon markets in the future. This includes supporting a strong and effective United Nations Framework Convention on Climate Change rules, providing leadership to the 'Ministerial Declaration on Carbon Markets', and a range of other initiatives.

Problems from previous use of international units in the NZ ETS

The Government has learned from previous experiences engaging in international markets created by the Kyoto Protocol. These shape how we would cooperate with other countries to reduce emissions under the Paris Agreement.

Under the Kyoto Protocol, the NZ ETS was fully integrated into international carbon markets. Full openness resulted in some undesirable consequences on the NZ ETS. The price in the NZ ETS dropped significantly due to the oversupply of low-cost units, reducing the incentive for participants to reduce their own domestic emissions. There were also issues with the environmental integrity of some units and whether they accurately represented genuine emissions abatement.

This will not be the case in future, as there would be a volume limit on any use of international units within the NZ ETS, and only units of environmental integrity would be eligible. This limit would allow us to manage the impact of any international use on our domestic market and ensure we retain the incentives to make domestic emissions reductions.

Limiting the volume and controlling the environmental integrity of international units will allow us to ensure any future use of offshore mitigation delivers real environmental benefit and to retain strong incentives for domestic emissions reductions.

Considering future access to international carbon markets

The Government is committed to ambitious climate change action at home and to transitioning the New Zealand economy to low emissions over the coming decades. This is consistent with our commitments under the Paris Agreement.

The Government is working to identify options for accessing international carbon markets if this makes sense in the future.

New Zealand would need to work directly with partners overseas on ways to cooperate under Article 6 of the Paris Agreement to access offshore mitigation for there to be international supply in the NZ ETS. The Government has developed a *Framework for International Carbon Market Cooperation* which outlines how to approach cooperating with potential overseas partners under the Paris Agreement.

The Framework outlines the following considerations:

- the credits and/or units are genuine and have environmental integrity (ie, the emissions reductions are real)
- we will maintain substantive domestic progress towards our transition to our chosen emissions reduction target
- it makes economic sense to use offshore mitigation
- the cooperation would help maintain a steadily rising domestic carbon price so incentives stay in place for domestic reduction options, like forestry.

See <https://www.mfe.govt.nz/sites/default/files/media/Climate%20Change/framework-for-international-carbon-markets-cooperation.docx.pdf> for a full description of the Framework.

Determination

The limit on the volume of international units that can be used in the NZ ETS over the 2021–25 period will be set at zero. This setting reflects the fact that the NZ ETS is currently closed to international carbon markets. This limit could be revisited under certain circumstances, including if there is a decision for New Zealand to access international carbon markets.

If a decision were made to open the NZ ETS to international markets, only international units approved by the Government could be eligible for use under the NZ ETS. Any international units used would be required to meet high standards of environmental integrity.

In this context, environmental integrity means that units represent emissions reductions and removals that:

- originate from outside New Zealand
- are expressed as a quantity of CO₂-e
- are robustly accounted for to ensure, among other things, double counting is avoided
- represent an actual additional, measurable reduction or removal of an amount of CO₂-e (eg, when units come from baseline and credit programmes) or are an emissions trading scheme allowance (eg, when units come from emissions trading schemes with biting caps).

The level of the volume limit on international units would take into account the emissions abatement required to help meet New Zealand's Paris Agreement Contribution compared with the domestic emissions abatement that will be necessary to meet the emissions reduction targets set by the Zero Carbon Act.

In effect, the international unit limit would reflect the additional emissions abatement required above the emissions budget to meet New Zealand's Paris Agreement Contribution. This would ensure New Zealand remains on track to transition to a low-emissions economy by 2050. This is also intended to provide a tool to manage risks we have previously experienced through the unlimited use of international units under the Kyoto Protocol.

There are two modes through which international units could be made available to NZ ETS participants. The Government already has powers in the NZ ETS legislation to enable and limit both modes. Access could occur:

- directly, through market participants purchasing, trading and surrendering international units themselves from approved sources
- indirectly, through the Government purchasing international emissions reductions and auctioning corresponding NZUs.

We expect to seek views on the feasibility or practicality of the above modes of access, as well as considerations on the environmental integrity of international units, in late 2020 at the earliest.

Step 6: Calculate the remaining available annual auction volumes

SUMMARY

- The Government proposes auctioning a limited volume of 2 million NZUs at the end of 2020 as a preliminary trial for auctioning before the full programme begins in 2021.
- The Government proposes an overall auction volume of 80 million NZUs is auctioned over the provisional emissions budget period of 2021–25.

Context

The final step in reaching the proposed unit supply volume is to combine all the previous considerations into a final calculation to reach the remaining annual NZU auction volumes.

Because there will be no NZUs available for purchase by auction for the majority of 2020, the fixed price option will be required to remain in place for 2020 emissions. This is to ensure participants will be able to meet their surrender obligations, despite not having the ability to purchase NZUs at auction throughout the year. Although NZUs would technically be available to purchase through the secondary market from participants already holding NZUs within their accounts, this creates the risk that these participants could have significant control over NZU supply and price for 2020 emissions surrenders. Further discussion about availability and price of the fixed price option in 2021 is discussed in [section 4](#) on price controls.

An appropriate volume of NZUs available via auction aims to:

- drive sufficient abatement to align our emissions trajectory with our agreed national targets
- reduce the stockpile of NZUs
- avoid sudden price jumps or other shocks to the NZ ETS.

Proposal

The Government proposes making 2 million NZUs available for auction in 2020. Auctioning 2 million NZUs in 2020 will act as a test-run to assure market participants that the auction platform is working properly. This auction volume will help prepare both the auction platform and participants for the larger auction volumes that will become available in 2021.

Table 8 shows the calculation steps taken to reach the proposed total NZU auction volumes over the period 2021–25 that have previously described in this section.

Table 8: Calculations to reaching unit supply proposal over 2021–25

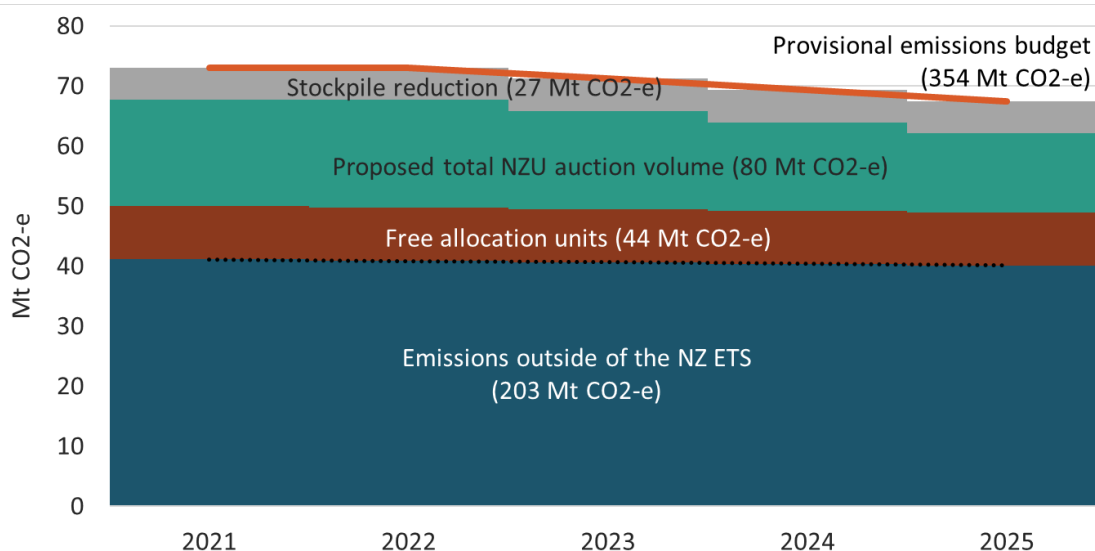
Description	2021–25 volume (Mt CO ₂ -e/million NZUs)
Proposed provisional emissions budget volume for 2021–25	354
1. Limit on emissions covered by the NZ ETS cap (excluding NZUs for removals)	151
<ul style="list-style-type: none"> – Remove the forecast volume of emissions not covered by the NZ ETS from the proposed provisional emissions budget. This includes emissions: <ul style="list-style-type: none"> – outside NZ ETS – facing an equivalent carbon price. 	$354 - 203 = 151$
2. Make technical adjustments to account for:	$151 - 0 = 151$
<ul style="list-style-type: none"> – emissions where the NZ ETS participant has been non-compliant or accounts have closed – voluntary offsetting – differences in accounting internationally and within the NZ ETS – uncertainty in projections 	
3. Proposed volume remaining covered by the NZ ETS after removing free allocation	107
Calculate free allocation volume projections and remove from total emissions covered by the NZ ETS	$151 - 44 = 107$
4. Proposed volume remaining after accounting for unit removal to reduce the stockpile	80
Calculate volume of required stockpile reduction and remove from volume remaining after removing free allocation	$107 - 27 = 80$
5. Set the proposed international unit limit	$80 + 0 = 80$
6. 2020 auctioning trial volume	2
Total proposed auction volume (2020–25)	82

Table 9 shows the annual results of these calculations, and figure 12 shows how these volumes fit within the overall provisional emissions budget.

Table 9: Proposed annual auction volumes (2020–25)

	2020	2021	2022	2023	2024	2025	TOTAL
Final proposed auction volumes (million NZUs)	2.0 (auction trial volume)	17.6	17.9	16.3	14.7	13.2	82

Figure 12: Proposed NZU auction volume over the provisional emissions budget period



QUESTIONS

- Do you agree with the steps and calculations taken to reach the proposed annual auction volumes?
- Do you support the proposal to auction 80 million NZUs over the 2021–25 period plus 2 million NZUs for auctioning trial in 2020? If not, why not? Please include your views on the process for adjusting auction volumes.

Section 4: Price controls

SUMMARY

- Price controls provide the mechanism to address the risks associated with emissions budgets being set too high or too low.
- To avoid unacceptably low or high NZU prices, price controls are complemented by the current NZ ETS stockpile and the ability to review price controls if the price floor or ceiling are reached

Context

The level of the provisional emissions budget for 2021 to 2025 has been set by considering the best way to transition from our current level of emissions onto a trajectory towards the 2050 target set by the Zero Carbon Act. There are significant uncertainties involved in projecting both future business as usual emissions, and the costs of different levels of abatement. It is therefore possible the volume of additional abatement required to meet this provisional emissions budget is higher or lower than expected.

If the required level of emissions reductions over this period is less than expected, NZ ETS prices in the near term may be too low, with flow-on consequences of potentially greater costs in the future such as:

- paying for international units to meet our climate change targets at a higher cost than could have been achieved with early domestic abatement
- having to undertake costly investments later to try and rapidly reduce our emissions to get back on track for our 2050 target.

If the required level of abatement over this period is higher than expected, NZ ETS prices may be too high. This could lead to economic costs in terms of undertaking inefficiently accelerated investments in low emissions technologies, rather than undertaking such investments more cost-effectively over a longer time period (eg, replacing emissions-intensive technologies as they more naturally reach the end of their economic life or as low emissions technologies come down further in cost).

To address this risk of the provisional emissions budget being too low or high, the Emissions Trading Reform Bill sets out revised legislation for determining *price controls* within the NZ ETS. Price controls provide the Government with mechanisms to help manage unacceptably low or high prices in the NZ ETS. All international emissions trading schemes currently include some price control features.

The price control mechanisms can be thought of as ‘safety valves’ to manage the risk of the provisional emissions budget being set too low or too high. They are complemented by two other aspects of the NZ ETS which also act as a safety valve:

1. the significant quantity of stockpiled NZUs which will reduce the potential adverse effects of a provisional emissions budget whose required levels of abatement is too high

2. the review mechanisms set out in Section 30 of the Emissions Trading Reform Bill, which allows the Minister to review previously announced volumes of NZUs available by auction if the cost containment reserve trigger price reach and the reserve volume is released, or sale of NZUs at auction reaches the price floor.

Setting price controls in advance also provides a secondary function by signalling to the market expectations of future emissions prices. The price floor and ceiling help develop businesses' long-term expectations of the costs of their emitting activities to better inform their investment decisions and business planning.

Once the Commission is established, it will provide advice to the Government in early 2021 on the expected emissions price pathway required to meet the emissions budgets, which may lead to changes to the proposed price floor and ceiling.

The role of the initial price control regulations is to provide a preliminary pathway to clarify the boundaries of the NZU price over the period 2020–25 to allow for more immediate planning and investment action to reduce emissions among businesses.

This section discusses proposals to enable price control regulations through the NZ ETS unit auctioning system, and removal of the current price ceiling mechanism legislation.

Price floor

SUMMARY

- The Government proposes to introduce a NZU price floor that will work by placing a reserve price below which NZUs will not be sold at auction.
- The Government proposes that the auction reserve price floor be \$20 for the period 2020 to 2025.
- The price floor may change following advice from the Commission in early 2021.

Context

The NZ ETS has not previously had a price floor mechanism. Low NZU prices have been a problem in the past, mainly due to the unlimited volume of international units that participants were previously able to use to meet their obligations. In response to the review of the NZ ETS in 2015, the Government determined that the most effective way to deal with this issue was to limit the use of international units if the NZ ETS reopens to international carbon markets in the future.

Since restrictions were placed on the use of international units in 2015, NZU prices have increased from the very low levels previously seen. Figure 13 shows the lowest NZU price of \$1.45 in February 2013 and the more recent levelling of the NZU price at around \$25 since September 2018.

Figure 13: Historical NZU prices



During previous consultations, submitters noted that a lack of confidence in the NZ ETS has impacted decisions to invest in low-emissions technologies and practices, including afforestation. Although the Government considers the root cause of this issue has been addressed through decisions to limit international units, this may not fully address residual issues that compromise confidence in the scheme in the future.

Proposal

The Government proposes initially setting an auction reserve price floor trigger of \$20 for the period 2020–25. This is the proposed minimum price at which the Government will sell NZUs at auction. Participants will be able to trade NZUs on the secondary market for lower than this price if they choose to do so.

Considerations and impacts

The key considerations made when proposing the price floor relate to:

- providing assurance to investors of the minimum cost of being involved in the NZ ETS and the minimum revenue to be earned through forestry
- ensuring the Government does not incur financial losses by selling NZUs significantly below their long-term value.

Assurance to investors

An auction reserve price floor allows investors to plan for future emissions costs and/or assess the potential revenue from emissions removals.

Businesses wanting to decrease costs related to emissions pricing can use the price floor as a basis for calculating the likely minimum costs of NZ ETS compliance and assessing potential investments in low-emissions technologies or practices.

The price floor also can provide investors in forestry an indication of the minimum forecast revenue to be earned by investing in new forest planting.

Government revenue and fiscal risks

A price floor ensures that the Government will not be obliged to sell NZUs at auction for less than the specified price floor value. This protects the Government from making longer-term financial losses by selling NZUs for less than the potential cost to the Crown of issuing these permits.

One key metric for determining an appropriate floor level is the likely future level of international emissions prices by 2030, given that New Zealand might participate in international carbon markets in future, which could involve the purchase (or sale) of such units as other countries seek to meet their own Paris Agreement Contributions. If it were the Government (rather than NZ ETS participants themselves) that was the purchaser of these units, then choices about the auction floor price have important fiscal implications.

If the Government were to sell NZUs at auction during 2020–25 for less than their expected future value, this could result in the Government locking-in expected losses if it then needed to purchase higher-priced international units in the future. While it is hard to project future carbon prices, figure 14 below indicates that international emissions prices have been trending upwards, and the current average of four large international markets shown is approximately NZ\$30 per tonne.

QUESTION

8. Do you agree with the proposal to set an auction reserve price floor at \$20 for the period 2020–25? If not, why not?

Price ceiling

SUMMARY

- The Government proposes to implement a new price ceiling mechanism known as a cost containment reserve.
- The reserve works by releasing an additional number of NZUs onto the market if a specified ‘price trigger’ is reached at auction.
- The Government proposes setting a trigger price of \$50 for 2020 to 2025.
- The trigger price may change following advice from the Commission in early 2021.
- As an interim measure, the Government proposes amending legislation to increase the fixed price option from \$25 to \$35 for surrender obligations arising from 2020 activities.

Context

The NZ ETS currently uses a price ceiling mechanism called the fixed price option. The fixed price option allows participants to pay a specified amount of money directly to the Government as an alternative to purchasing and surrendering NZUs. This provides participants with a guaranteed maximum compliance cost, and effectively places a limit on the value of an NZU (although they can still be sold and purchased on the secondary market at any price). Purchase of the fixed price option is currently set at \$25, and there is no volume limit on

its use. The \$25 fixed price option is available for 2019 emissions surrender obligations due in 2020.

Replacing the fixed price option with a cost containment reserve mechanism proposed within the Emissions Trading Reform Bill, will provide the Government with increased control over the volume of NZUs available to the market whilst reducing the risk that prices in the NZ ETS will reach an unacceptably high level. If there was no price ceiling control and NZU prices reached an unacceptably high level, there could be strong pressure on the Government to make other ad hoc interventions in the market. Ad hoc interventions could damage the credibility of the scheme and have a negative impact on regulatory predictability.

A cost containment reserve works by releasing a specified volume of additional NZUs (the reserve) onto the emissions trading scheme market if a pre-determined price trigger level is reached during an auction. The cost containment reserve price trigger level should be set outside the expected cost of emissions abatement for meeting our targets, and should therefore be used rarely, if at all. The price trigger signals the upper extreme of expected and acceptable prices in the NZ ETS, but it should not be the key driver for the market price, which will be ultimately determined by unit supply and demand.

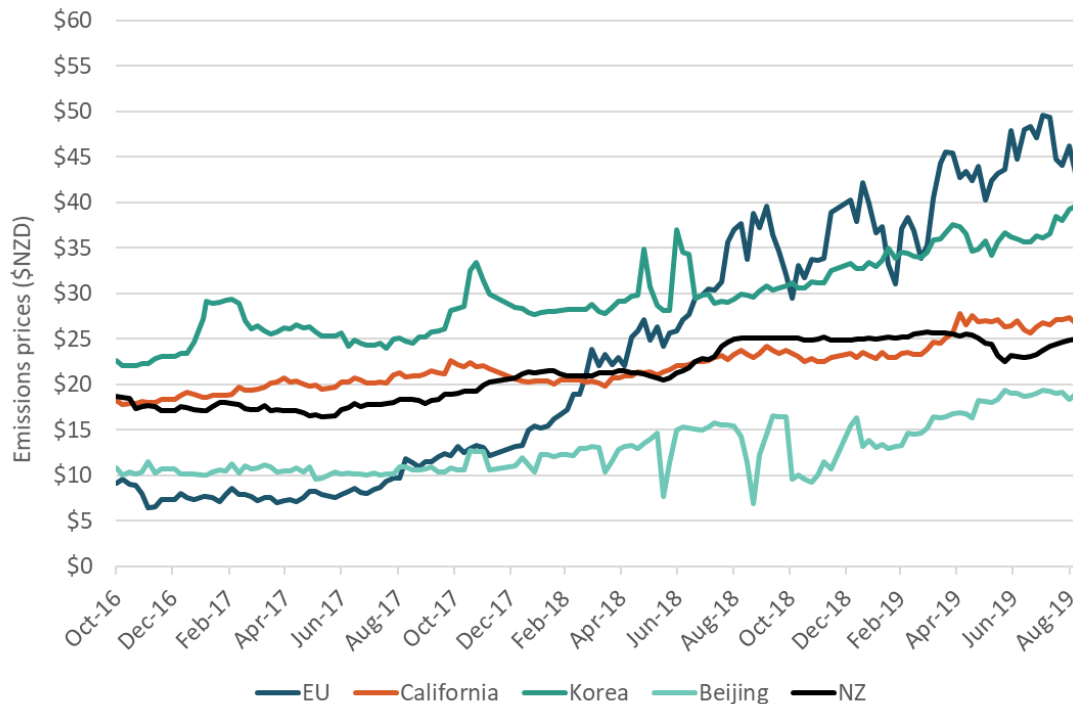
International carbon markets have seen significant growth in emissions prices over the past three years.

Figure 14 shows trends in international ETS markets over the past three years. Average annual growth in prices since 2016 across the European Union, California, Korea and Beijing emissions trading schemes have been approximately 37 per cent. This is consistent with a growing number of studies that indicate international carbon prices likely need to rise significantly above current levels within the next 10 to 15 years to bring forward sufficient emissions abatement options to meet the 1.5°C warming target.¹⁹

However, the longer-term outlook for prices in these markets is challenging to forecast and is influenced by many factors, such as the availability of abatement options, economic growth, and climate policy choices.

¹⁹ Studies include: Carbon Pricing Leadership Coalition. (2017). *Report of the High-Level Commission on Carbon Prices* and IPCC. (2018). *Special Report on Global Warming of 1.5 °C*.

Figure 14: Historical price trends in international emissions prices



Proposal

The Government proposes that legislation within the Climate Change Response Act is amended by the Emissions Trading Reform Bill to raise the fixed price option from \$25 to \$35 for surrender obligations arising from activities over the calendar year 2020. Most of its use will occur towards the end of May 2021 when annual surrender obligations are due, although it may be used earlier to meet other surrender obligations.

The Government proposes setting a cost containment reserve trigger price of \$50 for auctions in 2020-25, as shown in table 10.²⁰

Without this proposed legislation change, there will be market risks of imbalance and cost uncertainty for NZ ETS participants that would otherwise exist in 2020. The only certain source of NZU supply would be the secondary market, giving a strong incentive for sellers to limit liquidity and force prices higher. There will be a limited supply of NZUs auctioned in 2020 (due to the relatively small volume in the first 'system test' auction), and this auction is currently planned for the end of the year. Once auctions are running, this supply pressure will ease, and the market will improve its stability.

There will be a period in 2020 where both the fixed price option and auctions co-exist, meaning it is unlikely the cost containment reserve will operate as a price ceiling in that time. The use of the fixed price option makes achieving emissions budgets more difficult, as it is an unpredictable form of supply and prevents reductions in the stockpile. Alternatives to the extending and increasing the fixed price option have been considered, including lowering the cost containment reserve trigger price for 2020 and permitting only a portion of surrender obligations to use the fixed price option. The former will not resolve the problem as

²⁰ The cost containment reserve price ceiling is very unlikely to be used in 2020, as the fixed price option will still be in place as the price ceiling mechanism.

the auction platform will not be ready for use for almost all of 2020, even if the cost containment reserve trigger price is hit. The latter could partially reduce market instability and cost certainty risks, particularly if the fixed price option rate is raised to \$35.

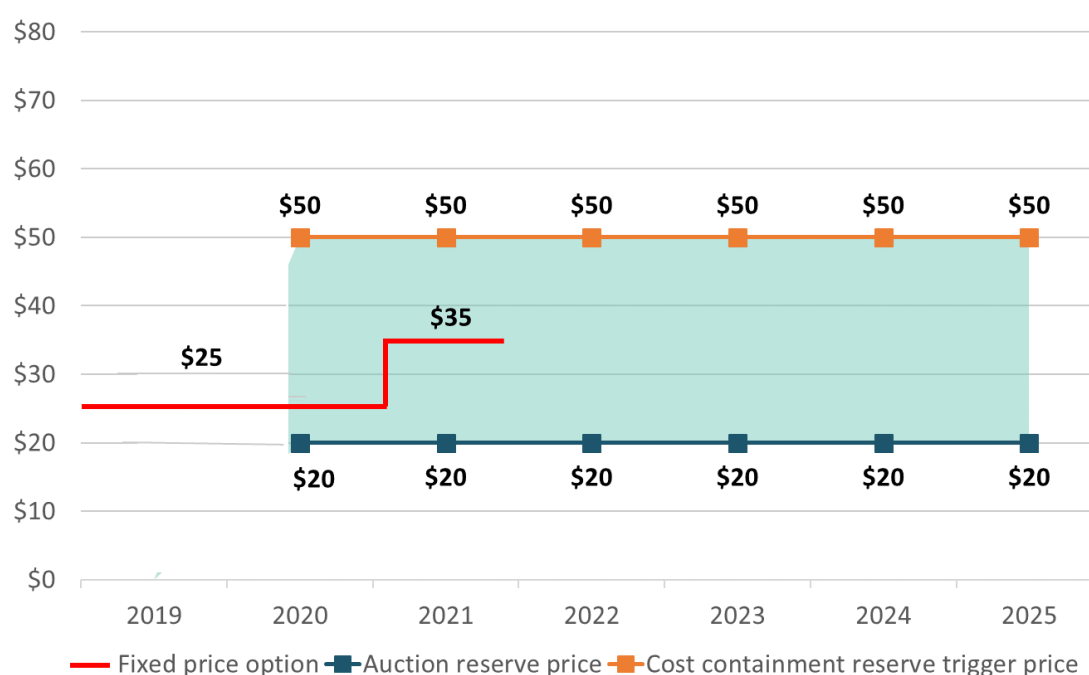
On balance, the use of the fixed price option at \$35 is the preferred approach due to the need to transition the NZ ETS market as smoothly as possible to the new settings and to minimise the significant risks noted above.

Table 10: Proposed price ceiling settings

Year	2020	2021	2022	2023	2024	2025
Fixed price option (for emissions from the previous calendar year)	\$25	\$35	n/a	n/a	n/a	n/a
Cost containment reserve trigger price (for auctions held within that calendar year)	\$50	\$50	\$50	\$50	\$50	\$50

Figure 15 shows the potential range of NZU prices that will be available for purchase from the Government over the next six years, within the provisional emissions budget.

Figure 15: Range of the potential provisional emissions budget period NZU price path



It is important to remember that the proposed trigger prices do not represent what the Government expects the NZU auction price to rise to.

The cost containment reserve trigger prices are set above what NZU prices are expected to reach, with an aim of not being reached and needing to release additional NZUs. Releasing cost containment reserve unit volumes involves a significant cost to the Crown due to the requirement to find additional genuine emissions abatement with which to 'back' the NZUs, and an entire review of all NZ ETS settings.

The trigger price is set as a back-up mechanism to ensure NZU prices do not reach a level that would have a severe negative impact on households and the economy.

The large stockpile of NZUs currently available within the NZ ETS will also work to initially moderate any abrupt increases in price.

In reaching this conclusion that the cost containment reserve prices are unlikely to be triggered, the Government has drawn upon marginal abatement cost (MAC) analysis it has undertaken across all sectors of the economy.

The proposed trigger prices have also been set with reference to international unit prices. This is important to ensure that if international trading were to be initiated, the NZU price would have some parity to international market prices.

When the first full set of emissions budgets are proposed by the Commission and considered by the Government (covering the period 2022–35) a range of longer-term considerations will need to be applied, which may alter this price forecast band.

Considerations

The key considerations the Government has used when making decisions around the proposed price ceiling are:

- the range of acceptable emissions prices that will be required to achieve the required volume of emissions reductions
- impacts of emissions prices on New Zealand households, businesses and the economy. (these are addressed in more detail in [section 5](#))
- the level and trajectory of international prices
- the forecast availability and cost of ways to reduce greenhouse gas emissions that may be needed for New Zealand to meet its targets for the reduction of emissions
- the expectation that the Commission will provide further advice on the medium-term price path in early 2021.

QUESTIONS

9. Do you agree with the proposal to increase the fixed price option to \$35 for obligations arising from activities over 2020?
10. Do you agree with the proposal to set the price ceiling trigger of the cost containment reserve at \$50 for the 2020–25 period? If not, why not?

The cost containment reserve volume

SUMMARY

- The cost containment reserve volume is the amount of additional NZUs to be released once the NZU reaches the trigger price.
- The Government proposes the volume available in the cost containment reserve would be based on 90 per cent of the difference between current forecast net emissions projections and the proposed supply of NZUs into the NZ ETS market.
- The cost containment reserve volume will come from outside of the domestic emissions budget, and will need to be backed by other legitimate equivalent emissions reductions.

Context

After setting the cost containment reserve price trigger, the volume of NZUs available within the cost containment reserve also needs to be set. The available volume of NZUs will affect the cost containment reserve's ability to manage emissions prices. The larger the reserve is, the more NZUs that can be added to the NZ ETS market in response to high NZU prices.

All NZUs within the cost containment reserve must be 'backed'. This means the Government must be able to obtain emissions reductions to match the amount of reserve NZUs that are released. This could be in the form of acquiring approved units from international markets, or by other activities or investments that reduce emissions domestically, such as afforestation. The equivalent emissions reductions must be obtained as soon as reasonably practicable at the end of the emissions budget period. These units will not come from New Zealand's emissions budgets, as this would increase the ambition of the emissions budget.

Proposal

The Government proposes that the annual volume of NZUs held within the cost containment reserve should be equal to 90 per cent of the difference between forecast net emissions covered by the NZ ETS and the volume of NZUs supplied into the scheme through free allocation and auction.

The Government proposes that a reserve of only 1 million NZUs be available for 2020, for when auctioning is implemented at the end of the year.

Figure 16 shows the volume of the proposed cost containment reserve volume in comparison to forecast NZ ETS supply and net emissions. Table 11 shows how this translates to annual volumes.

Figure 16: Cost containment reserve volumes over the provisional emissions budget period

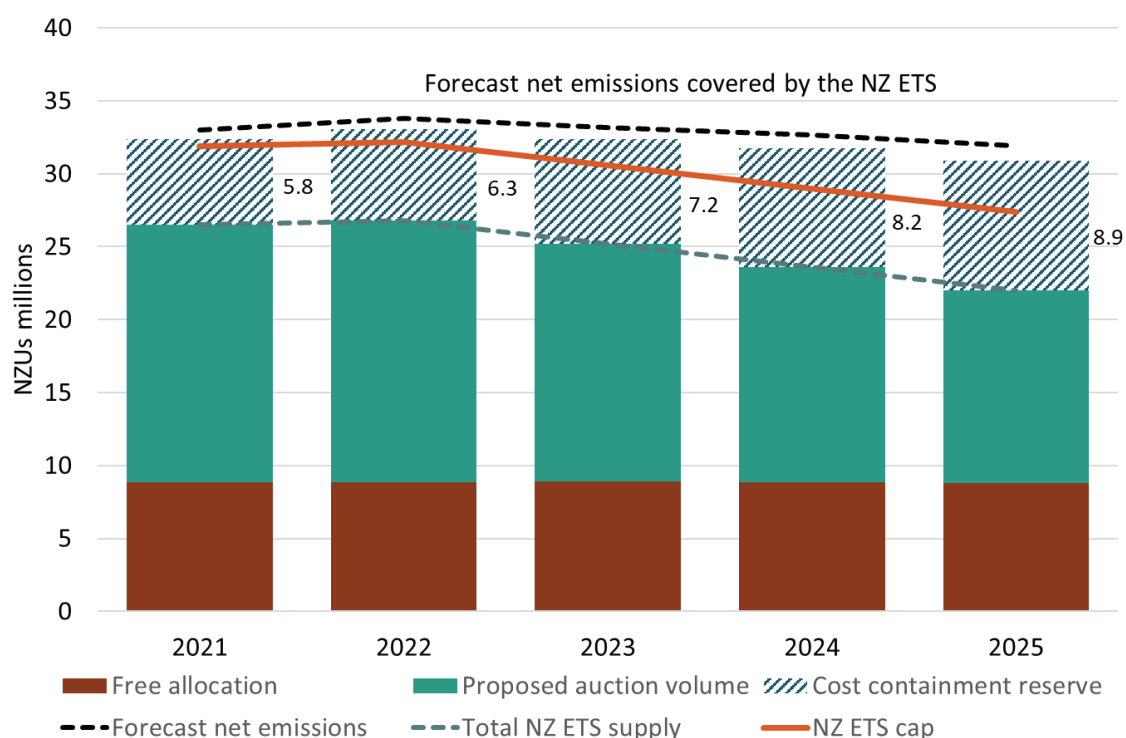


Table 11: Proposed annual cost containment reserve volumes

	2020	2021	2022	2023	2024	2025	TOTAL
Proposed volumes	1.0	5.8	6.3	7.2	8.2	8.9	37.4

Considerations and impacts

There are three key considerations to be made when determining an appropriate volume for the cost containment reserve:

1. **Effectiveness.** Will the volume released to the market be enough to meet demand and reduce pressure on the NZU price?
2. **Fiscal risk.** What financial risk will the Government be exposed to due to the requirement to 'back' all NZUs within the reserve by legitimate emissions reductions?
3. **Contribution to the stockpile.** How will the released volume impact the size of the NZ ETS stockpile and the overall goal for it to be reduced?

The Government considers that the proposal provides an appropriate balance between supplying the market with a sufficient volume to dampen prices if the trigger price were reached, without risk of oversupplying the market with an excess of NZUs that could potentially further increase the stockpile and increase fiscal risks to the Government.

If actual net emissions are lower than currently projected (historically, emissions projections have been more likely to be overestimated than underestimated), putting only 90 per cent of the potential additional demand into the reserve reduces the risk of potentially oversupplying the market. Given the already major oversupply of NZUs within the NZ ETS stockpile, the risk of there not being enough participants willing to sell NZUs to meet annual surrender obligation demands within the first five years is minimal.

It is important to reiterate that the purpose of the cost containment reserve is for it only to be used if prices reach unacceptably high levels, outside of current projections. Therefore, if the price trigger is set at an appropriate level, the reserve should ideally never have to be activated.

The market response to the release of the cost containment reserve is an area that requires particularly careful analysis. Therefore, to inform the final regulation settings made, the Ministry intends to have discussions with a group of industry experts during the consultation period to gain further advice on the potential market implications of releasing different volumes of reserve.

QUESTION

11. Do you agree with the proposed annual cost containment reserve volumes to be released if the price ceiling trigger is hit? If not, why not?

Section 5: Impacts

SUMMARY

- It is important to understand and balance short-term versus long-term impacts of emissions reduction and pricing.
- The short-term impact of an increased emissions price is moderate.
- More immediate increased emissions pricing is likely to result in less impacts on households in the long term.
- Increased emissions pricing is likely to have a minimal effect on businesses due to trade-exposed businesses receiving free allocation, and other businesses being able to pass through a majority of additional costs to consumers.
- Increasing emissions pricing is likely to be a significant driver of land-use change and afforestation.

Context

This section sets out the potential impacts of the proposals on households, businesses, and farmers/land owners. These impacts need to be seen within the broader context of the Zero Carbon Act which has set New Zealand's overall policy objectives and framework, namely:

- transitioning New Zealand's emissions to achieve net-zero emissions by 2050
- the setting of five-year carbon budgets throughout this transition period
- regular review and potential re-setting of carbon budgets by the Climate Change Commission throughout this period.

These high-level objectives and framework have now been agreed by Parliament, and the impacts of them are therefore not the subject for the impact analysis in this consultation document. Rather, the focus of this section is on the potential impacts of the proposals set out in this consultation – that is, the provisional emissions budget and associated price controls through to 2025.²¹

Balancing short-term versus long-term impacts

In addition to the shorter-term impacts of these proposals over the period to 2025, some long-term impacts need to be considered. This is because focussing only on the effect of emissions prices on consumers ignores the broader context of the provisional emissions budget: that is, it has been set as part of the first steps to move our emissions onto a trajectory towards our 2050 target.

²¹ It should be noted the Commission will be required to review the provisional emissions budget and associated settings, and may recommend making changes which will have effect for the latter part of this period – ie, from 2023 to 2025. However, this impacts section assumes that no changes are made.

Thus, while consumers may apparently benefit in the short-term if the provisional emissions budget and associated price controls were set in a way to deliver low emissions prices, the consequences of this may be more costly for New Zealand when measured over the longer term. This is because reducing emissions too slowly early on in this transition to our 2050 target means we:

- may need to purchase international units in the future to meet our climate change targets at a higher cost than could have been achieved with early domestic abatement
- are more likely to need to undertake costly investments later to try to rapidly reduce our emissions to get back on track towards our 2050 target.

Conversely, there is a risk that reducing emissions too quickly could lead to higher economic costs by inefficiently accelerating investments in low emissions technologies, rather than undertaking such investments more cost-effectively over a longer time period. For example, lower transition costs may be achieved by replacing emissions-intensive technologies as they more naturally reach the end of their economic life or as low emissions technologies come down further in cost. In some cases, if reduced New Zealand emissions are achieved through production of goods shifting from New Zealand to more emissions-intensive production facilities in countries which don't impose equivalent emissions prices, this economic cost to New Zealand could even be accompanied by a rise in global emissions.

Short-term impacts on households

A preliminary analysis led by the Treasury in August 2019 investigated the direct impact of emissions pricing on household costs such as energy, transport and food. This study showed that the direct impacts of higher emissions prices on household expenditure was likely to be moderate, on average. This is because a small proportion of household expenditure is typically allocated towards emissions intensive goods such as petrol, and the low coupling between emissions and food costs.

The impact of the proposals are difficult to accurately assess as there is uncertainty about exactly what emissions prices will eventuate within the prescribed upper and lower bounds. Table 12 therefore sets out a range of impacts on households at different emissions prices. If emissions prices were to (for example) rise from \$25 to \$50, this would increase weekly costs for middle income households by \$3.40 (0.3%).

Table 12: Weekly change in household spending based on increases in emissions price²²

Emissions price (NZD per tonne CO ₂ -e)	Quintile 1 (Low income households)	Quintile 2	Quintile 3 (Middle income)	Quintile 4	Quintile 5 (High income households)
\$25	0	0	0	0	0
\$30	0.1% (\$0.40)	0.1% (\$0.50)	0.1% (\$0.70)	0.1% (\$0.70)	0.1% (\$0.80)
\$35	0.2% (\$0.80)	0.1% (\$1.10)	0.1% (\$1.40)	0.1% (\$1.50)	0.1% (\$1.60)
\$40	0.3% (\$1.20)	0.2% (\$1.60)	0.2% (\$2.00)	0.1% (\$2.20)	0.1% (\$2.40)
\$45	0.4% (\$1.60)	0.3% (\$2.10)	0.2% (\$2.70)	0.2% (\$2.90)	0.1% (\$3.20)
\$50	0.4% (\$2.00)	0.3% (\$2.70)	0.3% (\$3.40)	0.2% (\$3.60)	0.2% (\$4.00)
\$75	0.9% (\$4.00)	0.6% (\$5.40)	0.6% (\$6.80)	0.5% (\$7.30)	0.3% (\$8.10)
\$100	1.3% (\$6.00)	1% (\$8.00)	0.9% (\$10.20)	0.7% (\$10.90)	0.5% (\$12.10)

Preliminary analysis only, based on 2013 data, including key assumptions of 100% emissions price pass through, that households will not adjust their level of consumption in response to rising prices, and a \$25 baseline price. Confidence levels are not included in this table for brevity. The Treasury considers the advice given to have moderate reliability and moderate risk. Figures do not include any measures to mitigate impact on households.

The impact of emissions pricing is felt slightly more strongly by the lowest-income households because they spend a greater proportion of their income on emissions intensive goods, even though the absolute level of such consumption tends to be lower. As such, the proportional effect of higher emissions price (in terms of impact on disposable income) will be greater for low-income households in the short-term, even though the absolute dollar effect will be less. With fewer resources, lower income households will have lower ability to change behaviour or invest to reduce their exposure to emissions prices.

However, this analysis does not take account of the impact of the targeted measures the Government is doing to reduce energy costs for the lowest-income households, including the Winter Energy Fuel payment and initiatives to improve energy efficiency in low income households.

More broadly, this modelling did not account for household behaviour changes to reduce emissions, or several things the Government is currently doing, or planning to do, to reduce potential costs, such as making fuel-efficient cars cheaper, supporting home energy efficiency, and reducing the use of fossil fuels for electricity. Therefore, this modelling is likely to overstate the actual cost to all households. This conclusion is supported from evidence from the UK – on which New Zealand's Zero Carbon Act framework is based – which shows that the transition to lower emissions has consistently had lower costs than originally predicted.

It is important to note that the figures in table 12 are national averages of direct impacts and the impact on individual households will vary based on their circumstances. Less reliance on emissions intensive goods such as petrol would lead to decreased impacts, for example. The figures do not consider indirect effects such as employment. For these reasons, the impacts on some households will be higher than indicated in table 12, and on others will be lower.

At the same time, other factors may lead to impacts less than those indicated in table 12. While the Treasury-led analysis did not quantify this effect, it found that additional pressure

²² Equivalised household income boundaries: Quintile 1 (>\$21,417); Quintile 2 (\$21,417-\$30,873); Quintile 3 (\$30,873-\$42,245); Quintile 4 (\$42,245-\$60,790); Quintile 5 (\$60,790+).

on households in the lower-income brackets is likely to be at least partially alleviated by the indexation of benefits, superannuation, and tax credits to inflation (the consumer price index (CPI)) and wage growth.²³ For example, as rising emission prices increase petrol and energy costs, inflation would also rise, and in turn increase CPI-indexed benefits and tax credits.

Longer-term impact of rising emissions prices on households

An increased emissions price will have an impact on the prices paid by households for various goods and services, including petrol, electricity and gas. The previous section outlined the forecast impact of higher emissions prices by looking just at the direct short-term impact of higher emissions prices for consumers using the existing mix of technologies. This type of 'static' analysis, while providing useful insights about the potential magnitude of financial impacts from emissions pricing, doesn't consider the ability of the economy to adopt new technologies or change their behaviour in the longer-term. In this, the emissions prices experienced in the short-term are important drivers of these changes in the long term.

Analysis suggests that there are a number of reasons why the longer-term financial impact of higher emissions prices is likely to be more moderate than suggested by the short-term and static analysis. This is because households and businesses are increasingly able to take advantage of low-emissions alternatives to the current predominantly fossil-based technologies. For example, the broader effects on the cost of transport are likely to be a lot less in the medium- to long-term as electric vehicles ('EVs') are rapidly reducing in cost.

This decrease is to the point where EVs are predicted to be the lower cost option on a total lifetime cost basis for cars and buses at some point in the first half of the next decade (although this does not necessarily mean that buyers will base their purchase decisions on a lifetime cost analysis). The cost and efficiency of electric heat pumps also continues to improve and residential and commercial consumers are increasingly able to switch to these lower-carbon alternatives for meeting their heating needs.

The impact of emissions price rises on electricity prices in the longer-term is also likely to be muted by the ability of the system to build more renewable generation capacity. In addition, even a rapid rise in the price of emissions (and consequently power prices) may not immediately flow through to residential consumers. Power retailers would need to decide how much of any increase in wholesale power prices that they would choose to pass onto their residential customers, most of whom are on fixed-price tariffs.

Perhaps most importantly, the above analysis doesn't take account of the costs to New Zealand of not reducing emissions fast enough. As set out earlier, while households may enjoy lower prices initially from New Zealand not taking action early, they will be worse off in the long-term if this early inaction results in New Zealand having to undertake more costly actions in subsequent decades.

²³ Superannuation is indexed each year to annual average wage growth, and from 1 April 2020 main benefits will shift from annual CPI indexation to annual average wage indexation. While the shift to wage indexation theoretically decouples price increases from transfers, in practice wages tend to grow faster than CPI in New Zealand. The balancing effect of indexation would require ongoing monitoring for effectiveness because CPI and wage growth are also determined by factors additional to emissions prices, may be moderated by monetary policy responses to inflation.

Impacts on businesses

In considering the impacts on businesses, it is important to distinguish between those businesses:

- whose activities are emissions-intensive and which also face competition from overseas producers
- which are not emissions-intensive or don't face competition from overseas producers.

Emissions-intensive, trade-exposed (EITE) businesses receive 90 per cent or 60 per cent of their emissions obligations for free from the Crown, under the Government's industrial allocation policy. This aims to prevent any emissions leakage overseas. The impact of rising emission prices on any single firm will depend on a range of factors including the level of free allocation they receive and the emissions price. In general however, industrial allocation will limit any adverse impact of rising emissions prices on such EITE businesses.

The Government has decided to gradually phase-down the level of industrial allocation, starting with the level of allocation declining by 1 per cent a year from 2021–30. The phase-down rate for industrial allocation over 2031–40 will be 2 per cent a year, and three per cent a year over 2041–50. This phase-down schedule will be subject to regular review to determine whether the rate of phase-down should be reduced or accelerated in order to avoid the risk of emissions leakage.

By definition, non-EITE firms are expected to face far less impact than EITE firms from emissions pricing. In general, such businesses will be able to pass-on a significant proportion of the costs of emissions prices to consumers – thereby giving rise to the impact on New Zealand households outlined in the Treasury analysis above. To the extent there is variation in the emissions-intensity of different firms, those which are most emissions-intensive may suffer a net reduction in profits, while those which are least emissions-intensive could enjoy a net increase in profits. Such a dynamic should also spur investment in low-emissions production, thereby driving down the long-term cost of an emissions price on the New Zealand economy.

Impacts on land use change and forestry

Currently within the NZ ETS all emissions reductions, whether gross reductions or offsets through carbon sequestration from forestry, are treated the same.

Impacts that the emissions price has on land-use change, such as conversion of farm land to forestry, have the potential to be material. The level of sequestration that could be achieved by planting commercial forestry is significant. The most likely changes in the short- to medium-term are the conversion of sheep and beef farming land to forestry.

The scale of such conversions and associated unit supply into the ETS are potentially large in comparison with New Zealand's gross emissions. As such, the price at which conversion to forestry becomes cost-effective could set the emissions price in New Zealand for many years.

This is likely to be true even in the short-term, despite the fact that it takes several years for land that has converted to forestry to start earning NZUs, and the fact that there may be possible initial supply constraints in terms of the ability of the forestry sector to respond to an emissions price and start planting. Despite this likely material delay in terms of additional forestry NZUs starting to enter the New Zealand market, this expectation of a future forestry-

driven emissions price will influence the price at which holders of stockpiled NZUs will be willing to sell their NZUs in the short-term.

Further discussions about impacts on land-use change and the effect of forestry offsets on ETS emissions prices need to take place. The Climate Change Commission has been given a mandate within the development of its emissions budgets to consider the role that forestry should play in helping us to meet our future emissions budgets.

Section 6: Process for the release of NZ ETS settings information

SUMMARY

- Information about NZ ETS unit supply and price control settings will be released annually on a five-year rolling basis.
- A calendar for the release of information will be published before the start of the calendar year and information will be under strict lockdown until it is made available to all members of businesses and the public at the same time outside of business hours.

Context

Stakeholders and submitters to public consultations on NZ ETS improvements have previously indicated that NZ ETS setting processes have been inconsistent and poorly defined. This has created regulatory uncertainty for participants and undermined the effectiveness of the NZ ETS.

Therefore, it is important to ensure the process for releasing information on annual NZ ETS settings to the public is:

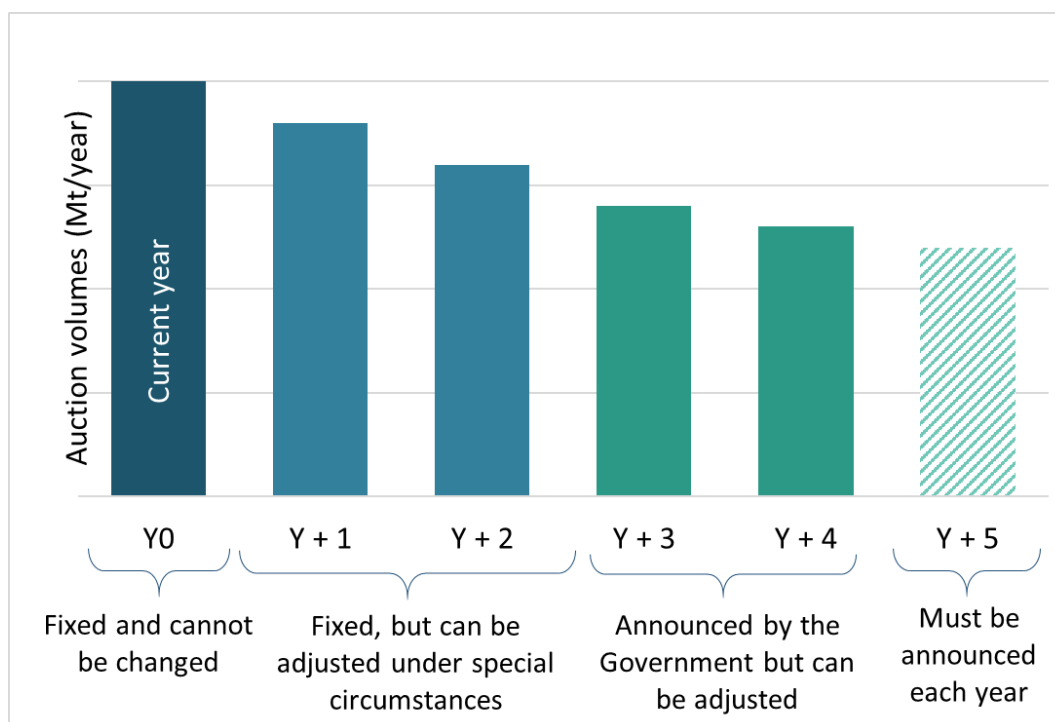
- simple
- accessible
- transparent
- impartial
- accurate.

The Government plans to release an NZ ETS settings package annually, on a five-year rolling basis. Releasing settings as a package allows participants to understand the full implications of all NZ ETS settings at once. This is important in a market where the settings closely interact with each other to determine the NZU price.

Five-year rolling period and reviewing unit supply and price control settings

The five-year rolling basis methodology will provide a projected pathway of settings to increase confidence and predictability for participants whilst allowing the Government some flexibility to continue to align the scheme with emissions budgets and targets and respond to changing circumstances.

Figure 17: Five-year rolling process for unit supply setting



In this consultation document, the Government proposes to initially set NZ ETS settings for a six-year period from 2020–25. This is because decisions as a result of this consultation are not expected to take effect until midway through 2020.

The five-year rolling process means that setting regulations for the first two years are fixed unless there are special circumstances that require a change. Levels for the three years following are set and announced, but they can be adjusted.

NZ ETS settings may be reviewed under any of the following special circumstances:

- there is a change in emissions budget or New Zealand’s Paris Agreement Contribution
- there is a change that has significantly affected any matter considered when the cap was set
- a *force majeure* event occurs
- price controls are activated, such as the release of NZUs from the cost containment reserve.

It is important the Government is able to adjust settings to ensure the NZ ETS remains effective in helping meet our targets. These may need to be adjusted if there were a significant change in an emissions budget or Paris Agreement Contribution that meant settings were set at a level that may no longer be appropriate. It also allows the Government to respond more quickly in unforeseen circumstances, while considering whether wider changes to emissions budgets are necessary. Adjustments to the emissions budget would take time, so adjusting settings ensures the cap continues to signal the long-term trajectory as wider changes are considered and implemented.

Once the Climate Change Commission is established, it will provide advice to the Government on annual cap settings for the NZ ETS. The Commission will provide advice on recommended NZ ETS settings, prior to the Government setting regulations. In preparing the advice, the

Commission is required to take into account the same considerations that apply to the Government when making NZ ETS unit supply decisions.

The Government can adopt the settings that the Commission has advised or, if the Government determines different settings are more appropriate, it must provide reasons for the different settings.

Release of information

- A calendar will be published on the Ministry for the Environment's website before the beginning of each calendar year with all key NZ ETS dates.
- All participants within the NZ ETS and other businesses/members of the public who have signed-up to receive NZ ETS updates will receive an email a week before settings are released.
- There will be a media release on the Monday of the week settings are released.
- The updated five-year rolling settings will be released annually in September.
- The information will be under strict lockdown until publication when it will be available to all participants and members of the public at the same time and outside of business hours.
- Along with the release there will be a written summary of the new settings, any changes or updates, and how the NZ ETS is tracking in terms of the overall emissions cap and New Zealand emissions targets.
- Any errors identified after release will be corrected as soon as possible and removed, with explanations provided, along with a media release and email updates.

QUESTION

12. Do you agree with the proposed approach for release of NZ ETS settings information? If not, why not?

Section 7: Consultation process

Have your say on the role of the New Zealand Emissions Trading Scheme in meeting climate change targets

The Government welcomes your feedback on this consultation document. The questions posed throughout this document are summarised in [section 8](#). They are a guide only. You do not have to answer all the questions and all comments are welcome.

To ensure we understand your point of view, please explain your rationale and give supporting evidence if needed.

You can make a submission in two ways:

- use our online submission tool, available on [our website](#). We prefer to receive submissions this way
- write your own submission.

If you are posting your submission, send it to Reforming the NZ ETS: Proposed settings, Ministry for the Environment, PO Box 10362, Wellington 6143 and include:

- Reforming the NZ ETS: Proposed settings
- your name or name of the organisation you represent
- postal address
- telephone number
- email address.

If you are emailing your submission, send it to etsconsultation@mfe.govt.nz as a:

- PDF
- Microsoft Word document (2003 or later version).

Submissions on the proposals in this document close at 5.00 pm 28 February 2020.

Contact for queries

Phone: +64 4 439 7400

Email: etsconsultation@mfe.govt.nz

Post: NZ ETS Improvements, Ministry for the Environment, PO Box 10362, Wellington 6143

Publishing releasing and analysing submissions

All or part of any written submission the Ministry for the Environment receives electronically or in printed form, including your name, may be published on our website, www.mfe.govt.nz. Unless you clearly specify otherwise in your submission, the Ministry will consider that you have consented to website posting of both your submission and your name.

Submissions may also be released to the public under the Official Information Act 1982 following requests to the Ministry for the Environment (including by email). Please advise if you object to the release of any information contained in your submission and, in particular, which part(s) you consider should be withheld, together with the reason(s) for withholding the information.

Any personal information you supply to the Ministry when making a submission will only be used by the Ministry in relation to the consultation covered in this document. You have the right to request access to or to correct any personal information you supply to the Ministry.

If you have any questions about the publishing and releasing of submissions, or if you would like to access or correct any personal information you have supplied, please email info@mfe.govt.nz.

After receiving submissions, the Ministry will evaluate them and may, where necessary, seek further comments. Your submission will contribute to advice to Ministers. The Government welcomes your feedback.

Section 8: Questions to guide your feedback

QUESTIONS

1. Do you agree with the proposal to set a provisional emissions budget of 354 Mt CO₂-e for the 2021–25 period? If not, why not?
 - Please include your views on:
 - using a straight-line approach towards the 2050 target
 - the considerations that were included in proposing the provisional emissions budget.
2. Do you support the decisions made regarding the technical volume adjustment decisions? If not, why not?
3. Are there other adjustments that need to be considered?
4. Do you agree with the proposal to address the NZ ETS unit stockpile by reducing the annual volume of NZUs available for auction? If not, why not?
5. Do you agree with 27 million NZUs being removed from auction volume between 2021–25? If not, why not?
6. Do you agree with the steps and calculations taken to reach the proposed annual auction volumes?
7. Do you support the proposal to auction 80 million NZUs over the 2021–25 period plus 2 million NZUs for auctioning trial in 2020? If not, why not? Please include your views on the process for adjusting auction volumes.
8. Do you agree with the proposal to set an auction reserve price floor at \$20 for 2020–25? If not, why not?
9. Do you agree with the proposal to increase the fixed price option to \$35 for obligations arising from activities over 2020?
10. Do you agree with the proposal to set the price ceiling trigger of the cost containment reserve at \$50 for the 2020–25 period? If not, why not?
11. Do you agree with the proposed annual cost containment reserve volumes to be released if the price ceiling trigger is hit? If not, why not?
12. Do you agree with the proposed approach for release of NZ ETS settings information? If not, why not?
13. Do you have any further comments?

Abbreviations/glossary

EITE	Emissions intensive, trade-exposed businesses that receive free unit allocation
Emissions abatement	Reduction in emissions due to additional measures taken or technologies applied
Emissions leakage	An increase in emissions in one country as a result of an emissions reduction by a second country with a stricter climate policy
Emissions Trading Reform Bill	Climate Change Response (Emissions Trading Reform) Amendment Bill
EVs	Electric vehicles
Free allocation	Free NZUs given to participants to compensate for the associated costs of being in the NZ ETS
HFCs	Hydrofluorocarbons
LULUCF	Land use, land-use change and forestry
Mt CO ₂ -e	Million tonnes of carbon dioxide equivalent
NZ ETS	New Zealand Emissions Trading Scheme
NZU	New Zealand Emissions Trading Scheme Unit
Offshore mitigation	Emissions reductions and removals that take place in other countries, or allowances from emissions trading schemes in other jurisdictions
Paris Agreement Contribution	The Nationally Determined Contribution that New Zealand has set ourselves through the Paris Agreement
PFCs	Perfluorocarbons
SGG	Synthetic greenhouse gas
The Commission	Climate Change Commission
Zero Carbon Act	Climate Change Response (Zero Carbon) Amendment Act 2019

Appendix: 2021–25 provisional emissions budget comparisons

Sector	Potential change	Proposed budget (13 Mt CO ₂ -e additional abatement required)		More ambitious budget (18 Mt CO ₂ -e additional abatement required)		Less ambitious budget (6 Mt CO ₂ -e additional abatement required)	
		Change	Kt CO ₂ -e	Change	Kt CO ₂ -e	Change	Kt CO ₂ -e
Agriculture	The percentage of opportunities to reduce emissions and improve profitability identified by the BERG report that have been adopted	50%	750	66%	1,000	25%	400
Transport	The percentage of the projected impact by 2030 of the currently proposed transport package that has been achieved	33%	500	66%	1,000	7%	100
Space and water heating	The percentage of space and water heating in commercial and residential buildings that currently uses coal, LPG or gas that has switched to biomass or electricity	17%	300	33%	600	25%	450
Process heat for food processing	The percentage of identified energy efficiency opportunities that are of net benefit that have been adopted	50%	450	90%	800	25%	250
	The percentage of process heat that currently uses coal or gas that has switched to biofuels or electricity	25%	700	45%	1,250	10%	300
Other heavy industry	The year that the process efficiency improvements that would require a carbon price less than \$50/tCO ₂ have been implemented by for steel, cement, refining and kraft pulp	2024	1,000	2023	1,000	50%	500
Electricity	The percentage of electricity efficiency potential identified by EECA that is implemented	33%	450	40%	550	15%	200
	The year that the additional wind and geothermal renewable stations are built to displace the remaining baseload gas-fired power station are implemented	2024	1,100	2023	1,100	Yet to occur	0
Waste	The percentage of landfills that are using bio-stabilisation, or achieving equivalent emissions reductions from waste diversion and greater capture and destruction of landfill gas	25%	300	40%	500	15%	200
Sum of estimated emissions abatement achieved in 2025			5,500		7,800		2,400