

Regulatory Impact Statement

Improving alignment of the New Zealand Emissions Trading Scheme with New Zealand's provisional 2030 emissions reduction target

Agency Disclosure Statement

This Regulatory Impact Statement (RIS) has been prepared by the Ministry for the Environment. It provides an analysis of options to bring the New Zealand Emissions Trading Scheme (NZ ETS) into better alignment with New Zealand's 2030 emissions reduction target by 2021.

The analysis summarised in this RIS is affected by a range of uncertainties and assumptions. The estimated unit deficit the Government may face in the 2020s depends on emissions projections, which are inherently uncertain. Variables such as economic and population growth, commodity prices, the assumed carbon price, the assumed rate of afforestation and deforestation, and the harvest age of forests, have significant effects on projected emissions and removals. Seasonal changes, especially variation in rainfall, can affect both energy and agricultural emissions. There is also uncertainty in the methodology to estimate emissions from biological sources such as agriculture and forestry. Furthermore, the estimated unit deficit calculation is based on gross emissions projections only, as the strong carbon price dependency of forestry emissions and uncertainty over the 2021-2030 accounting rules New Zealand will apply to forestry mean that net emissions cannot be incorporated in a meaningful way.

The potential fiscal risk that the unit deficit creates depends on international carbon prices in the 2020s, which are unknown. A range illustrating the potential scale of the fiscal risk has therefore been provided.

The economic, emissions and afforestation impacts of removing one-for-two surrender obligation have been estimated using economic (CGE) and afforestation modelling. CGE analysis aims to show the broad direction and magnitude of changes in the economy, and should not be relied upon as a precise forecasting tool. With respect to the afforestation model, given the timeframes for the NZ ETS review process a number of model refinements could not be fully evaluated. Both these models also depend on assumptions, for example about future economic conditions, which may not be borne out.

The analysis of timing options for removing the one-for-two surrender obligation used a supply and demand model of the NZ ETS incorporating several assumptions about participant hedging behaviour, on which limited information is available. A major uncertainty is future New Zealand Unit (NZU) prices, which are challenging to reliably model or predict.

The preferred option has implications for the liquidity of the NZ ETS market. Additional work, beyond the scope of this proposal, will be required to determine unit supply arrangements to ensure sufficient liquidity over the longer term. This work will be undertaken through the second stage of the 2015/16 NZ ETS review, which is expected to provide recommendations in the second half of 2016.



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Contents

Agency Disclosure Statement	1
Executive Summary	4
Glossary.....	5
Background.....	8
Status Quo and Problem Definition	12
Objectives	15
Options and impact analysis	18
Consultation.....	33
Conclusions and recommendations	35
Implementation plan.....	36
Monitoring, evaluation and review	36
Appendix 1: Terms of Reference – NZ ETS Review 2015/16	38
Appendix 2: Wider NZ ETS performance and design issues	42
Appendix 3: Analysis of banked NZU holdings	45
References	47

Tables

Table 1: Projected unit deficit under status quo (2021-2030).....	14
Table 2: Assessment criteria and relationship to NZ ETS and 2015/16 review objectives ...	17
Table 3: Summary of tier 1 regulatory impact analysis	21
Table 4: Macroeconomic impacts of removing one-for-two	22
Table 5: Options for managing costs and risks of removing one-for-two	25
Table 6: Comparing cost and risk management options across key criteria	27
Table 7: Timing options for one-for-two removal	28
Table 8: 2017 Abrupt removal: cost impacts at \$11 NZU price.....	31
Table 9: Phased removal 2017-2019: cost impacts at \$11 NZU price	31
Table 10: Staged removal by sector: cost impacts at \$11 NZU price.....	31
Table 11: Comparison of timing options against relevant criteria.....	32
Table 12: Estimates of NZUs held for different purposes	46

Figures

Figure 1: NZUs, CERs and ERUs in \$NZ prices 2009–15.....	10
Figure 2: Projected deficit of international units 2021-2030 under NZ ETS status quo	14
Figure 3: Approach to analysis of options.....	18
Figure 4: Projected outcomes of options to improve alignment with the 2030 target	20
Figure 5: Stockpile forecasts under different one-for-two removal scenarios	30
Figure 6 Timing options - projected outcomes.....	30

Executive Summary

1. This policy proposal is focused on bringing the New Zealand Emissions Trading Scheme (NZ ETS) settings and unit supply into better alignment with New Zealand's provisional target to reduce emissions by 30 per cent on 2005 levels by 2030 (the 2030 target).
2. The NZ ETS is our key tool to enable New Zealand to deliver on its emission reduction targets. However, current settings combined with the large amount of banked New Zealand Units (NZUs) accumulated in private accounts mean that it provides exemptions and permits allowing emissions of around 150 million tonnes of carbon dioxide equivalent in excess of the 2030 target over 2021-2030. This equates to 64 per cent of the 235 million tonne abatement task required to achieve the 2030 target, according to current emission projections.
3. The consequence of this is that under the status quo, the NZ ETS will not deliver enough domestic or international emission reductions or removals to achieve the intended 2030 target. Instead, the Government and therefore taxpayers may have to fund the purchase of 150 million international units to ensure that the target is met. This presents a fiscal risk in the 2020s that could be in the order of \$3.5-7.5 billion cumulatively over 2021-2030, assuming an international carbon price range of \$25-50. It will also likely increase the overall cost to the New Zealand economy of meeting the target.
4. There are two elements contributing to the lack of alignment that are within the scope of the current NZ ETS review and can be addressed through the review's first stage:
 - the stockpile of banked NZUs in NZ ETS participants' private accounts
 - the 50 per cent emissions exemption provided to some sectors by the one-for-two surrender obligation.
5. Three high level options for improving the alignment of the NZ ETS with the 2030 target were considered: removing the one-for-two surrender obligation, an NZU buy-back, and vintaging pre-2021 NZUs to expire at the end of 2020. Removing one-for-two was assessed as the preferred option, as it addresses both elements of the problem while providing a signal to transition to a low carbon economy, a stable regulatory environment for NZ ETS participants, and maintaining market function. The overall economic cost of removing one-for-two is estimated to be small, at around 0.1 per cent of GDP in 2020 (\$267 million or 8 hours worth of GDP) in comparison to the reduction in fiscal risk and environmental benefits.
6. The additional cost the preferred option will create for NZ ETS participants nevertheless presents some risks, given firms' needs for time to adjust their operating models and the challenging market conditions currently faced by some sectors. Several approaches to managing costs were considered. Phasing out one-for-two gradually over three years starting no earlier than 1 January 2017 was determined the best option, providing a balanced outcome across achieving the policy objectives and relevant risk management considerations. This approach was broadly supported by consultation feedback.
7. The preferred option would be implemented through amendments to the CCRA. NZ ETS participants will be informed of the new requirements through the Environmental Protection Authority's (EPA) communication channels and NZ ETS review consultation activities undertaken by the Ministry for the Environment (MfE). The impacts of the policy will be monitored and evaluated through established monitoring, reporting and review processes in place for the NZ ETS and New Zealand's wider climate policies.

Glossary

2030 target	The target, tabled with the United Nations in 2015 as New Zealand's provisional Intended Nationally Determined Contribution (INDC), to reduce emissions by 30 percent below 2005 levels by 2030.
Afforestation	The direct human-induced conversion of non-forested land to forested land through planting, seeding and/or the human-induced promotion of natural seed sources.
Arbitrage	The practice of taking advantage of a price difference between two or more markets.
Carbon budget	The cumulative amount of GHGs emissions a country is permitted to emit over a certain period while staying under an emissions limitation or reduction target. It is normally measured in CO ₂ e.
CCRA	Climate Change Response Act 2002.
CO ₂ e	Carbon dioxide equivalent. The quantity of a given greenhouse gas multiplied by its global warming potential, which equates its global warming impact relative to carbon dioxide (CO ₂).
Deforestation	The conversion of indigenous and exotic forest land to another use, such as grazing. Deforestation involves clearing forest and not replanting within four years after clearing. It does not include harvesting where a forest is replanted as this is part of normal plantation forestry activities.
EITE	Emissions intensive and trade exposed
Emission unit	One emission unit represents one tonne of carbon dioxide equivalent. There are two broad types of emissions units: <ul style="list-style-type: none">• units giving the right to emit a tonne of CO₂e, sometimes termed permits to emit or allowances• units representing emission reductions or removals, also referred to as carbon credits or offsets.
Emissions	Greenhouse gases released into the atmosphere from human activity.
EPA	Environmental Protection Authority
First commitment period (Commitment Period One or CP1)	The period from 2008 to 2012 over which developed (Annex 1) countries who ratified the Kyoto Protocol had to achieve emission limitation or reduction commitments.

Fixed price option	The option allowing NZ ETS participants to meet their surrender obligations by paying the Government \$25 per NZU.
Free allocation	Free allocation is the mechanism currently used to protect firms whose international competitiveness may be at risk from NZ ETS costs. The Government gifts NZUs to firms undertaking activities that are both emissions intensive and trade exposed (EITE), to prevent displacement of production or investment to areas not subject to carbon pricing ('carbon leakage').
Greenhouse gases (GHGs)	The atmospheric gases responsible for causing global warming and climate change. The GHGs covered under the UNFCCC are carbon dioxide (CO ₂), methane (CH ₄), nitrous oxide (N ₂ O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF ₆).
Gross emissions	Gross emissions include emissions from agriculture, energy, industrial processes and product use (e.g. cement production, refrigeration) and waste. Emissions and removals from land use, land use change and forestry (LULUCF) are excluded.
Intended Nationally Determined Contribution (INDC)	Leading up to the negotiation of the Paris Agreement, all countries were asked to put forward targets to reduce emissions in the period after 2020, known as Intended Nationally Determined Contributions. New Zealand's 2030 target was tabled as an INDC and remains provisional until it is confirmed as our final Nationally Determined Contribution (NDC) when the Paris Agreement is ratified.
Kyoto Protocol (KP)	A protocol to the UNFCCC that includes emissions limitation or reduction commitments for ratifying developed (Annex 1) countries.
LFF	Liquid fossil fuels
MfE	Ministry for the Environment
MPI	Ministry for Primary Industries
Mt	Mega tonnes
Net emissions	Net emissions include emissions and removals from the land use, land use change and forestry (LULUCF) sector, as well as those from agriculture, energy, industrial processes and product use, and waste.
NZ ETS	New Zealand Emissions Trading Scheme.
NZ ETS participants	Participants include emitters of greenhouse gases that have

obligations under the NZ ETS to report on emissions and to surrender eligible NZUs to cover these emissions. Those engaged in removal activities such as forestry can also choose to become NZ ETS participants and receive NZUs for removals.

New Zealand Units (NZUs)	The main unit of trade in the NZ ETS, which can be surrendered by participants to meet their obligations. NZUs are issued by the Government and transferred to participants either for removal activities such as forestry, or as allocations for emissions intensive and trade exposed (EITE) activities.
One-for-two obligation	An NZ ETS setting that allows participants from the liquid fossil fuels, industrial processes, stationary energy and waste sectors to surrender only one emission unit for every two tonnes of emissions (i.e. a 50 per cent surrender obligation).
Paris Agreement	An agreement within the framework of the UNFCCC to address climate change after 2020.
Pre-1990 forests	Forest established before 1 January 1990 on land that remained in forest and was predominantly exotic species on 31 December 2007. See section 4 of the CCRA.
Post-1989 forests	New forest established after 31 December 1989 on land that was not forest at that date. These forests are eligible to earn NZUs under the NZ ETS. See section 4 of the CCRA.
UNFCCC	United Nations Framework Convention on Climate Change
Vintage	A tag applied to emissions units to time limit their eligibility. This can be either an expiry date after which the unit becomes invalid, or an 'activation' date before which the unit can be traded but not used for compliance.

Background

The New Zealand Emissions Trading Scheme

1. The New Zealand Emissions Trading Scheme (NZ ETS) is New Zealand's key tool for reducing greenhouse gas emissions. It came into force in September 2008, with the Climate Change Response Act 2002 (CCRA) providing the legal framework for its implementation, operation and administration.
2. The statutory purpose of the NZ ETS is to support and encourage global efforts to reduce greenhouse gas (GHG) emissions by:
 - assisting New Zealand to meet its international obligations
 - reducing New Zealand's net emissions below business as usual levels.
3. Alongside these objectives, maintaining economic flexibility, equity, and environmental integrity at least cost in the long term were important considerations in the design and establishment of the NZ ETS.
4. A key concept underpinning the use of emissions trading as a policy to reduce emissions is that the people and businesses who generate emissions are best placed to identify and act on opportunities to reduce them. The NZ ETS shifts the costs of meeting New Zealand's emission reduction targets to NZ ETS participants, with the expectation that this will result in making the reductions at lower overall cost than if the Government remained responsible. This is known as the "polluter pays" principle.
5. The NZ ETS requires entities from all sectors of New Zealand's economy to report on emissions and, with the exception of agriculture¹, purchase and surrender emission units² to the Government for those emissions. This price on emissions is intended to create a financial incentive for investment in technologies or practices that reduce emissions, and for carbon removals from forestry by allowing eligible foresters to earn New Zealand Units (NZUs) as their trees grow and absorb carbon. Just over half of New Zealand's greenhouse gas emissions are covered by NZ ETS surrender obligations.
6. The NZ ETS was designed in line with the Kyoto Protocol (KP), the international agreement which previously set New Zealand's climate change commitments including its emissions reduction target over 2008-2012, the KP's first commitment period (CP1). The KP context had two important consequences for the design of the NZ ETS. First, as the KP set a cap on emissions permitted in developed (Annex 1) countries and this cap was expected to lead to an international price on emissions, an additional limit on emission units within the NZ ETS was not considered necessary. Second, the NZ ETS mirrored the KP in allowing participants to use unlimited quantities of offset units, either units representing CO₂ removals by forest carbon sinks or units generated from emission reduction projects in other countries³.

¹ On-farm methane and nitrous oxide, which together made up 48 per cent of New Zealand's gross emissions in 2013, must be reported by agricultural processors but do not incur surrender obligations. The Government has decided that due to the lack of viable and practical options to reduce these emissions, they will remain outside the NZ ETS at this time. Instead it is investing in research and development of new mitigation options. Emissions from agricultural energy use are covered by other NZ ETS sectors, i.e. stationary energy and liquid fossil fuels.

² Each emission unit represents one tonne of carbon dioxide equivalent (CO₂e).

³ Under the KP, units could be generated via two flexibility mechanisms: the Clean Development Mechanism (CDM) for emission reduction projects in non-Annex 1 (developing) countries, resulting in Certified Emission

7. This design contrasts with more conventional cap-and-trade schemes, where an intrinsic constraint on the total amount of emissions units available (a cap) combines with domestic abatement opportunities to give rise to unit value. This value in turn drives efforts to reduce emissions and unit trading, which should lead to emission reduction goals being achieved in the most cost effective way. Rather, the expectation was that the KP framework would ensure appropriate unit scarcity in line with the international cap, therefore driving an international carbon price.
8. Nesting the NZ ETS within this global market was viewed as important given New Zealand's small size and relatively expensive domestic abatement opportunities. The NZ ETS was designed to help New Zealand meet its international obligations not only by reducing emissions domestically, but also through the delivery of international units from participant surrenders to the Government. The Government could then use these international units to offset domestic emissions in excess of New Zealand's emission reduction target.
9. Adjustments have been made to the NZ ETS over time, moving it away from its original design. Some were driven by domestic concerns, other by changes in the international context. The international climate framework applying to New Zealand has also changed.

Changes to original NZ ETS design – transition phase

10. Through formal reviews undertaken in 2009 and 2011, a transitional phase to moderate the initial impacts of the NZ ETS during the worldwide economic downturn was implemented and then extended. Due to this transitional phase, measures are currently in place that:
 - allow non-forestry participants to surrender only one emission unit for every two tonnes of emissions
 - provide participants with the option to buy NZUs from the Government for a fixed price of \$25, limiting maximum potential costs faced by emitters
 - indefinitely delay the introduction of surrender obligations for the agriculture sector
 - indefinitely delay reductions in the level of free allocation of NZUs to protect the competitiveness of businesses involved in emissions-intensive and trade-exposed activities.

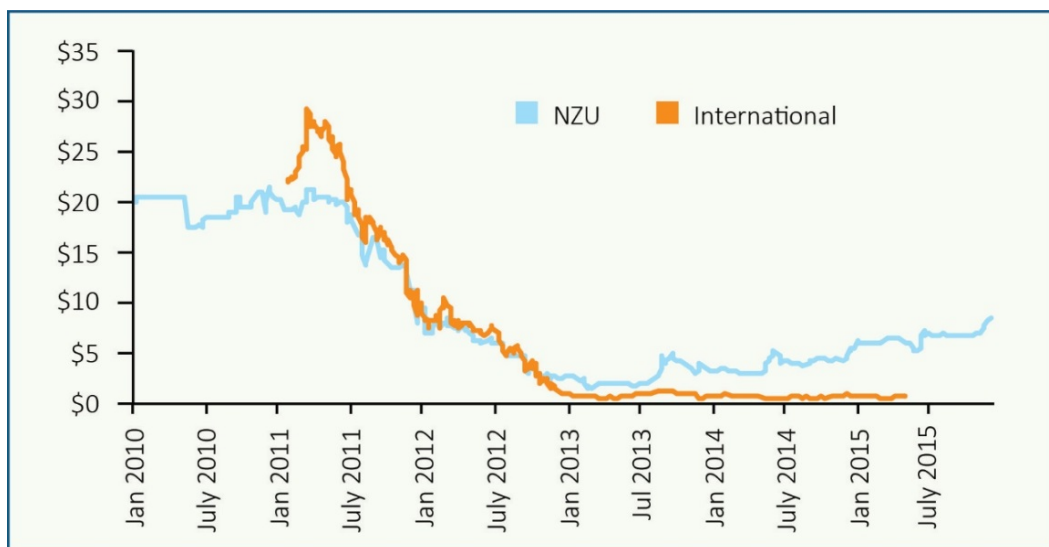
Changes to original NZ ETS design – move to a domestic-only scheme

11. In late 2011 international unit prices dropped dramatically, from around \$20 per unit in June 2011 to \$0.35 in February 2014. This was caused by several factors including effects of the global financial crisis, oversupply in other markets for Kyoto units (most notably in the EU ETS), the issuance of a large number of units by both Ukraine and Russia in 2011-12, and the forthcoming end of the KP's first commitment period.
12. This flowed through to corresponding decreases in the price of New Zealand Units (NZU) the domestic unit in the NZ ETS. This reversed in late 2012 when NZUs rose in price compared to international units, caused by market participants recognising that their lack of time limitation made them a better long term investment than international units which would be mandatorily cancelled at the true-up of the KP's first commitment period.

Reduction units (CERs); and Joint Implementation (JI) in Annex 1 countries, which generated Emission Reduction Units (ERUs).

13. Over the 2012 to 2014 compliance years, NZ ETS participants overwhelmingly met their surrender obligations with low priced international units. Some participants were able to arbitrage the price differential between Kyoto units and NZUs. They surrendered lower value Kyoto units and retained NZUs received through allocations or entitlements to benefit from their sale or hedge against future liabilities. This contributed to the accumulation of around 140 million banked NZUs in private accounts as of July 2015.
14. Banking NZUs is a permitted and expected practice in the NZ ETS, as it is important for participants' management of their liabilities, particularly for foresters. However, this stockpile of banked NZUs has reached around five times total annual unit demand, which under current NZ ETS settings is typically less than 30 million units.
15. The high surrender rate of Kyoto units by NZ ETS participants led to the Government's Kyoto unit holdings increasing beyond the level required to meet its CP1 international commitments. International rules also clarified that New Zealand would no longer be able to trade in second commitment period (CP2) Kyoto units due to not taking a KP CP2 target. In combination these factors led to Cabinet deciding to transition the NZ ETS to a domestic-only scheme, with surrenders of KP CP1 units no longer accepted from June 2015 (CAB Min (13) 41/12 refers). Currently the only units accepted in the NZ ETS are NZUs and New Zealand-originated Assigned Amount Units (AAUs)⁴.

Figure 1: Prices of NZUs and international units (CERs and ERUs) in \$NZ 2009–15⁵



Changes to the international climate framework applying to New Zealand

16. New Zealand did not take a second commitment period target under the KP, although it remains a Party to the KP in other respects. Instead, it adopted an emissions reduction target under the United Nations Framework Convention on Climate Change (UNFCCC) to reduce net emissions by 5 per cent below 1990 GHG levels over 2013–20. Current

⁴ For the purposes of the status quo discussed in this document, it is assumed that the NZ ETS will remain a domestic only scheme with international units ineligible for surrender until at least the end of 2020. While international abatement is likely to form an important part of New Zealand's strategy for meeting its 2030 target, no further international units are needed to meet the 2020 target.

⁵ Unit price data 1 Jan 2009–31 May 2014 from Point Carbon; 1 June 2014–30 April 2015 from Thomson Reuters; and 1 May–30 October 2015 from OM Financial Ltd (CommTrade). Note that CER and ERU price data are only available from 2011.

projections indicate New Zealand is expected to meet this target using a combination of forestry removals, domestic abatement, and recognising the surplus units acquired during CP1 from NZ ETS participant surrenders⁶.

17. In December 2015, a new climate change agreement which will apply from 2021 onwards was concluded at the 21st Conference of the Parties to the UNFCCC in Paris (the Paris Agreement). This Agreement differs from the Kyoto Protocol in that it creates an expectation that all countries will take action to address climate change. It contains high-level principles, but leaves many of the detailed rules governing its operation - such as those for forestry accounting as well as guidelines for international carbon trading - to be negotiated over the coming years.
18. The Paris Agreement will determine New Zealand's international obligations from 2021 onwards. These include internationally registering New Zealand's first Nationally Determined Contribution (NDC) to begin in 2021. The NDC will finalise the Intended Nationally Determined Contribution (INDC) New Zealand announced in 2015 of reducing greenhouse gas emissions to 30 per cent below 2005 levels by 2030 (the "2030 target"), which remains provisional until the Paris Agreement is ratified. This NDC will establish the international emissions reduction target that the NZ ETS is intended to assist New Zealand in meeting.
19. Under the Paris Agreement, Parties are expected to increase the ambition of their NDCs over time, and New Zealand's future NDCs will need to show progression on previous contributions. This is also in line with the long-term target the Government set for New Zealand in 2011, of reducing GHG emissions to 50 per cent of 1990 levels by 2050.

NZ ETS review 2015/16

20. In November 2015, the Government announced a review to assess the operation and effectiveness of the NZ ETS to 2020 and beyond. As required by the CCRA, the Minister established Terms of Reference (ToR) for the review outlining the scope, timeframes, and approach to consultation (see Appendix 1). The review's results will be incorporated into advice to Ministers on recommended changes to the operation of the NZ ETS.
21. A major focus of this review, as indicated by the objectives established in the ToR, is to assess how the NZ ETS may need to evolve towards the new international framework provided by the Paris Agreement. This recognises that the five years between now and 2021 are a window of opportunity to prepare for delivering on the new 2030 target and transition the NZ ETS towards a design that is fit-for-purpose in light of the changed international context.
22. The review is following a two-stage approach. The first stage relates to issues which have been prioritised as they may be candidates for legislative change in 2016, outlined in the review's [discussion document](#)⁷ as:
 - moving to full surrender obligations (i.e. removing the one-for-two surrender obligation)
 - managing the costs of moving to full surrender obligations.

⁶ Progress towards meeting New Zealand's 2020 target is tracked on the [2020 net position webpage](#). As of December 2015, New Zealand is projected to meet its 2020 target with a surplus of 93.6 million units.

⁷ Ministry for the Environment. 2015.

23. The review's second stage deals with matters needing further analysis before potential solutions or approaches can be identified and considered. This RIS relates to the review's priority issues only.

Status Quo and Problem Definition

24. This RIS is focused on better aligning NZ ETS settings with the intended 2030 target, via the options within scope of the NZ ETS review 2015/16.

25. Current NZ ETS settings combined with unintended consequences from the scheme's past operation mean that it is not well aligned with the 2030 target and will not help New Zealand to achieve this target cost effectively. This is caused by:

- a large stockpile of banked NZUs in NZ ETS participants' private accounts
- exemptions of emissions from full NZ ETS coverage.

26. These factors mean that the status quo is likely to result in the NZ ETS allowing emissions exceeding the target by 150 million tonnes of CO₂e over 2021-2030⁸ that will not be compensated for through the surrender of offsets. This presents a potential fiscal risk in the 2020s that could be in the order of \$3.5-7.5 billion cumulatively over 2021-2030 (for further explanation, see paragraphs 29-36).

27. Addressing this imbalance is the most pressing element of a wider structural problem of the NZ ETS not aligning well with the international obligations that it is meant to help deliver. This has caused the scheme to perform poorly against some intended outcomes and has generated several unintended consequences. One of these has been the accumulation of the NZU stockpile that is part of what will now impede NZ ETS from helping New Zealand to meet its 2030 target. The root causes of the performance issues and unintended consequences are the two related problems of:

- the NZ ETS level of ambition not aligning sufficiently with the international obligations it is meant to help deliver, and
- the NZ ETS operating in a changing international context not envisaged when it was designed.

28. Further context to the NZ ETS' wider performance and design issues is provided in Appendix 2. Beyond the issues addressed in this RIS, other elements of improving NZ ETS effectiveness and better aligning its operation with its objectives, such as future unit supply arrangements, will be considered in the second stage of the 2015/16 NZ ETS review. A separate RIS will likely be required for proposals resulting from the consideration of matters in that second stage.

NZ ETS settings causing lack of alignment with the 2030 target

29. The 2030 target translates into New Zealand being able to emit up to a provisional carbon budget of 611 million tonnes of CO₂e over 2021-2030⁹. New Zealand's projected emissions over the period are well above this at 846Mt CO₂e, meaning that meeting the

⁸ There is some uncertainty in this estimate due to the uncertainty of future emissions projections and because the accounting approach for New Zealand's NDC is not yet settled. See footnote 12 on page 13 and the Agency Disclosure Statement for further information.

⁹ This carbon budget remains provisional until New Zealand's final NDC is confirmed.

target requires 235Mt CO₂e of abatement. As long as these excess emissions are reduced, or compensated for by the surrender of valid international or domestic offset units to the Government through the NZ ETS, New Zealand will be able to comply with its target.

30. The Government can choose who has the right to use this carbon budget, in four ways:
- **Exempting emissions** from the NZ ETS, as is currently the case for agriculture and fifty per cent of emissions from sectors subject to one-for-two.
 - **Free allocation** of units to NZ ETS participants. Free allocation is currently provided to firms involved in activities that are both emissions intensive and trade exposed (EITE)¹⁰.
 - **Selling units**, either through a fixed price sale mechanism or by auctioning. The NZ ETS currently has the former, but not the latter. There is a fixed price option which allows participants to surrender units by paying the Government \$25 per NZU, although it is not commonly used due to much lower market prices.
 - **Allowing pre-2021 units to be used in the NZ ETS after 2020**. NZUs are not time-limited and so can be carried forward by participants for use in the 2020s. Even though these NZUs may represent pre-2021 emissions reductions or removals, they will not contribute to meeting New Zealand's 2030 target as it will require reductions or removals that occur over 2021-2030. Allowing the use of these units after 2021 is therefore the same as giving away units (permits to emit) from the carbon budget.
31. The status quo, taking into account emissions projections and forecasts of NZ ETS supply and demand, will likely result in the NZ ETS allowing emissions above the carbon budget of around 150 Mt CO₂e over 2021-2030 that will not be compensated for by the surrender of offsets. This is outlined in Table 1 and represented graphically in Figure 2.
32. The consequence of this would be that the NZ ETS will not drive sufficient domestic emission reductions or removals, or deliver enough international units through participant surrenders, to achieve the 2030 target. Instead the Government (and therefore taxpayers) would have to buy international units representing this 150 Mt CO₂e overshoot, to ensure that the target is met.
33. To put this into context, 150 Mt CO₂e is 64 per cent of the total 235 Mt CO₂e abatement task required for achieving the 2030 target over 2021-2030.
34. This shift of mitigation responsibility from NZ ETS participants to the Government would likely increase the overall cost of meeting the target and creates a fiscal risk. The scale of this fiscal risk is very uncertain, as it depends on future international carbon prices. To illustrate the potential scale of the cost, an international carbon price range of \$25 – 50 could mean a cost to the Crown and taxpayer ranging from \$3.75 – 7.5 billion cumulatively over the 2021-2030 decade¹¹.

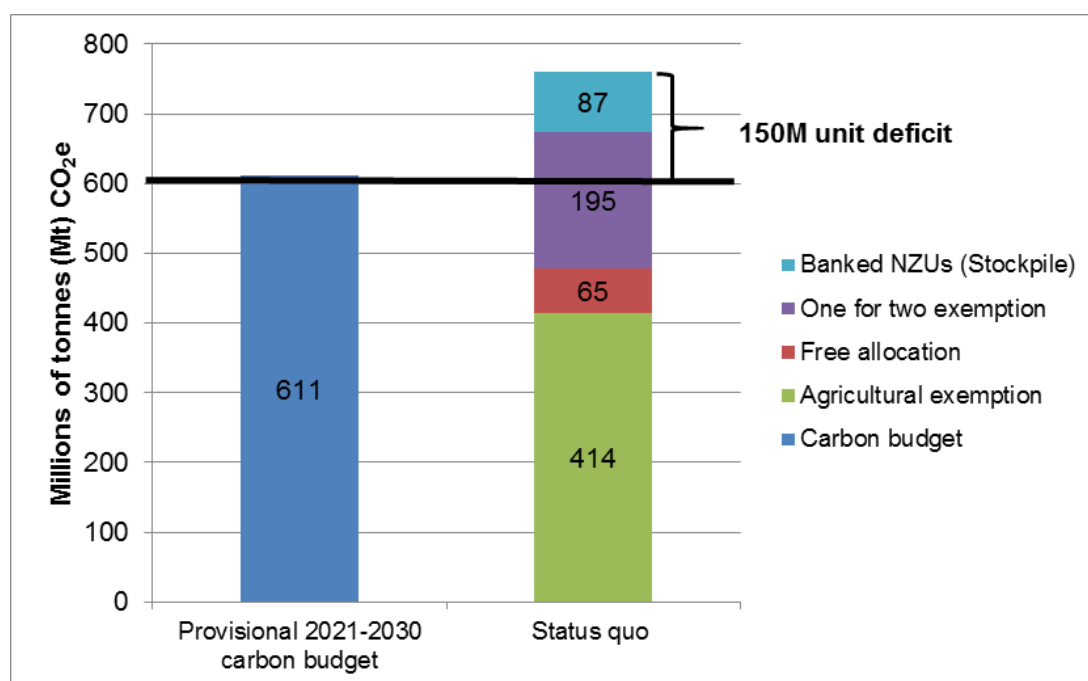
¹⁰ Free allocation is the mechanism currently used in the NZ ETS to protect firms whose international competitiveness may be at risk from NZ ETS. Currently highly EITE activities (emissions intensity greater than 1,600t/\$1 million revenue) are covered for 90% of their NZ ETS cost exposure with gifted NZUs while moderately EITE activities (emissions intensity greater than 800 tCO₂e /\$1 million revenue) receive 60% free allocation.

¹¹ Future international carbon prices are very uncertain, although many market commentators and experts expect prices to increase up to and throughout the 2020s. For example, the International Energy Agency is using carbon prices of NZ\$57 and NZ\$35 per tonne in 2030 for the EU and China respectively in its [World Energy Outlook 2015](#) scenarios. IEA, 2015.

Table 1: Projected unit deficit under status quo (2021-2030)¹²

Status quo projections	Mt CO ₂ e or equivalent in units
2021-2030 provisional carbon budget	611
Exemption - agricultural emissions	- 414
Exemption - 50% emissions from sectors subject to one-for-two	- 195
Free allocation to EITE activities	- 65
Pre-2021 units - NZU stockpile remaining in 2021	- 87
Emissions allowed in excess of carbon budget (unit deficit that the Government will have to purchase)	- 150

Figure 2: Projected deficit of international units 2021-2030 under NZ ETS status quo



35. Several settings contribute to this lack of alignment with the 2030 target. However, the Government has already decided that the current NZ ETS review will not consider extending surrender obligations to the agriculture sector, and stated that EITE free allocation should continue at current rates until at least 2021¹³. The two elements that are within the scope of the current NZ ETS review are:

- the stockpile of banked NZUs in NZ ETS participants' private accounts

¹² There is considerable uncertainty in these estimates, given they rely on emissions projections. It should also be noted that the calculation of what the NZ ETS will deliver over 2021-2030 is based on gross emissions only, as the strong carbon price dependency of forestry emissions and uncertainty over the 2021-2030 accounting rules New Zealand will apply to forestry mean that net emissions cannot be meaningfully incorporated into this calculation. Another smaller uncertainty is that a significant amount of waste emissions are difficult to monitor and are not covered by the NZ ETS, which is further complicated by the NZ ETS waste emissions accounting approach differing from that used for estimates of waste emissions in the national GHG inventory.

¹³ Ministry for the Environment. 2015. See page 18.

- the 50 per cent emissions exemption provided to some sectors by the one-for-two surrender obligation.

36. It should also be noted that the NZU stockpile reduces the Government's options for managing NZ ETS unit supply in future. It would limit the Government's ability to maximise the fiscal benefits of the NZ ETS by selling NZUs by auction. Auctioning NZUs while a large stockpile exists would simply increase the risk that the NZ ETS will not deliver enough reductions or offsets. Depleting the stockpile is therefore a priority for better aligning the level of ambition of the NZ ETS with the 2030 target before 2021.

Objectives

NZ ETS review 2015/16 objectives

37. Three objectives have been determined for the current review of the NZ ETS:

- I. ensure that the NZ ETS helps New Zealand to meet its international obligations cost effectively
- II. ensure the New Zealand economy is well-prepared for a strengthening international response to climate change, and potentially higher carbon prices
- III. allow the NZ ETS to evolve with these changing circumstances, and particularly with respect to the framework provided by the new climate change agreement.

38. Any preferred policy options for issues in the review's scope, including for reducing the NZU stockpile, should meet or be compatible with these objectives.

Assessment criteria

39. The NZ ETS is an economy-wide price based mechanism aiming to drive a transition to a low carbon economy. Given the complexity of the policy and the range of considerations that need to be taken into account in its design and operation, not all of which can be monetised, assessment criteria have been developed that further elaborate what is required from a policy option in order to meet the NZ ETS review objectives.

40. The assessment criteria have been developed taking into account:

- the purpose of the NZ ETS
- the 2015/16 review objectives
- the [factors to be considered](#) outlined in the NZ ETS review 2015/16 Terms of Reference (see Appendix 1)
- assessment criteria used in the previous 2011 review of the NZ ETS¹⁴
- wider Government priorities outside the NZ ETS, such as key priorities from the Business Growth Agenda related to building a more productive and competitive economy and responsibly managing the Government's finances.¹⁵

41. The assessment criteria are outlined in Table 2 overleaf, including how they link to the NZ ETS review objectives and how they have been measured for examining the options considered in this RIS.

¹⁴ Ministry for the Environment, 2012.

¹⁵ Ministry of Business, Innovation and Employment, 2015.

42. This framework may also be applicable to options considered in the second stage of the NZ ETS review, expected to conclude with advice provided in the second half of 2016.

Objectives for increasing NZ ETS alignment with the 2030 target

43. With regard to the specific problem addressed in this RIS, two additional objectives have been identified that the preferred option must meet:

- reduce the projected emissions allowed by NZ ETS settings over 2021-2030 to within New Zealand's 2021-2030 carbon budget of 611Mt CO₂e, and
- reduce the stockpile of banked NZUs to an appropriate level (within a range of one to two years' of non-forestry unit demand net of free allocation¹⁶).

44. These objectives reflect two key considerations relevant to this problem: how much fiscal risk or limitation of options for managing the NZ ETS in the 2020s the Government is prepared to accept, and what level of NZU banking is required to preserve healthy operation of the NZ ETS market.

45. With respect to the latter, it is important to note that the presence of banked NZUs in the NZ ETS is not a problem per se. The ability to bank NZUs is a critical feature that reduces price volatility and helps participants manage their obligations. Foresters in particular need to manage liabilities over harvest cycles of 25+ years. This is one of the reasons why the choice was made when the scheme was designed not to vintage (time limit) the validity of NZUs, which is a feature of units in some other carbon markets. Therefore the objective for the preferred option should not be to reduce banked units as much as possible or to zero.

46. The level of banked NZUs carried by the NZ ETS into the 2021-2030 period is only problematic if the amount of banked NZUs carried by the NZ ETS at the end of 2030 is significantly smaller. Judging what level of NZU banking is desirable is challenging, given that limited information is available to the Government about NZ ETS participants' intentions for their unit holdings. Based on analysis and assumptions about NZ ETS participants' hedging needs, we consider that a conservative range for an appropriate level of NZU banking is one to two years' worth of non-forestry unit demand, net of free allocation. For further discussion of the rationale for this range, please see Appendix 3.

47. These two objectives essentially amount to a strong weighting of the **alignment with targets and international obligations** and **promotes good market function** assessment criteria.

48. A further criterion that has been weighted strongly in the analysis of options summarised in this document is **regulatory predictability**. This is because increasing certainty about future policy settings has been identified as a key driver of the 2015/16 NZ ETS review.¹⁷

¹⁶ This is equivalent to 15-30 million NZUs with one-for-two in place, or 30-60 million NZUs with a one-for-one surrender obligation, if other NZ ETS settings remain the same.

¹⁷ Ministry for the Environment, 2015. See page 10.

NZ ETS purpose	Assist NZ to meet international obligations				Reduce net emissions below BAU							
	while maintaining economic flexibility, equity, and environmental integrity at least cost in the long term											
Review objectives	a) Allow the NZ ETS to evolve with changing circumstances, particularly with respect to the framework provided by the new climate change agreement				b) Ensure that the NZ ETS helps New Zealand to meet its international obligations cost effectively				c) Ensure the NZ economy is well-prepared for the strengthening international response to climate change and potentially higher carbon prices			
Problem definition	<p><i>Wider problem: NZ ETS design and implementation has not aligned well with international obligations leading to poor performance against its objectives, and it being ineffective in light of changed circumstances. There is an opportunity to make the NZ ETS more fit-for-purpose prior to the Paris Agreement coming into force in 2021.</i></p> <p>Problem addressed by this RIS: improve NZ ETS alignment with New Zealand's 2030 target, by:</p> <ul style="list-style-type: none"> reducing the projected emissions allowed by the NZ ETS over 2021-2030 to within New Zealand's 2021-2030 provisional carbon budget of 611 Mt CO₂e, and reducing the stockpile of banked NZUs to an appropriate level (within a range of one to two years' of non-forestry unit demand). 											
Criteria	Incentivises consideration of carbon in business decisions to drive emissions reductions that help meet international obligations <i>Relates to all three review objectives: (a) evolving the NZ ETS towards the Paris framework; (b) in terms of ensuring the NZ ETS helps New Zealand meet its international obligations; and (c) preparing the economy for potentially higher carbon prices.</i>				Maximises economic efficiency to minimise costs <i>Relates to the objective (b) element of achieving obligations cost effectively, with a focus on ensuring market integrity and efficiency.</i>				Alignment with broader Government goals <i>Relates to objective (c), preparing the economy well for the future, as well as (b) in terms of the achieving climate goals cost effectively. Aims to ensure the NZ ETS does not conflict with wider Government objectives.</i>			
Sub-criteria	Environmental integrity	Regulatory predictability	Appropriate risk sharing	Alignment with targets and international obligations	Minimises economic distortions	Promotes good market function	Administrative efficiency	Compatible with linking to other ETS	Minimise fiscal costs	Business competitiveness	Economic impact	Crown-iwi relationship
How these are judged	Units in the NZ ETS accurately reflect emissions and removals Impact on emission reductions	Durable solution. Clearly signalled with advance warning.	Extent of devolution of risk to emitters versus the Crown. Who bears cost of meeting 2030 target	Better aligns unit supply with our target by 2021 Transparent alignment with targets and obligations, so market provides signal linked to abatement task required.	Consistent treatment among NZ ETS sectors, to avoid distorting investment across the economy. Minimises perverse incentives	NZ ETS market will remain liquid (allows appropriate level of banking). Allows the market find the price medium term. No extreme short term price movements.	Cost of implementation to Government and participants Ease of implementation Minimises complexity	More similar in design to other ETS internationally	Fiscal costs vs benefits (revenue). Timing of costs or benefits.	Costs on trade exposed business versus global competitors Improved resource efficiency & productivity	GDP impacts Distributional effects across sectors and households	Consistent with the principles of the Treaty and CCRA

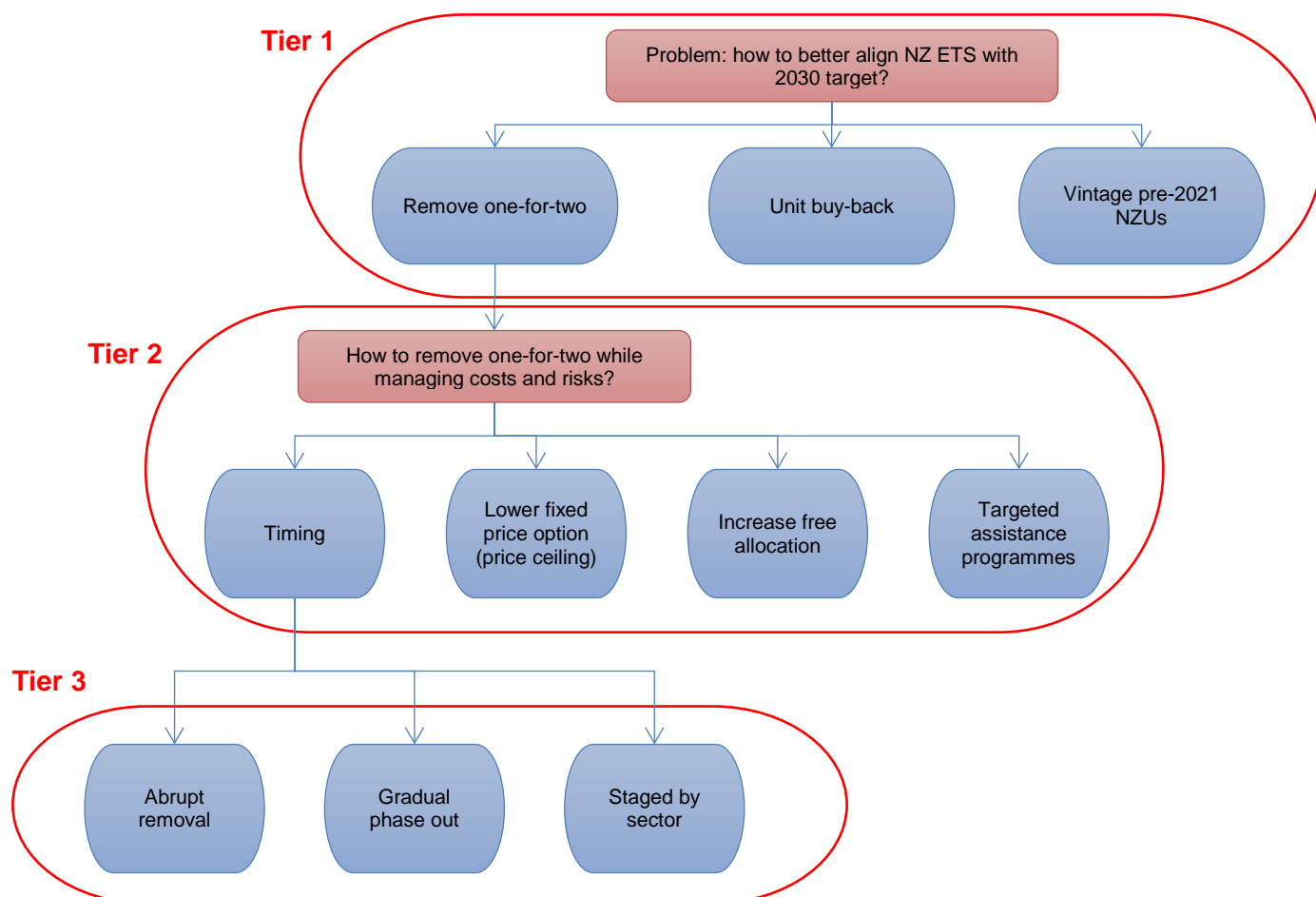
Table 2: Assessment criteria and their relationship to the NZ ETS and 2015/16 review objectives

Options and impact analysis

49. The identification of options to improve NZ ETS alignment with the 2030 target followed a three-tiered approach, as represented by Figure 3 below:

1. Three options to improve NZ ETS alignment before 2021 were identified. Initial consideration of these options against the assessment criteria indicated that one option, removing the one-for-two surrender obligation, was clearly preferable.
2. Four variants to remove one for two while managing costs and risks were identified, given issues highlighted by the impact analysis of the preferred option. These options were analysed to assess their effectiveness at meeting the objectives for increasing NZ ETS alignment while addressing risks facing some industries and preserving market confidence. Adjusting the timing of one-for-two removal was determined to be the best option.
3. Several options for timing the removal of one for two were considered, with gradual phase out starting no earlier than 1 January 2017 judged to achieve a balanced outcome across relevant risk management considerations and objectives.

Figure 3: Approach to analysis of options



Tier 1: Options for improving NZ ETS alignment with the 2030 target

50. All three high level options identified for improving NZ ETS alignment with the 2030 target would require legislative change to implement. They are:
1. **Remove one-for-two before 2021:** removing the one-for-two transitional measure from the industrial processes, liquid fossil fuels, stationary energy and waste sectors would double NZU demand from those sectors. Without a corresponding increase in unit supply, this would accelerate the surrender of banked NZUs to deplete the stockpile. Emitters would have to surrender more of their NZU holdings, NZUs acquired from other market participants or reduce their emissions¹⁸. The CCRA would be amended to remove clauses related to one-for-two.
 2. **NZU buy-back:** the Government could buy NZUs from NZ ETS participants to remove them from the market. This could be implemented in a similar way to the fisheries quota buy-back undertaken in New Zealand in the mid-1980s, with a tender process (potentially involving several tender rounds) backed up by intended pro-rata cancellation or compulsory purchase of units if not enough NZUs were sold back to the Government. The latter would be required to ensure the Government offer to purchase units generated interest from participants, rather than simply driving up NZU prices without removing units from the market. The CCRA would be amended to allow the cancellation or compulsory purchase of NZUs in participant accounts.
 3. **Vintage banked pre-2021 NZUs to expire at the end of 2020:** a time-limit (vintage) could be imposed on a proportion of pre-2021 NZUs¹⁹ to ensure that they cannot be used by NZ ETS participants for surrenders from 2021 onwards. The CCRA would require amendment to enable the application of the time limitation on NZUs and to allow their cancellation in participant accounts when the time limit expires.
51. Other options that could be effective in improving alignment of the NZ ETS with the 2030 target include introducing surrender obligations for agricultural emissions and reducing the rate of free allocation to emissions intensive and trade exposed activities. These options were not considered as they are outside the scope of the 2015/16 NZ ETS review.
52. A primarily qualitative analysis of the impact of the three options above against the status quo was undertaken using the assessment criteria. A summary of this is presented in Table 3 overleaf. This highlights expected outcomes against the three strongly weighted criteria²⁰ as well as the most significant costs or risks identified using through the other criteria.
53. The analysis showed that only option 1 would result in a net benefit compared to the status quo. This is principally because it is the only option that by itself would meet both policy objectives for the alignment problem, i.e. reducing banked NZUs to an appropriate level and reducing projected emissions allowed by the NZ ETS over 2021-2030 to within

¹⁸ Until the NZU market price reaches \$25, when participants can be expected to use the \$25 fixed price option rather than acquire and surrender NZUs from the market.

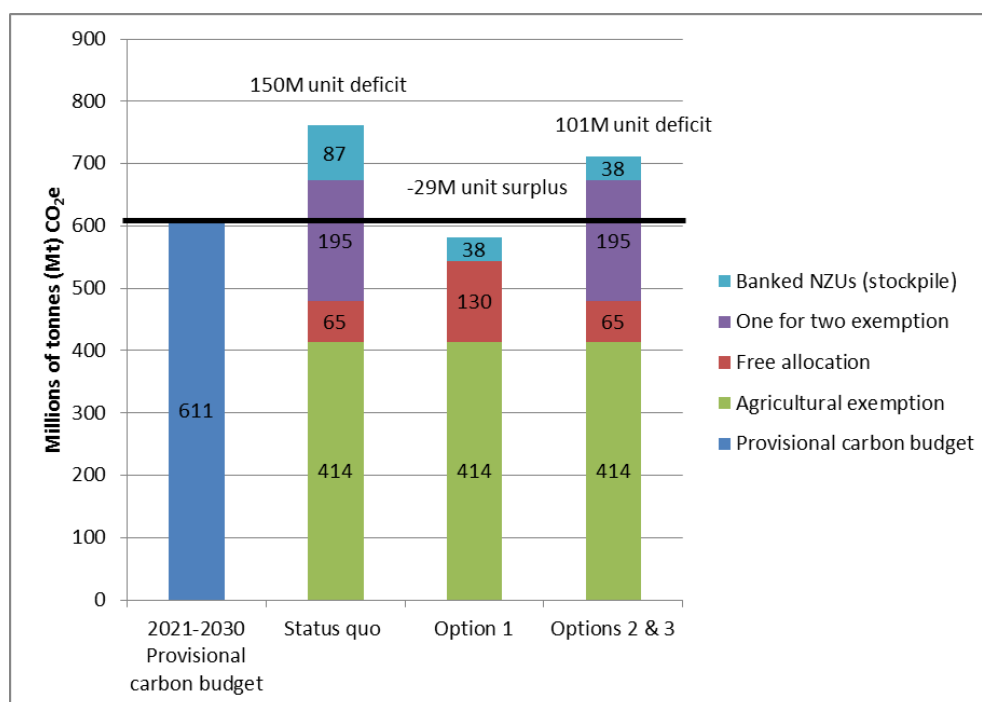
¹⁹ Vintaging new NZUs allocated to NZ ETS participants in future was not considered as part of this option, given the nature of the NZU stockpile (an historic unintended consequence of past circumstances and NZ ETS settings) and the importance of banking for market function and participants' management of their obligations.

²⁰ Regulatory predictability, alignment with targets and promotes good market function. See paragraphs 43-48.

New Zealand’s 2021-2030 carbon budget. It does this because it not only reduces the size of the NZU stockpile but also contributes to improving NZ ETS alignment with the target in future by making surrender obligations for all sectors in the NZ ETS on a one-for-one basis. This means that it avoids the projected exemption of 195Mt CO₂e emissions from sectors subject to one-for-two from using up New Zealand’s 2021-2030 carbon budget.

54. Options 2 and 3 were discounted because while they would both be capable of reducing the NZU stockpile to an appropriate level, they would not by themselves meet the second goal of reducing projected emissions allowed by the NZ ETS over 2021-2030 to within New Zealand’s 2021-2030 carbon budget. An illustration of the difference between option 1 and an equivalent reduction in the NZU stockpile caused by options 2 and 3 is provided in Figure 4. These options would also be viewed as ad hoc interventions by market participants, with significant negative impacts for market integrity as well as high risks of legal action. Option 3 in particular would not provide a stable price signal for the transition to a lower carbon economy.
55. A combination of either option 2 or 3 with delayed implementation of option 1 was also considered and discounted. This would involve reducing the NZU stockpile pre-2021 through a buy-back or vintaging, then removing one-for-two from 2021 onwards. A reason to do this would be to minimise costs for firms and households until the end of 2020, given that New Zealand requires no further effort to meet its 2020 emissions reduction target. This combination would address both objectives identified for this problem. However, the serious drawbacks and risks of options 2 and 3 in terms of regulatory predictability and market function remain. Using two options when one would suffice also adds unnecessary complexity and implementation costs.

Figure 4: Projected outcomes of options to improve alignment with the 2030 target²¹



²¹ For the purposes of this graph, option 1 assumes full removal of one-for-two from 1 January 2017, and options 2 and 3 involve buying back or vintaging 49 million NZUs in order to reduce the NZU stockpile to a level equivalent to the outcome achieved by option 1.

Option	Reduces emissions allowed by NZ ETS to within carbon budget	Reduces stockpile to appropriate level by 2021	Regulatory predictability	Other significant impacts or risks
1. Remove one-for-two before 2021	✓	✓	✓	<p>NZ ETS costs for participants (except foresters) would more than double, flowing on to households and the economy. Most firms can pass on the cost to customers, but not all.</p> <p>Increased NZU surrenders would have a positive fiscal impact of around \$120-300 million per annum for NZU prices \$10-25 over the next few years.</p> <p>Increased NZU prices would influence investment in emission reductions to benefit New Zealand in the 2020s. For example, with NZU prices of \$12.50-\$25, MPI projections estimate forestry could contribute an additional 38 Mt of CO₂ removals over 2021-30.</p> <p>Abrupt removal could create short term price volatility.</p>
2. NZU buy-back	✗ Fiscal risk created by 50% exemption of emissions from sectors subject to one-for-two would remain.	✓	✗ Investor confidence in market governance would be undermined by this ad hoc intervention.	<p>The Crown would have to fund cash payments. With a \$10-25 price range, the cost to buy back 50 million NZUs would be \$500 million - \$1.25 billion.</p> <p>Government intervention would become a significant driver of NZU price rather than market supply and demand.</p> <p>Increased NZU prices would drive investment in emission reductions, similar to option 1.</p> <p>Significant time and resources required to design and undertake buy-back process</p> <p>If pro-rata cancellation or compulsory purchase of NZUs occurs, high risk of legal challenges from NZ ETS participants and iwi who may perceive that their rights have been infringed.</p>
3. Vintage pre-2021 NZUs	✗ Fiscal risk created by 50% exemption of emissions from sectors subject to one-for-two would remain.	✓	✗ Investor confidence in market governance would be undermined by changing characteristics of units already allocated.	<p>As the expiry date approaches, NZUs would flood the market and prices would crash (as experienced in EU ETS phase 1). Price signal would not be stable enough to promote investments in emission reductions.</p> <p>Difficult decisions would be required from the Government about how many and whose NZUs to vintage.</p> <p>Addition of vintaging would add significant complexity to the NZ ETS for both participants and the Government. Also risks creating perverse incentives and arbitrage opportunities that could negatively affect NZ ETS effectiveness.</p> <p>High risk of legal challenges from NZ ETS participants and iwi who may perceive that their rights have been infringed.</p>
4. Buy-back or vintage NZUs combined with removing one-for-two in 2021	✓	✓	✗ Investor confidence in market governance would be undermined.	Risks and/or costs outlined above for options 2 and 3 would apply.

Table 3: Summary of tier 1 regulatory impact analysis

Tier 2: Options for implementing the removal of one-for-two

56. Further analysis was undertaken to enhance understanding of the impacts of the proposal to remove one-for-two, particularly the cost impacts.
57. The economic impact of removing one-for-two was investigated through Computable General Equilibrium (CGE) modelling (see selected results in Table 4),²² along with a study on possible effects on afforestation.²³

Table 4: Macroeconomic impacts of removing one-for-two

<i>The impact in 2020 at each price:</i>	<i>\$10/NZU</i>	<i>\$25/NZU</i>
Gross Domestic Product (GDP)	-0.04%	-0.1%
Gross National Disposable Income (GNDI)	-0.04%	-0.1%
Gross emissions	-0.3%	-0.6%
Net emissions	-0.3%	-0.7%

58. Consultation was also undertaken on whether to remove one-for-two and whether associated costs need to be managed. This provided valuable detailed information on how individual firms and specific sectors would be affected (see Consultation section for further information).
59. This additional information indicated that the overall economic cost of removing one-for-two was small. For most NZ ETS participants, firms and households increased costs were assessed as manageable. Households will face a modest increase in costs, estimated at \$33-75 annually at NZU prices of \$11-25. These costs will be proportionately higher for low-income households, who spend a greater proportion of household costs on energy and transport. Partial compensation for these costs will be provided through annual Consumer Price Index adjustments to benefits and the minimum wage.
60. In the case of participants and other firms, three categories of affected businesses were identified:
- **Firms that are not trade exposed** (e.g. electric utilities, waste, liquid fossil fuels, synthetic greenhouse gas importers): cost impacts are not considered to be of major concern as these companies will be able to pass on increased costs to customers, except on short notice as pricing structures may be inflexible (see discussion of the waste sector below).
 - **Emissions intensive, trade exposed (EITE) firms** (mostly industrial processors manufacturing internationally traded products, also some horticulture): These firms receive free allocation²⁴ for any activities (production processes) which are both emissions intensive and trade exposed. Some claims were made by these firms through the consultation process that increasing NZ ETS costs would have a major impact on their business, including in some instances on their viability. Taking into account that they are protected from the majority of their NZ ETS cost exposure as well as other available evidence, no particular additional cost management measures

²² NZIER, 2015.

²³ Manley, B., 2016.

²⁴ The allocation regime provides either 90% or 60% free allocation depending on the level of emissions intensity. Currently this allocation is halved to reflect the 50 per cent surrender obligation, and it will automatically double if one-for-two is removed.

are considered necessary. Nevertheless, the same concerns connected with regulatory predictability (advance warning, clear signals) that apply to all NZ ETS-affected firms also apply to these companies.

- **Trade exposed firms which are not emissions intensive:** this group is constituted primarily of agricultural processors, many of which use coal for process heat requirements where natural gas is not available. As the products they produce are traded in global commodity markets, these firms are primarily price takers and not able to pass on increased NZ ETS costs to customers. Instead, cost increases result in lower payments to suppliers (farmers). Having said that, farmers are not emissions intensive for energy use so NZ ETS costs are a small proportion of their total costs (less than 1% of operating expenses at NZU prices of \$11-25) and the policy intent of the NZ ETS is to make fossil fuel use more costly relative to lower carbon alternatives. The only case where the cost impacts were assessed as requiring special consideration was the dairy sector. This is because a majority of dairy farms are currently making losses due to low dairy prices, which may recover to some extent with time. This means that increasing NZ ETS costs are a material issue for this sector at this time, even though these costs are proportionate with the costs faced by other sectors (see further discussion of dairy sector issues below).

61. Therefore two specific risks were identified that warrant consideration:

- Lack of advance warning or abrupt changes to surrender obligations could cause NZ ETS price volatility and operational difficulties for some firms
- Increased NZ ETS costs would coincide with an expected eighty-five per cent of dairy farmers making a loss in the current season because of low dairy prices.

Risks or adverse impacts from insufficient advance warning of increasing NZ ETS costs

62. A sudden and substantial change to surrender obligations could force many participants to source large amounts of units from the market at the same time, with rapid price rises followed by a price fall. Many NZ ETS participants purchase and hold NZUs as a hedge to limit NZU price risk, particularly those who supply products or purchase fuel/feedstock through long term contracts. These hedges may be subject to risk management policies, requiring NZU holdings to fit a certain profile proportional to surrender obligations. An abrupt introduction of one-for-two could prompt high levels of policy-driven purchasing that would then end once the hedge profiles have been restored to acceptable levels, causing a price spike and exposing NZ ETS participants to undue price risks.

63. Consultation feedback highlighted that some firms would have difficulty incorporating increased NZ ETS costs into their pricing structures unless substantial lead time is provided. For example, in the waste sector fees are generally only set once a year in line with councils' rate setting processes. These firms will not be able to pass on NZ ETS increases announced and implemented after this until the following year, meaning they will have to absorb these costs.

64. This need for advance notice should also be balanced against the benefit some other participants (for example, importers of synthetic greenhouse gases) may receive from the ability to stockpile product before full obligations begin.

Risks from increased costs to the dairy sector

65. Consultation and economic modelling indicated that a group likely to be negatively affected by removing one-for-two was agricultural processors and their suppliers. Agricultural processors are trade exposed but not emissions intensive enough to receive significant amounts of free allocation, and face NZ ETS costs primarily because of their use of coal as a fuel source. Increased NZ ETS costs for agricultural processors result in lower farm-gate prices for their suppliers (farmers), as being primarily price takers in global commodity markets they are unable to pass increased costs on to their customers.
66. For the most part, increased NZ ETS costs passed on will be relatively small compared to farms' overall expenses. For example, if one-for-two is removed, the average dairy farmer²⁵ is estimated to face an increase in cost of between \$1,500 and \$5,000 per year (or 1 - 4 cents per kilogram of milk solids), depending on the NZU price. For context, the average dairy farmer received \$4.65 per kilogram of milk solids in the 2014/15 season and spent approximately \$30,000 on fuel and vehicles (approximately 5% of total expenses). The cost increase from removing one-for-two would equate to between 0.2 and 0.8% of total expenses for an average dairy farm.²⁶
67. Dairy farmers are currently facing a second consecutive season of low farm-gate prices. Eighty-five per cent of dairy farmers are expected to make a loss in the current season, with an average farm forecast to make a loss of approximately \$50,000.

Options for managing costs and risks of removing one-for-two

68. There are several choices available around how one-for-two is removed that could help manage these costs and risks. Four variants of how it could be implemented have therefore been identified, as outlined in Table 5.
69. These options have been analysed to determine the best strategy for achieving a reduction in fiscal risk while preserving market integrity and managing any significant competitiveness impacts. Table 6 overleaf summarises the results of this analysis across the key criteria. The main consideration is whether these options would be effective in addressing the risks faced by the dairy sector, while still meeting the primary objectives for the removal of one for two.
70. Only option A, altering the timing of one-for-two removal, was assessed as suitably mitigating costs, including the impact on dairy farmers. In addition to Table 6, the most important disadvantages of options B, C and D are also summarised below.

²⁵ Assuming production of 150,000 kilograms of milk solids per annum and NZU prices of \$10-\$25/tonne.

²⁶ Assuming NZU price of \$10-\$25/tonne.

Table 5: Options for managing costs and risks of removing one-for-two

Options	Description
A. Timing	<p>The timing of removing one for two could be adjusted in the following ways:</p> <ul style="list-style-type: none"> • Delayed implementation date • Phased out gradually over time for all sectors • Staged removal by sector <p>These could be relatively easily incorporated into the legislative change required to remove one-for-two.</p>
B. Lower the fixed price option	<p>The fixed price option acts as an NZU price ceiling and is currently set at \$25. It could be lowered through a relatively simple legislative change, to limit the maximum NZ ETS costs participants may face.</p>
C. Increase free allocation ²⁷ volumes	<p>Costs could be managed by increasing free allocation volumes to selected firms, by:</p> <ul style="list-style-type: none"> • increasing the free allocation rates to firms qualifying for it under the existing eligibility criteria, and/or • changing the eligibility criteria to allow more firms to receive free allocation. <p>This would require additional legislative changes and potentially complex new regulations if new activities were made eligible.</p>
D. Targeted measures to reduce NZ ETS costs	<p>Programmes outside of the NZ ETS could be started to assist NZ ETS participants to make their businesses less carbon intensive.</p>

B. Lower the \$25 fixed price option

- A lower fixed price option increases the risk that the NZU price would reach this price ceiling.
- If the market trades at the fixed price level for an extended period of time, it would allow the NZU stockpile to grow even further, undermining the achievement of one of the core goals of this policy proposal (reducing the NZU stockpile to acceptable levels, to limit potential fiscal risks). If the expectation is that the fixed price option could be increased in future, or that post-2020 international unit prices will be higher

²⁷ Free allocation is the mechanism used in the NZ ETS to protect firms involved in Emissions Intensive and Trade Exposed (EITE) activities from NZ ETS costs negatively affecting their international competitiveness. Currently highly EITE activities are covered for 90% of their NZ ETS cost exposure with gifted NZUs while moderately EITE activities receive 60% free allocation.

than the fixed price option, participants would be incentivised to retain existing NZU holdings or bank new NZUs received through free allocation or forestry entitlements.

- Foresters provided very strong feedback through consultation that lowering the fixed price option would further erode their confidence in NZ ETS market rules, and in the Government's approach to managing the scheme.
- This could be expected to flow through to lower investment in afforestation, which is critical to meeting New Zealand's future climate targets. To the extent that these forestry investments are a cost-effective domestic abatement opportunity for New Zealand this would be a negative impact at the national level.
- NZU prices reaching the fixed price level for any length of time would transform the NZ ETS into a carbon tax.

C. Increase free allocation volumes

- Providing free allocation specifically to the dairy sector would come on top of the exclusion of biological emissions from the NZ ETS.
- Changing the eligibility criteria for free allocation would be a significant change to the NZ ETS and would result in discriminatory treatment between different sectors and activities. Being an exception to the established approach, it would also be seen as an ad hoc intervention, undermining regulatory predictability.
- Any targeting of free allocation only for dairy would need to be carefully considered to ensure compliance with New Zealand's international trade law obligations under the World Trade Organisation and Free Trade Agreements.
- If free allocation was increased on a more general basis, it would require significant Government resource to undertake a further round of difficult decisions about who is most deserving of free allocation and for what volume.
- In the past this has been a time consuming process, and carries substantial risks of creating windfall gains for certain companies. This is because all approaches for determining free allocation eligibility and rates have drawbacks that create inefficiencies, due to the limited information available to the Government about firms' emissions, abatement opportunities, and cost structures.
- Experience indicates that once free allocation is provided, it is difficult to remove or reverse this support in future.

D. Targeted measures to reduce NZ ETS costs.

- This would be unlikely to provide much relief to the dairy sector in the short term. This is because it would be unlikely that such a programme could be implemented in a timely enough manner.
- Furthermore, abatement opportunities in the sector, which faces NZ ETS costs due to extensive use of coal in boilers used for drying milk, are likely to be of a longer term nature rather than quick wins.
- Support targeted directly at the dairy sector could create reputational or non-compliance risks for New Zealand's trade policy, similar to option C.
- Establishing the new programme or measures to assist firms outside of the NZ ETS would also require funding from the Government.

Table 6: Comparing cost and risk management options across key criteria

Option	Addresses short term risks for dairy	Reduces stockpile by 2021	Promotes good market function	Regulatory predictability
A. Timing	Delayed or gradual removal would provide time for dairy prices to stabilise.	Stockpile reduction would slow but could still be depleted to appropriate level.	Provides gradual transition for all firms. Participants have more time to plan for changes to cost structures. Lower risk of short term price spikes. Allows time to develop clarity on future unit supply.	Provides clear signal and advance warning. Supported by consultation feedback.
B. Lower the fixed price option	Only addresses upper end of potential costs which may not have any favourable effect - unless fixed price option reduced so much that stockpile may not be reduced sufficiently.	High risk that the NZU stockpile would not be sufficiently depleted due to extensive use of fixed price option.	High risk that NZ ETS would quickly turn into a carbon tax.	Consultation feedback indicated that this will be seen as an ad hoc intervention, eroding confidence in market governance.
C. Increase free allocation volumes	Effective if targeted at specifically at the dairy sector, but may create trade policy risks. If not targeted at dairy, unnecessarily creates constituency for continuance of free allocation (once it is provided, difficult to remove).	Stockpile reduction would slow but could still be depleted to appropriate level if allocation increase is sufficiently limited.	No significant impact (may reduce liquidity somewhat)	As a departure from established NZ ETS allocation policy, will be seen as an ad hoc intervention, eroding confidence in market governance.
D. Targeted measures to reduce NZ ETS costs	Unlikely to be timely enough to be effective in supporting dairy sector through short term challenges. Also would need to consider trade policy risks.	Stockpile could still be depleted to appropriate level.	No significant impact	No significant impact on confidence in NZ ETS settings.

Scale:

More favourable impact or lower risks				Less favourable impact or higher risks
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Tier 3: Timing options for one-for-two removal

71. The main difference between options for timing the removal of one-for-two is the speed with which they transfer the responsibility for meeting New Zealand's 2030 target from taxpayers to emitters. Too fast, and the Government imposes unnecessary costs on firms and households. Too slow, and the Government may have to pay for any deficit to meet New Zealand's target.
72. Three options for timing the removal of one-for-two are presented in this RIS, as representative of the many combinations of how the implementation of this change could be varied, as outlined in Table 7. These cover a range of timing options that we consider would deliver outcomes that may be acceptable to both the Government and the market.
73. Several other options for phasing or staging the removal of one-for-two were also analysed (with varied start dates, phase out or staging schedules) but are not presented here in the interests of conciseness.

Table 7: Timing options for one-for-two removal

Option	Description
I. 2017 abrupt removal	Full removal of one-for-two for all sectors from 1 January 2017.
II. Phased removal 2017-2019	Gradual removal in equal steps over three years, starting on 1 January 2017. This would result in surrender obligations for non-forestry sectors of: 2016: 50% 2017: 67% 2018: 83% 2019 and subsequent years: 100%
III. Staged removal by sector – LFF 2017, other sectors 2018	One-for-two would be removed in full for the liquid fossil fuels (LFF) sector on 1 January 2017, followed by full removal for other sectors from 1 January 2018. This option would defer most costs for the coal & gas users, industrial process emissions, synthetic gases and landfill gas emitters who may need advance warning for any changes due to less flexible pricing structures. In contrast, in the LFF sector product is generally supplied through short term contracts so it may be easier for the small number of firms in this sector to pass on costs to consumers. Note the proportion of LFF use by households is much higher than for other fuels.

Modelling stockpile depletion trends using different removal timing options

74. In order to understand the extent to which the NZU stockpile can be run down without risking a substantial NZU price reaction, we need to model the future behaviour of the stockpile under the different removal timings that we have identified in Table 7. For illustrative purposes, the late removal of one-for-two in 2021 is also included in these comparisons.

75. Figure 5 shows the output of a supply and demand model for the NZ ETS under different options for the removal of one-for-two. The important features of this chart are:

- The forecast NZU stockpile volumes are shown as lines, one for each of the four one-for-two removal timing options considered
- The three categories of NZUs described in Appendix 3: Analysis of banked NZU holdings are depicted:
 - Obligation-free NZUs
 - NZUs held for forest harvest liability. This volume becomes larger over time as the forests opted-in to the NZ ETS grow and produce more NZUs.
 - NZUs held for hedging purposes.

76. Each of the stockpile depletion scenarios track through the different phases of units:

- In general, we expect the obligation-free NZUs to be drawn down first. While the price preferences of NZU holders will vary, these units will likely come to market more easily than NZUs held for specific purposes.
- As the obligation-free NZUs are exhausted and if NZU prices rise, foresters will be incentivised to sell some of the NZUs that they are holding for future harvesting liabilities. This will be possible when the NZU price rises to levels where it becomes economic for some foresters to permanently afforest land.
- If the stockpile reduces to a level where it affects market participants' ability to hedge then strong NZU price increases can be expected. The low level of banked units would start interfering with the stable operation of the market. We consider it undesirable for the stockpile to be depleted to this extent.

77. Figure 5 illustrates the market reactions that the different timing scenarios are likely to generate:

- **I. 2017 abrupt removal.** Rapid removal of one-for-two is likely to see the stockpile volume reduced by the end of 2020 to very close to the minimum hedging volume needed in the market. This creates risks of a strong upwards price reaction, towards or reaching the fixed price level. Reaching the fixed price level would cause the stockpile to either stop declining, or potentially even to increase.
- **II. 2017-19 phased.** The stockpile reduces significantly by the end of 2020, but is further away from the minimum levels needed for hedging purposes.
- **III. Staged – LFF first.** The stockpile depletes to a similar extent as in 2017 abrupt removal, tracking close to the minimum level estimated as needed for hedging.
- **2021 removal.** This scenario does not even absorb all of the obligation-free NZUs before 2021.

78. Other timing options not presented here essentially involve different trajectories through the NZU stockpile volume between the two extremes of abrupt removal in 2017 or in

2021. A shorter phasing moves the trajectory to the left; a later start date, slower phasing, or more gradual staging by sector move it to the right.

Figure 5: Stockpile forecasts under different one-for-two removal scenarios

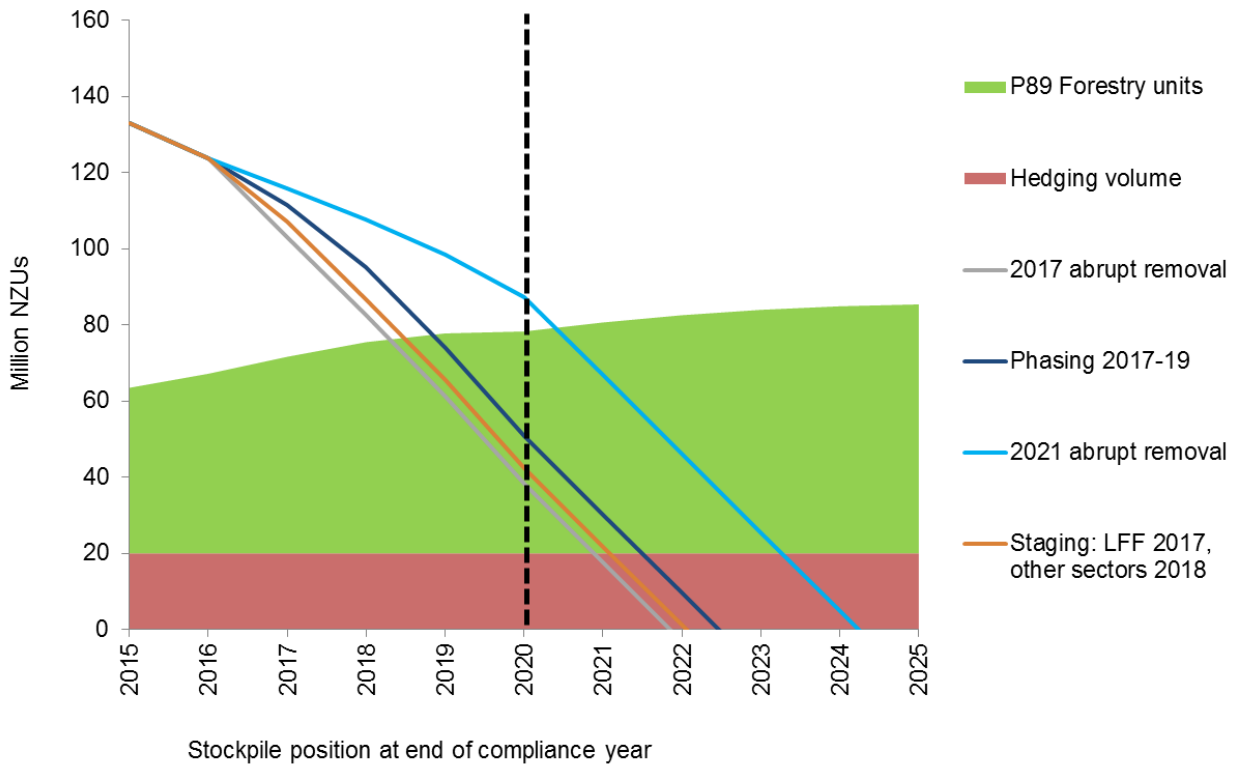
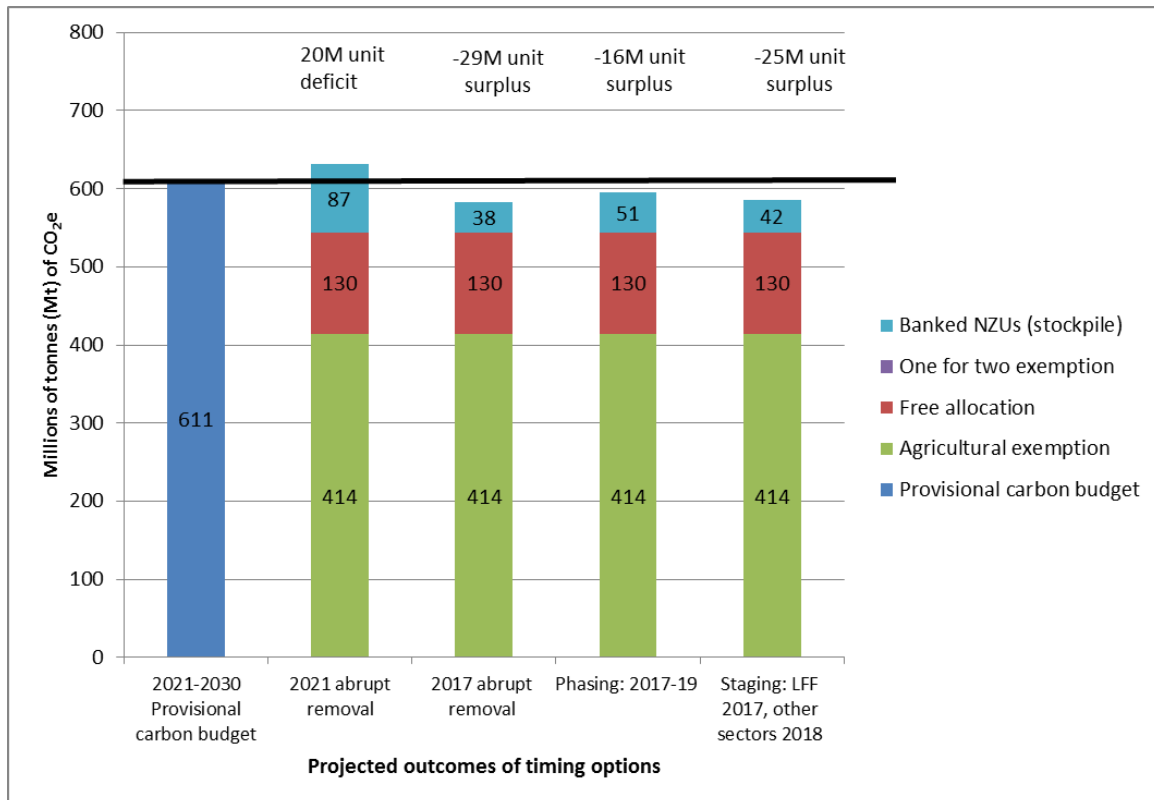


Figure 6 Timing options - projected outcomes



79. Three of the four timing options considered meet both requirements for the preferred option. However, how these options compare against other key criteria and for addressing dairy sector issues also needs to be considered. The fiscal impact also differs across the options, which is a relevant consideration for the Government. See Table 11 overleaf for a summary of how these options compare against relevant criteria, as well as Tables 8 - 10 below which provide more detailed information on the projected cost and revenue impacts of these three timing options.

80. Overall a phased approach has the best combination of outcomes for both the market and for Government.

Table 8: 2017 Abrupt removal: cost impacts at \$11 NZU price

		2016/17	2017/18	2018/19	2019/20	Total
Revenue	\$m	\$70	\$135	\$129	\$128	\$462
		2017	2018	2019	2020	Total
Cost to median households	\$/yr	\$33	\$33	\$33	\$33	\$132
Increased petrol prices	\$/litre	\$0.01	\$0.01	\$0.01	\$0.01	N/A
Cost to average dairy farmer	\$/yr	\$1,519	\$1,519	\$1,519	\$1,519	\$6,078

Table 9: Phased removal 2017-2019: cost impacts at \$11 NZU price

		2016/17	2017/18	2018/19	2019/20	Total
Revenue	\$m	\$23	\$67	\$108	\$128	\$326
		2017	2018	2019	2020	Total
Cost to median households	\$/yr	\$11	\$22	\$33	\$33	\$99
Increased petrol prices	\$/litre	\$0.00	\$0.01	\$0.01	\$0.01	N/A
Cost to average dairy farmer	\$/yr	\$506	\$1,013	\$1,519	\$1,519	\$4,558

Table 10: Staged removal by sector: cost impacts at \$11 NZU price

		2016/17	2017/18	2018/19	2019/20	Total
Revenue	\$m	\$47	\$115	\$129	\$128	\$419
		2017	2018	2019	2020	Total
Cost to median households	\$/yr	\$15	\$33	\$33	\$33	\$114
Increased petrol prices	\$/litre	\$0.01	\$0.01	\$0.01	\$0.01	N/A
Cost to average dairy farmer	\$/yr	\$334	\$1,519	\$1,519	\$1,519	\$4,893

Table 11: Comparison of timing options against relevant criteria

Option	Addresses short term risks for dairy	Reduces stockpile by 2021	Promotes good market function	Regulatory predictability	Fiscal Impact
I. 2017 abrupt removal	Full costs imposed during challenging period	Stockpile projected to reduce to 38 million NZUs.	Higher risk of NZU price reaching \$25 fixed price option, as stockpile reduced to the lower end of the 30-60 million acceptable range	Signalled through consultation but not supported by feedback.	Highest fiscal benefit of the three options compared.
II. Phased removal 2017-19	Provides two years of gradually increasing costs, giving time for dairy prices to stabilise before full obligations imposed.	Stockpile projected to reduce to 51 million NZUs.	Low to moderate risk of NZU price reaching the \$25 price cap as stockpile depleted to higher end of 30-60 million acceptable range.	Treats all sectors equally. Signalled through consultation and supported by feedback.	Fiscal benefit reduced, only reaching comparable levels to option I in 2020.
III. Staged removal by sector – LFF 2017, other sectors 2018	Provides one year of gradually increasing costs (but costs at a lower level in year one compared to option II), giving time for dairy prices to stabilise before full obligations imposed.	Stockpile projected to reduce to 42 million NZUs.	Moderate risk of NZU price reaching the \$25 price cap as stockpile depleted to middle of the 30-60 million acceptable range.	Introduces arbitrary distinction between emissions sources / sectors, although only for one year. Not explicitly consulted on and will be unexpected.	Fiscal benefit lower in year one (2017), then comparable to option I.

Scale:

More favourable impact or lower risks				Less favourable impact or higher risks
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Consultation

81. Consultation on the NZ ETS review's priority matters of whether to remove one-for-two and whether to manage associated costs occurred between 24 November 2015 and 19 February 2016.²⁸ Given the technical nature of the NZ ETS, consultation focused on engagement with technical experts and market participants alongside the broader public.
82. The review was publicly promoted and consultation material made available online. Targeted stakeholders were also contacted directly to discuss the review with officials. These included NZ ETS participants and key businesses, or industry groups representing businesses, which would be affected by changes to NZ ETS settings. Key stakeholders included entities from the following sectors:
- Agriculture sector
 - Business groups
 - Electricity generators and retailers
 - Forestry and wood processors
 - Industrial processors
 - Local authorities
 - Liquid Fossil Fuels (transport)
 - Market intermediaries
 - Non-governmental organisations and community groups
 - Research and tertiary organisations
 - Stationary energy (coal and gas)
 - Synthetic Greenhouse Gases
 - Waste
83. Information meetings and workshops were held with targeted stakeholders in December 2015, and in January and February 2016. These meetings were attended by approximately 150 stakeholders.
84. Six regional hui were held with the Climate Change Iwi Leaders Group and its advisors in January 2016. Approximately 78 people attended these hui.
85. The Ministry received 278 responses on the priority matters. These included 152 responses from key stakeholder groups, 9 from groups representing iwi/Māori, and 103 from the broader public (individuals). A summary of responses has been prepared which provides an overview of views expressed.
86. The strongest theme to come from responses and in consultation meetings was the need for regulatory or policy certainty. This was expressed across all sectors. Submitters and meeting attendees emphasised that continual and what they perceived to be ad hoc changes to the NZ ETS will result in uncertainty for long-term investment decisions.
87. On whether to move to full surrender obligations and remove one-for-two, there was broad support (210 submissions, 76%).
88. Stakeholders provided a range of comments and evidence demonstrating the impacts that moving to full surrender obligations will have on them or their businesses. All

²⁸ Some submitters requested and were granted extensions until 24 February 2016. These submissions were included in the total.

submitters considered the increases in demand and resulting increases in costs, with varying responses.

89. A large number pointed to the influence of the price of carbon on new forestry investment and a decrease in domestic emissions. Many emphasised, however, that stable or rising carbon prices are needed, along with regulatory certainty.
90. Four submitters raised concerns that removing one-for-two and higher NZU prices will impact on the future viability of their business. A number of other submitters raised international competitiveness as an important consideration. In response to this, it is noted that:
 - Increasing costs for users of fossil fuels is the expected policy intent of the NZ ETS;
 - a phased removal of one-for-two will allow these firms to adjust to increased costs;
 - in most cases firms will be able to pass increased costs on to consumers; and
 - in cases where firms are emissions intensive and trade exposed (and therefore cannot easily pass costs on to consumers), free allocation is provided and will double if one-for-two is removed.
91. If one-for-two is removed, a majority considered that it should be implemented before 2018 (163 submissions, 59%). The majority of foresters requested that one-for-two be removed from 2016. It is noted that this has risks associated with rapid NZU price increases and liquidity issues.
92. Views on whether price shocks associated with the change should be managed were mixed, with 32% (90) in favour and 40% (112) disagreeing. For those who considered managing costs necessary, the most favoured option was a gradual phase out.
93. Several participants and business submitters (13) caveated support for removing one-for-two with the qualifications, for example that it should only be removed when access to international units is reopened or when an NZU auction function is implemented. These features would in effect act as cost containment mechanisms by increasing unit supply in the NZ ETS.
94. Those who disagreed that price shocks should be managed considered that some price variability should be expected and/or the number of banked units should be sufficient to reduce the impacts of any 'shocks'. A large number of submitters further stated that the fixed price option should be increased and/or removed.
95. The submissions and feedback from consultation meetings confirmed that a mid-year implementation date for removing one-for-two was undesirable and that advance notice was critical for NZ ETS participants to take account of changes to obligations in their business processes. This led to the rejection of the earliest possible implementation date, July 2016. The preference for gradual phasing as a cost management approach was also reflected in the analysis.

Conclusions and recommendations

96. The preferred option is to remove one-for-two from with a gradual phase out over 3 years beginning no earlier than 1 January 2017. It is recommended because:

- Removing one-for-two will significantly improve the effectiveness of the NZ ETS market by bringing the market into closer alignment with New Zealand's 2030 target.
- Several phasing options were considered, including later start date (2018) or a shorter phase out period (two years). The choice of timing or phasing schedule involves trading off fiscal benefits and transfer of responsibility for emissions to emitters against increased costs to households and firms, adjustment time for NZ ETS participants, and risks to market stability. We consider that the three-year phase out schedule starting from 2017 appropriately balances these considerations.
- The 2017 three-year phased removal will transform the unit deficit expected in the 2020s to a projected unit surplus estimated at 16 million units. Based on current projections this eliminates the fiscal risk and allows the Government some room within the carbon budget to sell NZUs by auction if it wishes to do so.
- While this does not reduce the NZU stockpile by as much as some other options, it balances this outcome with the need to allow participants time to adjust their planning and processes to take account of full emissions obligations and to allow an acceptable level of NZU banking in the market.
- We consider that it sufficiently manages the risk of adverse market developments from either sudden NZU price spikes in the short term, or sustained price rises over the longer term resulting in NZU prices reaching the level of the fixed price option.
- Taking into account that the removal of one-for-two was first signalled in November 2015 with the release of the NZ ETS review discussion document, the 1 January 2017 implementation date provides participants with an acceptable amount of advance notice, particularly given the gradual phase out.
- It is relatively easy to implement, with minimal additional administrative burden on participants and the Government beyond what the NZ ETS already requires.

97. It should be noted that as with the other options considered, there are uncertainties in how the preferred option will play out in terms of NZU liquidity in the years approaching 2021. Modelling indicates that banked NZUs, excluding those assessed as being held against future forest harvest liabilities, will reduce to approximately 51 million units or around 18 months of demand by the end of 2020. Future arrangements for unit supply in the NZ ETS, including possible implementation of the sale of NZUs by auction and access to international units, is to be considered in the second stage of the NZ ETS review that will produce recommendations in the second half of 2016.

Implementation plan

98. To give effect to the preferred option, the CCRA must be amended. While the recommended date for the change taking effect is not immediate, a key theme from the consultation was that providing clear signals to the market and advance notice of any changes is extremely important for NZ ETS participants. Therefore an early announcement of the decision to remove one-for-two would be beneficial, and this would be reinforced by making the legislative amendment at the earliest opportunity.
99. MfE will continue to use the second stage of the consultation process for the NZ ETS review to provide interested parties with information on why changes were made and how it affects them. The EPA will also inform all participants of the new rules through promotion on its website and its newsletters to NZ ETS participants and allocation recipients.
100. The EPA operates the New Zealand Emission Unit Register and manages the administration of the ETS in relation to participants' unit obligations and entitlements under the CCRA, including participants' compliance obligations to surrender units. The EPA confirms that the preferred option for removing one-for-two should be able to be administered within its baseline.
101. The NZ ETS is based on a self-assessment approach, so participants are responsible for measuring, reporting and verifying emissions while the EPA has the power to audit emissions reporting, allocation applications, and undertake compliance activities. This policy proposal is not expected to introduce significant additional auditing work for the EPA which will continue with its existing targeted compliance programme.

Monitoring, evaluation and review

102. NZU holdings and transactions are recorded by the New Zealand Emissions Unit Register (NZ EUR) operated by the EPA. The EPA provides regular reporting on aggregated unit flows in several formats, including monthly reports provided within Government and public reports available on the [EPA website](#). MPI undertakes regular deforestation intentions surveys which gather NZ ETS-relevant information, as well as forecasting of expected forestry unit entitlements and surrenders for five years into the future. NZU prices and some information on trading volumes are also available from sources such as [OMF Commtrade](#) and [Carbon Match](#).
103. These information sources provide a good base on which to monitor the impacts of this policy on an ongoing basis, through monthly assessments of banked NZU holdings, trends in market behaviour, and any significant effects on liquidity. Both MfE and MPI are working to improve analysis and modelling of this data to provide a better understanding of NZ ETS supply and demand.
104. MfE published an evaluation of the NZ ETS early in 2016. A comprehensive monitoring and evaluation framework for the NZ ETS will be developed over 2016 and will be based on the process used in that initial evaluation. This will allow periodic assessment of the performance of the NZ ETS, including against its statutory objectives and of its administrative and operational efficiency, and of how this amendment has contributed to the scheme's performance over time.

105. The NZ ETS is intended to assist New Zealand to meeting its international obligations. Progress against internationally-agreed climate change commitments under the UNFCCC and Kyoto Protocol is tracked through regular reporting of national GHG emissions and the effects of its climate policies. This includes the annual national Greenhouse Gas Inventory, national communications every four years and biennial reports. This reporting is subject to review by international experts. Progress towards our 2020 target is also regularly tracked and updated through net position reports. These reports are all published on [MfE's website](#) and provide further information and opportunities to assess the effectiveness the NZ ETS as New Zealand's main climate mitigation policy tool.

106. Although there are no statutory requirements to review the NZ ETS according to specified timeframes, the CCRA contains provisions allowing for formal reviews and the Government has stated that it intends to review the NZ ETS regularly. Previous reviews were held in 2009 and 2011, and future reviews will provide an opportunity to assess and report back on the effects of this amendment.

Appendix 1: Terms of Reference – NZ ETS Review 2015/16

Context

- 1 The Climate Change Response Act 2002 (the Act) allows the Minister for Climate Change Issues (the Minister) to initiate a review of the New Zealand Emission Trading Scheme (NZ ETS). In 2012 Cabinet agreed that the first discretionary review will occur in 2015. The Act requires the Minister to specify the terms of reference for the review.
- 2 The context for New Zealand's climate policies is changing. Several key trading partners are taking, or have announced plans to take, increased domestic action on climate change. Countries are meeting in Paris in December 2015 to establish a new international climate change agreement, under which New Zealand will be required to meet an emissions reduction target set for the period 2021-2030. New Zealand has committed to an emissions reduction target that is more stringent than past obligations. As New Zealand's main policy tool for reducing emissions, the NZ ETS will play a key part in achieving this new target.
- 3 Alongside this, the Government's Business Growth Agenda includes a commitment to improve over the next 12 months energy efficiency and use of renewable energy to raise productivity, reduce carbon emissions and promote consumer choice.
- 4 The review provides an opportunity to engage with and seek comment from the public and stakeholders to assess the performance of the NZ ETS, and consider steps necessary to ensure the scheme is fit-for-purpose. For the review to be successful, the review process will need to be robust, transparent and credible.

Objective of review

- 5 The review will assess the operation and effectiveness of the NZ ETS to 2020 and beyond to:
 - a) ensure that the NZ ETS helps New Zealand to meet its international obligations cost effectively in the 2020s
 - b) ensure the New Zealand economy is well-prepared in the context of a strengthening international response to climate change and potentially higher carbon prices in the 2020s
 - c) allow the NZ ETS to evolve with changing circumstances, particularly with respect to the framework provided by the new climate agreement that will apply after 2020.

Scope

- 6 The review will focus on the operation and design of the NZ ETS, giving particular attention to the following issues:
 - a) Transitional arrangements:
 - i. Whether to maintain or adjust the 'one-for-two' surrender obligation.²⁹
 - ii. Whether to maintain or adjust the \$25 fixed price option.

²⁹ Under current transitional arrangements, for sectors other than forestry a full obligation does not apply as only one unit needs to be surrendered in respect of each two tonnes of emissions.

- iii. Conditions and timeframes for the continuation of free allocation of NZUs to emissions intensive and trade exposed activities.
 - b) Evolution of the NZ ETS:
 - i. Whether and how the supply of units should be managed up to and beyond 2020, including the role of forestry, auctioned and international units, as well as consideration of price stability mechanisms such as price ceilings or floors.
 - ii. How the NZ ETS should adjust to the changing international framework and operating environment, including with respect to accounting approaches and international carbon markets.
 - c) Operational and technical changes to improve NZ ETS effectiveness.
- 7 The review may identify issues or opportunities that would support emissions reductions in sectors where the impact of the NZ ETS is limited. In these cases, the review may highlight other policy measures or solutions that could support the climate change mitigation potential of the NZ ETS. These measures may need to be progressed through other processes.
- 8 The review will not focus on:
 - a) whether an emissions trading scheme is the most appropriate response to climate change for New Zealand
 - b) whether New Zealand should be taking action on climate change.
- 9 While there has been progress, the Government's two conditions³⁰ for the inclusion of surrender obligations for biological emission from agriculture have not yet been met. Therefore this issue will not be considered as part of this review of the NZ ETS. The Government continues to explore ways to enable and incentivise the agricultural sector to reduce its emissions, including by researching and developing new mitigation technologies.

Factors to be considered

- 10 In assessing the NZ ETS, the review will take into account the need to balance trade-offs associated with the following factors:
 - a) achieving legislated objectives, while managing costs including competitiveness and fiscal risks
 - b) ensuring the NZ ETS drives real emissions reductions domestically and/or internationally
 - c) the long-term risks and opportunities for New Zealand's economic resilience
 - d) the need to balance the efficient design of the NZ ETS with the potential for it to be connected to international carbon markets;
 - e) the distribution of impacts (both positive and negative) within and between sectors and groups, including Iwi/Māori

³⁰ The Government has indicated that biological emissions from agriculture will have surrender obligations in the NZ ETS only if:

- there are economically viable and practical technologies available to reduce emissions
- New Zealand's trading partners make more progress on tackling their emissions in general.

- f) administrative efficiency including transaction costs;
- g) providing increased regulatory certainty to assist with businesses' short- and long-term decision making
- h) coherence with the intent and objectives of existing New Zealand climate change policy (including the NZ ETS), and with New Zealand's international obligations.

Method

- 11 The review will be undertaken by officials from the Ministry for the Environment, with assistance from other departments, and especially the Ministry for Primary Industries; The Treasury; the Ministry of Foreign Affairs and Trade; and the Ministry of Business, Innovation and Employment. This will be underpinned by appropriate research, analysis and stakeholder engagement.

Procedure and timing for the Review

- 12 The review will begin following the announcement of these Terms of Reference. As part of the review, a public discussion document will be released on 24 November 2015. The consultation process will be conducted in two stages. Prioritised policy issues, such as the transitional arrangements, will be considered first, followed by consideration of other matters. The review will ensure that there are strong linkages between any potential short term and long term changes.
- 13 The consultation process for priority issues will run until 19 February 2016. Taking into account submissions received, initial advice will be provided to Ministers in the first half of 2016 on any short-term policy changes.
- 14 The consultation process for other issues will run until 30 April 2016. Analysis of these issues will incorporate any NZ ETS policy matters arising from the new international climate change agreement. Technical notes on specific issues may be developed and published as the review consultation progresses. Advice on these issues will be provided to Ministers in the second half of 2016, concluding the review.
- 15 The procedure and timing for the review can be varied by the Minister if the Minister is satisfied that it is appropriate, fair in the circumstances, and in accordance with these Terms of Reference.

Consultation

- 16 The input of stakeholders is important for the review's success. Public consultation will occur over December 2015 to 30 April 2016. Consultation will entail both general and targeted processes. In addition, officials will identify and involve relevant stakeholders including: iwi/Māori, local authorities, the business community, environmental groups, and the forestry and agricultural sectors.
- 17 Consultation processes will be centred on a discussion document published at the beginning of the review and technical notes published as the review progresses.

Reporting

- 18 Officials will report at appropriate intervals to the Minister on the progress of the review. The feedback from the stakeholder consultation process, and analysis produced by officials, will form the basis of advice to the Minister in the second half of 2016.
- 19 The Government may publish a report on key findings of the review and the future direction of the NZ ETS.

Alignment with other Government work

- 20 The review will be aligned with other Government work programmes, particularly the Business Growth Agenda priorities for the natural resources sector, and will take account of developments in respect of the new international climate change agreement.

Appendix 2: Wider NZ ETS performance and design issues

1. The lack of alignment between the NZ ETS and the provisional 2030 target is one aspect of a broader problem of the NZ ETS not sufficiently aligning with the international obligations it is meant to deliver. The effects of this is have worsened over time as the international context and New Zealand's international obligations have changed, meaning the NZ ETS is now operating in circumstances that were never envisaged when it was designed. The NZ ETS Review 2015/16 provides an opportunity to consider adjustments to the NZ ETS to make it more fit for purpose as the new framework provided by the Paris Agreement becomes clearer.

Performance of the NZ ETS against its objectives

2. An evaluation of the NZ ETS³¹ conducted by the Ministry for the Environment has found that its performance has been mixed. To an extent this is expected, as the NZ ETS was only the second ETS for climate change mitigation established after the EU ETS. Its design had to factor in New Zealand's unique circumstances, such as the important role of forestry in our emissions profile. A number of novel design features and approaches were developed, many of which have proved successful solutions. The evaluation found that the NZ ETS:
 - made an important contribution to meeting the CP1 target and put New Zealand on track to reach its 2020 target
 - supported achievement of other international obligations related to GHG monitoring and reporting
 - allowed the development of a functioning, liquid carbon market and
 - has not been overly burdensome for participants in its administration.
3. The NZ ETS assisted the Government to meet emission reduction targets primarily through creating a market that delivered international units to the Crown through participant surrenders. However, before it became a domestic-only scheme in 2015 the NZ ETS delivered more international units than needed to meet both the CP1 and 2020 targets. A cause of this was that the volume of non-forestry NZUs (i.e. permits to emit) provided to the market was well below New Zealand's carbon budget as set by its CP1 target. This meant that NZ ETS participants had to acquire and surrender more reduction or removal units (either domestic or international) than the Government required to achieve national reduction targets. Nominally this overachievement is a positive outcome for mitigating climate change, but potentially imposed a higher cost on the New Zealand economy than necessary for meeting the targets.
4. In combination with arbitrage of the NZU-international unit price differential over 2012-15 this outcome also contributed to the accumulation of the NZU stockpile, which under the status quo is likely to result in the NZ ETS underachieving on its 2030 target. Nevertheless, the underlying design feature of NZU supply being less than New Zealand's carbon budget remains. If the stockpile is depleted, the NZ ETS design has the potential to again deliver more international units than needed for meeting national targets.

³¹ Ministry for the Environment. 2016.

5. The NZ ETS evaluation also found that the NZ ETS has not yet, overall, materially reduced emissions from business as usual. Higher unit prices in the first years of the NZ ETS influenced new forest planting decisions, but subsequently prices were too low to influence investment decisions. This does not prepare New Zealand well for a future in which sustained reductions in domestic emissions are required over the long term, in addition to purchasing reductions from international carbon markets.

NZ ETS design and operation is inefficient in light of changed circumstances

6. Current NZ ETS policy settings do not put the New Zealand economy and Government in a good position to meet climate change targets and international obligations in the future. There are several elements contributing to this, most linked to the move away from the Kyoto Protocol towards the Paris Agreement but also to previous decisions taken by the Government to manage risks associated with the GFC-related economic downturn.

i. NZ ETS design based on Kyoto Protocol framework

7. First, the NZ ETS design follows the KP CP1 framework which no longer fully applies to New Zealand, and is unlikely to apply in the same way in the 2020s. Since 2013 the NZ ETS has not been nested within an international KP cap. In the absence of clear aims for the carbon market established by the Government, this means unit supply for the NZ ETS over the long term is unclear. This does not allow participants to form expectations about the future emissions price path and factor this in to investment decisions. Furthermore, the KP accounting framework (for example, the approach to forestry emissions accounting) may not apply to New Zealand in the same form after 2020.

ii. NZ ETS supply and demand not aligned with 2030 target

8. On the supply side, the NZU stockpile in combination with other NZ ETS settings (one-for-two, the exclusion of agricultural emissions, and free allocation) is expected to result in the NZ ETS being oversupplied by around 150 million units over 2021-2030. On the demand side, one-for-two undermines the principle that one unit should equal one tonne of emissions. Its presence is a barrier to aligning the NZ ETS level of ambition with the national target, which is on a one for one basis.

iii. Regulatory uncertainty in NZ ETS settings

9. Firms need some level of confidence over key policy settings so that they can make decisions about how they manage the costs they face from the NZ ETS. This is particularly important for firms investing in long-lived assets that will emit GHGs for decades to come and so will be affected by future carbon prices and policies. It can also impact firms' shorter term operational decisions, for example if a firm's risk management policies require it to hold units equating to a certain proportion of future years' surrender obligations.
10. The need to improve regulatory certainty has been a consistent message from stakeholders representing all sectors of the NZ ETS in recent years. Almost all the market participants interviewed for the NZ ETS evaluation considered that increased regulatory certainty and stable long-term policy settings would increase the influence of the NZ ETS on business decisions. Factors contributing to poor regulatory certainty include:

- the unclear future of the transitional measures
- lack of clarity over if and when selling of NZU by auction will occur
- how yet-to-be negotiated Paris Agreement rules may influence NZ ETS settings, including on when and how access to international carbon markets may be reopened for NZ ETS participants.

11. In particular, the one-for-two transitional measure may be causing firms to delay action to limit their exposure to future carbon prices by obscuring the signal for a long term transition to a low carbon economy. Firms may also expect the Government to continue to protect them from having to take full responsibility for the cost of their emissions. This moral hazard could contribute to businesses not planning appropriately to limit their carbon cost exposure.

iv. Regulatory uncertainty at the international level

12. It is still unclear what rules will apply to New Zealand under the Paris Agreement, most importantly in relation to forestry accounting and use of international carbon markets. There is also much uncertainty around the prices and supply of international units in the 2020s.

13. Given this uncertainty, it would be prudent for New Zealand to use its lower cost domestic abatement options - particularly forestry - to hedge against the range of scenarios that could eventuate in the 2020s. This is consistent with Government statements that meeting the 2030 target will require a mixture of domestic emissions reductions, removals from existing and new forests, and the purchase of international carbon credits. New planting needs to start as soon as possible for New Zealand to benefit in the 2020s, due to the 4-6 year lag between decisions to invest in planting and the delivery of removals from new trees. Current NZU prices are insufficient to stimulate afforestation.

Appendix 3: Analysis of banked NZU holdings

1. To assess how much NZU banking is acceptable and to what level it would be appropriate to reduce the NZU stockpile, the different purposes for which NZUs may be held should be considered. Three main roles for NZU holdings can be identified as:
 - A. **NZUs held as a hedge against future surrender obligations.** Some emitters will pre-purchase NZUs at the same time as they fix their prices with their customers, in order to manage their NZU price risk. The extent to which NZ ETS participants engage in such hedging activities will vary both by sector and also by company. An important consideration is that many of the largest emitters in New Zealand, which might be expected to have the most extensive hedging practices, are automatically hedged to a large extent by free allocation volumes.
 - B. **NZUs held by post-89 foresters against potential future harvesting obligations.** Forestry companies are issued NZUs while their forests grow but face a substantial surrender obligation when their trees are harvested. Some of the NZUs in the stockpile will be held for this purpose, meaning that many will not be freely sold unless foresters decide to permanently afforest land.
 - C. **NZUs that are not held against any future surrender or harvest obligations.** These NZUs should be able to come to market when the holders consider they can get a good price for them.
2. Judging the quantity of NZUs held for these purposes is challenging as the Government is not privy to market participants' intentions. We have estimated the volume of NZUs in each category by using several data sources and assumptions, as outlined in Table 12.
3. As NZU prices rise, many if not all of the obligation-free units may come to market. Units held by foresters will also be sold if it becomes economic for some foresters to permanently afforest land. However, if the stockpile of NZUs were to deplete into the minimum volume that participants require for their hedging needs, we consider that there would be a very high risk of a strong price reaction taking the NZU price up to the \$25 fixed price option.
4. If the market traded at this \$25 price level period for any length of time, it would likely cause the stockpile to actually grow. Participants would be incentivised hold their NZUs, including any new ones they receive through forestry entitlements or free allocation, particularly if expectations grew that the price cap might be raised in future or that international unit prices would be higher than \$25 in the 2020s.
5. To lower the risk of these potential adverse outcomes, we consider that the acceptable level of banked NZUs in the market should exceed the estimated minimum hedging volume, 20 million units, by a reasonable amount. Taking into account that forestry participants will also need to retain volume to hold for their future harvest liabilities, we judge an acceptable level of NZU banking to be between 30-60 million units.

Table 12: Estimates of NZUs held for different purposes

NZU purpose	Volume estimate	Estimation methodology
Hedging	20m	<p>There is limited public data about these hedge programmes, which makes assessing these volumes challenging. Our estimate is that a volume of 20 million NZUs represents a safe minimum for the NZ ETS to hold for hedging purposes. This estimate has been made using the following assumptions:</p> <ul style="list-style-type: none"> • Liquid Fossil Fuel activities have a hedge profile that drops from 100% to 0% over six months forward • Stationary Energy and Industrial Process activities have a hedge profile that drops from 100% to 0% over three years forward • Synthetic gases activities have a hedge profile that drops from 100% to 0% over an 18 month period forward • Waste activities hedge a full year in advance at all times. <p>For all sectors:</p> <ul style="list-style-type: none"> • These calculations have been carried out assuming that the one-for-two measure has been removed • Activities that receive free allocation have their hedging volumes reduced by an equivalent volume. So if (for example) an activity received 60% of their needs through free allocation, the hedge profile would only apply to the remaining 40% of exposed demand.
Forestry harvest	43m	The volume that has been allocated to, and surrendered by, post-89 foresters can be tracked over time through public reporting by the EPA.
Obligation-free	77m	Volume in the stockpile that doesn't fall into either of the two classifications above is classified as obligation-free. The majority of this volume is made up of NZUs obtained through re-registration arbitrage or the one-off allocation to P90 foresters.
Total	140m	This value is reported publicly by the EPA.

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