

Impact Summary: Enabling a price floor in the NZ ETS

Section 1: General information

Purpose

- The Ministry for the Environment is solely responsible for the analysis and advice set out in this Regulatory Impact Statement. This analysis and advice has been produced for the purpose of informing final policy decisions on the recommendation to enable a price floor in the NZ ETS, expected to be made by Cabinet in April 2019.

Key Limitations or Constraints on Analysis

To date, the NZ ETS has not had a price floor. This Impact Statement focuses on how a price floor could best be *enabled* in the NZ ETS. This would provide the Government with the tools to implement a price floor in the future, if considered desirable to do so.

It does not consider whether a price floor should be enabled at this time, as that is a separate decision which would require further consultation and analysis. This impact analysis is, therefore, limited to the high-level impacts of the options to enable a price floor, rather than the impacts a price floor would have if implemented.

A decision to implement a price floor in the NZ ETS, if taken in the future, would require clear evidence of the problem that the price floor would be addressing. Such analysis would be provided in a future RIS, alongside the cost-benefit analysis that would be necessary to support the establishment of regulations to implement a price floor.

The option recommended in this RIS requires amending the Climate Change Response Act 2002 (CCRA). The amendments will provide the framework to allow regulations to be developed to enable implementation of a price floor through the NZ ETS auctioning mechanism, if considered desirable in the future. This means the options analysis in this RIS is limited to high-level options and primarily contains a qualitative assessment.

Responsible Manager (signature and date):



27/3/19.

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Section 2: Problem definition and objectives

2.1 What is the policy problem or opportunity?

A price floor in the NZ ETS has not been required to date

Price controls in emissions trading schemes, such as price floors and ceilings, usually aim to limit unacceptably low or high prices. The NZ ETS has a price ceiling, but no price floor.

The 2015/2016 review of the scheme considered whether a price floor was desirable. There was considerable support for this, with stakeholders noting that low prices in the NZ ETS had impacted on low-emission investment decisions, including afforestation. At that time, the root cause of low prices was identified as being the unlimited volume of international units participants were then able to use.

It was determined that the most effective way to address the issue was to limit the use of international units if the NZ ETS reopens to international carbon markets in the future¹ [CAB-18-MIN-0606.01 refers] (see also RIS: Improving the NZ ETS Framework for Unit Supply).

Therefore there was not a strong case for progressing work on a price floor at that time. It was noted, however, that a price floor could be reconsidered in the future.

In light of the changing context, it is prudent to enable a price floor to future proof the scheme

New Zealand's climate change policy response has developed significantly since this decision was made. As part of this response, the Government is reforming the NZ ETS to ensure it can support the transition to a low-emission, climate resilient future New Zealand. It is progressing the Climate Change Bill (CCB) which is expected to set emission reduction target(s), and emission budgets to act as milestones towards the target(s). It will also establish an independent Climate Change Commission (the Commission), which is expected to provide recommendations to the Government on emission budgets. Their recommendations will likely include a high-level view of the NZ ETS settings required to help meet the emissions budget, including a desirable carbon price path. The price path will take into account global carbon prices, and will include upper and lower bounds. The Commission is also expected to provide recommendations on annual NZ ETS unit supply settings, including price control settings.

Enabling a price floor would provide a signal to the market regarding the trajectory for New Zealand's transition to a low-emission economy. This aligns with the purpose of the CCB and the expected activities of the Commission. Mechanisms that provide guidance for stakeholders on future emissions pricing were supported by the Productivity Commission in its *Low-emissions economy* report (August 2018), and the Tax Working Group's *Future of Tax* report (February 2019).

Cabinet agreed a 'coordinated decision-making process' for unit supply decisions as part of tranche one amendments to the CCRA ([CAB-18-MIN-0606.01 refers] and RIS: Improving the NZ ETS Framework for Unit Supply). The decision-making process provides the framework for making unit supply decisions in order to align the supply of NZUs in the

¹ The NZ ETS became a domestic-only system on 1 June 2015

scheme with our emission reduction targets. It requires the Government to make annual regulatory updates, setting the supply of units into the NZ ETS on a five-year rolling basis. This will set an overall limit (a cap) on units supplied into the NZ ETS (excluding units from removal activities, such as forestry).

Unit supply decisions need to be considered as a package as part of the coordinated decision-making process to reduce the risk of unintended consequences. Price control settings, such as price floors and ceilings, influence the supply of units in the market (i.e. in order to implement a price floor, the unit supply is restricted, which increases the price).² Additional detail on how a price floor would be considered as part of the coordinated decision making process is provided in the implementation section of this impact statement.

Given these developments in policy and decision-making processes for unit supply settings, there is a strong case for providing the Government with the ability to establish a price floor in the NZ ETS so it can respond to the Commission's recommendations if needed. This would give it the tools to manage extremely low prices in the scheme, if considered necessary in the future. Importantly, it would ensure the Commission is not restricted in the recommendations it can make to the Government. For example, if it recommends that a price floor is necessary, then the Government should have the tools available to implement this recommendation if it agrees.

Potential circumstances in which a price floor might be deemed necessary

The over-arching motivation for introducing price controls in the NZ ETS is to give the Government the necessary tools to deal with unexpected impacts on the carbon price as a result of market shocks (which can include technology breakthroughs, economic booms and busts etc.). As part of its mandate, the Commission will determine the carbon price trajectories that will be required to ensure that New Zealand achieves its emissions reduction targets at lowest cost. By definition, market shocks are unpredictable and the Commission's price modelling may not be able to price these shocks with certainty. The primary objective of the ETS price controls is to ensure that the ETS does not significantly deviate from the optimal carbon price trajectories due to unexpected technological or economic circumstances. As a consequence of this policy, the carbon price signal will be strengthened which will provide foresters and non-forestry market participants with mandatory obligations greater incentives to pursue low-carbon investments.

Although market shocks resulting in an oversupplied ETS would imply emissions reductions being achieved at lower cost, this is not sufficient to ensure the cost-effectiveness of New Zealand's low-carbon transition over the *longer* term. To achieve the longer term target, a wider *portfolio* of low-carbon technologies/activities will need to be implemented. A low carbon price will not create enough incentives to invest in such a portfolio, even though the low carbon price may be consistent with breakthroughs in a single (or a few) technology. If the Government does decide to implement a price floor, it will also need to consider what an 'unacceptably' low price level is. Ostensibly it would be a price that the Government would consider unlikely to be sustainable or representative of the price necessary to achieve long

² The mechanism by which the price floor is implemented will affect the extent to which the unit supply is restricted in the market. Some mechanisms are more subtle in the way they affect supply. For example, the current FPO affects supply to the extent that it replaces units that would have otherwise been removed from the market through surrenders. An auction reserve price could affect unit supply if it is above the marginal abatement costs of some entities; this would deter those entities from bidding, and consequently reduce the overall number of units in circulation.

term levels of ambition for emissions reductions.

Enabling a price floor could provide the Government with an opportunity to build confidence in the ability of the scheme to support emission reductions. During consultation submitters noted that a lack of confidence in the NZ ETS has impacted decisions to invest in low-emission technologies and practices, including afforestation. Although we consider that the root cause of this issue has been addressed through decisions to limit international units, this may not fully address residual issues that compromise confidence in the scheme.

Decisions on how a price floor would be implemented, and the level at which it is set, would depend on the objective the price floor is trying to achieve. We view the primary objective of a price floor as being to support the ETS in delivering cost-effective emissions reductions over the longer term. Market shocks that oversupply the ETS may delay emissions reduction efforts to the future,³ when these efforts will be more costly. Two primary outcomes of a price floor is that it will.

- i. provide price certainty to foresters about the minimum return they will receive through the NZ ETS for selling their carbon credits
- ii. clearly signal to all businesses what the minimum cost of their emissions will be.

The trajectory of the emissions price is important for all NZ ETS participants, and the wider public. To facilitate long term investment and planning, businesses need early and clear signalling on the expected cost of their emissions. Enabling a price floor would provide the Government and the Commission with a tool to indicate the lower price bound of the price bands that will be required to achieve New Zealand's targets and the transition to a low emission economy. This will provide certainty and predictability for participants and other stakeholders.

Some external events that impact on NZ ETS prices will be able to be managed through the safeguards provided by the price floor and price ceiling, others will not. For example, having a price floor during an economic downturn could further restrict the economy. The appropriate response to an external event are factors that the Government and the Climate Change Commission will take into account when establishing the long-term trajectory for emissions reductions and when taking annual regulatory decisions for price control levels and unit supply. A technological breakthrough in emissions reductions is another potential example of circumstances in which the Commission may want to reconsider, and potentially adjust, the emissions budget. Adjustments to the emissions budget, however, would take time, so it may be prudent to have a price floor which continues to signal the minimum carbon price and long-term trajectory as changes are being considered and implemented.

Ensuring the NZ ETS is future-proofed and protected against such unforeseen events supports the case for enabling a price floor. It also provides the Government with a pricing tool to respond to changing circumstances that affect the price of NZUs, should it choose to do so. It should be noted that as the price floor should be set a level that is unlikely to be struck, we would not expect it to be used, except in rare circumstances.

³ e.g. due to delayed investments in low-carbon technologies that require a higher carbon price to be economic, or due to locked-in investments in fossil fuels.

2.2 Who is affected and how?

It is prudent to provide the Government with a tool to manage extremely low prices in the NZ ETS, by setting a minimum price below which NZUs will not be sold. This could help participants, particularly foresters and large emitters, manage the risk of price collapse and emission prices falling to an unacceptably low level, which can undermine confidence in a minimum return for afforestation and low-emission investments.

Enabling a price floor is similar to the recommendation of the New Zealand Productivity Commission in their *Low-emission economy* report, which recommended that the Government should decide at what low price, if any, it would be desirable for the quantity of NZUs supplied to be reduced below the cap and for the price of NZUs to be maintained as a minimum incentive for long-term investments and innovations in low emissions. The Tax Working Group also supported mechanisms that provide guidance about the path of future emissions pricing in its *Future of Tax* report.

The 2015/2016 NZ ETS review sought stakeholder feedback on whether it is desirable for the Government to manage price stability. Stakeholders who expressed a view on the introduction of a price floor were largely in favour. The forestry sector is generally supportive of a price floor, as a way to provide greater confidence in long-term forestry investments. There was some opposition from stakeholders who prefer that market forces drive prices in the NZ ETS free from government intervention, or are concerned that a price floor could increase the costs of their NZ ETS obligations.

2.3 Are there any constraints on the scope for decision making?

The scope of this work is narrow and is focused on how a price floor would best be enabled in the NZ ETS, if considered desirable in the future. This RIS does not make a recommendation on whether a price floor is desirable right now.

In December 2018, Cabinet agreed to a first tranche of amendments to the establishing legislation of the NZ ETS, the Climate Change Response Act 2002 (CCRA). As part of tranche one decisions, Cabinet directed officials to report back in March 2019 on options for how to enable a price floor in the NZ ETS, including an option to set a reserve price for units being sold through auctioning.

This means there is a key interdependency between enabling a price floor and the design of auctioning. As part of tranche one decisions, Cabinet agreed that an auctioning platform be developed. Officials are currently progressing this decision and it is expected that the auctioning system be up and running by the end of 2020. Decisions on auction designs are still to be taken, and these will affect a price floor that operates through a reserve price at auction.

In December 2018 Cabinet agreed to improve the unit supply framework for the NZ ETS; to use a coordinated decision-making process for making annual regulatory updates to set the supply of units on a five-year rolling basis, and that this will include settings for price controls. As a price floor would influence unit supply settings in the NZ ETS, it is appropriate that the decision to enable a price floor be considered alongside tranche two amendments to amend the CCRA.

Section 3: Options identification

3.1 What options have been considered?

1. **Status quo.** There is currently no price floor in the NZ ETS.
2. **Prescribe minimum carbon price (hard price floor)**

Under this option a minimum carbon price would be prescribed in regulation or legislation, to prevent any unit trades below the floor price, including trades in the secondary market⁴.

This would be a hard price floor because it would prescribe a minimum price for New Zealand Unit (NZU) spot trading, which would prevent the market price for NZUs from dropping below the price floor level.

This option could provide a high level of confidence of the minimum price. However, it is a strong intervention and undermines the market nature of the NZ ETS. It would have significant implementation and on-going administrative costs for the Government to monitor, and for participants to show they are being compliant. This could result in the minimum price not being effectively enforced. It may also interfere with participants' other contractual arrangements or create perverse incentives for how businesses structure NZU sales contracts.

3. **Cash top-up fee (soft price floor)**

This would require participants to pay a cash 'top-up fee' to the Crown when they surrender units if unit prices were less than the floor price. This option does not directly influence the market price of NZUs; however it ensures a minimum cost of emissions.

This option would not provide confidence in the minimum price that a forester would receive for an NZU, but it would provide confidence of a minimum price for emitters. It is a strong intervention in the market and may have the unintended consequence of lowering the market price of units. It would be administratively complex to implement as the top-up fee would need to be updated over time.

4. **Crown buys back NZUs (soft price floor)**

Under this option the Crown would purchase NZUs that it had previously allocated to the market at the expense of the Crown (i.e. through free allocation or allocation for removal activities such as forestry). The ability for the Minister of Finance to purchase units is already enabled in the CCRA.⁵ This would reduce unit supply, which would drive the market price up to the floor price level. This could also be achieved by the Crown providing a contractual guarantee to buy-back NZUs at a specified price in the future. Units in the secondary market could still be sold below the price floor.

This option would provide confidence in the minimum price in the secondary market. However, it creates a risk that the Crown would have to seek funding to purchase

⁴ The secondary market predominantly includes bilateral trades between two private parties and trades through an online platform. This market is currently not strongly regulated as New Zealand Units are treated as commodities. The transparency of the secondary market price is limited due to its decentralised nature.

⁵ Section 6 of the CCRA

units, which could reduce the durability of this option. It would also create a risk of arbitrage (i.e. participants could purchase units at a cheaper price and then sell them to the Crown for a profit.)

5. Preferred option: Auction reserve price (soft price floor)

This would set a reserve price when auctioning units, meaning that no units would be sold at auction below this price, thereby restricting supply of units below a specific price. Units in the secondary market could still be sold below the auction reserve price.

The effectiveness of a reserve price at auction would be limited by the volume of units that are made available to sell, (which is affected by supply decisions for other sources, for example industrial allocation). However, it would send a signal to the market of the minimum price the Government expects in the market. An auction reserve price would be relatively simple to administer once auctioning has been implemented.

There is also some difference between Options 4 and 5 relating to the Government's financial liabilities corresponding to each option. As context, when units are not supplied to the market (i.e. the Government retains ownership over those units), the Government does not accrue liabilities with respect to these units on its balance sheet, or face an expense for units that are not sold through auctions in a year, i.e. the Government's position is neutral with regards to these unsold units. When NZUs are sold at auction, no expense is created and the Government receives a cash asset, and a liability is created.

Therefore in contrast to Option 5, Option 4 could result in the Crown having to spend cash to implement, which would have a negative impact on net debt. However, it should be noted that withholding units from auction would mean the Crown is not receiving a decrease in net debt as the cash asset has not increased.

6. No explicit price floor, but introduce other policies to promote forest planting or low emissions technologies (non-regulatory option)

This option could be targeted towards a specific outcome (e.g. towards foresters in particular if there is found to be a residual credibility issue that this sector has with the NZ ETS). This option would need to be considered through a wide lens with a full cost-benefit analysis taking into account decisions about New Zealand's wider approach to climate change. It would need to be carefully considered if it were to be used as it may have unintended consequences in the NZ ETS - it could undermine the primary objective to support the NZ ETS to deliver cost-effective emissions reductions over the longer term.

The criteria used to assess these options are the operational criteria used for the broader NZ ETS improvements package. These criteria include:

- A. **Integrity** – consistent with the overall NZ ETS objectives of helping New Zealand meet emission reduction targets and reduce net emissions below business as usual levels, and assist in fulfilling the Government's broader climate change objectives. It will also need to support the pillars for climate change, which includes a productive, sustainable and climate-resilient economy. Integrity in the NZ ETS includes avoiding

perverse incentives as much as possible.

- B. **Minimal complexity and administrative cost** – ensuring that implementation is not overly complex so that administration and transaction costs for participants and the Government are minimised.
- C. **Consistency and proportionality** – implementation should treat all participants similarly to avoid advantaging some participants over others.
- D. **Clarity and transparency** – ensuring that the option is understandable and unambiguous, and the appropriate information is made available.
- E. **Market efficiency** – The ETS market is efficient when it achieves allocative efficiency and delivers efficient price discovery. Allocative efficiency is the market's capacity to channel resources - in this case, NZUs - to their highest value uses. That is, emissions are reduced by those best placed to abate, at the best time.

For NZUs to flow to their highest value uses, the carbon price needs to reflect all available information. Provision of relevant market information and predictable policy will assist participants and others to identify and understand the overall supply and demand conditions for permits, facilitating efficient price discovery. This will produce a reliable price signal that informs investment decisions, while minimising the cost impact of the carbon price.

For a summary of the options analysis, please see Appendix 1. For a summary of price floor mechanisms in emissions trading schemes in force in other jurisdictions, please see Appendix 2.

3.2 Which of these options is the proposed approach?

The preferred option is to enable a price floor to be implemented into the auctioning system, via a reserve price.

The Government intends to commence auctioning NZUs into the NZ ETS in late 2020. Enabling the implementation of a price floor through a reserve price in the auctions would provide a 'soft price floor' that would operate only within the auctioning platform. It would not restrict trade on the secondary market. It would, nonetheless, provide an important price signal, because auctions (even if small) that clear at or above the auction reserve price would suggest that there may be demand that could settle at that price level or higher. In this way, although the auction will not be the *primary* marketplace for price formation, it will still have a significant contribution to the price formation process. Although NZ ETS participants could continue to trade below this minimum price in the secondary market, unit sellers would likely be unwilling to do so (knowing that buyers would be unable to source units below this price).

For a price floor implemented via a reserve auction price to be effective as a price signal, there needs to be a sufficient number of units available at auction. If only a very small volume of units are sold via auction, the overwhelming majority of trades will be conducted via the secondary market. If that were to occur, then any minimum price set by the Government as the reserve price for auctions may have a reduced impact on price in the shorter term. Although the auction will have a significant contribution to the price formation process (as

mentioned previously), it is possible that between any two auctions, prices on the secondary markets may fall below the auction reserve price, e.g. if the market structure is such that a large sale by an entity (in need of cash) can affect the price. An auction that is cancelled due to the reserve price not being met is also likely to depress prices on the secondary market. Over the longer term, however, if auctions continue to clear, the price in the secondary market would be expected to trade above the auction reserve price, due to the information that auctions will provide with regards to market participants' willingness to pay for the next unit of emission.

It is administratively simple to enable the price floor through amendment to the CCRA. If the Government considers it desirable to implement the price floor in the future, it would do so by setting a reserve price through regulations. The coordinated decision-making process agreed by Cabinet in December 2018 would require the Government to set the number of units to be auctioned and the price control settings through annual regulations, looking out five-years. The price floor settings would therefore be set through regulations, if and when the Government chooses to do so, and no further legislative changes would be required.

Enabling a price floor in auctions will provide the Government with a new tool to manage price controls in the NZ ETS, if it chooses to do so. It will give the Commission the ability to make price control and price setting recommendations to the Government that would not otherwise be available to them.

The preferred option provides the Government with a tool to manage unacceptably low prices in the NZ ETS, providing a price signal to the market, but not intervening in the ability of participants to trade at lower prices if sellers are willing to do so. This balances the desire for the Government to clearly signal the trajectory of the costs of emissions whilst giving flexibility to participants to manage their NZ ETS obligations as they see appropriate.

Option 4 is already enabled in the NZ ETS and could also provide an effective tool to enable a price floor. It is not preferred as it is more administratively complicated and creates a potential arbitrage risk. It would also require the Crown to seek additional funding to implement it. However, if there is a strong case for a price floor in future the Government may wish to implement this option in combination with a reserve price at auction. This option should remain available in future.

Section 4: Impact Analysis (Proposed approach)

4.1 Summary table of costs and benefits

Affected parties (<i>identify</i>)	Comment: nature of cost or benefit (eg ongoing, one-off), evidence and assumption (eg compliance rates), risks	Impact <i>\$m present value, for monetised impacts; high, medium or low for non-monetised impacts</i>
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Additional costs of proposed approach, compared to taking no action

Regulated parties	N/A	
Regulators	N/A	
Wider government	N/A	
Other parties	N/A	
Total Monetised Cost	N/A	
Non-monetised costs	N/A	<i>(High, medium or low)</i>

Expected benefits of proposed approach, compared to taking no action

Regulated parties	Increased confidence that the Government has the tools to manage unacceptably low prices that impact on investment decisions	
Regulators	The Government and the Climate Change Commission will have a new tool available to them to manage price controls in the NZ ETS, should they choose to use it.	
Wider government		
Other parties		
Total Monetised Benefit		
Non-monetised benefits		<i>(High, medium or low)</i>

4.2 What other impacts is this approach likely to have?

A potential uncertainty arises due to the proportion of units that will be made available to the NZ ETS market via auction, as opposed to through other sources (for example through industrial allocation). There is a risk that New Zealand's ambitious emissions reductions targets may result in only small volumes of units being available at auctions.

It is expected that this risk will be considered by the Commission and the Government when taking decisions on the supply of units into the NZ ETS (including price control settings) should the Government take the decision to implement a price floor in the future.

Section 5: Stakeholder views

5.1 What do stakeholders think about the problem and the proposed solution?

The Productivity Commission recommends that the Government should decide at what low price, if any, it would be desirable for the quantity of NZUs supplied to be reduced below the cap and for the price of NZUs to be maintained as a minimum incentive for long-term investments and innovations in low emissions. It also recommends that the reform of the NZ ETS should establish control over the supply of NZUs that is consistent with New Zealand's long-term, low-emission strategy.

The ETS dialogue process led by Motu Economic and Public Policy Research, which involved a number of NZ ETS stakeholders, supported a price floor being implemented as a reserve price at auction, with the price management of the price floor and ceiling being placed within New Zealand's overall emissions cap. This would operate to create a 'price band' that safeguards against downside and upside price risks.

Stakeholder feedback was sought during the 2015/2016 review on the desirability of the Government managing price stability in the NZ ETS. 25 per cent thought there should be no measures in place, generally preferring that the market determine the price of NZUs. 30 per cent recommended the use of both lower and upper limits to manage prices, largely to provide some protection for investments and certainty for businesses in their planning. 25 per cent of submitters supported a price floor, predominantly from the forestry sector and almost wholly to protect against an NZ ETS unit price collapse and to provide certainty about minimum returns on long-term investments.

Stakeholder support for a price floor was reiterated during the 2018 consultation on *Improvements to the NZ ETS*. Although the consultation document did not seek feedback on a price floor, a number of submitters expressed their views. Stakeholders who commented on a price floor were largely in favour. A number of NGOs, research and academic organisations favoured a price band for greater certainty in the price of emissions and to drive emission reductions. Again, many stakeholders in support were from the forestry sector, including iwi/Māori submitters.

Section 6: Implementation and operation

6.1 How will the new arrangements be given effect?

The proposal in this RIS is to enable a price floor to be included in the Climate Change Response Act Bill, expected to be introduced to the House in mid-2019.

The Government is currently reforming the NZ ETS. Decisions to amend the scheme's establishing legislation, the CCRA, are being progressed in two tranches. The first tranche was agreed in December 2018. The second tranche comprises a series of discrete papers being taken to Cabinet over March and April 2019.

It is appropriate and timely that the decision to enable a price floor be taken alongside other decisions on price control mechanisms and unit supply settings. This will allow future decisions to implement the price floor to be taken as efficiently as possible, without further amendment to the CCRA that is out of step with other reforms to the scheme.

A decision to implement a price floor via a price reserve through auctioning will require a regulatory change. These decisions will require further consultation and policy analysis and, if progressed, will form part of consultation for the annual regulatory amendments for the coordinated decision-making process.

The coordinated decision-making process provides a number of issues that the Minister must have regard to when setting price controls (Appendix 3). These include emission budgets, impacts of emission prices on households and the economy, and the level and trajectory of international emission unit prices. Price controls (like other unit supply settings) will be set looking forward five years, and will be updated annually. The legislation will also provide standard regulatory requirements, including that there must be consultation with substantially affected parties [CAB-18-MIN-0606.01 refers].

Section 7: Monitoring, evaluation and review

7.1 How will the impact of the new arrangements be monitored?

This RIS only provides recommendations on how a price floor would best be enabled in the NZ ETS. It does not make any recommendation on whether a price floor is desirable at the current time.

The immediate impact will be to provide the Government with a tool to introduce a price floor via a reserve price at auctions, if it chooses to do so in the future. Any decision to implement the price floor will require consultation and further analysis.

7.2 When and how will the new arrangements be reviewed?

This RIS only provides recommendations on how a price floor would best be enabled in the NZ ETS. There is no need for the arrangement to be reviewed, as the Government does not have to utilise the ability to establish the price floor until such time as it deems appropriate.

Feedback from stakeholders would be sought through consultation if any decisions to implement the decision was taken.

Appendix One

	Status quo No price floor	Prescribe minimum carbon price (hard price floor)	Cash top-up fee (soft price floor)	Crown buys back NZUs from the secondary market (soft price floor)	Auction Reserve Price (preferred option)	Non-regulatory options: Policies to promote afforestation and low- emissions technology
Integrity	<p>X</p> <ul style="list-style-type: none"> x No ability for the Government to protect against unacceptably low prices x No minimum protection for participants' investments in low-emission technology and practices X Doesn't signal trajectory for transition to low-emissions economy 	<p>O</p> <ul style="list-style-type: none"> ✓ Supports minimum protection for investments ✓ Helps ensure NZU prices are aligned to achieving emissions targets ✓ Signals trajectory for transition to low-emissions economy X Highly interventionist and doesn't allow participants to trade freely on the secondary market 	<p>✓</p> <ul style="list-style-type: none"> ✓ Provides certainty to participants of minimum costs of meeting emissions obligations ✓ Helps ensure NZU prices are aligned to achieving emissions targets ✓ Signals trajectory for transition to low-emissions economy O Doesn't affect supply of units into the market, emitters will have certainty of minimum cost of emissions, but provides no certainty to foresters of the minimum price they will receive for investments 	<p>X</p> <ul style="list-style-type: none"> ✓ Supports minimum protection for investments ✓ Helps ensure NZU prices are aligned to achieving emissions targets x Uncertain if this option is durable as it requires funding from the Crown 	<p>✓</p> <ul style="list-style-type: none"> ✓ Provides a level of certainty to participants of minimum return for afforestation and investments in low-emissions technologies and practices ✓ Helps ensure NZU prices are aligned to achieving emissions targets ✓ Signals trajectory for transition to low-emissions economy ✓ Affect supply of units into the market, which provides price signal to the market 	<p>O</p> <ul style="list-style-type: none"> x Does not provide certainty to participants of minimum costs of meeting emissions obligations O Doesn't affect supply of units into the market, but may provide confidence for foresters of the minimum price they will receive for investments (depending on the policy)
Minimal complexity and administrative	<p>✓</p> <p>No administrative cost</p>	<p>X</p> <p>Immensely complex and costly to enforce as the</p>	<p>X</p> <p>Complex to calculate the appropriate top-up fee and</p>	<p>✓</p> <p>✓ Minimal complexity</p>	<p>✓</p> <p>✓ Minimal complexity ✓ Administratively simple</p>	<p>O</p> <p>Dependent on the policy adopted</p>

cost		secondary market is not operated or regulated by the Government	uncertain for participants to know the fee they will be required to pay (i.e. how much cash they will need on top of units they have already purchased).	✓ Administratively simple to implement.	to implement.	
Consistency and proportionality	✓ All participants are treated equally	✓ All participants are treated equally	x Applying an average top-up fee will reward participants who bought units more cheaply than others	x May create windfall gains for participants who hold units	✓ All participants are treated equally	x Policies would address a specific problem, therefore be assisting NZ ETS participants affected by the problem.
Clarity and transparency	✓ Simple to understand	✓ Simple to understand	x Risk that calculation of top-up fee may be opaque	✓ Simple to understand	✓ Simple to understand	0 Depends on the policy
Market efficiency	x	x	x Risk of unintended consequences	✓ Unit supply would be reduced by the Crown purchasing NZUs, driving the market price to the price floor level x The Crown bears the fiscal cost of keeping the price at a minimum level, rather than emitters	✓ If the reserve price at auction is not met, the units would not be sold and be returned to the unit supply pool, thereby restricting supply of units at a specific low price x If there is insufficient volume of units for auction, the impact of the reserve price as a signal to the market will be reduced	x Risks undermining the efficiency of the NZ ETS if targeted at specific activities only

Appendix Two

Summary of floor price mechanisms in emissions trading scheme in force in other jurisdictions⁶

Jurisdiction	Type of price floor	Details
California	Auction Reserve Price	<p>Annual Auction Reserve Prices are minimum prices set and published annually in the jurisdictions of California and Quebec. A reserve price for the California/Quebec joint auctions was set at USD 14.53 per unit or 2018 (NZD 21.22). Until 2020 this level is scheduled to increase annually by 5% plus inflation. Beginning in 2021, a USD Base Reserve Sale Price will be set at an amount equal to the annual auction reserve price, plus a fixed dollar amount (which will equal the difference between the highest Reserve tier price determined in 2020 and the Annual Auction Reserve Price determined in 2020, increased by the rate of inflation).</p> <p>Allowances are allocated and auctioned with calendar year vintages.</p>
Guangdong (Chinese pilot ETS)	Auction reserve price	<p>Guangdong has an auction floor price.</p> <p>For 2015, set at 80% of the weighted average unit price over the previous three months. In 2016 there was no restriction on the declared price, but a “policy reserve price” was set as an effective price floor. In 2017 the policy reserve price was set at 100% of the weighted average price for allowances over the previous three months.</p> <p>A total of two million allowances are available for auction annually. Quarterly auctions were held until the 2016 vintage while for 2017 and 2018, auctions were ad hoc. No auction took place in 2018.</p>
Quebec	Auction reserve price	Same as for California (the ETSs of these two jurisdictions are linked, with joint auctions).
Regional Greenhouse Gas Initiative (RGGI) ⁷	Auction reserve price	The minimum auction reserve price in 2018 is USD 2.20 (NZD 3.21), increasing by 1.025 multiplied by the minimum reserve price from the previous calendar year.
Shanghai (Chinese)	Auction reserve price	Two million tonnes from the government reserve were auctioned in July 2018, with a floor price set at two

⁶ For additional information, refer [International Carbon Action Partnership \(ICAP\) – Status Report 2019](https://icapcarbonaction.com/en/?option=com_attach&task=download&id=615) https://icapcarbonaction.com/en/?option=com_attach&task=download&id=615

⁷ An ETS applying to the electricity sector in nine states in the north-east of the USA (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island and Vermont).

pilot ETS)	price	<p>times the weighted on-exchange allowance price from 18 November 2016 to 30 July 2018—CNY 41.54 (NZD8.97).</p> <p>The purpose of auctions is not to allocate allowance but to provide compliance entities with additional supply to meet their compliance demand.</p>
United Kingdom (EU ETS)	Top-up fee, only levied on the electricity sector	<p>Thermal power generators must pay a top-up fee over and above their EU ETS obligations to deliver a minimum carbon price of £18 (NZD 30.60) per tonne. The UK has unilaterally applied this on its electricity sector to drive investment in low-carbon generation. It does not apply elsewhere in the EU, although in October 2017 the Dutch government announced its intention to introduce a similar national carbon price floor, and President Macron of France advocated for an EU-wide version.</p>

1. Some other emission trading schemes have price stabilisation procedures allowing the regulator to intervene in the market by buying back units if unit prices are below a certain level. These jurisdictions include Korea, and the Chinese regional pilot ETS' in Beijing, Chongqing, Hubei, Fujian, Shenzhen, and Tianjin. There is limited information available in English about these mechanisms, but it is unclear whether they target a specific price level and so may not be price floors per se. For example, in Shenzhen the regulator may buy-back up to 10 per cent of total units allocated, and in Korea potential market interventions to stabilise price include reducing the amount of borrowing (of units from future years' free allocation) or offset units that participants can use.
2. A hard price floor is a feature of the Beijing pilot ETS: if the price is lower than CNY 20 (EUR 2.67) per ton for ten consecutive days, the government can (but is not required) to buy from the market at a fixed price. Shenzhen, Shanghai, Tianjin, and Hubei have similar policies, but without specific operational guidelines (For more details, see ICAP & PMR, 2016).
3. China launched a national ETS politically in December 2017, with a three-phase roadmap that will see allowances for spot trading for compliance purposes roughly starting from 2020. Adjustment mechanisms to prevent abnormal price fluctuations will be developed, but details are not yet available.

Appendix 3

Decision	Considerations for making unit supply decisions	Rationale
1. International unit limit	<p>Decisions must generally not be inconsistent with:</p> <ul style="list-style-type: none"> the relevant emissions budgets set under the CCB the relevant NDCs for the purposes of the Paris Agreement <p>In addition, the Minister must have regard to:</p> <ul style="list-style-type: none"> New Zealand's projected emission trends, including as measured in our NDC, for the relevant five year period the greenhouse gas emissions to which the NZ ETS applies the proper functioning of the NZ ETS agreements and arrangements for access to international emission reductions the forecast range of abatement costs that may be needed in order to deliver New Zealand's emission reduction targets recommendations of the Commission, including a desirable carbon price path international emission reductions purchased for subsequent auction into the NZ ETS as an equivalent number of NZUs any other matters that the Minister considers relevant 	<p>This decision would determine the number of international units that participants may purchase. This decision will factor in the abatement required to meet the relevant NDC compared with the domestic abatement that will be necessary in order to meet the relevant emissions budget.</p> <p>In effect, the international unit limit would reflect the additional abatement required above the emissions budget to meet the NDC.</p>
2. Allocating the domestic budget	<p>As per the considerations above, plus:</p> <ul style="list-style-type: none"> the limit on the number of international units that a participant may surrender the number of NZUs expected to be allocated (through free allocation or under negotiated greenhouse gas agreements) 	<p>The domestic budget that is unallocated (for example not allocated through free allocation or non-NZ ETS sectors) will be auctioned into the NZ ETS as NZUs. This will include equivalent NZUs representing international units that the Government has purchased for subsequent auction into the NZ ETS.</p> <p>It should be noted that (as per current settings) free allocation levels are not prevented from exceeding the overall limit, because allocation is intensity based and changes with production volumes.⁸ However if the overall limit is exceeded, no further NZUs would be auctioned.</p>
3. Price controls	<p>As per considerations in 1 and 2, plus:</p> <ul style="list-style-type: none"> the impact of emissions prices on households and the economy the level and trajectory of international emission unit prices (including price controls in linked markets) inflation 	<p>The trigger price for price controls and volume of NZUs available via the cost containment reserve are 'safe guards' to manage the risk of prices reaching unacceptable levels. Therefore, additional factors need to be considered.</p>

⁸ The decision-making process for phasing-down free allocation will be made through a separate provision.