



# Managing Permanent Exotic Afforestation Incentives

## Regulatory Impact Statement

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Proactive release

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# Cover Sheet

## Purpose of document

Decision sought:	Regulatory Impact Statement (RIS) to support policy decisions on: a) whether and how permanent forests using exotic tree species (exotic forests) are restricted in the permanent forest category of the New Zealand Emissions Trading Scheme (NZ ETS), b) whether to adjust how averaging accounting in the NZ ETS applies to forests on remote and marginal-to-harvest land.
Advising agencies:	Ministry for Primary Industries and Ministry for the Environment
Proposing Ministers:	Minister of Forestry Hon Stuart Nash; Minister of Climate Change Hon James Shaw.
Date finalised:	18 August 2022

## Problem definition

Current NZ ETS settings, prices of units within the scheme (New Zealand Units (NZU)), and the expectation of increasing carbon prices<sup>1</sup> in future are driving increasing levels of afforestation. These factors are driving high and increasing levels of afforestation of permanent exotic forests (a form of land use that has not been seen historically in New Zealand).<sup>2</sup>

This permanent exotic afforestation incentivised by the NZ ETS is causing three issues:

- a) Rural and local communities: Permanent exotic forests are displacing other productive land uses, such as farming and production forests in some regions. Permanent exotic forests contribute less to employment, rural communities and exports than other productive land uses and inhibit flexibility in options for future land use.
- b) New Zealand's transition to a net-zero emissions economy: The NZ ETS is the Government's main lever for reducing climate change emissions. High levels of permanent exotic forests entering the NZ ETS will erode the Crown's ability to effectively manage long-term NZ ETS supply in a stable and enduring way under current legislated settings, which will impede the ability to manage the scheme to realise reductions in emissions.
- c) Long-term environmental outcomes: Permanent exotic forests made up of highly stocked and concentrated areas of pines grown to the end of their natural lifespans can have environmental issues associated with them (e.g., fire, disease, wilding pines). We lack empirical evidence about the long-term environmental and forest management consequences of such forests over the long-term, meaning that their establishment at scale presents an unknown degree of risk.

<sup>1</sup> This document refers to the price of NZUs within markets for traded NZUs within the NZ ETS as the 'carbon price' unless otherwise stated.

<sup>2</sup> In this document, permanent exotic forest means forests consisting predominantly of tree species that have been introduced to New Zealand (e.g., radiata pine, Douglas fir, redwood), where limited or no harvest of trees occurs, and are not grown for timber/log production. These forests are distinct from production forests using exotic species grown for timber/log revenue (e.g, typical production forests involving radiata pine harvested on 28-year cycles). Production forests involving exotic species are not affected by proposals in this RIA.

## Executive summary

### Current settings

1. The NZ ETS provides an incentive for afforestation by providing NZUs for the removal of carbon from the atmosphere by forests. The scheme allows for owners of these forests to sell their NZUs to businesses who generate emissions and earn revenue as a result.
2. In 2020, the Government introduced major reforms to forestry in the NZ ETS via the Climate Change (Emissions Trading Reform) Amendment Act 2020. One change was the introduction of a permanent forest category, which will come into effect from 1 January 2023. This category allows for owners to earn NZUs from post-1989 forests<sup>3</sup> that are not intended to be harvested for at least 50 years after they are registered.
3. Both indigenous and exotic tree species are eligible for the permanent forest category under current legislation and face the same requirements as part of their participation. Current settings impose minimal controls on scale, type or management of permanent forests.<sup>4</sup> Some of the key requirements imposed are to maintain tree crown cover in each hectare of the forest for at least 50 years and comply with the Resource Management Act at the time of registration.

### Trends driven by current settings

4. As permanent forests will continue to grow and remove carbon for several decades (for example, 60-100 years or more for radiata pine), these forests will continue to earn NZUs over a long time.
5. This gives landowners the ability to earn significant economic returns through participation in the permanent forest category. These economic returns are particularly high for exotic species, as these are fast-growing relative to indigenous species and easy to realise at scale due to lower costs of establishing exotics. Over a 50-year timeframe, an average permanent pine forest in the ETS will earn 7.5 times more NZUs than an equivalent area of indigenous forest.<sup>5</sup>
6. At recent auction prices for NZUs within the NZ ETS (\$70), MPI estimates that economic returns (net present value (NPV)) for permanent exotic forests would be upwards of \$35,000 per hectare, solely driven by the carbon price, compared with ~\$4,500 per hectare for an extensive sheep and beef farm.
7. This difference in economic returns driven by carbon prices for permanent exotic forests will be a key factor affecting land use decisions for land that is currently in sheep & beef farming, production forests, or scrub.
8. Evidence and data collected for land use trends in recent years confirms that rising carbon prices have corresponded with increases in afforestation of permanent exotic forests. Recent surveys of afforestation intentions prepared for MPI indicate establishment of **10,200**

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<sup>3</sup> Under current settings, forests that were first established prior to the year 1990 are not eligible to enter the permanent forest category. Newly established forests and existing forests established since the year 1989 ('post-1989 forests') are eligible to enter the category so long as they comply with conditions for entry (for example, the forest must be at least 1 hectare, and have tree crown cover of more than 30% in each hectare).

<sup>4</sup> There are risks that forests may also be managed as permanent in the NZ ETS under stock change accounting, although this category is only available until the end of 2022.

<sup>5</sup> MPI calculation, August 2022. Based on carbon for weighted average Field Measurement Approach (FMA) table for radiata pine, relative to indigenous. This is based on forests currently registered in the NZ ETS.

**hectares** of new permanent exotic forests in 2022, an increase from **5,300 hectares** in 2019 when carbon prices were lower (Manley, 2022). These rates will increase under the status quo as the carbon price rises.<sup>6</sup>

9. NZU prices are expected to increase further over time to incentivise emissions reductions across a range of sectors (for example, from energy and transport) in meeting New Zealand's emissions budgets and targets.

#### **What problems does this create? Are there benefits? How do we balance these?**

10. The Government presented three identified issues/risks from increasing rates of permanent exotic afforestation at a national level in our Interim RIS published as part of public consultation (MPI, 2022):

- a) Impacts to rural and local communities.
- b) New Zealand's transition to a net-zero emissions economy.
- c) Long-term environmental outcomes.

#### ***Risks to rural communities and to long-term NZ ETS market conditions***

11. Evidence received through consultation has contributed to an improved understanding of this problem definition related to a) rural and local communities; and b) risks to the transition to a net-zero emissions economy through NZ ETS market conditions.

12. This has largely confirmed and strengthened our assessment of the risks in relation to long-term NZ ETS market conditions (risk b).

13. For risks to rural communities (risk a), this evidence has contributed to a more balanced understanding of risks facing different communities. These risks will vary depending on circumstances of a region and the way the forest is managed. For example:

- a) Permanent exotic forests can provide benefits that are recycled back within rural communities (e.g., using revenue to fund investment in housing), and provides a high economic return for land that may otherwise be unproductive and carry low economic value (e.g., scrub land). Māori landowners repeatedly referred to these benefits.
- b) Different forest models that might be classified as 'permanent exotic forests' have different impacts on employment and returns. For example, 'continuous cover' forest models can provide jobs and non-carbon revenue through selective harvest of high value timber and use of the forest's understorey for co-products.
- c) With support from Tararua District Council, we have a better understanding of more significant regional impacts and risks in areas of concentrated activity of permanent exotic forests (refer to the case study on page 24).

14. While there will be benefits to some communities from permanent exotic forests, these are not guaranteed by the current regime (status quo) at a national level. There is currently no ability for the public or regulator to distinguish between a permanent exotic forest that resembles a 'plant and walk away' model (where few jobs and social benefits may be seen)

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<sup>6</sup> Data available indicates a positive correlation between short-term carbon price returns with afforestation (see Figure 1, page 16). However, it is unclear how and to what extent landowners are making rational assessments of long-term carbon price returns in their decisions to establish permanent exotic forests. Under current legislated settings, under which extensive permanent exotic afforestation will occur, long-term carbon prices (e.g. in the 2040s and beyond) are almost certain to depreciate due to high levels of supply liquidity from these forests and reducing gross emissions demand for sectors covered by the NZ ETS.

and one in which a permanent exotic forest is actively managed to realise its potential benefits.

15. Our fuller updated assessment of these risks is set out in more detail in Section 1: Diagnosing the Policy Problem (Page 12) and is explored further in relation to Māori in the appended Treaty analysis (Page 69).

### ***Risks to long-term environmental outcomes***

16. For risk c) long-term environmental outcomes, assessments of the benefits and risks of permanent exotic forests were heavily contested in public fora during consultation, and this was reflected in submissions.
17. Evidence from consultation has supported some of the identified risks (for example, that pest and fire risks exist in densely stocked monoculture regimes optimised for carbon returns). Submissions have also provided evidence of some environmental benefits to permanent exotic forests (for example, compared with pasture, permanent exotic forests will reduce erosion, improve soil conservation and water quality).
18. As permanent exotic forests are a novel land use in New Zealand, the full nature and extent of the environmental consequences of this land use choice will only be understood with time and further experience with such forests as they age.

### ***Summary consideration of risks and benefits***

19. It is important to recognise the significance of the current legislative and policy choices on the permanent forest category as it is currently one of New Zealand's most significant levers affecting economic decisions on land-use. Today's choices will shape New Zealand's land use patterns long into the future.
20. As permanent exotic forests receive large volumes of units that can be sold and are required to be unharvested for at least 50 years – the category creates very high costs to landowners of ever switching to alternative uses in future because of liabilities for deforestation or reducing carbon stocks (e.g., through conversion to an indigenous forest or to pasture).
21. Ultimately, choices on the future of the permanent forest category require trade-offs. These are between New Zealand's historical management of land on a flexible land use basis (that affords high levels of private landowner discretion on best use of their land); and seeking to shape economic incentives affecting land use management for public objectives and publicly acceptable risks of novel land uses.

### **Options that were considered for permanent exotic forests**

22. The current settings in the NZ ETS (Option 1 – status quo) cannot manage the core risks identified in the problem definition, as legislated settings do not allow for the area, species, or management regime of afforestation to be controlled.
23. Given these risks, this regulatory impact statement presents the following options for managing permanent exotic forests in the NZ ETS:
- a) **Option 1 - Status quo:** Allow unlimited exotic and indigenous registration in the post-1989 permanent forestry category.
  - b) **Option 2:** Legislation to restrict the permanent forest category to indigenous forests only.

- c) **Option 3:** Legislation to restrict the permanent forest category to indigenous forests, but allow some exotic forests under certain circumstances.
- d) **Option 4:** A moratorium to restrict the permanent forest category to indigenous forests while exceptions are developed.
- e) **Option 5:** The permanent forest category opens to all forests on 1 January 2023, but exotic forests are subsequently allowed in certain circumstances (once the exceptions regime is developed).

### **Preferred option for permanent exotic forests**

- 24. Option 3: legislation to restrict the permanent forest category to indigenous forests but allow some exotic forests under certain circumstances is MPI and MfE's preferred option.
- 25. This option best manages risks of displacement of farming and production forests, and long-term risks to NZ ETS market conditions and environmental risks. This option allows for permanent exotic forests where these can realise positive outcomes (such as to the local environment, communities, economic returns from otherwise unproductive land and to support Māori land aspirations).
- 26. The appended Treaty analysis concluded that this option best balanced the competing objectives and diverse views of Māori and could support well-managed forests on Māori land suited to permanent afforestation. Given the diversity of Māori views, no path forward will be acceptable to all Māori. Some Māori remain vocal in their opposition to the closure of the permanent category to exotics, which they argue removes a highly desirable option for their land.
- 27. Option 3 also scored highest on the multi-criteria assessment.
- 28. Key to this recommendation of option 3 are:
  - a) Submissions through consultation highlighted models of permanent exotic forests that can have environmental and public benefits, if effectively managed to realise these outcomes. For example, transition forest models (that see a forest managed over time from exotic species to indigenous) can play a role in achieving a long-term indigenous forest estate.
  - b) Analysis and feedback received on options involving a moratorium period (option 4) suggested this would exacerbate regulatory uncertainty for landowners – potentially for an extended period, so is not preferred.
  - c) Options involving a time-limited period of open entry (option 5) are likely to see significant levels of new permanent exotic afforestation in a 'rush to enter' period. This could result in limited means for the government to control long-term market conditions in the NZ ETS or environmental outcomes from these forests.
  - d) Where there is a 'rush to enter', this will create risks to long-term returns for permanent forests that enter the category. This is due to depreciating carbon prices from increased long-term supply.
  - e) This would erode what may be perceived as the benefits of this option for owners of permanent exotic forests. Further, as larger commercial operators will be able to mobilise afforestation and purchase of existing forests outside the NZ ETS with conversion of these to permanent exotic forests at scale in the short-term, this may mean slower to act and small landowners (including many Māori) see their future ability to benefit from the category crowded out.



29. The status quo (option 1) will provide financial benefits to some communities and landowners (particularly Māori rural landowners) by providing a means to generate private investment and income on marginal land that may otherwise remain in scrub or grassland.
30. However, this needs to be balanced against the supply consequences for the NZ ETS over several decades. Oversupply may erode the Crown's ability to manage the scheme to realise effective and stable settings that support a range of investment and mitigation actions.
31. These conditions would also risk eroding the long-term returns for those who seek to utilise the permanent forest category to realise wider benefits for their communities (such as active management of exotic forests to native species over time – referred to as transition forests).
32. The relative strengths of option 3 must be balanced against its downsides. This option has negative impacts for landowners who may have already made investment decisions to enter the permanent forest category next year (such as purchasing land, ordering seedlings and planting).<sup>7</sup> This was highlighted through feedback during consultation.
33. When these impacts to short-term investments made on the assumption of the permanent forest category opening to exotics from 1 Jan 2023 are weighted highly, option 5 (the category remains open to exotics from 1 Jan 2023 while an exceptions regime is developed) provides a viable option that could be pursued. Option 5 scored second highest in officials' multi-criteria analysis.

#### **If some exotic forests are allowed into the category, how is this managed?**

34. Officials also considered options for the regime that sets conditions for exotic forests entering the permanent forest category in option 3. These were:
  - a) **Option 3A** – A generic exceptions regime: Exotic forests are allowed into the category under generic entry conditions – such as being allowed to register if the land is on land use classification 6-8, no more than 20% of a property/farm, or on land classified as highly erosion prone.
  - b) **Option 3B** – A managed or constrained exceptions regime: Entry of exotic forests to the category is managed in terms of the cumulative level and outcomes of forests allowed into the category, as well as outcomes seen from each forest through forest management requirements.
35. Within these, officials' preferred option is option 3B – a managed or constrained exceptions regime.
  - a) Option 3A – a generic exceptions regime can be simpler to manage for both the participant and regulator.
  - b) However, parameters explored for how a generic exceptions regime (option 3A) could be implemented only partially resolved the identified problem definition. For example, generic exceptions based on land being erosion prone would still pose significant risks to long-term NZ ETS market conditions under its current legislated design.
  - c) Option 3A would provide only a partial guarantee of positive outcomes from these forests. In contrast, option 3B (a managed exceptions regime) would utilise forest

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<sup>7</sup> This is because option 3 would require 1-2 years to develop an exceptions regime for exotics entering the category, while in the meantime the category would not be open to exotics.

management plans to ensure risks associated with the forest are effectively planned for and managed.<sup>8</sup>

### **What option is preferred for long-rotation forests on remote and marginal land?**

36. Alongside the proposal to exclude exotic forests from the permanent forest category in the NZ ETS, the Government also consulted on whether to adjust how averaging accounting applies to forests on remote and marginal-to-harvest land. Long-rotation forests are those that are harvested less frequently than typical Radiata pine production forests in New Zealand on ~28-year harvest cycles.
37. During consultation many opportunities and risks were identified with the proposal for a long rotation category for remote and marginal-to-harvest land.
38. On balance, it is recommended that no change be made to averaging accounting for long rotation radiata pine forests at this time, and that opportunities for remote and marginal-to-harvest land be further explored alongside work on the future design of the permanent forest category. This could include consideration of options that make harvest viable and increase profitability which would also support the Government's wider forestry and climate change objectives (e.g., such as long rotation higher value timbers).

### **Limitations and constraints on analysis**

39. There are parts of this RIS where limitations or constraints apply:
  - a) The scope of this regulatory impact assessment is limited to interventions to control the incentives for permanent exotic forests in the NZ ETS. The Government is also progressing other work relating to forestry under the NZ ETS, Resource Management Act, Overseas Investment Act, and Emissions Reduction Plan. These policy processes are complementary to this work and address a broader set of issues related to afforestation. This RIS only considers the impacts of proposals affecting the permanent forest category and a long rotation category under averaging accounting.
  - b) Policy decisions are needed now given the 1 Jan 2023 deadline for the category becoming available, which means that there is not sufficient time to fully develop the policy package (e.g., exceptions) needed to sit around the main policy proposal (restricting the permanent forest category). This paper describes the package and its expected impacts to the extent that we are able now, and the next steps.
  - c) There are limits to publicly available published research on some of the risks and impacts of permanent exotic forests at the scales envisaged under the status quo due to this being a new land use option. There is also limited evidence on whether the transition of permanent exotic forests to indigenous forests over time is viable, as it is a relatively new form of forest management in New Zealand.

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<sup>8</sup> For example, for transition forests on steep and remote land - management plans ensuring selective harvest is well planned for, health & safety risks are managed, suitable indigenous seed sources that can achieve canopy status have been identified, fencing and pest control plans over long-term have been planned for and budgeted.

### Responsible managers

Olivia Sullivan. Manager, NZ ETS Forestry Policy. Ministry for Primary Industries.  
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### Quality assurance (completed by QA panel)

Reviewing Agency/s:	The joint MPI/MfE Regulatory Impact Analysis Panel (RIAP) has reviewed the 'Managing Permanent Exotic Afforestation Incentives' Regulatory Impact Assessment in accordance with the quality assurance criteria set out in the CabGuide.
Panel Assessment & Comment:	Regulatory Impact Statement comment: The joint MPI/MfE Regulatory Impact Analysis Panel (RIAP) has reviewed the Regulatory Impact Statement "Managing Permanent Exotic Afforestation Incentives" produced by the Ministry for Primary Industries and the Ministry for the Environment. The review team considers that the RIA meets the QA criteria.

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# Section 1: Diagnosing the policy problem

## Background to policy framework

### Forests contribute to achieving New Zealand's climate change objectives

1. The Climate Change Response Act (2002) (CCRA) sets domestic emissions reduction targets for 2050 that require:
  - a) net emissions of greenhouse gases, other than biogenic methane, to be reduced to zero by 2050;
  - b) emissions of biogenic methane to be 10 per cent lower than 2017 levels by 2030, and 24 to 47 per cent lower by 2050.
2. The CCRA also requires the Government to set net emissions budgets to achieve these domestic targets that set allowed emissions for each budget period. The first three emissions budgets were set in May 2022, for the periods 2022-2025, 2026-2030 and 2031-2035.
3. Forests contribute to achieving New Zealand's climate change emissions budgets and targets by reducing net emissions.<sup>9</sup> This also helps New Zealand to meet its Nationally Determined Contributions (NDC)<sup>10</sup> to the Paris Agreement on Climate Change and reduces our need to purchase offshore mitigation towards our NDC.
4. Removals from forestry also help to reduce economic costs to New Zealand of its transition, by providing a cost-effective alternative to transitioning gross emissions sources that face higher marginal mitigation costs (until technology to reduce these sources of gross emissions become available or reduces in price).
5. MPI estimates a contribution to emissions budgets from forestry under the status quo of 24, 56 and 119 million tonnes of carbon dioxide (CO<sub>2</sub>) removals for the first, second and third emissions budgets respectively under the status quo.<sup>11</sup> This equates to offsetting around 25-30 percent of New Zealand's gross emissions in the third emissions budget period (2031-2035).

### The NZ ETS incentivises afforestation to reduce net emissions

6. The NZ ETS provides an incentive for afforestation by providing New Zealand Units (NZUs)<sup>12</sup> for carbon removals.
7. It is designed to drive least-cost emissions abatement by providing a single price for emissions reduction and removal.
8. In 2020, the Government introduced major reforms to forestry in the NZ ETS via the Climate Change (Emissions Trading Reform) Amendment Act 2020. One change was the introduction of a permanent forestry category, which will come into effect from 1 January 2023. This category recognises carbon removals from post-1989 forests that are not intended to be harvested for at least 50 years after they are registered.

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<sup>9</sup> Net emissions are gross emissions minus emissions removals from forestry and other removal activities

<sup>10</sup> The NDC is New Zealand's climate change target under the Paris Agreement. It proposes a 50 per cent reduction of net emissions below our gross 2005 level by 2030 and covers the period 2021-2030.

<sup>11</sup> Projections consider land that would be economic to convert to forestry at different NZU prices, but do not fully account for other factors that influence afforestation rates such as landowner decisions, land availability, labour and seedling constraints and policy uncertainty.

<sup>12</sup> NZUs are provided for forest growth for forests registered in the NZ ETS and can be sold to other people and businesses - such as sale to gross emitters who face surrender obligations.

9. Forests in the permanent forest category will earn NZUs for as long as the forest is in the ground and the carbon stock is increasing (through growth of the forest). There are no controls on forest management regime or species that can be registered.
10. This means both indigenous forests (consisting predominantly of indigenous species) and exotic forests (consisting of exotic species introduced to New Zealand, such as radiata pine) are eligible.

#### **Advice from the Climate Change Commission**

11. The Climate Change Commission (the Commission) is an independent Crown Entity set up in the CCRA to advise the Government on climate change action.
12. A report by the Commission (2021) asked the Government to consider the role of permanent exotic forests within its climate change response. The Commission identified impacts to rural communities and long-term environmental risks from permanent exotic forests.
13. The Government published New Zealand's first emissions reduction plan (ERP) on 16 May 2022. The ERP is the Government's response to the Commission's advice for meeting emissions budgets. The Government will consider the design and role of the NZ ETS with respect to its agreed objectives to prioritise gross emissions reductions, while maintaining support for net emissions.

#### **Other active policy related to afforestation and permanent exotic forests**

14. The Government is also considering concurrent changes to the resource management system. These include:
  - a) amending the National Environmental Standards for Plantation Forestry (NES-PF), to include permanent exotic forests; and
  - b) options for national direction under the resource management system to allow for local discretion on location of new afforestation based on socio-economic and environmental grounds.
15. These changes aim to help manage the long-term environmental and land-use change risks presented by permanent exotic forests, where these forests are incentivised by the NZ ETS.
16. The Government is also progressing further analysis on unit supply in the NZ ETS to assess whether changes are needed in relation to the balance of gross and net emissions reductions in New Zealand. This was set out in the Government's Emissions Reduction Plan (New Zealand Government, 2022, p. 103).
17. Feedback on improving incentives for indigenous afforestation was sought through public consultation on proposed changes relating to the NZ ETS permanent forest category. No policy decisions are sought through this RIA in relation to these areas of work, however ongoing work on native forests includes:
  - a) improving yield tables for indigenous species to recognise and reward carbon stored by native forests.
  - b) work with the nursery sector to address the issue of cost and survivability of native tree seedlings and the need to expand production.
  - c) investigating options to lower costs, address supply chain barriers and improve establishment of native forests.

## **Treaty obligations and Māori interests in forestry**

### ***Crown Treaty obligations relating to the proposals to manage exotic afforestation incentives***

18. The Crown's Treaty obligations relevant to the proposals to manage exotic afforestation can be found in the CCRA, articles of the Treaty and jurisprudence developed by the courts and the Waitangi Tribunal, and Treaty settlements. Guidance has also been developed to assist policy development that delivers the Crown's Treaty obligations to Māori.
19. A key obligation stems from the CCRA requirement (s3A(ad)) that an emissions reduction plan must include 'a strategy to recognise and mitigate the impacts on iwi and Māori'. This is reflected in commitments made in the ERP, including one in the forestry chapter to:

*'Develop policies that support Māori to meet their aspirations: The Government is working with Māori groups, including forestry experts, to identify priorities for Māori. The aim is to develop and implement forestry policies that support Māori rights to exercise kaitiakitanga and rangatiratanga and meet Māori aspirations.'* (New Zealand Government, 2022, p 287)
20. This specific commitment is complemented by a more general commitment to 'Establish a platform for Māori climate action that will:
  - a) Embed partnership and representation.
  - b) Support Māori-led strategy and alignment.
  - c) Activate kaupapa Māori, tangata Māori solutions.
21. More detail on the Crown's Treaty obligations is provided in the Treaty analysis in the appendices.

### ***Māori interests in forestry***

22. Māori have significant interests in forests as rangatira, kaitiaki, land and forest owners, workers and business owners. In 2018, Māori were estimated to own \$4.3 billion of forestry assets (6 percent of the total Māori asset base) and some 2,200 Māori were employed in the sector (40 percent of the forestry workforce). (Reserve Bank of New Zealand, 2018).
23. Māori own land in different ways. In this analysis Māori land is used to refer to land that is owned by Māori collectives either as Māori land as defined under Te Ture Whenua Māori Act 1993/Māori Land Act 1993 or land that is held by Treaty settlement entities.<sup>13</sup> Both types of land are subject to the guarantee of tino rangatiratanga in Article 2 of Te Tiriti o Waitangi.

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<sup>13</sup> Te Ture Whenua Māori Act 1993 defines Māori land as Māori freehold and Māori customary land, but most is Māori freehold (in 2020 there was an estimated 1,200ha customary land compared with 1.4m ha of freehold land).

### **Whenua Māori (Māori land under Te Ture Whenua Māori Act 1993)**

24. Whenua Māori (or Māori land, defined under Te Ture Whenua Māori Act to include Māori freehold and customary land) is disproportionately on remote, less versatile land (compared with general land) which make it well suited to forestry. It is also held in smaller, fragmented titles. This residual land holding reflects the historic role of the Māori Land Court (and its predecessor, the Native Land Court) 'to convert customary Māori land into titles which could be acquired, initially by the colonial government and later by individual settlers' prior to its current focus on retention in Māori ownership. (Māori Land Court, 2016)
25. An estimated 46% (625,000ha) of whenua Māori is in forestry (33% indigenous and 13% planted exotic) and a further 15% is in scrub (196,000ha) (Hohaia, 15 March 2022). Forestry on whenua Māori is disproportionately pre-1990 with indigenous forest (74% compared with 53% for general title). (MPI, 2022a)
26. Whenua Māori tends to be in lower capability land use classes compared with general land (with 65% in land-use classes 6 and 7 compared with 50% for general land). Some 16,400 blocks have no clear structure and are an average of 14 ha in size (Harmsworth, 2017). In addition, limits on the alienation of Māori freehold land make it difficult to access finance for development.
27. Around 123,650 hectares of Māori freehold land has been identified as well suited to forests – some of which could qualify for registering in the NZ ETS. Of this, around 71,000 hectares has been identified as remote and marginal-to-harvest land.<sup>14</sup>

### **Māori settlement land**

28. Land held by Treaty settlement entities (post-settlement governance entities) is general land owned by Māori, but will often be held for different reasons than non-Māori general land e.g., there may be a preference for owning land within tribal boundaries, as turangawaewae (a 'place to stand'), for the long-term benefit of future generations. This analysis includes land transferred pursuant to a Treaty settlement, and land purchased on the open market by settlement entities within the scope of Māori land.
29. A 2009 report commissioned by the Crown Forestry Rental Trust (Burleigh Evatt, 2009) identified that "Māori have a significant stake in the forestry sector. With the return of the Crown Forest licence land to iwi in the Central North Island in July 2009 as part of Treaty settlements, some 440,000 hectares of exotic forestland will be owned by Māori. Māori ownership is likely to increase to over 700,000 hectares (40 percent of the plantation forestry estate) over the next few years once the remaining Crown forest licensed lands are settled and returned to iwi."
30. Land held by settlement entities is, as noted above, general title land and thus not readily identifiable in the way whenua Māori is, so the analysis conducted above for whenua Māori is not possible for this land.

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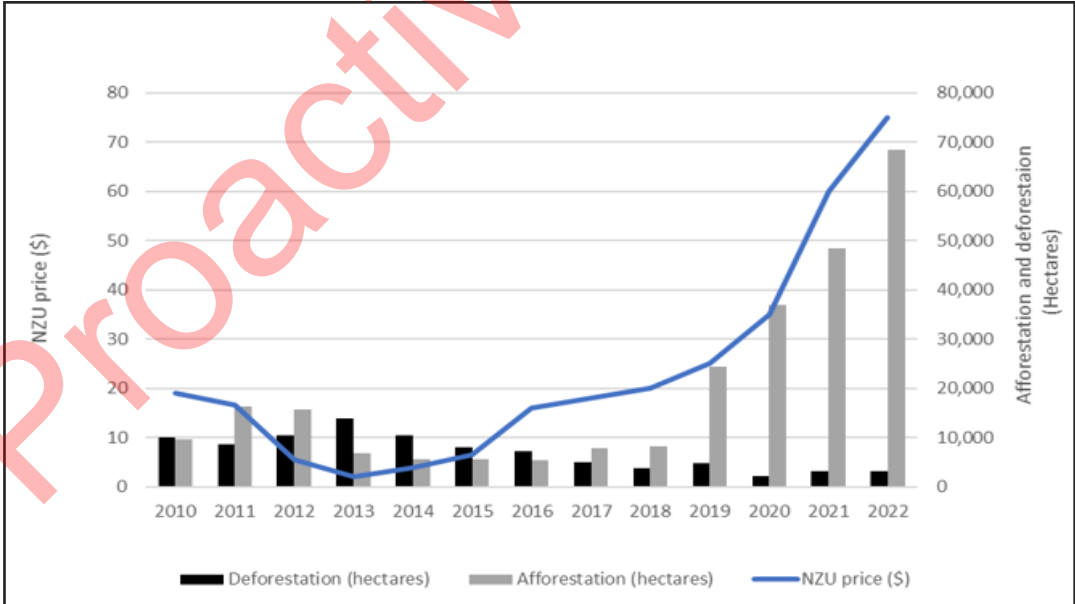
<sup>14</sup> Based on the LUCAS NZ Land Use Map, analysis undertaken by Te Uru Rākau – Forestry New Zealand. This figure differs from that in the interim RIS and is based on more recent analysis.

**What is the context behind the policy problem under the status quo?**

**Investment returns from carbon are driving afforestation**

- 31. Prior to the introduction of the NZ ETS in 2008, expected investment returns from forest products were the primary driver of afforestation rates in New Zealand.
- 32. The highest historical rates of afforestation were between 1992 and 1998 with an average of over 60,000 hectares of exotic forest planted per year over this period. This afforestation was driven by an unprecedented price spike for forest products where some log grades increased in value by well over 100 percent during the early 1990s.
- 33. Log prices have decreased in real terms since the 1990s. However, since forestry was introduced into the NZ ETS in 2008, forests planted from 1 January 1990 can voluntarily register in the NZ ETS and gain NZUs as the forest grows.
- 34. This provides the ability to gain additional returns based on the value of carbon stored in the forest, over and above revenue earned from the sale of logs/timber.
- 35. The introduction of forestry in the NZ ETS and rising NZU prices have driven increasing rates of afforestation above what would have been driven by log prices alone. Total afforestation has increased from around 6,000 hectares planted in 2015, when the NZU price was less than \$5, to an estimated 65,000 hectares planted in 2022, when the NZU price has been over \$70 (Figure 1 below).
- 36. There is very strong evidence to indicate that the returns from carbon removals for exotic forests under the NZ ETS are driving this land-use change. MPI’s regular afforestation and deforestation intention survey (Manley, 2021a) published in July 2021 estimated that 105,000 hectares of afforestation has occurred over the last three years.

**Figure 1:** Historical NZU price, deforestation, and afforestation (2022 provisional estimates)



**Source:** Derived from MPI Afforestation and Deforestation Intentions Survey (Manley, 2022)

- 37. Current and rising NZU prices are likely to incentivise even higher levels of afforestation than we are seeing at present. There is usually a two-to-three-year lead time for afforestation, as investors and landowners secure financing, purchase land (if applicable), and order seedlings, meaning that decisions to plant trees in 2022 were likely made two to three years earlier, when the NZU price was lower.



## **The carbon price is driving increasing rates of permanent exotic afforestation**

38. The rising carbon price has also resulted in increasing rates of permanent exotic afforestation. Recent surveys of afforestation intentions (Manley, 2022) indicate establishment of 10,200 hectares of new permanent exotic forests in 2022, an increase from 5,300 hectares in 2019 when carbon prices were lower.
39. Afforestation of permanent exotic forests is occurring ahead of the start of the permanent forest category (on 1 Jan 2023) as:
  - a) forests established prior to 2023 are eligible for the permanent forest category;
  - b) forests registered ahead of the start of the category on 1 Jan 2023 are able to earn NZUs for early growth of the forest in years preceding 1 Jan 2023 and have flexibility on which accounting regime they remain in long-term (i.e, they can choose to move to the permanent forest category when it opens or move to averaging accounting).<sup>15</sup>
40. MPI estimates that 350,000 hectares of permanent exotic forests could be established this decade in response to the economic incentive provided by the NZ ETS.
41. Unlike production forests, permanent exotic forests receive the large majority of their revenue through the sale of NZUs, so this afforestation would not occur without the incentive provided by the NZ ETS.
42. Permanent exotic forests earn NZUs more quickly than permanent indigenous forests (and are cheaper to establish) and earn NZUs for longer than production forests (meaning they earn significantly more NZUs over the lifetime of the forest). This means that as the carbon price rises, permanent exotic forests increase in profitability at a greater rate relative to other forests.
43. With current carbon price levels in the NZ ETS (trading at \$70-\$80 in mid-2022), the economic returns for permanent exotic forests are now significantly higher than sheep and beef farming and production forestry, the main competing land-uses.
44. Permanent exotic forests are estimated to return a net present value (NPV) of up to \$35,000 per hectare at the 2022 auction trigger price (\$70). This compares to ~\$4,500 for sheep and beef farming and up to \$25,000 for production forestry.<sup>16</sup>
45. The significant impact of carbon price rises on the economic returns and profitability of permanent exotic forests relative to other land uses is shown in Table 1 below.
46. The economic returns for production forestry without financial returns from the NZ ETS is estimated to be much closer to sheep and beef farming with NPVs around \$4,000 per hectare.<sup>17</sup> Therefore, returns from the NZ ETS significantly increase the profitability of both production and permanent forestry models.

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15 Under the CCRA, forests registered between 2019 and 2022 are required to choose within the first six months whether they a) move to the permanent forest category, b) move to averaging accounting for post-1989 forests; c) remain on stock change accounting for post-1989 forests.

16 Permanent forestry returns are under a plant and leave regime over a 50-year term and 8% discount rate. Production forestry returns include NZUs under averaging accounting and timber over one rotation (note the range in harvest returns can be wide). NZU prices are in real terms. Sheep and beef returns are derived from Beef+Lamb economic data for North Island hard hill country.

17 Based median stumpage values for radiata pine in Hawke's Bay (Manley, 2021b), inclusive of costs and discounted at 8%.

**Table 1:** Comparison of economic returns for permanent exotic forests at different carbon prices, compared with extensive sheep & beef (alternate land use)

Carbon price (real terms, over life of forest)	Project economic returns (NPV) per hectare (range represent forest size and productivity)
<b>Permanent exotic forests ('plant and walk away' type management)</b>	
\$0	-\$2,500
\$35	\$12,000 to 17,000
\$70	\$25,000 to 35,000
\$140	\$55,000 to 75,000
<b>Extensive sheep &amp; beef farming</b>	
\$0* <i>* agricultural GHG emissions are not currently priced.</i>	\$4,500* <i>* Calculation assumes no woodlots are incorporated onto the farm and registered in the NZ ETS.</i>
<b>Production forestry</b> (range represent forest size and productivity, average harvest returns are included)	
\$0	\$4,000
\$35	\$12,000 to \$14,000
\$70	\$18,000 to \$25,000
\$140	\$35,000 to \$45,000

**Source:** MPI calculations, August 2022.

47. This analysis is supported by afforestation economic modelling prepared for MPI (Manley, 2021). This report estimated the breakeven point at which permanent exotic forests deliver a higher return than production forestry (with timber and carbon returns) at an NZU price between \$40 and \$70 depending on forests size and productivity.<sup>18</sup>
48. These analyses indicate that, at current NZU prices and above, total afforestation is likely to increasingly be made up of permanent exotic forests due to the significantly higher returns for these forests in the NZ ETS.
49. Returns for permanent exotic forests can even become cost competitive with pastoral land uses on better classes of land (such as cattle finishing farms and dairy) at potential near-term carbon prices.<sup>19</sup>

<sup>18</sup> The NZ ETS field measurement approach (FMA) is used for forests greater than 100 hectares and the default tables are used for forests less than 100 hectares. The default tables are more conservative than tables generated through the FMA, and therefore, the breakeven NZU price is lower.

<sup>19</sup> DairyNZ 2019-2020 farm benchmarking (2021) suggests annualised average returns for permanent exotic forests can be similar to the lowest profitability quartile profit for dairy farms (at \$70 real NZU price).

## Why do we expect the carbon price to rise in the near-term?

50. The NZ ETS price control settings provide a price corridor for the sale of NZUs at auction. When the Government sells NZUs at auction, it sets a minimum price (the auction price floor) and an upper limit (the cost containment reserve).<sup>20</sup>
51. The cost containment works to influence upper carbon prices in the NZ ETS by releasing more NZUs when a trigger price is hit in auction bidding (increasing supply). The auction price floor works by not selling units at auction below this minimum price level (meaning no units would be supplied if bidding did not reach this price).
52. While the price corridor only applies to NZUs sold by the Crown at auction, these price settings, and capped levels of supplied NZUs (through auctioning and industrial allocation) will affect trading prices for NZUs in the secondary market. Price controls also provide a signal to the secondary market on price expectations.
53. Recently, NZUs have been trading around \$70-\$80, which is just above the cost containment reserve trigger price for 2022. The auction price floor and cost containment reserve are currently regulated to rise through to 2026, with the cost containment reserve reaching rising to \$110. Refer to Table 2 below for current regulated auction price controls.
54. Permanent exotic forests would return a net present value of up to \$50,000 per hectare if NZU price returns were to be maintained in real terms at the 2026 auction trigger price over at least 50-years.<sup>21</sup>

**Table 2:** NZ ETS auction price controls for NZUs 2022 to 2026

Mechanism	2022	2023	2024	2025	2026
Auction price floor	\$30.00	\$32.10	\$34.35	\$36.75	\$39.32
Cost Containment reserve trigger price	\$70.00	\$78.40	\$87.81	\$98.34	\$110.15

55. Auctioned units will remain the largest form of supply into the NZ ETS in the near-term. The total allowed auction volume for 2022 is set at 26.3 million NZUs, relative to 36.7 million NZUs needed in the market in 2020 to cover gross emissions surrender obligations (EPA, 2021). Due to this, it is likely that auctioning and associated market participant behaviour will continue to play a key role in shaping trading prices in the near-term (as a major form of unit supply to the market).
56. Forestry may play a constrained role in supplying the market in the short-term. This is because relatively large areas of production forests registered in stock change accounting, planted in the early/mid-1990s will be harvested within the next few years, and require NZUs to meet their surrender obligations at harvest. As well, new forests sequester at a slow rate for the first few years (meaning recent increasing afforestation will not play a large role in supplying the market in the near term).

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20 The Commission (2022) recently released advice to the Government on increasing the regulated NZ ETS price control settings from 2023.

21 Permanent forestry returns are under a plant and leave regime over a 50-year term and 8% discount rate. NZU prices are in real terms. This assumption may not be realistic under the status quo, as supply conditions would dampen medium/long-term carbon prices in the NZ ETS without any further legislative change (refer section on problem definition below).

57. However, multiple factors at play in NZ ETS forestry participant trading behaviour makes firm assessments of these interactions difficult, and not necessary for the direct purpose of this RIS (focused on medium/long-term horizon NZ ETS market conditions).

### **What is the problem definition or opportunity?**

58. This section explores the problem definition behind the proposals for managing permanent exotic afforestation. A fuller detailed and technical summary of relevant evidence and official's consideration of this evidence is provided in *Annex C: Supplementary technical analysis* on page 92.

### **Summary of problem definition**

59. The Government is seeking to ensure that regulatory settings for forestry deliver a range of forest types that realise positive outcomes from the forests as part of meeting New Zealand climate change targets.
60. The forthcoming introduction of the permanent forest category, recent rising NZU prices, and the expectation of increasing NZU prices in future are driving increasing levels of afforestation and are in particular driving an increasing level of permanent exotic forests as part of the mix of forests contributing towards our climate change targets.
61. This permanent exotic afforestation is causing three issues/risks:
- a) *Impacts to rural and local communities:*  
Permanent exotic forests are displacing other productive land uses such as farming and production forests in some regions. Permanent exotic forests contribute less to employment, rural communities and exports than other productive land uses and limit flexibility and options for future land use.
  - b) *New Zealand's transition to a net-zero emissions economy:*  
The NZ ETS is the Government's main lever for reducing climate change emissions. High levels of permanent exotic forests entering the NZ ETS will erode the Crown's ability to effectively manage the NZ ETS in a stable and enduring way in the long-term. This will impede the Government's ability to support emissions reductions and mitigation.
  - c) *Long-term environmental outcomes:*  
Permanent exotic forests made up of highly stocked and concentrated areas of pines grown to the end of their natural lifespans may have environmental issues associated with them (e.g., fire, disease, wilding pines). We lack empirical evidence about the long-term environmental and forest management consequences of such forests, meaning that their establishment at scale presents an unknown degree of risk.
62. The current settings in the NZ ETS permanent forest category cannot manage these impacts because its design doesn't allow for the volume, species or management regime of afforestation to be managed.

### **Impacts to rural and local communities**

63. When compared with existing land uses (sheep & beef, production forestry), permanent exotic forests can be associated with less direct employment and economic contribution to local communities. This was surfaced through work by PwC New Zealand (2020) that found that permanent exotic forests, under a 'plant and walk away' regime, provide a

smaller contribution to employment and the economy in comparison to production forestry and sheep & beef.

64. Where concentrated activity of permanent exotic afforestation occurs, this can affect local economic activity (see for example, *Case Study: Tararua District 2019-2021*, on page 24). It can also create pressures and risks for existing industries, for example, by affecting supply to existing agricultural processing facilities and its associated jobs.
65. Permanent exotic forests also present lower export receipts than competing land uses (production forestry and sheep & beef).
66. Some permanent exotic forest models (where actively managed) present the ability to provide a level of ongoing employment associated with the forest over the long-term. As well as the potential for diversified revenue, through the likes of harvest of higher value timber, co-products and use of the understorey. This includes for more novel forest models in New Zealand, such as transition forests (that transition from a permanent exotic forest to an indigenous forest over time).
67. However, realisation of these potential benefits is not guaranteed by the status quo. The status quo does not place any measures or controls to ensure that these forest models proliferate relative to permanent exotic forests under 'plant and walk away' regimes (which will be more profitable and require less effort by the landowner).

#### **New Zealand's transition to a net-zero emissions economy**

68. The NZ ETS is one of New Zealand's core policy levers used to address greenhouse gas emissions and removals, from both the forestry sector and gross emissions (e.g, from transport, electricity, industry, waste and stationary energy such as boilers).
69. For the NZ ETS to be effective in incentivising investment in low carbon technology (particularly capital-intensive investments) across these sectors, participants need to have confidence in the long-term market conditions they might face.
70. Advice from the Commission (2021) has suggested that plausible pathways for gross emissions covered by the NZ ETS will need to see decreasing gross emissions over time as part of meeting New Zealand's long-term domestic target of net-zero emissions, other than biogenic methane, by 2050.
71. For example, the pathways examined by the Commission see NZ ETS covered gross emissions demand for NZUs reaching around 6-13.5 million NZUs in 2050 (calculation by MPI, based on Climate Change Commission, 2021a). This is significantly less than current covered gross emissions demand of 36.6 million NZUs in 2020 (EPA, 2021).
72. As permanent exotic forests remove emissions for several decades and at a high rate, this creates tensions within current legislated settings of the NZ ETS. Supply from forestry is almost certain to fully saturate demand from gross emissions within the scheme over the medium/long-term. This could potentially exceed demand from gross emissions in the scheme as early as the early/mid 2030s.
73. If the status quo is retained, this is almost certain to result in carbon price trends that track significantly lower than potential pathways that might be desired by future governments over the medium/long-term.
74. This will mean greater constraining factors on the Government's ability to manage the market over the long-term towards effective outcomes, impacts to investment certainty facing emitters, and reductions in the long-term returns for foresters in the NZ ETS (for both indigenous and exotic forests that participate in the permanent forest category).

75. See our fuller and detailed technical summary in relation to impacts and risks to the NZ ETS on page 96.

**Permanent exotic forests can have environmental risks associated with them, but they also can provide environmental benefits**

76. Permanent exotic forests are a newer forest model for New Zealand, and more research is needed to understand the long-term environmental and forest management consequences as these forests come to the end of their natural lifespans.
77. As the sole economic driver encouraging greater afforestation of these new and more novel forest models in New Zealand, consideration needs to be given to what role the NZ ETS plays in managing either the direct environmental risks associated with these forests, or the cumulative level and socialised risks borne (where the nature of the long-term impacts from these forests remains uncertain or unknown at this time).
78. Risks that present throughout the lifetime of permanent exotic forests include windthrow, pest and disease, and wildling conifer risks.
79. Some of these risks will continue to increase over the lifetime of permanent exotic forests. For example, a recent study (Melia et al, 2022) estimated a widespread increase in wildfire risk for most of New Zealand, with extreme levels occurring at the district and local scale. The research found that the increased wildfire risk in New Zealand's forests, afforestation, and carbon farming activities has the potential to disrupt the achievement of climate change budgets and targets.
80. Active management is required over the life of the forest to manage and mitigate these environmental risks.
81. While these management requirements are widely acknowledged for plantation forests, there is currently no requirement to manage these environmental effects for permanent exotic forests; aside from restrictions on the registration of naturally regenerated exotic forests in the NZ ETS which have a wildling spread risk, and a requirement to be in compliance with the RMA at registration.
82. Consideration of these environmental risks must also be balanced against the environmental benefits that permanent exotic forests can provide (e.g., erosion reduction, improving soil conservation, flood regulation, and water quality).
83. However, the scale of erosion prone land in New Zealand means there would likely be supply consequences resulting from large scale afforestation on this land. Therefore, the NZ ETS only has a limited ability to address the erosion risks presented by this land.
84. Permanent exotic forests also have the potential to transition from exotic to indigenous over time (transition forests). This forest model has been asserted as a key benefit of the current category by submitters and could play a role in establishing a cost-effective long-term carbon sink.
85. However, transition forests are a relatively novel forest model, where there has been a lack of time and research to demonstrate the management and commitment for it to be successful (Forbes Ecology, 2021). The report concluded that given these uncertainties, transitioning forests should only be attempted in favourable environments and at smaller scales, and where the process is actively managed.
86. The transition forest model also needs to resolve several financial challenges which are not currently managed under the status quo. Transition forests risk incurring significant liabilities within the NZ ETS as large exotic trees are replaced by smaller and slower

growing regenerating indigenous species, and carbon stocks reduce. These liabilities may impact the financial viability of the transitioning forests model due to NZUs being surrendered as carbon stocks reduce.

87. See our fuller and detailed technical summary in relation to further evidence and analysis on environmental risks and benefits, including further evidence on transition forests on page 101.

Proactive release

## Case study: Tararua district 2019-2021

Data collected by Tararua District Council (a district in the southern North Island) shows 26 percent of the area sold in large property sales in the district between 2019 and 2021 were for conversions of pastoral land to carbon forestry (typically permanent exotic forests).

Most of these conversions are concentrated in the area south of Woodville, and amount to approximately 14,500 hectares of land use change in the area.

These estimates may underestimate total land use conversion, as lease arrangements, conversions by existing landowners, and small property sales are excluded from the analysis.

The majority of land use conversion occurred on Land Use Capability (LUC) class 6 land that can be suited to pastoral farming or production forestry.

AgFirst estimates of the impacts of afforestation in the district on the community and local economy during 2019 were a reduction of 70,000 stock units in the area and a loss in local spending between \$1.7 and \$2.1 million per year for the region.

**Figure 2:** Map of land use change for large scale property sales Jan 19 - Jan 21, Tararua



**Source:** Tararua District Council. (2022).

**Table 3:** Data for land use change for large scale property sales Jan 19 - Jan 21, Tararua

Land use type	Number of sales	Area (hectares)
Carbon forestry	24	14,539
Forestry (production)	6	1,681
Mixed Use	10	2,789
Not forestry	102	33,439
Honey	5	1,810

**Source:** Tararua District Council. (2022).



## **Feedback on the policy problem**

88. In March-April 2022, the Government conducted public consultation on proposals to manage exotic afforestation incentives through the permanent forest category and sought feedback on whether to progress a long-rotation forest category.

### ***The Government consulted on proposals to manage exotic afforestation incentives***

89. The discussion document released for consultation described officials' understanding of the problem and sought feedback from submitters. The discussion document broke the problem into three components: rural and local communities; New Zealand's transition to a net-zero emissions economy; and long-term environmental outcomes.
90. Submitters were asked if they agreed with the problem description, with 63 percent of those who responded indicating agreement. This section sets out a summary of feedback received on each of the three components in turn.

### ***Submitters had strong views about farm conversion to exotic forest, with many wanting immediate action to prevent this***

91. Many submitters strongly agreed that large scale conversion of pastoral farmland to exotic forest is an issue. Submitters spoke of these conversions threatening New Zealand's food production and security, employment, and export earnings. There was also concern about permanent exotic afforestation significantly altering the landscape, impacting the tourism industry, and negatively impacting on the wellbeing of communities.
92. Some submitters disagreed with the description of this problem. These submitters considered that land use changes are more affected by other regulatory and societal changes, disagreed with the evidence or scale of the issue, or did not consider land use change from a gross emitting activity (e.g., agriculture) to forest as a negative outcome.
93. Several submitters strongly disagreed that permanent exotic forests would not provide employment opportunities, referring to the jobs created by continuous canopy forestry or managed transition of exotic to indigenous forests. Māori submitters argued they were better placed than government to make land-use decisions that supported the well-being of their communities.

### ***Submitters agreed there are a wide range of environmental impacts from permanent exotic forests, but identified that there can be environmental benefits when compared to pasture***

94. Submitters who agreed there were significant environmental impacts from permanent exotic forests reiterated those mentioned in the discussion document (fire, disease, wildings, and pests), and spoke of soil degradation, lost opportunities for restoration of indigenous biodiversity, disruption to the hydrological cycle, impacts on freshwater systems, and contamination of water bodies.
95. Some raised concerns about the fate of permanent exotic forests when they reach the end of their natural lifespan resulting in environmental consequences described as 'dire'. However, others strongly disagreed, stating either that there was no evidence of this occurring, or that this issue only applied to radiata pine, or that this issue only applied to 'plant and leave' forests (i.e., not continuous canopy harvest or exotic to indigenous transition forests).

96. Submitters who disagreed that permanent exotic forests resulted in environmental impacts considered that many of these risks are due to poor forest management and would be true of any permanent forest regardless of whether it was indigenous or exotic. They also spoke of the positive environmental impacts that exotic forests can bring compared to pastoral land, such as being more biodiverse, having the ability to restore soils and stream health, erosion control, preventing sediment accumulation in waterways, and the potential to transition from exotic to indigenous forests.

***Submitters saw risks of New Zealand not meeting its climate targets***

97. Submitters who agreed there was a risk of NZU supply issues from high levels of permanent exotic afforestation spoke of the need to focus on gross emissions reductions rather than removals, and that large scale permanent exotic afforestation might affect the carbon price.
98. Submitters who disagreed that this was a risk spoke of needing permanent exotic afforestation to meet climate change targets until there is sufficient technology to enable a net zero emissions economy. They also believed that encouraging afforestation domestically was better than New Zealand needing to source carbon credits from overseas.

***Feedback on provisions for Permanent Forest Sink Initiative (PFSI) covenanted land with exotic forest***

99. The Permanent Forest Sink Initiative (PFSI) was a Government sustainable forestry programme that enabled landowners to receive carbon units by planting permanent forests. The PFSI and the NZ ETS were reviewed between 2015 and 2018. In December 2018, the Government announced it would discontinue the PFSI, instead replacing it with the new permanent forest category in the NZ ETS.
100. The Government agreed in 2018 that PFSI covenanted land won't be adversely affected by the discontinuation of the PFSI and will have the option to transfer covenanted land into the new permanent forestry category when it becomes available on 1 January 2023 (New Zealand Government, 2019).
101. Most submitters who commented on PFSI, regardless of whether they owned PFSI covenanted land, agreed with the proposal to allow existing covenanted land to transfer into the permanent forest category. Reasons cited included honouring existing financial decisions and commitments that were made based on the current policy settings.
102. Submitters raised that these settings were decided on only two years ago and followed extensive consultation. Some submitters also noted that the scale of PFSI forest estate is negligible in the context of the overall scale of forestry in New Zealand.
103. Some submitters thought that PFSI covenanted land should also be subject to additional conditions such as pre-approved management plans to address potential adverse environmental impacts and other operational risks.

***Feedback on permanent exotic forests during the ERP Consultation***

104. The Government also consulted on New Zealand's first ERP late last year. Feedback as part of this consultation on permanent exotic forests was considered when developing this regulatory impact statement. Feedback was similar to that received during consultation on this proposal, touching on aspects of the problem definition (risks to rural communities, and long-term environmental consequences of permanent exotic forests).

## Section 2: Deciding upon an option to address the policy problem

### What objectives are sought?

105. The Government has previously identified a broader set of objectives for climate change, forests, land use and the environment. These include:
- a) **Removals:** forests help meet our climate change targets by offsetting emissions while gross emissions are actively reduced.
  - b) **Substitution:** the forestry and wood processing sectors support the transition to a low-carbon bioeconomy by producing substitutes for emissions intensive products and energy sources
  - c) **Economy and jobs:** forestry and wood processing sectors contribute to regional and economic development, and support the wellbeing of rural communities by providing high quality employment
  - d) **Indigenous biodiversity:** new and existing indigenous forests provide and support indigenous biodiversity
  - e) **Environment:** our forests support freshwater quality, soil conservation and resilience to climate change
  - f) **Māori:** forestry policies are developed in partnership, support Māori exercise of kaitiakitanga and rangatiratanga and actively protect Māori interests so that forests and forest products support the cultural, social, environmental and economic aspirations of Māori whānau, hapū and iwi
106. These objectives reflect the diverse considerations the Government is balancing when making policy decisions affecting forestry.

### What criteria will be used to compare options to the status quo?

#### Feedback on criteria through public consultation

107. The Government sought feedback on options for the criteria used to assess policy option as part of consultation.
108. Most submitters who commented on criteria proposed during consultation supported them (71 percent), with several commending the criteria for reflecting the multiple values that forests can provide.
109. The draft criteria consulted on have been refined through feedback from consultation:
- a) Draft criterion (b) 'Supports gross emissions reductions' has been changed to 'Supports effective management of NZ ETS price settings' following feedback received during consultation that the criteria should reflect stable and effective market conditions, rather than seeking to use changes to treatment of forestry to reduce gross emissions from other sectors.
  - b) Draft criterion 'Provides substitutes for emissions intensive products and energy sources' has been incorporated into 'Supports regional economies and jobs' in the analysis to simplify the assessment.
  - c) Draft criterion 'Supports indigenous biodiversity' has been incorporated into 'provides environment benefits' to simplify the assessment.

- d) Draft criterion ‘Speed of implementation’ has been incorporated into ‘operational achievability’ to simplify the assessment and avoid duplication.
110. Some submitters also proposed some additional criteria including reference to cultural services provided by forests, climate change resilience, and economic benefits to the forestry industry and individual landowners. These elements are picked up in existing criteria (for example, consideration of climate change adaptation and resilience is an aspect incorporated within criteria d) provides environmental benefits).
111. There were mixed views during consultation on whether the criteria should be weighted. An alternate suggestion was to have an additional criterion that measures the degree to which forests fulfil multiple criteria.

### **Finalised assessment criteria and scoring**

112. Options will be assessed under the following criteria:

Criteria	Explanation
a) <b>Provides removals to meet emissions budgets and targets</b>	Forests help meet New Zealand’s emissions budgets and targets (NDCs) through emissions removals.
b) <b>Supports effective management of NZ ETS price settings</b> (double weighting)	Afforestation levels are consistent with effective long-term market conditions that ensure stable and effective carbon prices that realise reductions in emissions.
c) <b>Supports regional economies and jobs</b> (double weighting)	The NZ ETS incentive for exotic afforestation supports a diverse mix of land uses to achieve economic and social objectives for regional economies.
d) <b>Provides environmental benefits</b> (double weighting)	Forests are resilient and managed to avoid environmental risks (fire, disease, wilding spread, and negative impacts as forests reach the end of their natural lifespans). Our forests support biodiversity, erosion control, improve freshwater quality and soil conservation, and resilience.
e) <b>Supports Māori aspirations</b> (double weighting)	Forestry policies are developed in partnership, support Māori exercise of kaitiakitanga and rangatiratanga, and actively protect Māori interests and ability to make decisions regarding their land in line with their aspirations. Forests and forest products support the cultural, social, environmental, and economic aspirations of Māori whānau, hapū and iwi.
f) <b>Operational achievability</b>	Operational achievability, speed of implementation, resilient to future changes and avoids unintended consequences.

113. We have chosen to weight the criteria that most directly align with the problem definition. For these, double weighting applies:
- a) Criteria b) Supports effective management of NZ ETS price settings.
  - b) Criteria c) Supports regional economies and jobs.
  - c) Criteria d) Provides environment benefits.
  - d) Criteria e) Supports Māori aspirations.

114. Some of these criteria are in tension in our scoring, particularly criterion 'a) Provides removals to meet emissions budgets and targets', and criterion 'b) Supports effective management of NZ ETS price settings'. New Zealand's NDC target requires greater emissions removals over those required to meet domestic emissions budgets (which the NZ ETS is currently calibrated to achieve).
115. This means that options that increase supply liquidity risk in the NZ ETS in the long-term (scoring weaker against criterion b); will also get New Zealand closer to our future NDCs through contributing greater long-term potential forestry removals (scoring higher against criterion a).

### **What scope of options are considered?**

#### ***What is within scope?***

116. The scope of this regulatory impact assessment relates to:
- a) interventions to manage incentives for permanent exotic forests in the NZ ETS;
  - b) averaging accounting decisions for long-rotation forests for remote and marginal land.
117. The risk that exotic forests in other NZ ETS categories (stock change accounting for post-1989 forests) may be managed as permanent due to high economic returns are out of scope of this regulatory impact statement.
118. The Government will need to consider the likelihood of exotic forests registered under stock change accounting being managed as permanent and whether measures are needed to mitigate any risks as part of future work programmes.<sup>22</sup>

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<sup>22</sup> There are likely to be options to manage these risks. For example, requiring that forests that choose to be managed as a permanent exotic forest be transitioned to the permanent forest category in order for requirements of the permanent forest category to be fairly applied to all forests that are managed as permanent exotics and receiving comparable financial benefits.

## Options being considered - permanent exotic forests

119. Options to manage permanent exotic forests in the NZ ETS have been revised based on feedback received through consultation and further analysis, but largely reflect the options that were consulted on. Final options considered are:

**Option 1:** Status quo: allow unlimited exotic and indigenous registration in the post-1989 permanent forestry category.

**Option 2:** Legislation to restrict the permanent forest category in the NZ ETS to indigenous forests.

**Option 3:** Legislation to restrict the permanent forest category in the NZ ETS to indigenous forests but allow some exotic forests under certain circumstances.

**Option 4:** A moratorium to restrict the permanent forest category in the NZ ETS to indigenous forests while exceptions are developed.

**Option 5:** The permanent forest category opens to all forests on 1 January 2023, but exotic forests are subsequently restricted to limited exceptions (once the exceptions regime is developed).

120. Options 2 to 4 restrict the permanent forest category to indigenous forests prior to it becoming available on 1 January 2023. Option 5 opens the category to all forests on 1 January 2023, and exotic forests are restricted once an exceptions regime is developed. Therefore, the category will remain open to exotic forests under current settings for a period.

121. In designing these options, officials have considered the following questions:

a) Should the permanent forests category be restricted for exotic forests?  
Option 1 would provide for the category to remain open, while options 2-5 would restrict it for exotic forests.

b) If the category is to be restricted for exotic forests, should the closure be complete, or should some form of exceptions be provided for?  
Option 2 would close the category completely, while options 3-5 allow for an exceptions regime to be developed.

c) If the category is to be restricted to exotic forests, should this be a permanent closure, or provide for a review period?  
Option 4 would provide for the closure to be reconsidered once specific criteria are met (for example, once an exceptions regime has been developed).

d) If the category is to be closed to exotic forests and an exceptions regime developed, should the permanent category remain open to exotic forests until the exceptions regime can be developed?  
Option 5 provides for the opening of the permanent forest category to exotic forests while the exceptions regime is developed.

122. Under all options, PFSI covenanted land would be eligible to transfer into the permanent forest category from 1 January 2023 regardless of whether the forests are exotic or indigenous. The Government has agreed that PFSI covenanted land won't be adversely affected by the discontinuation of the PFSI. No new forest land will be added to the PFSI before being moved into the NZ ETS.

## **Feedback through consultation**

123. Feedback was sought through consultation on options for managing permanent exotic afforestation including:
- a) The status quo.
  - b) Prevent exotic forestry from registering in the permanent forest category.
  - c) Prevent exotic forestry from registering in the permanent forest category with exceptions.
124. Feedback was also sought through consultation on two second order options:
- a) Do you support exceptions by regulations or exceptions after a moratorium? [Question 9 of the Discussion Document]
  - b) Do you agree with our preferred approach (acting before 1 January 2023)? Why/why not? If Not, what is your preference? [Question 8 of the Discussion Document]
125. We have grouped these questions from the Discussion Document into a revised set of options in this RIS (Options 1-5 set out in paragraph 119 above) to allow for consideration of the alternative options the Government has for managing the policy problem.

### ***General feedback from submitters on preferred option***

126. Overall, views on preferred options varied widely:
- a) 22 percent of submitters preferred Option 1: Status quo
  - b) 36 percent preferred Option 2: Restrict the permanent category to indigenous forests and PFSI covenanted land, and
  - c) 30 percent preferred Option 3: Restrict the permanent category to indigenous forest but allow some exotic forests under special circumstances, including PFSI covenanted land.
127. These figures need to be used with caution as the submissions were often more nuanced than a pure quantitative analysis allows for. For example, a large portion of the submitters who preferred option 2 were not associated with a stakeholder group or Treaty Partner (who generally represent broader membership groups). When these individual submissions are excluded from the analysis, the proportions change with option 2 going from being the most supported, to the least supported.
128. In addition, many submitters who indicated their preferred option was option 3 (closing the category with exceptions), were supporting this option based on an exception being provided for their circumstances. This was evident in submissions from Māori, where submissions analysis showed just over 50 percent preferred status quo and 32 percent preferred a closure with exceptions.
129. A textual analysis of submissions from Māori shows that, when the additional nuance is taken into account, 71 percent of Māori submitters supported the category staying open (for all land, or at least for Māori land) and a further 20 percent wanted exceptions suitable for Māori (this means 91 percent of Māori submitters opposed a blanket closure).
130. Some submitters presented alternative options to:
- a) Address land conversions including:
    - i imposing regional or land class limits, requiring spatial plans/consents from local authorities, and

- ii differing NZU values based on forest type (production, permanent, exotic, or native).
- b) Meet climate change targets including:
- i allowing a set number of hectares of exotic forest into the category or limiting the use of forestry removals by gross emitters,
  - ii setting different emissions prices for forestry and gross emissions, and
  - iii measures to incentivise indigenous forests or the recognition of pre-1990 forests additionality.
- c) Address environmental impacts including:
- i creating forest management standards and plans
  - ii preventing monoculture but allowing diversified agroforestry systems, and
  - iii developing a National Environmental Standard for carbon forestry.
131. Some of the alternative options provided by submitters will be considered as part of the consultation on resource management system changes later in the year, this includes:
- a) amending the NES-PF, to include permanent exotic forests. The current scope is limited to plantation forests; and
  - b) Options to make national direction under the resource management system to allow for local discretion on the location of new afforestation based on both socio-economic and environmental grounds.

### **Options to manage permanent exotic forestry in the NZ ETS**

#### ***Option 1 – Status quo: allow unlimited exotic and indigenous registration in the post-1989 permanent forestry category***

132. There are currently no restrictions on the forest species that can be registered in the NZ ETS permanent forest category. All that is required is for forests to meet the forest land definition in the CCRA<sup>23</sup> and be in accord with the conditions on registration as participant outlined in section 187<sup>24</sup> of the CCRA.
133. Under the status quo, persons registered in the NZ ETS as a participant in the permanent forest category would be able to register with exotic and/or indigenous forests.

#### ***Option 2 – Legislation to restrict the permanent forest category in the NZ ETS to indigenous forests***

134. The CCRA would impose restrictions for the permanent forest category in the NZ ETS. A new restriction would be added only allowing indigenous forests in the category but allowing for existing PFSI covenanted land with exotic forests to transfer into the permanent forest category.
135. Only indigenous forests would be able to be registered in the permanent forest category. By default, exotic forests would be prohibited in the permanent forest category (unless already subject to a PFSI covenant).

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<sup>23</sup> Means an area of land of at least 1 hectare that has, or is likely to have, tree crown cover from forest species of more than 30% in each hectare.

<sup>24</sup> This relates to land ownership, forestry rights, deforestation history and compliance with the RMA.



136. Submitters who preferred Option 2 raised concerns with large scale afforestation of farmlands, environmental impacts, and social harm to communities. They also feared that allowing exceptions will increase the complexity of the ETS and prevent the right balance of farmland and indigenous forest from being achieved. Māori who supported this option considered the government had an obligation to partner with Māori and support indigenous afforestation, given the taonga status and vulnerability of both whenua and ngāhere (forests).

***Option 3 – Legislation to restrict the permanent forest category in the NZ ETS to indigenous forests but allow some exotic forests under certain circumstances***

137. Like Option 2, indigenous forests would only be able to be registered in the permanent forest category, unless the forest land was subject to a PFSI covenant.
138. However, some exotic forests would be permitted in the permanent forest category under certain circumstances where these support broader goals for forestry – for example exotic forests transitioning to native forests ('transition forests').
139. To ensure that exceptions do not create NZ ETS supply issues, the regime might need to provide for a limit on the overall area of forest land that can be registered into the permanent forestry category under exceptions, and an approach to determining how entrance is allocated or processed.
140. To ensure that any negative environmental impacts of permanent forests are managed, the regime would need to include the ability to ensure that the forest land is managed for specific outcomes (for example, by requiring forest management plans).
141. These constraints would also be necessary to mitigate some of the risks and uncertainty around the transitioning forestry model being pursued at scale across the country.
142. Further policy work would be needed to determine how to set limits on forest land that could be registered through this regime. For instance, there could be an option to prioritise marginal Māori owned land in recognition of the disproportionate amount that Māori own and the Government's Treaty commitments to Māori.
143. Submitters who preferred Option 3 said that allowing exceptions was likely to encourage the best long-term results by enabling New Zealand to meet short term climate change targets, promote wider environmental benefits, and support native planting/regeneration by allowing for retirement of unproductive land.
144. Several submitters noted that the concerns raised in the discussion document were related to unmanaged radiata pine forests, thus other exotic species should be allowed.
145. Māori submitters suggested that any exceptions had to be developed in partnership with Māori given the Government's Treaty commitments (noting that the first preference for the majority of Māori was that the category remain open). Further detail of submitters' feedback on exceptions is provided under *Options for how and what exceptions are progressed for within NZ ETS* below.

***Option 4 – A moratorium to restrict the permanent forest category in the NZ ETS to indigenous forests while exceptions are developed***

146. A moratorium could be put in place to prevent exotic forests from registering in the permanent category for a specified period from the current implementation date of 1 January 2023. An ability to renew or extend the moratorium could be included in secondary legislation, allowing the Government to prevent exotic forests from registering

in the permanent category for a longer period if desirable. Indigenous forests and PFSI forests could still register in the category from 1 January 2023.

147. The provisions restricting the registration of permanent exotic forests would expire at the end of the moratorium period unless the Government intervenes again to either further extend the moratorium period or make other changes to the exotic permanent category, which could include providing for a limited exceptions regime where a small volume of exotic forests could be registered in the permanent category.
148. This option would work like Option 3 but would be time-bound and require the Government to make a decision before the moratorium ends (even if the decision is to take no action and to allow the moratorium to lapse). The length of moratorium could be relatively short (1-2 years) or longer (3-5 years).
149. This option, depending on the length of the moratorium, would allow the Government time to develop an exceptions regime, and consider any relevant developments, such as the analysis on unit supply in the NZ ETS, changes in NZU prices, further research or policy development around new or unique forestry models.
150. The option may also create a high degree of regulatory uncertainty around the settings that will be in place when the moratorium expires, which would confuse incentives around afforestation and risk perverse outcomes.
151. A small number of submitters (55) supported a moratorium, with a larger portion of submitters (92) favouring regulatory certainty with decisions made about the future of the category sooner. Submitters who supported a moratorium frequently did so because they believed a moratorium could be implemented immediately, thus putting a stop to permanent exotic afforestation much quicker than through other legislative tools.
152. Submitters who did not support a moratorium referred to needing regulatory certainty quickly and believed this could not be provided by a moratorium. Some submissions from Māori supported a moratorium while exceptions suitable for Māori land were developed.

***Option 5 – Restrict the permanent forest category to indigenous forests once the exceptions regime is developed***

153. Under this option, the permanent forest category would become available to all forests from 1 January 2023 and would subsequently be closed to exotic forests once exceptions are developed. There will be trade-offs between the time needed to design and implement exceptions and providing certainty to those who enter the category while exceptions are developed (for example, if the requirements apply retrospectively).
154. This would allow exotic forests to be registered into the category for a limited time while longer-term exceptions for exotic forests are developed (refer to Option 3 for a brief description of exceptions). This option could provide for landowners and businesses who have already made investment decisions to enter the permanent forest category (such as purchasing land, ordering seedlings and planting) when it becomes available on 1 January 2023. It could also provide options for remote, fragmented and less versatile land that is not well provided for under the remaining NZ ETS categories (e.g., averaging accounting or indigenous afforestation) while exceptions for exotic forests are developed.
155. Submitters were asked whether they agreed with excluding exotic forests from the permanent forest category, with or without exceptions, by 1 January 2023. Most submitters who responded to this question agreed with the proposed implementation

timeframes (70 percent). Within stakeholder and iwi/Māori groups, both the forestry sector and Māori had a slight majority who disagreed with this timeframe.

156. Many of the submitters who agreed with the timeframe spoke of a need to prevent planting of exotic forests as soon as possible, with some referencing the climate emergency and the need to provide regulatory certainty.
157. Submitters who disagreed with the 1 January 2023 timeframe predominantly thought that policy was being developed too quickly and without sufficient engagement with affected parties, particularly Māori. These submitters also raised concerns that a potential exceptions regime needs significantly more time to be developed. There were suggestions to defer the decisions for a short period (1-5 years) and to allow those with existing forests or planting plans to still be able to enter the category.

### **Discarded options**

158. Policy options to manage permanent exotic forests were also considered under the resource management system and other changes within the CCRA.
159. While the resource management system can address environmental risks and locational issues it will not address the incentive provided by the NZ ETS, which is the key driver of permanent exotic afforestation. There may be merit in pursuing complementary resource management interventions to complement management of these aspects of the problem definition (though these options are being progressed separately by the Government).
160. Changes to improve the incentives for indigenous forest to match that of exotic forests through the CCRA were considered but discarded as they were deemed to be an ineffective lever to manage the problem. They would also require significant over-crediting of carbon in natives to shift activity from permanent exotic to permanent indigenous forest.
161. Voluntary industry codes were also considered but discarded as an ineffective lever to manage the problem definition on their own. However, an industry code could provide a useful complementary measure to realise effective implementation of options.

**Multicriteria analysis: how options compare to the status quo?**

**Assessment of options to manage permanent exotic forestry in the NZ ETS**

Key: Variations from Status Quo	
++	Much better
+	Better than
0	About the same
-	Worse than
--	Much worse

**Weighting:** Three criteria are weighted twice as highly as other criteria as these are most directly aligned with the problem definition.<sup>25</sup> These are:

- Criteria b) Supports effective management of NZ ETS price settings,
- Criteria c) Supports regional economies and jobs,
- Criteria d) Provides environment benefits, and
- Criteria e) Supports Māori aspirations.

Criteria	Option 1 – Status Quo	Option 2 – Restrict to indigenous species	Option 3 – Restrict to indigenous species with some exceptions	Option 4 – A moratorium while exceptions are developed	Option 5 – Category is open until an exceptions regime is developed in future
<b>Provides removals to meet emissions budgets and targets</b>	<b>0</b> The forestry removals contributed towards New Zealand’s first emissions budget are similar across all options because most of these removals come from existing forests.  Forestry removals contributed towards New Zealand’s third emissions budget (2031-2035) are a 37.5 million tonnes CO2-e overachievement of the budget.	<b>-</b> Option two sees New Zealand 3.9 million tonnes CO2-e short of its emissions budget for 2031-2035. This is 41.4 million tonnes less than status quo.	<b>-</b> Option two sees New Zealand 3.9 million tonnes CO2-e short of its emissions budget for 2031-2035. This is 41.4 million tonnes less than status quo.	<b>-</b> Option two sees New Zealand 3.9 million tonnes CO2-e short of its emissions budget for 2031-2035. This is 41.4 million tonnes less than status quo.  Forestry removals could be greater if the moratorium ends, and exceptions had not been developed.	<b>0</b> The forestry removals under this option are difficult to predict due to uncertainty around the area of exotic forest that could enter the category while it remains open to exotic forests.  Forestry removals are likely to be greater than in options 2, 3 and 4, but comparable or less than option 1.
<b>Supports effective management of NZ ETS price settings (weighted x2)</b>	<b>0</b> Supply from forestry is predicted to match and then exceed demand in the NZ ETS from the early 2030s under the status quo.  This option is likely to lessen the incentive for gross emissions reductions in the NZ ETS.  Option 1 would require greater emphasis on parallel work to manage NZ ETS supply than Options 2, 3 and 4.	<b>++</b> Restricting permanent exotic forestry in the NZ ETS significantly reduces afforestation and risks of excessive supply liquidity.  This option is likely to contribute to more stable and effective long-term incentives for emissions reductions in the NZ ETS.	<b>++</b> Restricting permanent exotic forestry in the NZ ETS significantly reduces afforestation and risks of excessive supply liquidity.  This option is likely to contribute to more stable and effective long-term incentives for emissions reductions in the NZ ETS.  Management of exceptions granted is needed to ensure levels of permanent exotic forests entered allow for effective long-term NZ ETS market conditions	<b>+</b> Restricting permanent exotic forestry in the NZ ETS significantly reduces afforestation and risks of excessive supply liquidity.  However, there are risks if the moratorium ends and exceptions have not been developed (e.g., if the category reopens to exotic forests).	<b>0 / +</b> Supply from forestry under this option is more difficult to predict due to uncertainty around the area of exotic forest that could enter the category while it remains open to exotic forests.  The supply from forestry is likely to be greater than in options 2, 3 and 4, but less than option 1 - the status quo.  Option 5 will require greater emphasis on work managing long-term NZ ETS market conditions than Options 2, 3 and

<sup>25</sup>This means the + or – assessment scores for these criteria have been multiplied by 2 when calculating the overall assessment scores.

Criteria	Option 1 – Status Quo	Option 2 – Restrict to indigenous species	Option 3 – Restrict to indigenous species with some exceptions	Option 4 – A moratorium while exceptions are developed	Option 5 – Category is open until an exceptions regime is developed in future
				<p>This option is likely to contribute to more stable and effective long-term incentives for emissions reductions in the NZ ETS. Management of exceptions granted is needed to ensure levels of permanent exotic forests entered allow for effective long-term NZ ETS market conditions.</p>	<p>4 due to risks of a 'rush to enter' of permanent exotic forests.</p>
<p><b>Supports regional economies and jobs</b> (weighted x2)</p>	<p><b>0</b> Permanent exotic forests under a 'plant and leave' regime contribute less to GDP and fewer jobs than sheep and beef farming and production forestry. Permanent exotic afforestation provides an income stream for land that is not currently productive and significant returns for individual landowners and businesses.</p>	<p><b>++</b> Reduces the incentive for permanent exotic forests and therefore avoids the displacement of productive land.</p>	<p><b>++</b> Reduces the incentive for permanent exotic forests and therefore avoids risks related to the displacement of productive land. Exceptions could include management regimes that contribute to local jobs and economies and allow afforestation on land that is not currently productive.</p>	<p><b>+</b> Reduces the incentive for permanent exotic forests and therefore avoids risks related to the displacement of productive land. Exceptions could include management regimes that contribute to local jobs and economies and allow afforestation on land that is not currently productive. There are risks to productive land if the moratorium ends and exceptions have not been developed (e.g., if the category reopens to exotic forests).</p>	<p><b>0 / +</b> In the short-term, maintains existing incentives for permanent exotic afforestation, causing the same impacts on productive land as the status quo In the longer-term, reduces the incentive for permanent exotic forests and therefore avoids the displacement of productive land from the implementation date for exceptions.</p>
<p><b>Provides environment benefits</b> (weighted x2)</p>	<p><b>0</b> Provides for permanent exotic forests to reduce afforestation on erosion prone land, improving soil conservation and water quality. There is the potential for unmanaged permanent exotic forests to be established under this option, carrying unknown environmental risks.</p>	<p><b>0</b> Exotic production forests that are established under NZ ETS averaging accounting are managed under the NES-PF. Afforestation on erosion prone land and forest models that support biodiversity may be limited. This option scores the same as the status quo because there is the same balance of positive and negative outcomes across both options.</p>	<p><b>+</b> Exotic production forests that are established under the NZ ETS averaging accounting are managed under the NES-PF. Exceptions could provide for wider environmental benefits (e.g., permanent afforestation on erosion prone land to improve soil conservation and water quality, selective harvest forestry models, exotic to native transition to support biodiversity).</p>	<p><b>0 / +</b> Exotic production forests that are established under the NZ ETS averaging accounting are managed under the NES-PF. Exceptions could provide for wider environmental benefits (e.g., permanent afforestation on erosion prone land to improve soil conservation and water quality, selective harvest forestry models, exotic to native transition to support biodiversity). There is a greater risk that unmanaged permanent exotic forests are established under this option if the moratorium ends and exceptions have not been developed (e.g., if the category reopens to exotic forests).</p>	<p><b>0 / +</b> Provides for permanent exotic forests to reduce afforestation on erosion prone land up until the implementation date for exceptions. There is the potential for unmanaged permanent exotic forests to be established up until the implementation date for exceptions. Exceptions could provide for wider environmental benefits (e.g., permanent afforestation on erosion prone land to improve soil conservation and water quality, selective harvest forestry models, exotic to native transition to support biodiversity).</p>

Criteria	Option 1 – Status Quo	Option 2 – Restrict to indigenous species	Option 3 – Restrict to indigenous species with some exceptions	Option 4 – A moratorium while exceptions are developed	Option 5 – Category is open until an exceptions regime is developed in future
<b>Supports Māori aspirations</b> (weighted x2)	<b>0</b> Māori have indicated permanent exotic forests are important and suited to remote land with few economic options.	<b>--</b> Removes a land-use option Māori have indicated is important and suited to remote land with few economic options.	<b>0 / -</b> Removes a land-use option Māori have indicated is important and suited to remote land with few economic options while exceptions are developed. Option to consider exceptions for remote and marginal land with few economic options through managed exceptions regime, which is disproportionately Māori land. Better mitigation of long-term supply risks helps to preserve value of existing forestry investments held by Māori.	<b>0 / -</b> Removes a land-use option Māori have indicated is important and suited to remote land with few economic options while moratorium is in effect. Option to consider exceptions for remote and marginal land with few economic options, which is disproportionately Māori land, when the moratorium ends. Better mitigation of long-term supply risks helps to preserve value of existing forestry investments held by Māori.	<b>0 / -</b> Māori landowners can use the permanent forest category to develop their land in the short-term (until exceptions are developed). Option to consider exceptions for remote and marginal land with few economic options, which is disproportionately Māori land.
<b>Operational achievability</b>	<b>0</b>	<b>-</b> Legislation and regulatory changes required, operational changes required and additional processing time. Implementation of NZ ETS changes by 1 Jan 2023 is challenging and would require an urgent legislative process to be delivered.	<b>--</b> Legislation and regulatory changes required, operational changes required and additional processing time. Exceptions create further complexity in terms of necessary legislative changes, operational changes and processing, but provide for future policy resilience and flexibility. Implementation of NZ ETS changes by 1 Jan 2023 is challenging and would require an urgent legislative process to be delivered. Exceptions wouldn't be able to be implemented by 1 Jan 2023 and would require additional development and implementation time.	<b>--</b> Same legislative and regulatory changes as Option 2 but additional complexity as will require provisions to review and/or end the moratorium. Exceptions create further complexity in terms of necessary legislative changes, operational changes and processing, but provide for future policy resilience and flexibility. Implementation of NZ ETS changes by 1 Jan 2023 is challenging and would require an urgent legislative process to be delivered. A moratorium adds additional complexity. Exceptions wouldn't be able to be implemented by 1 Jan 2023 and would require additional development and implementation time.	<b>-</b> Easy to implement in the short-term. Same legislative and regulatory changes as Options 2 and 3 over the medium term. Same as the status quo in the short-term. Exceptions and category closure to exotic forests wouldn't be able to be implemented by 1 Jan 2023 and would require additional development and implementation time.

Criteria	Option 1 – Status Quo	Option 2 – Restrict to indigenous species	Option 3 – Restrict to indigenous species with some exceptions	Option 4 – A moratorium while exceptions are developed	Option 5 – Category is open until an exceptions regime is developed in future
Overall assessment	<p><b>0 (weighted)</b></p> <p>Option 1 (status quo) doesn't address the problem or meet most of the criteria. However, this option provides more removals for climate change targets (NDCs) and provides a land use option that Māori have indicated is important for the development of less productive land.</p>	<p><b>2 (weighted)</b></p> <p>Option 2 is assessed as likely to address the policy problem and, on balance, meets more of the criteria than the status quo.</p> <p>This option is likely to support effective management of NZ ETS price settings and regional economies and jobs.</p> <p>There are some negatives with this option - removals for climate change targets are reduced, and this option removes a land use option that Māori have indicated is important for the development of less productive land.</p>	<p><b>Low limit 5 (weighted)</b></p> <p><b>Upper limit 7 (weighted)</b></p> <p>Option 3 is assessed as most likely to address the policy problem and meets more of the criteria than the status quo.</p> <p>Option 3 provides provision for exceptions for exotic forests with wider benefits (e.g., for remote Māori land with fewer economic options and to address environmental concerns).</p> <p>This option is likely to support effective management of NZ ETS price settings and regional economies and jobs.</p> <p>There are some negatives to this option - removals for climate change targets are reduced.</p> <p>The introduction of exceptions is likely to increase operational complexity and costs (for both participants and the administrator).</p>	<p><b>Low limit -1 (weighted)</b></p> <p><b>Upper limit 3 (weighted)</b></p> <p>Option 4 is assessed as likely to partially address the policy problem and, on balance, is equal or slightly ahead of the status quo in meeting the criteria.</p> <p>However, a moratorium could create regulatory uncertainty for landowners and businesses and could have the same impacts as the status quo if the moratorium ends and exceptions have not been developed (e.g., if the category reopens to exotic forests).</p> <p>The moratorium and the introduction of exceptions is likely to increase operational complexity and costs (for both participants and the administrator).</p>	<p><b>Low limit -3 (weighted)</b></p> <p><b>Upper limit 5 (weighted)</b></p> <p>It is uncertain as to the overall effectiveness of Option 5 to address the problems identified with the status quo. This is due to the unknown area of exotic forests that could enter the category while it remains open as exceptions are developed. This is reflected in the scoring.</p> <p>Option 5 mitigates impacts on those that have made short-term investments (based on a presumption of the start of the category).</p>

Proactive

**What option best addresses the problem, meets the policy objectives, and is likely to deliver the highest net benefits?**

***Options to manage permanent exotic forestry in the NZ ETS***

162. The options discussed in this RIA address the different objectives to various extents. Some options support the cultural, social, environmental and economic aspirations of Māori better than others as described within the Treaty impact analysis (appended to this RIA on page 69). To this end, this RIS considers options to control the incentives for permanent exotic forests in the NZ ETS.
163. Option 3 is the preferred option. On balance, this option is most likely to address the problem, meet the policy objectives and deliver the highest net benefits.
164. Supply from forestry is predicted to significantly exceed demand in the NZ ETS from the 2030s under the status quo, and this is likely to erode the Crown's ability to effectively manage NZ ETS supply in a stable and enduring way.
165. Options 2 and 3 are predicted to reduce the level of forestry supply in the NZ ETS to more effectively maintain the Crown's ability to manage NZ ETS supply.
166. However, the predicted reduction in forestry removals under Options 2 and 3 also reduces forestry's contribution towards New Zealand's first and second emissions budgets by 3 million tonnes CO<sub>2</sub>-e under compared to the status quo. Forestry's contribution towards New Zealand's third emissions budget (2031-2035) is reduced from a 37.5 million tonnes CO<sub>2</sub>-e overachievement to a 3.9 million tonnes CO<sub>2</sub>-e underachievement (see Table 4, page 59).
167. The level of forestry removals and NZ ETS supply under Options 4 and 5 are more difficult to predict. This is due to uncertainty around the development of exceptions after the moratorium ends under Option 4 and the area of exotic forest that could enter the category while it remains open under Option 5. Therefore, these options are assessed to only partially manage the NZ ETS supply problems identified with the status quo.
168. The status quo incentivises permanent exotic forests under a 'plant and leave' regime that contribute less to exports and jobs than sheep and beef farming and production forestry. Options 2, 3, 4 and 5 reduce the incentive for permanent exotic forests to varying degrees and avoid the displacement of productive land to the likes of 'plant and leave' permanent exotic forests.
169. Options 2 and 3 are the most effective at meeting this objective with the closure of the category to exotic forests from the date it becomes available. Options 4 and 5 are likely to be less effective due to uncertainty around the level of exotic forests allowed in the category as the exceptions are developed.
170. Options 3, 4 and 5 provide for exceptions to the permanent forest category that restore economic options for remote and less versatile land that may not be well provided for under the remaining NZ ETS categories (e.g., averaging accounting) or direct indigenous afforestation. However, these exceptions would need to be limited by quantum of land and/or be targeted to unproductive land to address the issues of oversupply in the NZ ETS and displacement of productive land as outlined above.
171. Environmental benefits are more finely balanced across the options with the status quo providing an incentive for afforestation on erosion prone land. The status quo also provides the potential for unmanaged permanent exotic forests to be established carrying unknown environmental risks.



172. Options 3, 4 and 5 could provide for wider environmental benefits from well managed exotic forests within an exceptions regime. These environmental benefits could include permanent afforestation on erosion prone land, selective harvest forestry models and exotic to native forest transition. Option 2 however removes the incentive for some forms of well managed permanent exotic afforestation with positive environmental outcomes.
173. Māori land is disproportionately remote and marginal with few economic options. Permanent exotic forests are generally well suited to Māori land and the status quo scores well against this criterion. Options 3, 4 and 5 are assessed as having the potential to match the status quo, provided exceptions for remote and marginal land are developed. Option 2 has a disproportionate impact on Māori as it reduces options on remote, fragmented and less versatile land that is well suited to permanent forests.
174. All options score worse than the status quo on operational achievability due to the legislative and regulatory changes required to implement them. Option 4 also creates regulatory uncertainty for landowners and participants if further work isn't carried out on exceptions or they are not progressed in the expected timeframes.
175. Closing the category before it comes into effect will not directly impose additional costs on participants but will reduce possible future returns for some landowners. It will also have negative impacts for landowners and businesses who have already made investment decisions to enter the permanent forest category (such as purchasing land, ordering seedlings and planting). Option 5 could provide for these landowners and businesses by remaining open until the exceptions regime is created. Alternatively, participants may have other options for revenue, such as establishing production forests, entering NZ ETS averaging accounting or continuing the existing land use.
176. Officials are unable to estimate the quantum of land that will be affected by the proposal and the costs involved due to the timing of conversions and the specific attributes of the land that is affected. Depending on the timing of the conversions, some forests would have been able to register under stock change accounting. Other land may have attributes that make it suitable for production forestry (under averaging accounting). However, the closing of the category to exotic forests will reduce income on land that is unproductive and unsuited to harvest because of its remoteness or erosion proneness.
177. These landowners will retain the ability to register these forests under averaging accounting from 1 Jan 2023, but the relative quantity of units that could be earned will be less than in the status quo (up to 16 years old for radiata pine, 23 for exotic softwoods). There is also uncertainty about the future environmental risks of these exotic forests if they become de facto permanent if the land is unsuitable for harvest. Estimated costs and options available to landowners are provided in Table 5 on page 62.

### **Implementation**

178. This section considers implementation options to manage permanent exotic forestry in the NZ ETS for the preferred option 3.

### ***Placing conditions of entry on the permanent post-1989 category to restrict by species***

179. Conditions of entry will need to be placed on the permanent forest category to exclude exotic forests. Options considered were the existing predominant forest type definition (option 1.a.) and a bespoke geospatial definition (option 1.b.).
180. Option 1.a. is the preferred option as it is assessed to meet the policy objectives and is an existing definition that is aligned with carbon accounting rules on predominant forest type. However, it may increase operational requirements at registration and transfer into

the category from another NZ ETS forest activity (e.g., averaging accounting or stock change accounting).

181. Submitters were asked if they thought the current definition of predominant species in a hectare was still appropriate for the permanent category. A small majority of those who answered the question thought the current definition was appropriate, with the rest either thinking the definition needed updating, or weren't sure. Suggestions for an updated predominant species definition included defining the number of species per hectare, percentage of indigenous species per hectare, and outcomes that forests provide e.g., carbon removals, food production, biodiversity, and employment.

***What scale do the conditions apply?***

182. Existing definitions of area within the NZ ETS provide options to consider the scale over which the conditions apply at registration and transfer into the permanent forest category.
183. Options considered were carbon accounting areas (option 2.a.) and per hectare (option 2.b.). Option 2.b. has been assessed to meet the policy objectives by reducing the incentive for exotic forests in the category. However, option 2.b. applies at a finer resolution to that of option 2.a. and this adds complexity for the regulator and the participant.

***When will the conditions be tested?***

184. Conditions will need to apply to forest on registration or transition into the category from another category. However, the species composition of forests can change as forests grow and additional species are established. Or forests could be actively managed to change species composition over time.
185. Options considered were on registration and transfer into the category (option 3.a.) and on registration and transfer into the category and ongoing (option 3.b.).
186. Option 3.b. has been assessed as the preferred option as it is most likely to result in the exclusion of exotic forests in the category over time. However, it has a higher burden for participant and regulator than option 3.a.

***How will the conditions be tested ongoing?***

187. Forests will need to be assessed as to whether they meet the conditions at registration or transfer into the category from other NZ ETS activities, but ongoing checks may also be required. There are options on how the conditions will be assessed and there will be trade-offs between complexity and effectiveness of the options.
188. Options considered were a comprehensive assessment of predominant forest type by the regulator (option 4.a.), and a declaration of predominant forest type by the participant and risk-based monitoring by the regulator (option 4.b.). Option 4.a. would apply on mandatory emissions returns (usually every 5 years) and option 4.b. would apply on mandatory and voluntary emissions returns.
189. Option 4.b. has been assessed as the preferred option as it aligns with the existing determination of predominant forest type in emissions returns and an incentive to manage as indigenous forests is provided by the existing penalty regime for incorrect emissions returns. Option 4.a. could result in a punitive regime forcing reconfiguring of carbon accounting areas and penalties for small areas of exotic forests and could present a barrier to participation and establishment of permanent native forests.

### ***What happens when a forest no longer meets the conditions?***

190. Measures need to be put in place to ensure the policy is effective and forests are actively managed as indigenous forests over time. The dynamic nature of forests and natural changes in species compositions needs to be considered when forests no longer meet the conditions. The creation of additional barriers to participation in the scheme also needs to be considered in setting consequences of non-compliance. For example, if consequences are too tough then this may might disincentivise indigenous afforestation.
191. Options considered were to remove forests that no longer meet the conditions from the scheme (option 5.a.), transition forests that no longer meet the conditions to averaging accounting (option 5.b.) and allow participants to manage forests back to compliance (option 5.c.).
192. Option 5.c. has been assessed as the preferred option as it provides flexibility for participants to manage forests back to meet the conditions. However, it provides a higher burden for the regulator than options 5.a. and 5.b. Options 5.a. and 5.b. could potentially be an easy option for participants to get out of a 50-year term in the permanent forest category.
193. Submitters were asked for their thoughts on how to treat forests that change from indigenous to exotic while registered in the permanent forest category. Most who commented considered that this forest should be removed from the category, with a much smaller number considering that it should be either treated as though it was indigenous or offered an alternate option.
194. Submitters were closely split between preferring forests which have become exotic while in the category to be removed immediately, given time to become compliant again, or moved to averaging accounting. Several submitters felt that participants in this situation should be given a choice between the above options.
195. Submitters who preferred forest to be removed immediately spoke of needing to maintain a strong incentive for permanent forests to be managed and maintained as indigenous. Submitters who preferred participants be given time to bring their forest back into compliance spoke of this being more supportive of indigenous afforestation goals and being most in line with the objectives the Government is trying to achieve. Some submitters were sceptical of the likelihood of forests transitioning from indigenous to exotic and others noted that the change might not be in the participants control such as change due to fire or storms.

### ***What timeframe do participants have to manage forests back to meet the conditions?***

196. Participants will need adequate time to actively manage forests back to meet the conditions if the species composition of forests changes over time. Options considered were to manage forests back to meet the conditions over one Mandatory Emissions Return Period (e.g., 5 years) (Option 6.a.) and providing an unlimited timeframe to manage back to compliance (Option 6.b.). An option for managing forests back to meet the conditions over one year was discarded due to the barrier to participation this could present and that longer timeframes could provide for liabilities from exotic species clearance to be netted out against entitlements from indigenous species growth.
197. Option 6.b. has been assessed as the preferred option because it provides an incentive for remaining compliant to continue earning units in the permanent forest category. Participants are incentivised to manage forests back to meet the conditions before the end of a mandatory emissions period so they can claim entitlement back to the beginning

of the 5-year period. The approach also presents no barriers to participation from the perceived consequences of not meeting conditions.

198. This approach is also preferred because it is difficult to deregister from category's 50-year term (CCRA sections 190A and 190B) so defined time periods to manage forests back to meet the conditions and penalties present a higher risk for participants to default on their requirements. However, it could result in forests that no longer meet the conditions being in the permanent forest category (and not being entitled to units) over the long-term.
199. This approach provides an incentive to manage forest as indigenous to continue to be entitled to units from the growth of the forest and the avoidance of liabilities associated with exotic forest clearance and (if appropriate) the clear-fell penalties in the category (CCRA section 190D).

### **Options for how and what exceptions are progressed for within NZ ETS**

200. This section examines, for option 3) restrict the permanent forest category to indigenous, with some exceptions [the preferred option], options for how this is achieved, including with reference to forest models or outcomes that might be provided for under an exceptions regime.

#### ***Option 3A – a generic exceptions regime***

201. Under option 3A, a generic set of criteria or conditions would be set that would allow people to register forests containing predominantly exotic tree species in the permanent post-1989 forest category.
202. A generic exceptions regime would be based on a specific test that must be met to be eligible (for example, the forest must be on Land Use Capability class 5-8 land, or eucalypt trees are exempted).
203. This option could also be implemented through generic criteria that would be applied by the regulator in implementing the exceptions regime and/or assessing applications (for example, a criteria assessment of whether the forest provides local employment or environmental benefits).

#### ***Option 3B – a managed or constrained exceptions regime***

204. A managed or constrained exceptions regime would similarly allow for people to register forests containing predominant exotic tree species in the permanent post-1989 forest category but would manage both a) the cumulative level and outcomes from forests allowed in under the exceptions regime; and b) outcomes realised for each registered forest through forest management requirements.
205. Further policy design (including secondary regulations development) would be needed to develop the specific means for implementing this option (for example, whether management requirements are achieved through a requirement to adhere to a forest management plan, or through forest management requirements agreed to by the participant at the time of entry to the NZ ETS).<sup>26</sup>

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<sup>26</sup> An example of a forest management requirement that could be placed upon exotic forests allowed in through a managed exceptions regime would be pest management and fencing, which would support improved growth, understorey formation and biodiversity outcomes from the forest. These details would need to be worked through during the secondary regulation design process after this RIA.

### **Submitter feedback on exceptions**

206. Feedback was sought through the discussion document related to what and how exceptions are provided for. This included seeking feedback on:
- a) Are there particular circumstances that you support introducing exceptions for (for example, exceptions for certain species of exotics)? Why?
  - b) What are the likely impacts, risks and costs of allowing exceptions in these circumstances?
  - c) If we allow exceptions for exotic species under certain conditions, should we place additional conditions on the granting of this exception? What could these be?
207. Submitters who preferred Option 3 said that allowing exceptions was likely to encourage the best long-term results by enabling New Zealand to meet short term climate change targets, promoting wider environmental benefits, and supporting native planting/regeneration by allowing for retirement of unproductive land. Several submitters noted that the concerns raised in the discussion document were related to unmanaged pine forests thus other exotic species should be allowed.
208. The most suggested exceptions were for low productivity land, erosion prone land, exotic to native forest transition and long-lived exotic species. Some submitters also suggested allowing exceptions for continuous canopy production/sustainable harvest, various types of on-farm planting and on Māori land.
209. The reasons for supporting exceptions included considering it a viable option for meeting New Zealand's climate change goals, for diversification of the forestry sector, funding of indigenous afforestation, increased productivity of marginal land, as well as income for rural Māori communities (whānau and hapū).
210. When asked if conditions were needed for an exceptions regime, submitters suggested strict forest management plans (across multiple exception types), and financial conditions such as bonds (specifically for an exotic to native transition exception). This would help ensure forests are successfully managed to prevent environmental impacts such as wilding, and that any exotic to native transition forests are successfully transitioned.
211. A range of reasons were cited by submitters as a potential basis for exceptions. These varied between exceptions related to forestry industry outcomes, those related to outcomes sought by or affecting the landowner, and those justified relating to environmental objectives.
212. Often submitters cited multiple outcomes in the rationale for any given exception (for example, suggesting that an exception for low productivity land would provide both carbon and environmental benefits while also mitigating overall risks to conversion of productive land). A list of exceptions mentioned in submissions and engagements during consultation are provided in Figure 3 below.

**Figure 3:** Reasons for exceptions raised by submitters to consultation

Exceptions for forest industry outcomes	Exceptions for individual / business / landowner outcomes	Exceptions for environmental outcomes
<ul style="list-style-type: none"> <li>→ Sustainable harvest (e.g. continuous cover forests)</li> <li>→ Long-lived exotics (e.g. redwoods, eucalypts) that provide high value timber</li> </ul>	<ul style="list-style-type: none"> <li>→ Māori land</li> <li>→ On-farm planting (e.g. shelterbelts, agroforestry)</li> <li>→ Low productivity land (e.g. land use class 6-8, remote/marginal land)</li> <li>→ Areas below a certain size (e.g. &lt;100ha, &lt;50% of farm property)</li> <li>→ Land not suitable for growing natives</li> <li>→ Existing investments</li> </ul>	<ul style="list-style-type: none"> <li>→ Range of environmental benefits (e.g. flood protection, freshwater quality, biodiversity)</li> <li>→ Erosion prone land (e.g. poplars and willows)</li> <li>→ Exotic to native transition</li> <li>→ On-farm planting (e.g. riparian)</li> <li>→ Long-lived exotics (i.e. to sequester more carbon faster)</li> </ul>

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## Assessment of options for exceptions regime

Compared against option 1 - status quo

Criteria	Option 3A – Generic exceptions regime	Option 3B – A managed or constrained exceptions regime
<b>Provides removals to meet emissions budgets and targets</b>	<b>0</b> Varies dependent on exceptions test. However most generic exceptions tests examined (for example, allowing permanent exotic forests on land use capability class 6-8) are likely to see sufficient total removals provided for, and have a greater impact on <u>where</u> these forests occur (rather than the overall level).	<b>0</b> May vary dependent on the design of the managed exceptions regime. Overall afforestation that can be realised through the NZ ETS (without compromising stable price settings) remains the same. However, the managed exceptions regime is likely to see a slower/steadier uptake in afforestation registered in the NZ ETS (through the ability to control levels of afforestation allowed to enter through the exceptions regime each year).
<b>Supports effective management of NZ ETS price settings</b> (weighted x2)	<b>0</b> Likely to provide comparable risks to the status quo, as the overall maximum level of afforestation that could be registered as permanent exotic forests will remain high.	<b>+ +</b> Provides the means for controlling overall levels of permanent exotic forests allowed into the NZ ETS each year. A managed regime also provides the ability to ensure effective management conditions for riskier and more novel forest models (for example, transitioning forests). This will help mitigate any socialised risks to the community surrounding that forest, subsequent purchasers of that land, and public/taxpayer. Such as where subsequent management down in carbon stock towards an indigenous forest cannot be financed by the landowner, with resulting risks of alienation.
<b>Supports regional economies and jobs</b> (weighted x2)	<b>+</b> Provides the means to mitigate adverse outcomes in some regional communities (by shaping where and in what circumstances permanent exotic forests occur), while retaining benefits for communities that benefit from their establishment (for example, through recycling of revenue from permanent exotic forests planted on unproductive land back into community).	<b>+</b> Provides the means to mitigate adverse outcomes in some regional communities (by shaping where and in what circumstances permanent exotic forests occur), while retaining benefits from permanent exotic forests for those communities that benefit from their establishment (for example, through recycling of revenue from permanent exotic forests planted on unproductive land back into community).
<b>Provides environment benefits</b> (weighted x2)	<b>+ / 0</b> Risks of unmitigated permanent exotic forests (particularly in densely stocked regimes planted for carbon, and those with minimal long-term	<b>+ +</b> Adoption of a managed exception regimes (where forest management requirements are

Criteria	Option 3A – Generic exceptions regime	Option 3B – A managed or constrained exceptions regime
	may be partially addressed (though dependent on the specific exceptions test used).	placed upon the landowner) will provide for more certainty of effective long-term management and associated wider environmental outcomes.
<b>Supports Māori aspirations</b> (weighted x2)	<b>0 / -</b> A generic exceptions regime could provide opportunities for Māori to establish permanent exotic forests suited to their land, and help overcome limitations facing Māori land in terms of other forestry land use options (for example, challenges borrowing against land to raise sufficient capital for direct indigenous establishment). However, depending on how it is implemented, it could be more restrictive than the status quo.	<b>+ / -</b> A managed exceptions regime can provide opportunities for Māori to establish permanent exotic forests suited to their land and help overcome limitations facing Māori land in terms of other forestry land use options (for example, challenges borrowing against land to raise sufficient capital for direct indigenous establishment). Cost recovery may create barriers to participation and this approach could be more restrictive than the status quo. Management of volumes of access will more effectively control for long-term supply conditions (ensuring value of forests in NZ ETS in long-term are retained).
<b>Operational achievability</b>	<b>0</b> Likely to introduce minor additional operational check for the regulator as part of application processing (for example, checking the proportion of their land that intersects specific Land Use Capability classes, or erosion susceptibility risk classifications). Will require policy development and implementation beyond the preferred date for changes to the permanent forest category (ahead of the start of the category on 1 Jan 2023 ).	<b>--</b> Will introduce additional operational burden to both the participant and regulator (for example, through the regulator needing to assess aspects of a forest management plan, monitoring enforcement adherence to the plan). Delays for participants expected, as assessment process would be time consuming and require detailed operational policy and procedure. Will require development and implementation beyond the preferred date for changes to the permanent forest category (ahead of the start of the category on 1 Jan 2023).
<b>Overall assessment</b>	<b>Low limit 0 (weighted)</b> <b>Upper limit 4 (weighted)</b>  Provides means for controlling the location of afforestation (to avert some aspects of the identified problem definition) and provides for better realisation of long-term environmental benefits. However, overall risks to stable and enduring NZ ETS settings are likely to remain and will be comparable to the status quo. Only the application of multiple overlapping conditions (i.e., hemming in the level of total afforestation through multiple entry tests) could mitigate these risks. This option is likely to take longer than 1 Jan 2023 to implement.	<b>Low limit 6 (weighted)</b> <b>Upper limit 10 (weighted)</b>  Mitigates risks to stable and enduring NZ ETS settings in the long-term, while providing for effective management of environmental outcomes and rural land use outcomes provided for by forestry within the NZ ETS. This option will take longer to introduce than 1 Jan 2023 (and is likely to take longer to design and implement than a generic exception test). There are risks that a lengthy period taken to develop this option will curtail planned forestry investment.



### **Preferred option for how exceptions are progressed**

213. *Option 3b) Managed exceptions regime* provides for the most effective means of addressing the problem definition identified (related to stable NZ ETS settings; long-term environmental outcomes from the forests incentivised by the NZ ETS; and rural economic outcomes related to land use).
214. The other option identified (*3a) Generic exceptions regime*) could be implemented faster than a managed exception regime but is likely to provide weaker means for controlling for the identified problem definition.
215. For example, by introducing a generic test based on erosion susceptibility (i.e., land that is erosion susceptible may be registered as a permanent exotic forest), as much as 1.1 million hectares may be eligible to be registered in the NZ ETS (MfE, 2007, p 243). This is likely to result in significant levels of supply to the market from permanent exotic forests, and risk crowding-out other forms of supply from forests with wider desired outcomes that cannot compete on the same financial terms.
216. For Māori, *option 3b) Managed exceptions regime* will provide the means for managing NZ ETS market settings more effectively than the status quo. This will help to retain the longer-term value of forestry investments held by Māori – including for existing production forest investments, new or existing indigenous forests, and forests established under transition forest regimes – that carry risk due to their carbon profile over the lifetime of the investment.
217. A managed exceptions regime will provide the ability to exempt forest regimes of interest to Māori landowners (and which were raised through their submissions and engagements leading up to, during and after the consultation period). For example, a quantum of ‘transitioning forests’ allowed to register each year – with forests allowed to register that transition to predominant indigenous species over time through strip harvesting, or creation of lightwells and regeneration of indigenous species through understorey formation.
218. These transition forest models may be suited to areas of land that are not suited to clearfell harvest models (due to distance to port and value of the timber for 28-year harvest cycles; or where land is partially consisting of steep and unproductive land).
219. Some submitters, particularly Māori, argued there should be a generic exception for all Māori land (including land held under Te Ture Whenua Māori and that held by settlement entities). The concern with this approach is that Māori land defined in this way is unlimited (as land can be freely purchased by settlement entities) so the potential afforestation via this exception is considerable. This raises the more general concerns about unlimited permanent exotic afforestation. This option would also not target land which is most suited to permanent forest cover. Restricting the exception to Te Ture Whenua land would reduce this risk but would disadvantage iwi who were left with little Te Ture Whenua land.
220. Care would need to be taken in the design of a managed exceptions regime to ensure benefits are widely experienced by a range of landowners (including Māori). This could be realised through features such as an additional quantum of eligible forest made available to Māori (together with extension or wrap-around services that help to realise Māori aspirations in the forestry sector). Another option is to shift processing approaches to ensure a range of landowners benefit from the regime over time (for example, by sorting applications so that new applicants each year are processed first).

221. There will be benefits in involving forestry practitioners, Māori foresters and landowners, expertise from CRIs/Universities and forest carbon accounting experts in the policy process designing a managed exceptions regime after this RIA. This will help ensure that the regime is workable for landowners and can effectively realise the potential benefits and mitigate potential risks (such as weak management requirements that do not effectively mitigate 'plant and walk away' forest management).
222. A further critical reason for the Crown to work with Māori is the ERP commitment 'to develop and implement policies that support Māori rights to exercise kaitiakitanga and rangatiratanga and meet Māori aspirations', in recognition of the Crown's Treaty commitments. (New Zealand Government, 2022, p 287).

***What exceptions are provided for under a managed exceptions regime?***

223. Officials' preferred option of a managed exceptions regime provides the ability to allow forests with a proportion of exotic species in permanent/semi-permanent forest models which are not necessarily well provided for within existing NZ ETS categories to enter.
224. This may provide for more novel or unique forest models to New Zealand to be allowed to enter under this exceptions regime in future, as research and experience helps to grow understanding of these forest models in New Zealand's conditions.
225. The design of this regime also means that these more novel forest models (such as transition forests) can be steadily trialled and deployed at greater scales over time (with increasing areas allowed to register as the forest model and its limitations are more readily understood across different locales in New Zealand)<sup>27</sup>
226. There will inevitably be tensions in how quickly such forests are trialled at greater scales. Shorter trial phasing could help reduce the time for scaling up investment efforts to address the climate emergency and deliver biodiversity goals. Whereas longer trials will help identify the wider socialised/public risks borne where these forests are proven unable to be effectively managed in the long-term (for example, where transitioning forests using novel forest management techniques are proven unachievable in some environments).
227. Officials have assessed the viability of progressing particular forest models or outcomes raised by submitters that could be progressed under officials preferred option of a managed exceptions regime at initial establishment of this regime.
228. Four key tests have been applied to determine where exceptions are justified at this time:
- a) Would allowing an exception for this forest model or outcome provide for realisation of forest outcomes sought by the Government?
  - b) Is the exception one that Māori have identified as desirable for their land, while also delivering (or not detracting from) broader outcomes the Government wants for forests?
  - c) Is there a clear substantiated case that these forest models / outcomes are not able to be realised through existing NZ ETS forest categories or accounting approaches (averaging accounting and permanent indigenous forests)?
  - d) Can an exception for this forest model be feasibly implemented (based on an initial assessment)?

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<sup>27</sup> Submissions identified a number of conditions that may be needed for transitioning forests to be successful such as climatic requirements, availability of particular indigenous seed sources, geographic features, active forest management, and fencing and pest control (including at landscape levels).

229. Officials consider there is a reasonable case to proceed with policy development of an exceptions regime. A first step could be to progress with transition forests progressed in the first instance (considering a regime related to exceptions for either or both transition forests using silvicultural management involving thinning, pruning and lightwells; and those progressively strip harvested).
230. We anticipate exceptions would need to be introduced after 1 January 2023 to allow adequate time to work through their design (including operational changes).

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## Options for long-rotation forests on remote and marginal land

### **Background**

231. Alongside the proposal to exclude exotic forests from the permanent forest category in the NZ ETS, the government also consulted on whether to adjust how averaging accounting applies to forests on remote and marginal-to-harvest land.
232. Averaging accounting is the accounting method which will be used to calculate the number of units new post-1989 production forests registered in the NZ ETS are entitled to earn or need to surrender from 1 January 2023. First rotation forests registered under averaging accounting will earn NZUs until they reach their long-term average carbon stock, known as their average age.
233. The average age is based on the average harvest age for each forest type. Radiata pine forests are generally harvested between 20 and 34 years depending on site productivity, with an average harvest age of 28 years. The average age is set at 16 as this reflects the age that radiata pine forests are expected to reach their long-term average carbon stock. Therefore, the full range of harvest ages, and site productivity, are considered when setting the average age, including those harvested younger and older than the average harvest age of 28 years.
234. During consultation on proposed amendments to the Climate Change (Forestry Sector) Regulations 2008 to implement averaging accounting in 2020, some submitters raised concerns that averaging accounting may not recognise the additional carbon which is likely to be stored by long rotation forests on remote and marginal-to-harvest land. Submitters raised concerns that this may limit economic opportunities on this land.
235. Submitters suggested radiata pine forests with high harvesting costs are often left to grow older than the average harvest age of 28, if the costs of harvesting outweigh revenue from selling the logs. These forests tend to be remote, located far from ports or domestic markets, difficult to access, grown on marginal land, or are expensive to harvest due to other factors such as slope. These forests may be harvested later, such as around age 40 if harvesting returns increase over time. This could occur following a change in external conditions, market prices, new processing infrastructure being established in the region, or log value and volumes increasing as the forest ages.
236. Māori submitters were particularly concerned about the average age being based on the national average harvest age rather than individual circumstances. Māori own a disproportionate amount of remote and marginal-to-harvest land and they expressed an interest in the additional carbon stored by these forests being recognised.
237. High transport costs mean it is unlikely to be profitable to harvest radiata pine forests that are located more than 100 kilometres from port at the average harvest age. Approximately 36,750 hectares of whenua Māori land is likely to be physically suitable for exotic production forestry but is located more than 100 kilometres from a port.
238. Several submitters, including Māori forestry experts, advocated for a long rotation category to be established under averaging accounting for radiata pine forests on remote and marginal to harvest. This category could recognise the additional carbon these forests are expected to store.
239. When Cabinet agreed to introduce the amendments to the Climate Change (Forestry Sector) Regulations to implement averaging accounting in 2021, Ministers directed officials to undertake further work on how averaging accounting applies to remote and marginal land.

## **Options considered**

240. Officials sought feedback during consultation on whether to create a long rotation category under averaging accounting which could:
- a) be restricted to radiata pine forests that are planted on land where it is unlikely to be profitable to harvest at the average harvest age of 28, referred to as remote and marginal-to-harvest land.
  - b) assume these forests are harvested at age 40, setting the average age at 21. This would recognise the additional carbon these forests are expected to store between the typical harvest age of 28 and age 40.

## **Expected impacts of a long rotation category**

### ***Potential benefits of a long rotation category***

241. A long rotation category could increase potential economic returns for landowners who plant and register radiata pine forests on remote and marginal-to-harvest land under averaging accounting. Economic returns are estimated to increase from \$14,000-\$19,000 per hectare under the existing averaging accounting settings to \$19,000-\$24,000 per hectare under a long rotation category, depending on forest size and productivity at current NZU prices.<sup>28</sup>
242. A long rotation category could increase potential economic returns for Māori landowners on remote and marginal-to-harvest land. Te Uru Rakau – New Zealand Forest Service estimates that approximately 36,750 hectares of whenua Māori land could be suitable for a long rotation category.

### ***Risks associated with a long rotation category***

243. A long rotation category increases the risk that radiata pine forests registered under averaging accounting will not be harvested and will be left permanently. A long rotation category increases the incentive for forests to be planted on land where harvesting is known to be less profitable. There is little evidence that radiata pine forests which are unprofitable to harvest at typical harvest ages will become profitable to harvest at later ages as long rotation radiata pine forests are not a common forestry model.
244. Submitters expressed doubt that log volumes and value will increase as the forest ages to make harvesting financially viable as:
- a) the marginal nature of the land is unlikely to support growth beyond typical log sizes.
  - b) if larger logs are produced, harvesting costs are expected to increase and harvesting may become more dangerous.
  - c) an extended rotation length and remote forests is likely to increase silviculture and forest management costs. This increases the likelihood these forests will be poorly managed and will produce low quality logs if harvested.
  - d) an extended rotation length increases the risk that these forests will be affected by weather events, reducing log quality.
245. There is uncertainty around the management of radiata pine forests on remote and marginal-to-harvest land if these forests are not harvested in the future. These forests

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<sup>28</sup> Expressed in net present values at an 8% discount rate using current NZU prices (\$70) in real terms (timber revenue excluded due to uncertainty on marginal to harvest land).

becoming permanent could exacerbate many of the issues associated with exotic forests that the proposed changes to the permanent forest category is intending to address (as described above).

246. The full range of harvest ages were considered when setting the average age under averaging accounting. A long rotation category could misalign the units awarded in NZ ETS with those recognised in New Zealand's NDC.<sup>29</sup> This is because the units allocated above the average age in a long rotation category are unlikely to be recognised in the NDC, which calculates its average age based on the national average harvest age. This could create a fiscal risk for the Crown.
247. Other production forestry species such as redwoods or Douglas fir may be better suited to remote or marginal-to-harvest land due to these having longer rotations and higher value timber. These longer-lived species are harvested later than radiata pine and already have higher average ages under averaging accounting to reflect this

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<sup>29</sup> The NDC is New Zealand's climate change target under the Paris Agreement. It proposes a 50 per cent reduction of net emissions below our gross 2005 level by 2030 and covers the period 2021-2030.

### Assessment of options for long-rotation forests

	<b>Option 1: Status quo - existing averaging accounting settings</b>	<b>Option 2: Long rotation category for radiata pine forests which are not profitable to harvest at typical harvest age</b>
<b>Provides removals to meet emissions budgets and targets</b>	<p><b>0</b></p> <p>The existing averaging accounting settings provide significant afforestation incentives to help meet our emissions budgets and targets, including on remote and marginal-to-harvest land.</p>	<p><b>0</b></p> <p>A long rotation category increases the afforestation incentives over existing averaging accounting settings by between 20 and 25 percent. This additional afforestation could help to offset emissions.</p> <p>The amount of additional afforestation this incentivises is dependent on how the category is restricted to remote or marginal-to-harvest land.</p> <p>A long rotation category could misalign the units awarded by NZ ETS with those recognised in New Zealand's NDC which could create fiscal risk.</p>
<b>Supports effective management of NZ ETS price settings (weighted x2)</b>	<p><b>0</b></p> <p>Supply from forestry is predicted to significantly exceed demand in the NZ ETS from the early 2030s under the status quo.</p> <p>The level of supply depends on decisions on exotic forests in the permanent forest category.</p> <p>The ERP describes further analysis that is underway on unit supply in the NZ ETS to assess whether additional changes are needed to balance gross and net reductions.</p>	<p>-</p> <p>The amount of additional afforestation which occurs as a result of a long rotation category is dependent on how the category is restricted to remote or marginal-to-harvest land.</p> <p>The additional afforestation which occurs as a result of the introduction of a long rotation category is likely to exacerbate the expected over supply of NZUs from forestry.</p> <p>A long rotation category could misalign the units awarded by NZ ETS with those recognised in New Zealand's NDC which could create a fiscal risk for the Crown.</p>
<b>Supports regional economies and jobs (weighted x2)</b>	<p><b>0</b></p> <p>The existing averaging accounting settings provide significant afforestation incentives for production forests that make a significant contribution towards national and regional economies, and jobs.</p> <p>The profitability of production forests under the existing averaging accounting settings (NPV \$14,000- \$19,000) is expected to significantly exceed the existing or alternative land uses.</p> <p>Production forestry contributes approximately \$4.8 million to GDP annually and provides around 38 full time jobs per 1000 hectares.</p>	<p><b>0</b></p> <p>A long rotation category increases the afforestation incentives over existing averaging accounting settings by between 20 and 25 percent and could increase the likelihood of afforestation on remote and marginal-to-harvest land.</p> <p>A long rotation category could support regional economies and jobs where forests are harvested and provide an income for otherwise underperforming land.</p> <p>However, there is limited evidence which suggests Radiata pine forests which are not profitable to harvest at age 28 will become profitable to harvest at later ages. Many submitters expressed doubts that log volumes and value will increase as the forest ages to make harvesting financially viable.</p> <p>Forests in a long rotation category which are left permanently could negatively impact regional economies and jobs if they displace other viable land uses. Further</p>

		<p>investigation into economic opportunities on remote and marginal-to-harvest land is needed to ensure this land supports regional economies and jobs.</p> <p>Other production forestry species such as redwoods may be better suited to remote or marginal land as they are harvested later and have higher average ages under averaging.</p>
<p><b>Provides environment benefits</b> (weighted x2)</p>	<p><b>0</b></p> <p>Exotic production forests that are established under NZ ETS averaging accounting are managed under the NES-PF.</p> <p>Well managed production forests can provide environmental benefits including erosion control and supporting biodiversity and freshwater health.</p>	<p>-</p> <p>Exotic production forests that are established under NZ ETS averaging accounting are managed under the NES-PF.</p> <p>Well managed production forests can provide environmental benefits including erosion control and supporting biodiversity and freshwater health.</p> <p>However, there is limited evidence which suggests Radiata pine forests on remote and marginal land will be harvested. Many submitters expressed doubts that log volumes and value will increase as the forest ages to make harvesting financially viable.</p> <p>Forests in a long rotation category which are left permanently could exacerbate many of the environmental issues associated with permanent exotic forests that the proposed changes to the permanent forest category is intended to address.</p>
<p><b>Supports Māori aspirations</b> (weighted x2)</p>	<p><b>0</b></p> <p>The existing averaging accounting settings provide significant afforestation incentives to support Māori aspirations.</p> <p>The profitability of existing averaging accounting settings (NPV \$14,000- \$19,000) is significantly better than existing or alternative land uses, including on remote and marginal-to-harvest land.</p> <p>Approximately 68,500 hectares of whenua Māori land is likely to be suitable for exotic production forestry.</p>	<p>+</p> <p>A long rotation category increases the afforestation incentives over existing averaging accounting settings by between 20 and 25 percent and could help support Māori aspirations on remote and marginal-to-harvest land.</p> <p>Approximately 36,750 hectares of whenua Māori land is likely to be suitable for exotic production forestry but is located more than 100km from a port. This land could be suitable for a long rotation category.</p>
<p><b>Operational achievability</b></p>	<p><b>0</b></p> <p>Status quo.</p>	<p>-</p> <p>A long rotation category could be introduced through changes to the Climate Change (Forestry Sector) Regulations 2008. Additional resources would be needed within Te Uru Rākau – New Zealand Forest Service to implement and administer a long rotation category.</p>



<p><b>Overall assessment</b></p>	<p><b>0 (weighted)</b></p> <p>The existing averaging accounting settings provide significant afforestation incentives that are estimated to be many times that of the existing land use and returns from timber alone.</p>	<p><b>-3 (weighted)</b></p> <p>A long rotation category increases the afforestation incentives over existing averaging accounting settings by between 20 and 25 percent and potentially increases opportunities for remote and marginal-to-harvest land.</p> <p>A long rotation category also presents some risks including risks that:</p> <ul style="list-style-type: none"> <li>● it misaligns the units awarded by NZ ETS with those recognised in New Zealand's NDC.</li> <li>● exacerbates the expected oversupply of NZUs from forestry into the NZ ETS.</li> <li>● there is uncertainty around whether long rotation forests will be harvested, and this could exacerbate many of the issues associated with permanent exotic forests.</li> <li>● other production forestry species such as redwoods or Douglas fir may be better suited to remote or marginal-to-harvest land (and have longer average ages recognised in ETS).</li> </ul> <p>On balance, considering the risks, benefits and existing opportunities, it is recommended that a long rotation category in the NZ ETS is not progressed at this stage.</p>
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Proactive

### **Preferred option for whether and how a long rotation forest category is progressed**

248. On balance, it is recommended that no change be made to averaging accounting for long rotation radiata pine forests at this time (option 1 - status quo). Opportunities for remote and marginal-to-harvest land should be undertaken alongside work on the future design of the permanent forest category. This could include consideration of broader options that make harvest viable and increase profitability and optionality on this land. This would support the Government's wider forestry and climate change objectives (e.g., long rotation, higher value timbers).
249. A long rotation category could increase potential economic returns for landowners with remote and marginal-to-harvest land by an estimated 20 to 25 percent over existing NZ ETS settings. This includes Māori landowners as approximately 36,750 hectares of whenua Māori land could be suitable for a long rotation category.
250. However, financial returns from the existing NZ ETS averaging accounting settings significantly increase the profitability of production forests on all classes of land. The potential returns from the NZ ETS under the existing averaging accounting settings on all classes of land already significantly exceed the returns available from most alternative or existing land uses, or the returns from timber alone. For example, NPV of ~\$4,500 per hectare for extensive sheep and beef (North Island hard hill country, compared to \$14,000-\$19,000 per hectare under existing averaging accounting and carbon price levels (excluding timber revenue).<sup>30</sup>
251. A long rotation category could also misalign the units awarded by NZ ETS with those recognised in New Zealand's NDC which could create a fiscal risk for the Crown.
252. During consultation some submitters expressed doubts that log volumes and value will increase as the forest ages to make harvesting financially viable. Therefore, there is uncertainty around whether these forests will be harvested. This could exacerbate many of the issues associated with permanent exotic forests that proposed changes to the permanent forest category are intended to address.
253. Other production forestry species such as redwoods or Douglas fir may be better suited to remote or marginal-to-harvest land. These longer-lived species are harvested later than radiata pine and already have higher average ages under averaging accounting to reflect this.

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<sup>30</sup> Timber revenue excluded due to uncertainty on marginal to harvest land.

## What are the impacts of the preferred options?

254. This section explores the impacts, marginal costs and benefits of the preferred policy options. This is for:

- a) Permanent exotic forests: option 3) legislation to restrict the permanent forest category to indigenous forests but allow some exotic forests under certain circumstances.
  - i. A managed or constrained exceptions regime is used to manage exotic forests that are allowed in under certain circumstances (option 3B).
- b) Long rotation forests: option 1 - status quo. As this option sees no regulatory change, impact analysis does not include any impacts for long-rotation forests

### Impact of proposals on net greenhouse gas emissions

255. Restricting permanent exotic forests in the NZ ETS does not affect net emissions for New Zealand's first emissions budget period (2022-2025), as these accounted removals will predominantly come from existing forests.
256. Forestry removals slightly improve over this period due to reduced losses from vegetation and soils associated with the first few years following afforestation. However, restrictions could reduce removals from 2026 relative to the status quo.
257. As a result of the interventions proposed in this paper, the forestry removals contributed towards New Zealand's second emissions budget (2026-2030) are estimated to be 6 percent (3 million tonnes CO<sub>2</sub>-e) less.
258. The forestry removals contributed towards New Zealand's third emissions budget (2031-2035) reduce from a 45 percent overachievement (37.5 million tonnes CO<sub>2</sub>-e) to a 5 percent underachievement (3.9 million tonnes CO<sub>2</sub>-e) over this period (Table 4).

**Table 4:** Contribution of forestry towards emissions budgets under status quo; and following proposed interventions (million tonnes CO<sub>2</sub>-e)

Contributed forest removals towards budgets	Emissions budget period		
	2022-2025	2026-2030	2031-2035
<i>Forestry sector budget/sub-target</i>	26.4	57.2	81.6
Permanent exotic forests not restricted (option 1 - status quo)	24.2	55.8	119.1
Permanent exotic forests are restricted (options 2-4)	24.6	52.4	77.7

**Source:** New Zealand Government. (2022).

259. The impact of these policy changes towards meeting the NDC for 2021-2030 are likely to be small (around 3 million tonnes CO<sub>2</sub>-e), but with reduced removals contributed towards subsequent NDCs. There is uncertainty around the total level of abatement that will be required from forests to meet future NDCs (which have not been set yet) and forestry's contribution towards them is currently unknown.
260. While this proposal could increase New Zealand's net emissions over the medium-term (relative to the status quo), it may lead to gross emissions reductions by reducing the volume of units available to offset the emissions from industry and non-forest sectors at

low cost. This would drive a relatively higher emissions price contributing to gross emissions reductions in non-forest sectors.

261. It is difficult to predict the amount of new forest that may be established in response to any restrictions to permanent exotic forests due to uncertainty in long-term forestry projections.

### **Cost and benefits to different parties**

262. The policy proposal does not impose additional costs directly onto Māori, participants and landowners but it could reduce future returns for those who would have taken up the option when it was scheduled to be available from 1 January 2023.
263. Permanent exotic forests are estimated to provide significantly higher financial returns over competing land uses including production forestry and sheep and beef farming. The reduction in possible future returns varies depending on the suitability of alternative land use options.
264. Owners with land suited to harvesting are least affected, with estimated financial returns from harvest and the sale of NZUs providing a significant increase over those from the likely current land use, sheep and beef farming. Owners of land not suited or marginal-to-harvest retain significant potential financial returns from exotic forests under averaging accounting.
265. Closing the category before it comes into effect will also have negative impacts for landowners and businesses who have already made investment decisions to enter the permanent forest category (such as purchasing land, ordering seedlings and planting). Officials are unable to estimate these costs due to the unknown quantum and specific characteristics of the land that influences the remaining options available under the NZ ETS as described above.
266. The costs and benefits to rural economies from the policy are described above. In summary, it is estimated that permanent exotic forests, under a 'plant and leave' regime, provide a lesser contribution to employment and the economy in comparison to production forestry and sheep and beef farming. However, some submitters provided information during consultation that indicates the managed transition of exotic forests to indigenous forests generates greater employment at the local scale than sheep and beef.
267. Costs and benefits resulting from the policy options are provided in Table 5 follows.

### **Assumptions and data used in estimating costs and benefits from the policy proposal**

268. The opportunity costs in Table 5 are presented in net present values (an estimate of the present value of costs and benefits over time) and is estimated by MPI using publicly available datasets.
269. Farming returns are derived from agricultural economic data following methodology described in a publicly available report (Harrison & Bruce, 2019).
270. Permanent forest returns are from the sale of NZUs over a 50-year term. Production forestry returns are from the sale of NZUs under averaging accounting and revenue from timber over one rotation. The range in harvest returns is variable and only a central estimate is provided (Manley, 2022a). The range of returns represents whether the default lookup tables (Schedule 6 of the Climate Change (Forestry Sector) Regulations 2008) or the field measurement approach (MPI, 2022b) is used to derive forest growth, and NZU prices are in real terms and an 8 percent discount rate is used.

271. Net present value figures are presented based on fixed carbon price assumptions (meaning we assume the NZ ETS carbon price continues to rise).
272. However, this assumption is not likely to hold under the status quo. The liquid supply<sup>31</sup> conditions under the status quo would see carbon prices weaken under current legislation and emissions budgets in the medium/long-term. This means that calculations of opportunity cost, representing the loss in value from moving to either a forest under the managed exceptions regime or an alternative land use (e.g, production forestry under averaging), will overstate the actual impact borne by landowners, Māori landowners and NZ ETS participants.
273. As the response of NZU carbon prices to long-term supply conditions for the NZ ETS are not possible to estimate within current available models, officials have set our estimates of the level of impact for each party based on the assumption that:
- a) The status quo provides greater flexibility in land use choice, and the ability to earn more units – but carries greater risk for long-term carbon returns being eroded.
  - b) The preferred option – restrict the permanent forest category from 1 Jan 2023, with an exceptions regime in place in 1-2 years [option 3] means:
    - i. landowners with near-term planned investments - face cost of switching to alternative use; and
    - ii. general landowners, Māori landowners and ETS participants – face reduced flexibility in management regime but benefit from a greater stability in carbon returns and value of forests that are entered into the regime. Also face higher cost recovery and administration costs (e.g., through forest management plan requirement).
274. Table 5 (overleaf) features a degree in overlap in affected groups for 'NZ ETS permanent category participants', 'Landowners (including farmers and carbon foresters)' and 'Māori landowners' as these relate to overlapping demographics (e.g., it may be that a Māori landowner is also a farmer, and a participant in the NZ ETS for forestry).

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31 Liquid supply refers to the number of units that are available and unencumbered in the market.

**Table 5: Cost and benefit assessment to different parties from preferred policy option**

Affected groups	Comment	Impact	Evidence Certainty
<p><b>Compared to status quo:</b> Landowners can earn an estimated \$25,000 to \$35,000 (NPV) per hectare depending on forest size and productivity for permanent exotic forests and are not regulated in their choice of management regime.</p>			
<p style="text-align: center;"><b>Additional costs of the preferred option compared to taking no action</b></p>			
<p><b>Landowners, businesses, and Māori with planned/sunk investments</b></p>	<p>Some submitters identified that they had made sunk investments for seedling purchases, land preparation and planting to establish permanent exotic forests.</p> <p>Others may have purchased land in anticipation of planting it under the permanent category.</p> <p>Some of these investments may have options to transfer to production forestry and averaging accounting if harvesting is economic.</p> <p>Other investments may have been made on land that is too remote or unsuited to production forestry.</p> <p>Afforestation that was carried out during 2022 is likely to be the most affected due to the timing of the closing of stock change accounting in 2022.</p> <p>MPI estimates (taken from Manley, 2021a) that 13,000 hectares of permanent exotic forests were intended to be established in 2022.<sup>32</sup></p>	<p><b>Moderate</b></p> <p><u>Sunk costs:</u> MPI estimates establishment costs for exotic forests of \$1,400 per hectare (Manley, 2021).</p> <p><u>Opportunity cost (NPV of next best option):</u> Move from <i>Permanent exotic forest</i>: \$25,000 to \$35,000 NPV per hectare to...</p> <ul style="list-style-type: none"> <li>• <i>Production forestry</i>: \$18,000 to \$25,000 (NPV) per hectare depending on forest size and productivity where harvesting is economic, or</li> <li>• <i>averaging accounting without harvest</i>: \$14,000 to \$19,000 (NPV) per hectare depending on forest size and productivity. or</li> <li>• <i>sheep &amp; beef (extensive / hard hill North Island)</i> ~\$4,500 (NPV) per hectare, or</li> <li>• <i>scrub, tussock</i>: low economic value (retention of land use flexibility), not estimated.</li> </ul>	<p><b>High</b></p> <p>There is good evidence and information related to establishment costs and potential growth rates for pine forests in New Zealand.</p> <p>Monetised impacts will vary based on the land ownership status (existing ownership or whether land needs to be purchased), changes in NZU prices over time, timing of planting, species and site productivity.</p> <p>The range of returns for permanent exotic forests and production forests represents whether the NZ ETS default tables (for forests under 100 hectares) or the field measurement approach (for forests over 100 hectares) is used to derive forest growth.</p> <p>Harvest returns under production forestry are highly variable and are influenced by site productivity, harvest difficulty, distance to market and log price.</p>
<p><b>Landowners</b> (including farmers and carbon forestry companies)</p>	<p>Additional costs aren't directly imposed on participants but may reduce possible future returns or flexibility in choices (for management regime for forest).</p>	<p><b>Moderate</b></p> <p><u>Opportunity cost (NPV of alternative land uses):</u> Landowners with land suitable for permanent exotic forestry may face a reduction in land</p>	<p><b>Low/Moderate</b></p> <p>Monetised impacts will vary based on the land ownership status (existing ownership or whether land needs to be purchased), changes in NZU</p>

<sup>32</sup>Although proposals to exclude exotic forests from the permanent forest category announced in early 2022 may impact the level of afforestation that occurs during 2022.

	<p>The monetised impacts represent the opportunity cost of switching from an expected registration as a permanent exotic forest (once the category becomes available on 1 Jan 2023) to alternative competing land uses.</p> <p>The policy option constrains options for farmers and landowners to diversify their income, although other NZ ETS categories and forest models remain.</p>	<p>values due to the reduced option value for the land.</p> <p>In addition, landowner may have to alter forest management practises, switch to alternative forest management regime for permanent forest or to alternative use (production forestry):</p> <p>Move from <i>Permanent exotic forest</i>: \$25,000 to \$35,000 NPV per hectare to...</p> <ul style="list-style-type: none"> <li>• <i>Transition forest</i>: NPV unclear (depends on accounting regime for managed exceptions regime), or</li> <li>• <i>Continuous cover forest</i>: NPV unclear (depends on accounting regime), or</li> <li>• <i>Production forestry</i>: \$18,000 to \$25,000 (NPV) per hectare depending on forest size and productivity where harvesting is economic, or</li> <li>• <i>averaging accounting without harvest</i>: \$14,000 to \$19,000 (NPV) per hectare depending on forest size and productivity.</li> </ul>	<p>prices over time, timing of planting, species and site productivity.</p> <p>Due to large uncertainties in price conditions under status quo (due to risks of excessive supply conditions in long-term under current legislation), returns for permanent exotic forests may be less than estimated (\$25,000 to \$35,000 NPV / hectare), meaning estimates of the switch to a managed exceptions regime (that manages for long-term carbon price returns) is difficult to estimate.</p>
<p><b>Māori landowners</b></p> <p>(no active or sunk investments)</p>	<p>Additional costs aren't directly imposed on participants but may reduce possible future returns or flexibility in choices (for management regime for forest).</p> <p>The monetised impacts represent the opportunity cost of switching from an expected registration as a permanent exotic forest (once the category becomes available on 1 Jan 2023) to alternative competing land uses.</p> <p>The policy option constrains options for farmers and landowners to diversify their income, although other NZ ETS categories and forest models remain.</p> <p>The policy option may reduce options for Māori landowners to diversify their income, although other NZ ETS categories and forest models remain and are identified under impacts.</p>	<p><b>Moderate</b></p> <p><u>Opportunity cost (NPV of alternative land uses):</u></p> <p>Landowner may have to alter forest management practises, switch to alternative forest management regime for permanent forest or to alternative use (production forestry):</p> <p>Move from <i>Permanent exotic forest</i>: \$25,000 to \$35,000 NPV per hectare to...</p> <ul style="list-style-type: none"> <li>• <i>Transition forest</i>: NPV unclear (depends on accounting regime for managed exceptions regime), or</li> <li>• <i>Continuous cover forest</i>: NPV unclear (depends on accounting regime), or</li> <li>• <i>Production forestry</i>: \$18,000 to \$25,000 (NPV) per hectare depending on forest size</li> </ul>	<p><b>Low/Moderate</b></p> <p>Monetised impacts will vary based on the land ownership status (existing ownership or whether land needs to be purchased), changes in NZU prices over time, timing of planting, species and site productivity.</p> <p>Due to large uncertainties in price conditions under the status quo (due to risks of excessive supply conditions in long-term under current legislation), returns for permanent exotic forests may be less than estimated (\$25,000 to \$35,000 NPV / hectare), meaning estimates of the switch to a managed exceptions regime (that manages for long-term carbon price returns) is difficult to estimate.</p>

	Any impacts for changes from status quo to managed exceptions regime can have disproportionate impacts to Māori (e.g. due to unique ownership structures, smaller fragmented land titles, and greater proportion of remote and marginal land suitable for permanent forest cover).	and productivity where harvesting is economic, or <ul style="list-style-type: none"> <li>• <i>averaging accounting without harvest</i>: \$14,000 to \$19,000 (NPV) per hectare depending on forest size and productivity.</li> </ul>	
<b>Existing forests planning to move to permanent forest category</b>	Some existing NZ ETS participants may have intended to transfer into the permanent category when it becomes available on 1 January 2023. MPI estimates (taken from Manley, 2021a) that around 29,000 hectares of permanent exotic forests were established between 2019 and 2022 and are eligible to transfer into the category when it becomes available (presuming all these forests are currently registered in the NZ ETS).	<b>Low</b> <u>Opportunity cost</u> Move from <i>Permanent exotic forest</i> : \$25,000 to \$35,000 NPV per hectare to... <ul style="list-style-type: none"> <li>• <i>Production forestry</i>: \$18,000 to \$25,000 (NPV) per hectare depending on forest size and productivity where harvesting is economic, or</li> <li>• <i>Averaging accounting without harvest</i>: \$14,000 to \$19,000 (NPV) per hectare depending on forest size and productivity.</li> </ul>	<b>Moderate</b> It is not possible to precisely estimate how many existing exotic forests may choose to switch to the permanent forest category when it is available. However, the opportunity cost (of not having ability to become a permanent exotic from 1 Jan 2023, and having to remain as a production forest) is understood.
<b>NZ ETS permanent forest category participants</b>	This section compares for future participants of the NZ ETS forest category with exotic forests, the direct cost of participation (under the status quo) relative to under a managed exceptions regime.	<b>Low</b> <u>Administration costs</u> Participants are likely to see higher cost recovery under a managed exceptions regime, and application time and costs (e.g. in producing a forest management plan) once this regime is introduced. These are likely to be small relative to overall potential carbon revenue from earned and sold NZUs. Nb: opportunity costs are explored for Māori landowners, and landowners rather than here.	<b>Moderate</b> Administration costs under a managed exceptions regime will depend on design of the regime over next 1-2 years, so is not possible to estimate with specific at this time.
<b>Regulator</b>	Policy development, implementation, monitoring and compliance costs.	<b>Low</b> <u>Administration costs</u> Policy development and implementation will take time and resources due to the complexity of the policy and the supporting legislation. The	<b>Moderate</b> Administration costs will vary based on final policy decisions on exceptions regime in 1-2 years time, which will impact implementation and compliance costs.



		development of the exceptions regime will be resource intensive across MPI, MfE and Te Uru Rakau. Monitoring and compliance costs will be cost recovered so will be passed onto the participant.	
<b>Total monetised costs</b>		<b>Moderate</b>	<b>Moderate</b>
<b>Non-monetised costs</b>		<b>Moderate</b>	<b>Moderate</b>
<b>Additional benefits of the preferred option compared to taking no action</b>			
<b>Landowners</b>	Switching to a managed exceptions regime will better manage the stability of long-term NZ ETS market conditions, protecting the value of investments made by landowners with existing forests (including indigenous and production), and those permanent exotic forests entering the permanent forest category in future through the managed exceptions regime.	<b>Moderate</b> Existing forests registered in the NZ ETS and future permanent exotic forests entering via the managed exception regime will see greater stability in returns on registered forests.	<b>Low</b> We have high confidence that the status quo will result in excessive supply conditions over time. However, it is not possible with current modelling techniques in New Zealand to estimate consequences for long-term carbon price trends resulting from this with accuracy.
<b>Rural communities and economies</b>	Permanent exotic forests under a 'plant and leave' regime are likely to displace productive and/or other environmentally sustainable land uses. The impact of revenue from NZUs is excluded from the calculations related to economic activity as it is not possible to determine whether and how carbon returns from permanent exotic forests are directed back within rural communities. Or whether the status quo and managed exceptions regime will substantively differ.	<b>Moderate</b> (will vary by region) <u>Value of economic activity of taking no action:</u> Permanent exotic forests (under plant and walk away) contribution to GDP \$0.8 and 2 FTEs per 1000 hectares (under a plant and walk away regime). <u>Value of economic activity of taking no action:</u> Production forestry contribution to GDP \$4.8 million and 38 FTE per 1000 hectares Meat and wool sector contribution to GDP \$1.7 million and 17 FTEs per 1000 hectares (PwC New Zealand, 2020), and Transition forests / actively managed permanent exotic forests – greater than plant and walk away regime (PwC New Zealand, 2022).	<b>Moderate</b> The meat and wool sector estimate include low stocked high country South Island stations that bring down average FTEs. The impact depends on the scale of the analysis. The PwC New Zealand estimates are at the national level. In contrast a report by Beef+Lamb found a higher contribution from sheep and beef farming to the Wairoa District than competing land uses.

		<p><u>Regions with high levels of concentrated afforestation:</u></p> <p>Tararua District Council (2022) estimated that 10,000 hectares of afforestation in 2019 resulted in a loss in local spending between \$1.7 and \$2.1 million per year for the region.</p>	
<b>General NZ ETS participants</b>	By enhancing the stability of market conditions within the NZ ETS through addressing long-term supply risks, this will improve investment conditions for participants planning long-term capital investments.	<p><b>Moderate</b></p> <p>Improved market conditions will support improved investment conditions for wider gross emissions reduction investments.</p>	<p><b>Moderate</b></p> <p>We have high confidence that the status quo will result in excessive supply conditions over time. Severity and timing for dampening of carbon prices under status quo depends on actual afforestation rates through time and willingness of foresters to sell NZUs. Afforestation modelling is supported by research commissioned by MPI (Manley, 2021; Manley 2021a).</p>
<b>Community groups</b>	Minor increase in likelihood of indigenous afforestation, although this is uncertain and likely to be at the margins.	<p><b>Low</b></p> <p>Increase in returns on indigenous afforestation due to reduced long-term NZU supply and addressing risks to long-term market stability.</p>	<p><b>Low</b></p> <p>Highly uncertain and any increase in indigenous afforestation is likely to be at the margins.</p>
<b>Total monetised benefits</b>	-	-	-
<b>Non-monetised benefits</b>		<b>Moderate</b>	<b>Moderate</b>

## **Section 3: Delivering policy options**

### **How will the new arrangements be implemented?**

#### **Timing, legislative and regulatory change**

275. Implementation of these proposals will require amendments to the CCRA, as well as subsequent secondary regulations.
276. An amendment bill to the CCRA will be needed in 2022 to progress the proposals ahead of the start of the permanent forest category on 1 Jan 2023.
277. A shortened legislative process will be necessary to ensure passage of the bill and implementation of the preferred option prior to 1 January 2023. There are material risks associated with a shortened legislative process, particularly ensuring sufficient consultation with affected stakeholders occurs. Consultation and targeted engagement has been prioritised.
278. We anticipate the regime to allow exotic forests into the category in certain circumstances (option 3B - a managed or constrained exceptions regime) would need to be introduced after 1 January 2023, to allow adequate time to work through their design (including operational changes).
279. If other options are chosen (e.g, option 5 - the category opens to all forests on 1 January 2023, and exotic forests are subsequently managed through an exceptions regime once this is developed), these will also require a period of time (~1-2 years) for an exceptions regime to be introduced. As option 5 involves no legislative change now, primary legislation will be needed in future to introduce the exceptions regime.
280. We considered, but discarded, the option of having all exceptions for option 3 through secondary regulations in place before 1 January 2023. This option would not have allowed enough time to work through their design and consider the impacts of the exceptions.

#### **IT and digital systems**

281. The preferred option has implementation implications which may impact the timing of the delivery of the permanent forest category and averaging accounting (for forests intended to be harvested) coming into effect from 1 January 2023.
282. A concurrent IT and digital system build for forestry and the NZ ETS work is currently underway (funded out of Budget 2020), and the proposals in this RIS will expand the scope of this system build and will have budget implications. The introduction of a policy change that isn't finalised until mid/late-2022 will not be possible to be delivered in the IT and digital system build by 1 January 2023.

### **How will the new arrangements be monitored, evaluated, and reviewed?**

283. MPI and MfE will periodically evaluate and review the effectiveness of the preferred option for meeting the objectives (as datasets outlined below are published).
284. This will enable evaluation of the total level of permanent exotic forestry in response to the announcement of proposed changes, and in response to the changes themselves.
285. This monitoring will also enable assessment of proportions of exotic forests being registered under other NZ ETS accounting approaches being managed as permanent forests, and whether additional measures are needed to mitigate potential adverse impacts from this behaviour.

286. The proposed policy changes will be monitored via existing government programmes, reports and datasets collected to estimate forestry and land conversions for production forestry and climate change reporting purposes. These include:

- a) MPI's regular Afforestation and Deforestation Intentions Survey provides recent historic and near-term future rates of exotic afforestation and deforestation.
- b) National Exotic Forest Description (NEFD) provides afforestation estimates for production forestry but does not currently distinguish permanent exotic forests / carbon forestry.
- c) The Ministry for the Environment's Land Use Analysis System combines datasets (including from the NEFD, NZ ETS and government afforestation schemes) and maps afforestation at 5 yearly intervals to estimate historic afforestation rates.
- d) Monitoring and reporting on actions set out in the ERP forestry and emissions pricing chapters.

Proactive release

## Annex A: Treaty of Waitangi analysis

This Treaty analysis is developed as part of the RIS on proposals for 'Managing permanent exotic afforestation incentives'. The key points from the analysis below have been incorporated into the analysis and recommendations in the main body of the RIS.

### Summary Treaty analysis position

1. **High expected carbon prices are driving increased levels of permanent exotic afforestation** (particularly Radiata pine). Some of this afforestation is on land which is suitable for productive uses such as production forestry or sheep and beef farming and there is concern about the displacement of these activities. Some afforestation is on land that is well suited to permanent forests, but there is concern about whether pine is the most suitable permanent species. Various management regimes are proposed for these permanent exotic forests including unmanaged (or 'plant and walk'), managed to transition to natives, or managed for continuous canopy production. There are concerns about environmental and economic impacts of unmanaged forests. There are further concerns about whether the availability of a considerable supply of relatively cheap NZUs (NZ carbon units) from forestry will diminish the incentive to reduce gross emissions.
2. **New Zealand has a lot of land that is well suited to permanent forests.** This land is marginal for other productive uses and permanent forests can provide positive environmental outcomes compared with those other uses.
3. **Māori own a disproportionate amount of this land suited to permanent forests.** A significant number of Māori landowners (around 70%) have stated that they want the option of planting exotic forests on their land, particularly land that is suited to permanent forests. They want to fund this through revenue from the ETS permanent forest category, because they have few other options for accessing financing and utilising this land. These submitters proposed a range of management regimes, including exotic to native transition, continuous canopy production and high-value/long lived exotics (and are generally not in favour of unmanaged forests. A smaller number of submitters (another 20%) only want the permanent category to be left open to these types of management regimes. The remainder said they only want native forests on their land (and want the Crown to work with them to achieve this).
4. **The Crown may decide from several possible policy options how to give effect to the Treaty.** The Crown, through consultation and engagement, has identified Māori interests and reasonably assessed the impact of this policy proposal on Māori rights and interests. The Crown must weigh up a variety of considerations including environmental, economic, social as well as the impact on Māori. It may decide that preventing exotic forests from registering in the permanent forest category (entirely, or with exceptions) is in the best interests of New Zealand overall.
5. **The Crown should, however, when developing alternative options for land suited to permanent forests, work in partnership with Māori to ensure there are options that work for Māori landowners,** consistent with commitments made in the ERP in acknowledgement of the Crown's Treaty obligations.

## Overview of content

6. The analysis below is intended to support the Crown to understand its Treaty obligations relating to the proposals on managing exotic afforestation incentives (the proposals), the interests and views of Māori relating to the proposals, and options for the Crown to deliver its obligations given Māori views. It considers:
  - a) Crown Treaty obligations relating to decisions on managing exotic afforestation.
  - b) Māori land and forestry interests.
  - c) Māori views on the impacts of the proposals and agencies' response.
  - d) Options to mitigate negative impacts on Māori and achieve both Māori and Government objectives for forestry.

### ***Crown Treaty obligations relating to the proposals to manage exotic afforestation incentives***

7. The Crown's Treaty obligations relevant to the proposals to manage exotic afforestation can be found in the Climate Change Response Act 2002 (CCRA), articles of the Treaty and jurisprudence developed by the courts and the Waitangi Tribunal, and Treaty settlements. A range of guidance has also been developed to assist policy development that delivers the Crown's Treaty obligations to Māori.

### ***Te Tiriti o Waitangi / Treaty of Waitangi***

8. In Te Tiriti o Waitangi, the Crown guaranteed to Māori rangatira and hapū 'te tino rangatiratanga o o ratou wenua o ratou kainga o ratou taonga katoa'. In this Article of the Treaty, the Crown promises that Māori will have the right to make decisions over resources and taonga which they wish to retain. The English version of the Treaty explicitly extends this guarantee of 'full exclusive and undisturbed possession' to their lands and estates, **forests**, fisheries and other properties.' [emphasis added] (Department of the Prime Minister and Cabinet, 2019)
9. The Cabinet Office (Department of the Prime Minister and Cabinet, 2019) provides guidance on how to consider the Treaty of Waitangi in policy development. The following questions are relevant and have been used to structure this Treaty analysis:
  - a) What are the Māori/Treaty interests in the issue (and how have policy makers ascertained them)?
  - b) How does the proposal affect all New Zealanders and does the proposal affect Māori differently?
  - c) What could the unintended impacts on Māori be and how does the proposal mitigate them (noting that care must be taken to weigh and balance the relevant considerations)?
10. The principles of the Treaty - partnership, active protection and redress - also help explain how the Crown should understand and deliver its Treaty obligations to Māori (Te Puni Kōkiri, 2001, p74-106). The principle of partnership means both the Crown and Māori have a positive duty to act in good faith, fairly, reasonably and honourably towards the other. The principle of active protection means that the Crown has a positive duty to protect Māori property interests and taonga. The principle of redress means that past wrongs give rise to a right to redress.<sup>33</sup>

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<sup>33</sup> The Lands case; New Zealand Māori Council v Attorney-General (the Broadcasting Assets case) [1994] 1 NZLR 513 (PC); Te Runanga o Te Wharekauri Rekohu v Attorney-General [1993] 2 NZLR 301 (CA).

11. Te Arawhiti (2022) provides guidance on how the Crown should engage with Māori as a good Treaty partner based on the characteristics of the issue under consideration. It suggests consultation or collaboration when Māori interests are affected, but wider interests take priority and co-design, when Māori interests are central and other interests are limited.

### **Climate Change Response Act 2002**

12. Section 3A of the CCRA provides that in order to recognise and respect the Crown's responsibility to give effect to the principles of the Treaty of Waitangi,

*(ad) with respect to sections 5ZG and 5ZI (which require the Minister to prepare and publish an emissions reduction plan), the Minister must include in a emissions reduction plan **a strategy to recognise and mitigate the impacts on iwi and Māori** of reducing emissions and must ensure that iwi and Māori have been adequately consulted on the plan' [emphasis added].*

13. Section 3A expressly describes how the Crown's Treaty responsibilities are given effect to in the CCRA. However, the Crown is still required to consider wider Treaty principles in addition to complying with any specific Treaty clause.

14. The proposals under consideration are in the forestry chapter of the Government's first emissions reduction plan (ERP) and are developed in response to recommendations by the Climate Change Commission on the ERP. The forestry chapter also reflects the requirement in s3A(ad) and gives a general Government commitment to (2022, p 287):

*'Develop policies that support Māori to meet their aspirations: The Government is working with Māori groups, including forestry experts, to identify priority for Māori. The aim is to develop and implement forestry policies that support Māori rights to exercise kaitiakitanga and rangatiratanga and meet Māori aspirations.'*

15. The ERP (2022, p 283) forestry chapter also states that '[t]o encourage greater levels of native afforestation over the longer term, over the next two years the Government will ... [inter alia] support Māori-led approaches to native afforestation'.

16. The ERP chapter on 'Empowering Māori' provides a similar but more general commitment (New Zealand Government, 2022, p43 & p53):

'Establish a platform for Māori climate action that will:

- Embed partnership and representation
- Support Māori-led strategy and alignment
- Activate kaupapa Māori, tangata Māori solutions.'

17. The discussion document on the current proposals (MPI & MFE, 2022, p11) acknowledged that Māori land is often suited to permanent cover or long-rotation forests. For this reason, it sought feedback from Māori on how the proposals would impact on them.

18. One of the criteria for evaluating the options (2022, p16) is how far they:

*'Support Māori aspirations – Actively protect Māori interests and ability to make decisions regarding their land in line with [their] aspirations. Forests and forest products support the cultural, social, environmental and economic aspirations of Māori whānau, hapū and iwi.'*

19. Māori have made strong submissions, in hui and in writing, on the disproportionate impact of the proposals on their aspirations, rangatiratanga and kaitiakitanga. These

submissions are supported by statistical information on Māori collectives' forestry and land interests.

20. When considering how to respond to Māori submissions, the Government needs to be mindful of the commitments it has made to Māori in the ERP to partner in developing forestry policies that support Māori aspirations, and their exercise of kaitiakitanga and rangatiratanga.

### ***Treaty Settlements***

21. Treaty settlement redress to address historical breaches of the Treaty rights of specific Māori hapū and iwi are set out in Treaty settlement deeds and Acts (Treaty settlement agreements). There are a number of ways in which the proposals might impact on Treaty settlement entities<sup>34</sup> and Treaty settlement agreements.
22. First, it is possible that iwi may have included specific blocks of land in their settlement redress package with the intention of planting it in exotic species and entering the post-1989 permanent category.
23. Secondly, Treaty settlement entities may have begun investing (e.g., in land or afforestation) in anticipation of the permanent forest category commencing or the proposal for a long-rotation category in average accounting methodology being agreed to.
24. Thirdly, Treaty settlement entities may consider planting exotics in the new permanent forest category and proposed long-rotation averaging accounting category as part of a suite of possible options for land they currently own or may own in future, or land their members own.
25. Finally, Treaty settlement agreements may acknowledge requirements for the Crown to consult with the Treaty settlement entity on policies that affect their areas of interest (and may require specific agencies to outline how this is to occur).
26. The first possible impact will be unique to individual Treaty settlement agreements and for this reason is considered separately in the analysis below. The latter three possibilities have been raised in submissions from Māori landowners and representatives that are not Treaty settlement entities. While iwi understandably view the Crown's obligations through their own Treaty settlement agreements because the latter three claims are not unique to Treaty settlement entities they are considered together with similar claims from other Māori landowners.<sup>35</sup>

### ***Māori land and forestry interests***

27. Māori have significant interests in forests as rangatira, kaitiaki, land and forest owners, workers and business owners. In 2018, Māori were estimated to own \$4.3 billion of forestry assets (6% of the total Māori asset base) and some 2,200 Māori were employed in the sector (40% of the forestry workforce) (Reserve Bank of New Zealand, 2018).
28. Māori own land in several different ways. In this analysis Māori land is used to refer land that is owned by Māori collectives either as Māori land as defined under Te Ture Whenua

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34 Treaty settlement entities are used here to refer to Post-settlement governance entities and their subsidiaries who may be the direct owners of any land or forestry interests.

35 A small number of submissions from Māori referenced the requirements on agencies under the Public Service Act 2020 (s14) which include 'supporting the Crown in its relationships with Māori under the Treaty of Waitangi (te Tiriti o Waitangi)' by 'developing and maintaining the capability of the public service to engage with Māori and to understand Māori perspectives'. While this obligation clearly applies to all public service agencies, it is a more generalised obligation on agencies on what is required to deliver more specific obligations, such as those in the CCRA. For this reason, it is not considered as a discrete obligation in this analysis.



Māori Act 1993 Māori Land Act 1993 or land that is held by Treaty settlement entities.<sup>36</sup> Both types of land are subject to the guarantee of tino rangatiratanga in Article 2 of Te Tiriti o Waitangi.

### **Whenua Māori (Māori land under Te Ture Whenua Māori Act 1993)**

29. Whenua Māori (or Māori land, defined under Te Ture Whenua Māori Act to include Māori freehold and customary land) is disproportionately on remote, less versatile land (compared with general land) which make it well suited to forestry. It is also held in smaller, fragmented titles. This residual land holding reflects the historic role of the Māori Land Court (and its predecessor, the Native Land Court) 'to convert customary Māori land into titles which could be acquired, initially by the colonial government and later by individual settlers' prior to its current focus on retention in Māori ownership. (Māori Land Court, 2016)
30. An estimated 46 % (625,000ha) of whenua Māori is in forestry (33% indigenous and 13% planted exotic) and a further 15% is in scrub (196,000ha) (Hohaia, 15 March 2022). Forestry on whenua Māori is disproportionately pre-1990 with indigenous forest (74% compared with 53% for general title). (MPI, 2022a)
31. Whenua Māori tends to be in lower capability land use classes compared with general land (65% in land-use classes 6&7 compared with 50% for general land). Some 16,400 blocks have no clear structure and are an average of 14 ha in size (Harmsworth, 2017). In addition, limits on the alienation of Māori freehold land make it difficult to access finance for development.
32. Around 123,650 hectares of Māori freehold land has been identified as well suited to forests – and could qualify for registering in the NZ ETS. Of this, around 71,000 hectares has been identified as remote and marginal-to-harvest land.<sup>37</sup>

### **Māori Treaty settlement land**

33. Land held by Treaty settlement entities (post-settlement governance entities) is general land owned by Māori<sup>38</sup>, but will often be held for different reasons than non-Māori general land e.g., there may be a preference for owning land within tribal boundaries as turanga waewae (a 'place to stand') for the long-term benefit of future generations. This analysis includes both land transferred pursuant to a Treaty settlement and land purchased on the open market by settlement entities within the scope of Māori land.
34. A 2009 report commissioned by the Crown Forestry Rental Trust (Burleigh Evatt, 2009) identified that "Māori have a significant stake in the forestry sector. With the return of the Crown Forest licence land to iwi in the Central North Island in July 2009 [as part of Treaty settlements], some 440,000 hectares of exotic forestland will be owned by Māori. Māori ownership is likely to increase to over 700,000 hectares (40% of the 1.8 million hectare

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36 Te Ture Whenua Māori Act 1993 defines Māori land (s4 and 129) as Māori freehold and Māori customary land, but most is Māori freehold. (There was estimated 1204 ha of customary land in 2020 compared with 1.4mha of freehold land.) Many also use the term 'whenua Māori' for Māori freehold and customary Māori land. This term is used for clarity here when only referring to Māori land as defined by Te Ture Whenua Māori Act. Whenua Māori is tagged in the land title databases so can be searched and analysed as a discrete category. The same is not true for land held by Treaty settlement entities so it not included in the statistics considered here. Furthermore, some Māori freehold land has been converted to general title land, but this is also not included in the statistical analysis (again, because it is not easily identifiable). It is acknowledged, however, that such land is often managed with the same tikanga as Māori freehold land, that is, with an intergenerational focus, for the benefit of the broader whānau, and with a strong resistance to alienation.

37 Based on the LUCAS NZ Land Use Map, analysis undertaken by Te Uru Rākau – Forestry New Zealand. This figure differs from that in the interim RIS and is based on more recent analysis.

38 As defined in Te Ture Whenua Māori Act, s129.

forest estate) over the next few years once the remaining Crown forest licensed lands are settled and returned to iwi.”

35. Land held by Treaty settlement entities is, as noted above, general title land and thus not readily identifiable in the way whenua Māori is, so the analysis above conducted for whenua Māori is not possible for this land.

## **Māori submissions on the proposals**

### ***Engagement on proposals***

36. Formal consultation was open from 14 March to 22 April 2022. Officials ran three open webinars during this time (face-to-face consultation was limited by Covid restrictions), one of which was specifically targeted to Māori. Officials also had multiple on-line hui with specific Māori groups including four with Ngā Pou ā Tāne (National Māori Forestry Association), one with Tāmata Hauhā (a Māori land consultancy/partner) and two with the lead from the National Iwi Chairs Forum climate change pou (Te Pou Take Āhuarangi). Officials have also been present at meetings between Ministers and Māori including two convened by the Chair of Te Taumata (Māori Trade body), Rau Tipu Rau Ora (Tairawhiti Leaders Group). Tairawhiti whenua (umbrella body for some 40 Tairawhiti Māori land entities) and Te Aupōuri.
37. Māori made 34 submissions on the proposed changes from a mix of iwi, Māori freehold land and were also included in submissions from groups such as Rau Tipu Rau Ora (Tairawhiti Leaders Group, which is co-chaired by Iwi).

### ***Summary***

38. Māori views were not uniform, although there was agreement on most issues. The key point of divergence was on whether the permanent forest category should be closed to exotic species. A majority (71%) wanted the category to remain open (for all land, or at least, for Māori land). A further 20 % considered it should be closed but with exceptions (such as exotic to native transition, continuous canopy production, or long-lived high-value exotics). Taken together, 91% of Māori submissions were opposed to a blanket closure.
39. All submissions supported native afforestation (apart from 3 which were silent on the issue).<sup>39</sup>

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<sup>39</sup> These figures differ from, but are complementary to, statistics in the summary of submissions which analysed the submissions against the specific questions from the discussion document. In the summary of submissions, responses were often categorised against a limited list of possible responses to enable quantitative analysis. Submitters either chose from the list (MPI's online submission form) or where the online form was not used, MPI staff assessed which response from the list the submitters responses most closely aligned with. This means there is inevitably a degree of subjectivity in categorising responses, and submissions were often more nuanced than the options allowed. This particularly affected submissions which strongly opposed any closure affecting Māori land (categorised as either preferring status quo, or closure with exceptions), and those that ranked options or supported an option provided certain conditions were met. For example, 'leave open for Māori land' sat alongside 'leave open for Māori land but forest has to be managed'. The latter could be grouped with 'leave open for Māori land' or 'close with exceptions. Many of those who wanted the category left open were clear in their opposition to 'plant and leave' (arguing that all unmanaged forests caused problems, exotic or native.) Another source of uncertainty arose because where submitters used the MPI prepared online form they were asked to indicate whether they represented Māori land and forest owners (either solely or as part of their membership). Where submissions did not follow this format, it required interpretation and prior knowledge to judge whether it came from Māori or not. This introduces a further degree of subjectivity into the numbers included in the 'Māori submissions' analysed here. The analysis here also included submissions that were not received through the formal agency process, such as those from Māori convened by the Chair of Te Taumata (Māori Trade Body), who as a matter of principle corresponded directly with the Minister of Climate Change.

40. Those submitters that commented on the proposal, supported the creation of a long rotation averaging accounting forest category for exotics.
41. Many submissions argued the consultation was too rushed and almost all argued the Crown needed to take its obligation to work in partnership on the forestry proposals more seriously.
42. Several submissions argued that the combination of the detrimental impact of the proposals and failure to work in partnership was a breach of their Treaty rights.
43. A summary of points raised in submissions is provided below, followed by officials' response to the points raised.
44. There is considerable overlap between points raised by Māori and by non-Māori submitters. This means there is some repetition in the recognition and response to Māori submitters in this Treaty analysis and the parts of the RIS that respond to all submissions. This section focusses however on points unique to the Māori submissions, leaving some of the arguments made by Māori but which were echoed by other submitters for the general response to submissions.

### **Proposal to remove the ability to register exotic forests within the permanent forest category of the NZ ETS**

#### ***Submitters opposed to removal***

45. Māori submitters who opposed the removal of exotics from the permanent forest category did so because they disagreed with the problem definition (for which removing exotic forests is the proposed solution). They argued, therefore, that the proposed change was unjustified and would remove one of very few desirable options for a significant amount of Māori land which is suited to permanent afforestation. The different arguments in the submissions opposed to closure, and officials' responses, are set out below.

#### ***Diminished incentive for gross emissions reductions***

46. **Submission:** Many Māori submitters pointed out that afforestation and the associated removals are critical to New Zealand's response to the climate emergency and achieving our emissions reductions targets. While they supported native afforestation, they noted that both the cost and rates of removals meant it could not be relied upon to achieve targets without significant government intervention. They noted they had not yet seen a plausible government plan for achieving the native afforestation rates recommended by the Climate Change Commission (but were happy to partner with the Crown on developing one). There was particular objection to the suggestion that more ambitious nationally determined contributions under the Paris Agreement would be met through offshore mitigation rather than investing in carbon removals from forests on Māori land, to the benefit of Māori communities. Finally, submissions suggested 'the government must address emissions reductions at the source (gross emissions) by not allowing

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The Crown needs to be cautious about how it weighs the 'majority: minority' view for other reasons. The number of submissions was limited, as was face to face engagement with Māori landowners (both due to the short timeframes and Covid restrictions on face-to-face meetings). While it is likely the submissions reflect the range of Māori views (given their breadth), they may not reflect the proportions, because most Māori landowners did not submit or engage. Secondly, calculating a majority/minority involves no ranking of submissions. A submission from a wood processing group that ticked the box indicating they have Māori members (but with no content that explicitly reflected those members views) is given the same weight as the settlement entity for a large iwi with significant amounts of land suited to permanent forestry. The Crown does not have the same Treaty obligations to these two submitters.

polluters to continue to offset', if it was concerned about relatively inexpensive carbon credits from forestry diminishing the incentive to reduce gross emissions.<sup>40</sup>

47. **Response:** MPI and MfE accept the above points in part. We agree that afforestation will be critical to New Zealand meeting its net emission reduction targets. We accept that native afforestation is relatively expensive and rates of removals are slower compared with exotic species and that the plan for increasing native afforestation rates is still under development (and needs to involve Māori).
48. New Zealand's domestic emissions reduction budgets must be met as far as possible through domestic emissions reductions and domestic removals (s5Z(1) of the CCRA). To meet New Zealand's updated NDC requires domestic reductions in net emissions as a priority and in addition, helping emissions reduce in other parts of the world.
49. On the question of access by gross emitters to forestry removals, the recently released ERP has committed the Government to "looking into NZ ETS unit supply and what changes, if any, should be made to the NZ ETS to support" an outcome of a strong, clear price signal that incentivises the right balance of gross and net emissions reductions (New Zealand Government, 2022, p103).
50. It notes in Action 5.2.1 (2022, p103) that '[f]urther policy analysis is underway on unit supply in the NZ ETS to assess whether additional NZ ETS changes are needed to balance the gross and net reductions'. This work is likely to consider whether there is a case to restrict emitters ability to use forestry removals in meeting their NZ ETS obligations, as well as what more can be done domestically to meet our international commitments.
51. It is important to note, however, that any changes that restrict or alter the terms in which gross emitters can meet their surrender obligations through purchase of forestry removals would be a significant change to the current ETS, and to participants within the scheme. It could mean changes to how removals are paid for and how much is paid for them. These changes would affect the expected returns from carbon removals (altering the attractiveness of this option for Māori landowners). This work may further progress policy changes that differentiate between types of removals and choosing to prioritise removals with co-benefits (such as jobs or biodiversity).
52. In summary, while officials agree with submitters, we note there is further work underway to address these concerns.

***Displacement of farming and production forests (with their associated jobs and contributions to GDP)***

53. **Submission:** Submitters who commented on this aspect of the problem and were opposed to closure rejected the argument that permanent exotics would replace productive land uses to the detriment of rural communities. (This argument is addressed more fully in the RIS.)
54. Firstly, they noted that with current projected ETS returns, permanent forestry was much more profitable than sheep and beef on marginal Māori land, and more profitable again for land that was currently not in production (or 'farming gorse'). They noted that Māori land is suited to forestry, particularly permanent forestry, given it is disproportionately in higher land use classes, fragmented and far from ports or processors.
55. They noted that with the considerable challenges in raising capital on Māori freehold land, carbon revenue provided a unique opportunity for land development and for

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40 This quote comes from the submission from Ngā Pou a Tāne but was a view repeated in several other submissions from Māori.

investment back into rural communities. They argued that Māori landowners were entitled and better placed than government to make the trade-offs for their communities between jobs, profits, environmental and the cultural impacts of different land uses. They suggested that the proposal seemed to be aimed at stopping 'plant and walk' permanent afforestation but argued that this was not something Māori would ever contemplate on their ancestral lands. They further argued that 'permanent' exotics provide an ecologically and financially viable transition path into natives and this management model would provide both jobs and broader environmental benefits.

56. **Response:** MPI and MfE accept that the question of whether permanent exotic forestry would be 'less productive' depends on the productivity of the existing land-use. Officials acknowledge the challenges in raising capital for Māori freehold land, the likelihood that Māori will re-invest carbon returns locally, and the unlikelihood that they will 'plant and walk'. Officials agree that the management, environmental and financial conditions under which exotic to native transition models (and potentially other management models) could be feasible warrants further investigation, as part of a broader work programme on viable models for native afforestation at scale.
57. Officials consider, however, that there are risks with heavy reliance on the exotic to native transition model until there is better understanding of the required conditions for success e.g., management regime, climatic conditions, scale. This suggests investigation should proceed cautiously with limits on the overall amount of land managed with this intention that is admitted to the ETS, until the necessary success factors are clear and are able to be enforced.

***Closure will significantly devalue Treaty settlement assets and future options for Māori freehold land***

58. As noted earlier, there are different aspects to the argument that proposed changes will devalue Treaty settlement assets and the options available to Māori landowners generally.
59. These include the possibility that:
  - a) Iwi included specific blocks of land in their Treaty settlement redress package with the intention of planting it in exotic species and entering the post-1989 permanent forest category.
  - b) Treaty settlement entities and Māori freehold landowners may consider the proposed new categories as part of a suite of possible options for land they currently own or may own in future, or which their members own;
  - c) Treaty settlement entities and Māori freehold landowners may have begun investing (e.g., in land or afforestation) in anticipation of the proposals for a post-1989 permanent or long-rotation ETS category coming into effect.
60. The first two possibilities are considered directly below. The third is considered ahead under the heading 'Timing'.

***Is there evidence that iwi included specific blocks of land in their Treaty settlement redress package with the intention of planting it in exotic species and entering the permanent forest category?***

61. **Submission:** There were no submissions that made this claim.
62. **Response:** If an iwi negotiated a Treaty settlement package which included land blocks intended for exotic afforestation and registration in the post-1989 permanent the

proposed changes would impact potential returns from those land blocks. An assessment on the likelihood that this occurred is set out below.

63. It is assumed here that where Treaty settlements were finalised after the Climate Change (Emissions Trading Reform) Amendment Act 2020 was assented on 22 June 2020. This provided for the introduction of the post-1989 permanent forest category, and they may have relied on the category's existence in assessing the potential value of land despite the category not opening until 1 January 2023. It is acknowledged, however, that some iwi may have factored the category into their assessment earlier than this, possibly from the date of introduction of the Climate Change (Emissions Trading Reform) Amendment Bill in October 2019.
64. Secondly, one has to make a judgement on when Treaty settlements are deemed 'finalised'. Six Treaty settlement deeds were signed after 22 June 2020 (and these were examined for land that may have been intended for afforestation and registration in the post-1989 permanent category).<sup>41</sup> It should be noted, however, that the agreements in principle, which form the basis for the settlements, were all signed considerably earlier, between 2011 and 2018 (so if this were taken to be the date for 'finalisation', none would have been finalised after the amending legislation's assent). Furthermore, four of these settlements have still to have their settlement legislation passed.
65. The next difficulty is assessing whether land was returned that was well suited to permanent forests, and whether this was its intended use. It is important to reiterate here that not all forests are affected by this proposal. The status of forests in the pre-1990 category, or P89 forests already registered in the ETS would remain unchanged. This means that *forest lands* returned as part of settlements are highly unlikely to be affected. These Crown forests are generally pre-1990 (so not eligible for ETS registration) or, if post-1989, may already be registered in the ETS (if carbon returns are an objective for these forests). The proposed change affects the options for land that might have been planted in the future with the intention of registering in the permanent category, or forests that are planted but not yet registered.<sup>42</sup>
66. Lands that were returned as part of cultural redress (often some form of reserve), or commercial properties (former schools etc) are not suitable for afforestation due to their small size (and for commercial properties, relatively high value). Some Treaty settlements included pastoral properties either as purchases (e.g. Ngāti Paoa purchased the Pouarua Dairy complex) or gave a right of first offer (e.g. Ngāti Rangitihī have a right of first offer over the Rotomahana Bay of Plenty Landcorp farm). It is possible that these properties contain areas suited to permanent forest cover. It is not possible to assess this, however, without a detailed examination of the geo-physical characteristics of each property. That examination was unable to be undertaken for this analysis.
67. Even more difficult is to assess whether these Treaty settlement entities *intended* to afforest and enter in the permanent post-1989 category. An important mitigation for this knowledge gap is that there were no submissions from Treaty settlement entities stating that they negotiated redress packages that included land that they valued and included with the intention of utilising the post-1989 permanent forest category. None of the six Treaty settlement bodies who signed deeds of agreement after 22 June 2020 made a submission. It seems unlikely that this was because they were unaware of the proposed

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41 These are the deeds for Ngāti Rangitihī (deed signed 5/12/2020); Ngāti Maru (Taranaki) (deed signed 27/02/2021); Ngāti Paoa (deed signed 20/03/2021); Ngāti Kahungunu ki Wairarapa Tāmaki nui-a-rua (deed signed 29/10/2021); Maniapoto (deed signed 11/11/2021); Te Ākitai Waiohūa (deed signed 12/11/2021).

42 There are around 350,000 ha of land planted in post-1989 forests but not yet registered and they would lose the option of registering either in stock change or the permanent post-1989 category. These forests are currently forgoing ETS revenue, however, which suggests that carbon revenue is not the motivation for their forestry activity.

changes. In addition to the public consultation, there has been considerable media coverage (in both mainstream and Māori channels), and conversations across Māoridom (culminating in a deputation from Māori forestry leaders from a wide cross-section of iwi, to Parliament, on 9 June 2022, for example).

68. There were eight submissions from Treaty settlement entities and, of these, four were opposed to the closure and four supported closure (combined with exceptions and support for native afforestation). There were iwi that opposed the closure on the basis that it would limit future options for the land in their rohe (both land owned by the Treaty settlement entities and land held by their members) but this is a different and more generalised claim which is discussed below.

***Do Māori landowners consider the proposed new categories as part of a suite of future options for land the currently own, may own in future, or which they may support for their members?***

69. **Submission:** A number of submissions argued that exotic afforestation registered in the ETS was one of few viable options for Māori land given its physical characteristics and the difficulty accessing capital for other uses. Submitters used the differential between the net present value (NPV) of permanent exotic forestry and sheep and beef farming provided by the RIS (\$45,000<sup>43</sup>) and multiplied this by the Māori freehold land identified as marginal for other productive uses (146,000ha) and calculated the loss to Māori freehold landowners of \$6.6bn. (No equivalent figure is available for settlement entities because we have no estimate of land suitable for forestry held by these entities.)
70. Submissions from settlement entities were balanced on whether to prevent exotic forests from registering in the permanent forest category (with Ngāti Porou, Ngāti Rarua, Te Aupōuri and Kahukuraariki - PSGE for Ngāti Kahu ki Whangaroa opposed to closure and Ngāi Tahu, Ngāti Pahauwera, Ngāti Hei and Ngāti Whatua ō Orakei supporting closure with exceptions.)
71. **Response:** The closure of the permanent ETS forest category to exotics would represent a loss of an option for Māori land, but the value of that option is highly uncertain.
72. The NPV in the RIS assumed a price of \$110/carbon unit in 2026 (the currently agreed auction trigger price for that year) and used the more productive field measurement approach yield tables for forests 100 hectares in size or greater. Estimates for less productive and more fragmented land that may better reflect the attributes of Māori land are provided in 'Cost and benefit assessment to different parties from policy options'. This was included in the RIS to illustrate the incentive, relative to other competing land-uses, which is driving permanent exotic afforestation and land-use change. It was not a guarantee of price or future returns from the category and there are strong reasons to question whether it would be reasonable to assume that forestry would receive this price.
73. Firstly, the ETS provides no price guarantees for removals, which are traded in a secondary market, not in the auction. (When the new permanent forest category was introduced in mid-2020 the price was around \$30/NZU<sup>44</sup> and it has been considerably lower in the recent past e.g. \$2 in 2013.) Secondly, the new auction price corridor was agreed in acceptance of a Climate Change Commissions recommendation. That recommendation was accompanied by a recommendation to consider amending the NZ ETS to strengthen the incentive for gross emissions reductions and to manage the amount of exotic forest planting the NZ ETS drives. (The modelling on which the

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43 An NPV of \$50,000 for permanent radiata forest revenue was provided in the interim RIS using the 2026 NZ ETS auction trigger price of \$110/NZU. The NPV for sheep and beef farming was \$4,500, giving an approximate difference of \$45,000.

44 An NZU represent one tonne of carbon and is the unit in which carbon (emissions or removals) are traded.

Commission's recommendations and exotic afforestation projections are based assumes a price of \$35/forestry NZU.)

74. The Government has since stated its intention to carry out further analysis on unit supply in the NZ ETS to assess whether additional changes are needed to balance gross and net reductions to respond to this second recommendation (New Zealand Government, 2022, p103). In addition, even if the government decides not to make additional changes to the NZ ETS, if there is increased afforestation and an increasing supply of NZUs from forestry, and diminishing demand (as gross emitters reduce), this would lower the price for those units over time.
75. The \$6.6bn value assumes that the entire area (146,000ha) is planted in the same year (2026 given the use of the NPV in the RIS). This is unrealistic, as Māori may have other values and aspirations for the land (i.e., native afforestation) and it is likely that proportions of this land are afforested over a longer timeframe. This would require estimates of annual afforestation and further discounting to more accurately reflect the loss of potential revenue from this land if the permanent forest category was closed to exotics.
76. The analysis also doesn't include the next most profitable returns which would occur under averaging accounting. If the permanent forest category is closed to exotic forests Māori will retain the option of registering in the shorter rotation averaging accounting forest category (which is considered in the costs and benefits section of the RIS). We acknowledge that there are concerns about this, however, both from a Māori landowner, and from a Crown perspective. From a Māori land-owner perspective there is a claim of inequity if the removals on their land is not recognised (but New Zealand benefits from it being counted towards our NDC). From a government perspective, there is a concern that if these trees are planted on land unsuitable for harvest, they will become de facto permanent exotic forests.
77. In addition, the ERP describes the Government's actions for encouraging indigenous forests as long-term carbon sinks through reducing costs and improving incentives, and overtime, this could replace permanent exotic forests as a viable option on this land.

### ***Environmental impacts***

78. **Submission:** Submitters who supported the permanent forest category remaining open argued that compared with the pastoral farming, exotic forestry was better for soil conservation, water quality, indigenous biodiversity and climate resilience. They argued that where there were environmental risks (e.g., wildling pines, fire) these could and should be managed as they are for plantation forestry (e.g., through the development of an NES for permanent forests). They further argued that while native afforestation may be better than exotic for biodiversity, exotic forests provided a pathway to native forests (and the government had yet to provide any plausible alternative models for native afforestation at scale). These submitters also questioned whether there was any evidence that exotic forests (and pine in particular) posed the future environmental risks presented in the discussion document.
79. **Response:** Officials accept that permanent forests can have considerable environmental benefits, particularly for marginal, erosion-prone land. They also accept that there are many unknowns around how permanent exotics would evolve in the longer term (hundreds of years), given this is not a forest regime that has been widely used in New Zealand. Officials proposed response is to proceed cautiously and explore how to achieve permanent forests with the greatest environmental benefits, through a mix of ETS settings (a constrained exception regime) and other tools (such as an NES and



native afforestation programme). They recognise the need to do this in partnership with Māori to ensure options that work for Māori landowners.

### ***Exceptions to exclusion of exotics from permanent forest category***

80. **Submission:** Many submissions, both from those opposed to closure and those in favour, argued for exceptions. (For those opposed to closure, exceptions were their second preference, should closure proceed.) The type of exceptions was similar to those raised by other submitters including transition of exotic forest to native forest, erosion control, continuous canopy production and long-lived exotics.
81. The one exception that appeared more commonly from Māori compared with general submissions was an exemption for Māori land (meaning both whenua Māori and land held by Treaty settlement entities)<sup>45</sup>. The argument for an exception for Māori land was for the range of reasons set out above: that Māori land is limited in area and thus would have a limited impact on supply; that Māori were best placed and held a Treaty right to make land-use decisions for the benefit of their communities; that investing in Māori communities made more sense than buying units offshore and that there was no chance Māori would 'plant and walk'.
82. **Response:** The desirability of an exceptions regime is discussed in detail in the body of the RIS. It proposes that a managed exceptions regime would provide the best opportunity to support permanent exotics which are desirable (such as those that can be transitioned to natives) while avoiding those that are undesirable (because they displace productive uses, pose a future environmental risk or oversupply cheap units to emitters).
83. Officials do not consider that allowing all Māori land into the permanent forest category is the best way of supporting desirable forests on marginal Māori land that is well suited to permanent cover. There are two reasons for this.
84. Firstly, although whenua Māori is limited, there is still a large amount that could be afforested<sup>46</sup> and land held by settlement bodies is not limited (as they are free to purchase land). Permanent exotic forests on this land could have a considerable impact on supply and could reduce the price incentive for gross emitters.
85. Some Māori have argued that the category should remain open to everyone while the exceptions are being developed. Officials' analysis shows that even a couple of years could see registrations of permanent, unmanaged, exotic afforestation that would meet close to all demand by the 2040s. This would leave little room for the ETS to support exceptions for well managed forests on Māori land by the time exception regimes for these forests are developed.
86. Secondly, both Māori and officials agree that unmanaged permanent forests are not desirable, and that work is required to determine what management regimes are required to achieve the kinds of permanent forests we want. Where Māori and officials differ on the time required to develop (and legislate) such regimes, and whether the permanent category should be left open in the meantime. Officials consider that we need to establish the appropriate management regime *before* we allow any exotics to register in the permanent category to protect against undesirable, unmanaged forests being registered.
87. Officials consider that this work must be done in partnership with Māori to ensure options that work for Māori landowners, and that this would desirably extend to on-the-ground

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45 This was clarified in one consultation session, but it is possible that submitters were using the term in either narrower ways (e.g., just to include whenua Māori) or broader ways (e.g., to include general land owned by Māori). This was not made clear in submissions.

46 Some 123,650ha has been identified as suitable for forestry, although if carbon price expectations are high enough a greater area would likely be attractive for permanent exotic forests. Over 600,000ha of whenua Māori is in scrub and pasture and could potentially be eligible for permanent exotic afforestation. (Harmsworth, 2017).

support.<sup>47</sup> This work would balance the Crown's broader objectives for forestry and the ETS with the commitment in the ERP to '[work] with Māori groups ... to develop and implement forestry policies that support Māori rights to exercise kaitiakitanga and rangatiratanga and meet Māori aspirations'. The enabling legislation for any exceptions regime could acknowledge this commitment to partnering with Māori and ensuring options that support kaitiakitanga and rangatiratanga.

### **Timing**

88. **Submissions:** The majority of those who were opposed to the closure of the permanent forest category to exotics wanted a delay in the timing of any decision. (Those who wanted the category closed to exotic forests wanted this to be done as soon as possible.)
89. **Response:** There were two broad reasons for this. One was that consultation was inadequate for the Crown to understand the impacts on Māori, much less to develop proposals in partnership. This issue is dealt with directly below. The second was that Māori landowners, and the partners they were working with in developing their land, had made significant sunk investments in anticipation of the permanent forest category becoming available. This second issue is not specific to Māori (although the financial resilience of Māori to deal with such losses may be less). For this reason it is addressed in the main body of the RIS.

### ***Inadequate consultation and demand for partnership with Treaty partners***

90. **Submission:** Many Māori submitters questioned the speed of the proposed changes and a number suggested the Crown was in breach of its Treaty obligations by failing to work in partnership to understand the impacts and develop proposals that worked for Māori. Some submissions argued that the Te Arawhiti guidelines required co-design.
91. **Response:** The public consultation period was short due to Ministers' desire to keep open the option of amending the permanent forest category before it is due to open on 1 January 2023, if amendment proved the preferred option. (The RIS explains the risks of oversupply of units should there be a delay preventing registration.)
92. The short consultation is mitigated in part because the proposals were canvassed through the ERP (which asked whether there should be limits on permanent exotic forest systems) and the Climate Change Commission's advice before that. Those consultations have enabled a better understanding of the forestry issues that matter to Māori, and to receive feedback from across Te Ao Māori. We have received a strong and clear range of views which we are actively considering here. While a longer submission process may have led to more detail on the specific impacts, and feedback from a larger number of Māori groups, it seems unlikely to change the fundamental positions expressed by Māori, given the spread and consistency of these positions over time. This has been confirmed

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<sup>47</sup> Research and evaluation shows that programmes that are not designed with Māori are unlikely to work for them. Even where programmes have objectives specifically targeting Māori, uptake can lag the rest of the population. The One Billion Trees Programme (1BT) supported tree planting through grants to landowners to subsidise the cost of planting and partnership funding for activities which enable planting (such as training, advice and seedling production) with \$63.8 million spent in total. 1BT has an explicit objective to 'assist Māori to maximise the potential of their land and exercise their Kaitiaki obligations' and efforts were made to include Māori in the programme. The 1BT Partnerships were designed and focused on supporting Māori to meet their aspirations. Efforts to increase Māori participation in the programme were successful, this is evident in the number of Partnership Grants granted to Māori landowners and organisations. At 30 months, 30% (38 of 127) of approved Partnerships and 45% (\$44.5 mil of \$98.4 mil) of approved Partnership funding were with Māori. At 30 months, direct grants to Māori landowners or organisations were still only 3.6% of total grants (22 of 604). Pohatu et al. (2020) also identified that '[f]multiply-owned land in Aotearoa New Zealand, decision-makers often face extra challenges that may hinder their ability to meet aspirations for afforesting their land, despite the availability of various support programmes'.

in ongoing discussions between Ministers and Māori (among others) since public consultation closed.

93. We note the call for better partnership arrangements going forward and consider options for this below. It should be noted that the Te Arawhiti guidelines (Te Arawhiti, 2022) suggest co-design is appropriate when 'Māori interests are central and other interests are limited', but the current proposals do not fit this description because other interests are not 'limited'. However, it is also not the case that 'Māori interests exist or are affected but wider interests take priority' which is the situation where Te Arawhiti suggests collaboration or consultation is required. The current proposals are somewhere between these two situations (there are legitimate broader interests, and legitimate Māori interests). This suggests a hybrid approach may be most appropriate using consultation to develop a framework that balances Māori and broader NZ interests and then collaboration or co-design to develop proposals that work for Māori within this framework.

### ***Closure is an infringement on Māori rangatiratanga over their whenua***

94. **Submission:** A number of submitters said the proposed changes amount to the government dictating to Māori what they can do with their land, in breach of te tino rangatiratanga guaranteed by the Treaty.
95. **Response:** This claim oversimplifies the nature of the proposals and the Treaty requirements for their development. The ETS is a legislative construct to price carbon so New Zealand can support global efforts to reduce emissions. Governments have made amendments over time to better enable the ETS to do this. The current proposals continue this process and are aimed at incentivising afforestation that has co-benefits beyond just carbon (in recognition that the narrow focus on carbon may lead to outcomes that are sub-optimal for New Zealand). When amending the ETS to ensure it remains fit for purpose, the Crown needs to understand what 'fitness for purpose' and 'co-benefits' mean for its Māori Treaty partner. It then needs to consider how these Māori views can be reflected in the design of the ETS in a way that supports (or does not detract) from its primary purpose. Provided the ETS is constructed with this understanding the Crown is complying with its obligations. Māori will continue to be able to decide their land use management and make decisions regarding participation in the ETS (or not), consistent with their aspirations.

### ***Submitters in support of removal***

96. A smaller number of submissions agreed with the proposal to prevent exotic forests from registering in the permanent post-89 forest category. They did so on the basis that the government should provide incentives for native afforestation for land suited to permanent afforestation (including exotic to native transition). These submitters also supported various other exceptions including for erosion control, high-value exotics and continuous cover production exotics. The views of these submitters are considered in the discussion of options below.

### **Proposal to create a long rotation averaging accounting forestry category**

97. **Submission:** Those submissions that commented on this proposal supported it. There were nuances. A number followed the long rotation preferences set out by Ngā Pou ā Tane (first preference was for the stock-change category to be left open, then to be able to nominate rotation length, then for narrower age-bands and finally for the proposed 40-year rotation length). The Ngāi Tahu submission noted that care would be needed to ensure these forests didn't morph into permanent forests.
98. **Response:** Analysis of the consultation responses to the long-rotation proposal are dealt with by the main body of the RIS. The conclusion is that there is a considerable risk of

*Radiata* pine forests on remote and marginal-to-harvest land becoming de facto permanent. There is also a fiscal risk that the category could cause misalignment between units awarded by the NZ ETS and those that can be counted towards New Zealand's NDC. There are other options for this land that are financially attractive under existing averaging accounting settings for pine and other longer-lived, higher-value species.

99. On balance, considering the risks, benefits and existing opportunities, it is recommended that opportunities for remote and marginal-to-harvest land are considered as part of the wider NZ ETS forestry work programme and considers wider options that could make harvest viable on this land (e.g., long-rotation, higher-value timbers).

### ***Native afforestation incentives***

100. **Submission:** There was universal support for increased incentives for native afforestation. Submitters who favoured closure did so on the basis that the government (potentially in concert with the private sector) would provide sufficient incentives for native afforestation, particularly on land suited to permanent forest cover. Submitters who argued for the category to be left open to exotics did so because the government had yet to provide sufficient natives incentives, and because they considered exotics provided a viable ecological and financial path to permanent native afforestation.
101. Many submissions said the government needed to partner with Māori on its native afforestation work programme given the extensive mātauranga held by Māori and their Treaty right to utilise it, confirmed in the Waitangi Tribunal Wai 262 report (Waitangi Tribunal, 2011). They argued that the Crown should support Māori to protect vulnerable whenua and ngāhere, both of which are taonga. A small number of Māori suggested specific measures such as updating the yield tables, higher up-front carbon payments and direct funding to landowners.
102. Finally, there was resistance to the suggestion that because Māori have been left with land that is disproportionately suited to permanent forestry, that they should gift this land for native afforestation for the national benefit. If Māori were being asked to forgo the economic opportunities for their land they needed to be compensated.
103. **Response:** The consultation feedback on native afforestation will be progressed through the native afforestation work programme committed to as part of the ERP actions 14.2.1, 14.2.2 and 14.2.3 (New Zealand Government, 2022). This includes work on native forest yield tables, work with the nursery sector to improve seedling availability and improve the successful establishment of native forests.

### **Other issues raised by submitters**

104. **Submission:** Some submitters raised issues that were outside the scope of proposals for discussion. These included a reiteration of the long-standing request from Māori to address issues relating to pre-1990 forests, ETS land eligibility and better on-the-ground support for Māori landowners to access the benefits of the ETS. One submission also called for a recognition of removal on-farm and from horticulture. Another noted that care needed to be taken to ensure that decisions made on recognition of removal in He Waka Eke Noa (only non-ETS eligible removal) did not inadvertently exclude removal on Māori land (because while it might appear ETS eligible on paper, it was not in practice).
105. **Response:** Officials do not propose to address these issues in this RIS. They are outside the scope of what was consulted on and a number are the subject of other work programmes.

### ***Options which provide opportunities for Māori and address Government concerns about permanent exotic forestry***

106. In the ERP the Crown has committed to ‘working with Māori ... to develop and implement forestry policies that support Māori rights to exercise kaitiakitanga and rangatiratanga and meet Māori aspirations’. (New Zealand Government, 2022, p287) This commitment reflects the Treaty obligations in the CCRA (particularly s3A(ad)) and Treaty principles of partnership and active protection.
107. A majority of Māori submitters have made clear that the current proposals to close the permanent forest category will have a significant and disproportionate impact on their opportunities for their whenua and ngāhere. Even those Māori who supported the closure did so on the proviso that the Crown support exceptions (particularly for exotic to native transition) and native afforestation. Māori have also made clear they would like the Crown to work in partnership on these proposals given their significance for Māori.
108. Permanent forests have both positive and negative impacts. If the Government chooses to move in haste to prevent what it considers to be negative impacts (through the broad-brush approach of preventing exotic forests from registering in the permanent forest category) it needs to consider how it can work on opening more nuanced options to achieve mutually agreed positive impacts (such as exceptions for exotic to native transition, long-rotation and native afforestation).
109. If it takes this path, the commitments made in the ERP require that this work be in partnership with Māori. This will ensure the development of options which work for Māori, in recognition of the Crown’s Treaty obligations and the disproportionately negative impact of the closure.
110. Work between Māori and the Crown should identify options which address Government concerns about permanent exotic forestry *and* provide options for Māori land.
111. It will be important to include a range of Māori interests in this work (reflecting at a minimum, the range of views in submissions) to ensure the options developed are suitable for the diversity of Māori aspirations.
112. Possible approaches are considered below.

### ***Options for the NZ ETS to meet Māori aspirations***

113. These options follow the general form of the options in the main RIS with amendments to reflect the concerns and proposals from Māori.
  - a) **Option 1:** status quo: allow unlimited exotic and indigenous registration in the post-1989 permanent forestry category.
  - b) **Option 2:** restrict the permanent forest category in the NZ ETS to indigenous forests and work on other options for Māori land suited to permanent forests (e.g., native afforestation).
  - c) **Option 3:** restrict the permanent forest category in the NZ ETS to indigenous forests but allow some exotic forests under special circumstances such as:
    - i Allowing permanent exotics on Māori land
    - ii Providing exceptions to the permanent forest category for forest types that have co-benefits
  - d) **Option 4:** a moratorium to restrict the permanent forest category in the NZ ETS to indigenous forests while exceptions are developed

- e) **Option 5:** the permanent forest category opens to all forests on 1 January 2023, but exotic forests are subsequently restricted to limited exceptions (once the exceptions regime is developed)
- f) **Option 6:** Crown and Māori work in partnership on development and implementation of changes to manage exotic afforestation incentives and other forestry and ETS priorities. (This would be in parallel to whatever option is chosen from the above).

***Option 1: status quo: allow unlimited exotic and indigenous registration in the post-1989 permanent forestry category.***

114. This option, the status quo, is discussed in length in the main body of the RIS and rejected. It carries considerable risks to the Government's objectives and is not the most effective way of delivering the obligations the Crown owes specifically to Māori as Treaty partners.

***Option 2: restrict the permanent forest category in the NZ ETS to indigenous forests and work on other options for Māori land suited to permanent forests (e.g., native afforestation).***

115. This would deal with the key concerns the government had about permanent, unmanaged exotic forests. It would, however, fail to support permanent exotic regimes that have positive impacts, including providing options for Māori landowners.

***Option 3: restrict the permanent forest category in the NZ ETS to indigenous forests but allow some exotic forests under special circumstances such as:***

- a) Allowing permanent exotics on Māori land
- b) Providing exceptions to the permanent forest category for forest types that have co-benefits

116. A number of Māori have said that if the permanent forest category is not left open to all, it should at least be left as an option for all Māori land.

117. As noted above, officials do not consider that leaving the permanent category open to all Māori land is the best way to support appropriately managed permanent forests on Māori land unsuited to harvest.

118. They suggest that a work programme in partnership with Māori that determines what the necessary management conditions are and how to target land unsuited to harvest, provides the best balance between providing options for Māori (and deliver on the Crown Treaty commitments), while safeguarding against wide-scale unmanaged permanent forests. The proposal is to start with exploring exotic to native transition models, but other suitable management regimes could be added over time.

119. This option also strikes a balance between Māori submitters that wanted the permanent forest category to be unconstrained, and those who wanted it closed to exotics but supported exotic to native transition.

120. The enabling legislation for any exceptions regime could acknowledge the Treaty partnership, and ERP commitment to work on options that support Māori rights to exercise kaitiakitanga and rangatiratanga to provide a statutory underpinning for the Crown's commitment.

***Option 4: a moratorium to restrict the permanent forest category in the NZ ETS to indigenous forests while exceptions are developed***

121. This option is discussed in detail in the main body of the RIS. It manages the risks of permanent exotics in the short-term while exceptions for desirable regimes can be developed but carries considerable uncertainty on the outcome if the moratorium lapses.

***Option 5: the permanent forest category opens to all forests on 1 January 2023 but exotic forests are subsequently restricted to limited exceptions (once the exceptions regime is developed)***

122. This option is explored in the main body of the RIS. Officials consider that there is a considerable risk of wide-scale unmanaged forests, with few co-benefits, and a saturation of demand (which would limit the space for the ETS to support exceptional forests), if this option is chosen.

***Option 6: Crown and Māori work in partnership on development and implementation of changes to manage exotic afforestation incentives and other forestry and ETS priorities. (This would be in parallel to whatever option is chosen from the above).***

123. Many Māori submitters objected as much to the manner in which the proposals were developed, as to the proposals themselves. They repeatedly argued that proposals that worked for Māori could only be developed in partnership with Māori.

124. The Government has committed to working in partnership with Māori in the ERP. MPI, through Ngā Pou a Tane, and MfE, through its relationship with the National Iwi Chairs Forum, are both building stronger platforms to partner effectively going forward. The two agencies also have an ongoing relationship with FOMA (Federation of Māori Authorities) to work on addressing agricultural emissions through He Waka Eke Noa, which includes an on-farm removal work-stream.

125. Ngā Pou a Tane have repeatedly requested support to enable them to create a regional bottom-up, mandated voice for Māori forestry to partner on the Government's priorities, a joint native afforestation strategy and a Māori forestry strategy.

126. Officials suggest that government support a partnership with Māori drawing on the existing relationships with Māori forestry leaders convened by Chris Insley (Te Taumata), Ngā Pou ā Tane, the National Iwi Chairs Forum, FOMA and possibly Te Tumu Paeroa (the Māori Trustee).

127. This partnership could work on the implementation of decisions from this current consultation, alongside other agreed priorities such as a native afforestation strategy, further analysis of unit supply in the ETS, the bioeconomy strategy, increasing forestry value-add, forestry advisory services for Māori landowners and forestry work force initiatives.

128. A specialist group could help develop regulatory proposals, where applicable, which would then be subject to broad consultation with Māori (consistent with consultation and Treaty requirements).

129. The Crown should also consider how to enable Māori owners to participate in any exceptions regime with on-the-ground support (e.g., advice)

## Annex B: Glossary

Accounting / Accounting approach	In the NZ ETS this refers to the method used to count and report carbon stored in registered forests. The method used determines what activities and factors are considered in determining the calculation and reporting of emissions and removals. This is equated into emissions units (NZUs) that are provided to the participant or required to be surrendered (paid back to the regulator).
Afforestation	The establishment of forest on land that did not previously have tree cover and will therefore be considered a 'new forest'.
Averaging	Averaging accounting is a method to account for carbon storage in forests intended to be harvested that are registered in the NZ ETS. Forests will earn NZUs up until the age the forest is expected to reach its long-term average carbon stock over multiple rotations of replanting and harvesting. No units are required to be paid back when the forest is harvested and replanted.
Carbon price	The cost of one emissions unit (an 'NZU') in the NZ ETS. One NZU represents one tonne of carbon dioxide equivalent.
Carbon dioxide equivalent (CO <sub>2</sub> -e)	Carbon dioxide equivalent, abbreviated as CO <sub>2</sub> -e is a metric measure used to compare the emissions from various greenhouse gases on the basis of their global-warming potential, by converting amounts of other gases to the equivalent amount of carbon dioxide with the same global warming.
Carbon sink	Natural and artificial processes which take carbon dioxide from the atmosphere and store it are known as 'carbon sinks'. Forests are a good example of a carbon sink, as they take in and store carbon dioxide through the process of photosynthesis.
Carbon revenue / emissions revenue	Where NZUs are sold to another person or business to make revenue (e.g., selling of NZUs earned by foresters).
Carbon stock	Carbon stock (in the context of forests) means the amount of carbon that has been removed from the atmosphere and is now stored within the forest. Calculation of carbon stock in a given year is calculated based on attributes of the forest (such as the area of the forest and tree species) using a relevant accounting approach (refer definition above).
Clearfell / Clearfell harvest	Where an entire forest is harvested at once before replanting (this also includes where the forest is progressively harvested over a period of time, such as over a year, until the entire original forest has been cleared),
Climate Change Response Act 2002	The Act that provides a legal framework to enable New Zealand to meet its domestic targets and international obligations and targets. The Act also provides for the implementation of the NZ ETS.
Climate Change Response (Emissions Trading Reform) Amendment Act	The 2020 Amendment Act that amended the Climate Change Response Act 2002 by adding new accounting approaches and categories for forestry in the NZ ETS (including the permanent forest category).
Continuous cover forest	Continuous cover forest is a production forestry model that maintains canopy cover as trees are harvested. In this model, trees are selectively harvested or harvested in small areas.
Coppicing	A traditional method of woodland management which exploits the capacity of many species of trees to put out new shoots from their stump or roots if cut down.
Deforestation	Means: <ul style="list-style-type: none"> <li>a) to convert forest land to land that is not forest land; and</li> <li>b) includes clearing forest land, where section 179 of the Climate Change Response Act applies.</li> </ul> Where deforestation occurs, the forest is not replanted. Harvesting refers to when a forest is cut down (wholly or partially), and then replanted with new tree seedlings.
Emissions	Greenhouse gases released into the atmosphere from human activity.



Emissions Reduction Plan (ERP)	The Emissions Reduction Plan (ERP) sets out New Zealand's domestic emissions budgets and how it will meet these. It is a key report setting out the Government's policies and measures on climate change.
Exotic forest	Exotic forests in this document mean forests that are predominantly made up of exotic tree species (e.g., Radiata pine).
Exotic tree	A tree species that has been introduced to New Zealand (for example, radiata pine, Douglas fir, redwood species).
Field Measurement Approach (FMA)	The field measurement approach (FMA) uses information collected about a forest to create participant-specific look-up tables (refer definition for look-up tables below). These tables are used to calculate the carbon stock of the forest in a given year.
Harvest	When trees within a forest, or part of a forest, are cut down before being replanted.
Indigenous forest	Indigenous forests in this document mean forests that are predominantly made up of indigenous tree species. For example, a forest whose tree crown consisted of 90% tall mature Totara trees (an indigenous species) and 10% pine trees (exotic species) spread throughout the forest would be an indigenous forest.
Lightwell	Lightwell refers to the felling of exotic trees to encourage the growth of indigenous understorey and emergent species.
Look-up tables [or Yield tables]	Tables used to calculate the amount of carbon stock stored in a forest, or the amount of remaining residue carbon stock after a forest is harvested. Look up tables are used for participants in the NZ ETS to calculate their change in total carbon stock each time they report to the regulator. This is used to help calculate the amount of NZUs they will earn or be required to payback (surrender).
Nationally Determined Contribution (NDC)	NDCs are New Zealand's climate change targets under the Paris Agreement on Climate Change. New Zealand's NDC for the period 2021-2030 requires New Zealand to achieve a 50 per cent reduction of net emissions below our gross 2005 level by 2030.
Net present value (NPV)	A calculation of investment return for a decision used to calculate the cumulative value today of future streams of revenue and costs resulting from that decision. NPV calculations are often used to compare alternative investment options (where a higher NPV means an option has a higher value today).
New Zealand Emissions Trading Scheme (NZ ETS)	The NZ ETS is a market-based emissions pricing scheme. This is the key tool used by New Zealand for reducing emissions. Under this scheme, emitters must report and pay for their emissions. Participants who remove emissions from the atmosphere (including foresters) can earn units (NZUs) that can be sold.
New Zealand Units (NZUs)	A unit issued by the Registrar of the NZ ETS that can be used to meet obligations by participants of the NZ ETS or sold to make revenue (sometimes referred to as 'carbon revenue').
Participant	In this context, it refers to a person, persons or entity that: <ul style="list-style-type: none"> <li>participates in a forestry category in the NZ ETS; or</li> <li>participates in another category covered by the NZ ETS.</li> </ul> A Participant must report on emissions (or on carbon removed), and may need to pay for units (termed 'surrender') to cover their emissions or receive an entitlement of units for carbon removed from the atmosphere.
Permanent exotic forest	A forest which will not be clearfell harvested for at least 50 years, and consists predominantly of exotic trees. In this document, permanent exotic forests include forests established as exotic forests and transitioned over time to indigenous through progressive harvesting or regeneration (this specific forest model is also termed transition forests). Once a transition forest consists predominantly of indigenous trees, it would no longer be a permanent exotic forest.
Permanent forest	A forest which will not be clearfell harvested for at least 50 years.

	Participation in the permanent post-1989 forest category requires the forest to maintain 30% tree crown cover in every hectare of the forest over the 50 year period to remain classified as a 'permanent forest'.
Permanent forest sink initiative (PFSI)	<p>A forest in the PFSI is subject to a covenant with the Crown, which is registered against their land title(s). The covenant is in perpetuity, with the right to terminate after a minimum term of 50 years.</p> <p>Landowners are responsible for establishing and maintaining the forest. Limited harvesting is allowed on a continuous cover forestry basis. The PFSI is administered under the Forest Act 1949.</p>
Permanent post-1989 forest category / Permanent forest category	<p>A new category in the Climate Change Response Act 2002 (CCRA). It requires the forest to:</p> <ul style="list-style-type: none"> <li>not be clear-felled for at least 50 years after they are registered, and</li> <li>limited harvesting will be allowed without penalty if at least 30% tree crown cover remains in each hectare of the forest.</li> </ul> <p>Permanent forests in this category will participate using stock change accounting. They will earn units for as long as the forest is in the ground and the carbon stock is increasing.</p>
Plant and walk away, or Plant and leave	A forest is established, but after which little active management occurs.
Post-1989 forest	<p>Post-1989 forest land is land which meets the forest land criteria, and:</p> <ul style="list-style-type: none"> <li>was not forest land on 31 December 1989; or</li> <li>was forest land on 31 December 1989 but was deforested between 1 January 1990 and 31 December 2007; or</li> <li>was pre-1990 forest land that was deforested on or after 1 January 2008, and any ETS liability has been paid.</li> </ul> <p>Post-1989 forest land can be registered in the NZ ETS to earn NZUs. Post-1989 forest land can include exotic and/or indigenous forest species.</p>
Post-Settlement Governance Entities (PSGE)	Post-Settlement Governance Entities: the representative organisation established after a Treaty settlement with the Crown that has the purpose of representing iwi members and managing any assets resulting from the settlement.
Pre-1990 forest	<p>Pre-1990 forest land:</p> <ul style="list-style-type: none"> <li>was forest land on 31 December 1989; remained as forest land on 31 December 2007; and</li> <li>contained predominantly exotic forest species on 31 December 2007.</li> </ul> <p>Land that was indigenous forest land on 31 December 1989, and remained so on 31 December 2007, is not pre-1990 forest land and is not subject to ETS obligations.</p> <p>Pre-1990 forest land is considered part of New Zealand's baseline emissions and removals in our NDC for 2021-2030.</p> <p>Pre-1990 forest land cannot earn NZUs for carbon stored in the NZ ETS (as at August 2022). Pre-1990 forest landowners can harvest and replant their forest without any liability but if pre-1990 forest land is deforested it must be registered in the NZ ETS and the landowner must buy NZUs for deforestation emissions.</p>
Regeneration	Regeneration is the process by which forests develop from seeds that fall or are dispersed and germinate in situ.
Register	In the context of NZ ETS forestry, entering an area of eligible forest land into the NZ ETS as standard or permanent post-1989 forest land.
Removals	The uptake and long-term storage of carbon dioxide from the atmosphere (for example, in vegetation).
Stock change accounting	Stock change accounting accounts for short-term changes in carbon storage. Using this method, NZ ETS participants gain units as the forest grows and return units when it is cleared.

Strip harvesting or Progressive harvesting	A forest is progressively harvested and planted over a period of years or decades. For example, 10% of the forest (in a continuous strip) is harvested 20 years after the forest is established. Further strips of 10% of the original forest are harvested every 5 years after that.
Transition forest	In this document, a forest that is gradually managed from predominantly exotic trees to predominantly indigenous trees through either: <ol style="list-style-type: none"> <li>1. progressive or strip harvesting (where areas of harvested exotic trees are then replaced with indigenous trees),</li> <li>2. regeneration and active management to support this regeneration.</li> </ol>
Tree crown cover / Forest crown cover	Tree or forest crown cover is the proportion of a forests stand covered by the crowns of live trees and is generally expressed as a percentage.
Understorey	Understorey refers to sub-canopy species within a forest.

Proactive release

## Annex C: Supplementary technical analysis

1. This section includes a summary of further technical analysis and evidence related to the issues explored in the problem definition and is intended for technical audiences. These factors have been considered in arriving at the problem definition.

### How permanent exotic afforestation will affect rural and local communities

#### Current circumstances

2. Sheep and beef farming, production forestry and permanent exotic forestry are generally competing land uses in less productive land use classification classes and have varying contributions and importance to local, regional and national economies.
3. Land use change regulation in New Zealand has historically operated on a flexible land use basis, where landowners are able to shift towards higher economic returns on suitable land (for example, land use change from sheep & beef to dairy in recent decades seeking higher returns, and choices on whether less productive areas of a farm are maintained in pasture or allowed to revert to tussock and scrub based on profitability of grazing that land).
4. Choices that individual landowners make on land use and management are often also shaped by a range of other complex drivers such as environmental stewardship, attachment to place and way of life (Weastell, 2020, p 67-68, 92-93 & 105-106).
5. However in aggregate at a national level, land use trends reflect the relative economics between land uses for private landowners (as observed by the strong correlation in carbon price and returns on carbon with afforestation Figure 1 on Page 16 refers).
6. In New Zealand's current land use, production forestry and sheep beef are significant primary industries:
  - a) Production forestry: provided \$6.7 billion in export revenue in 2021 and employs between 35,000 and 40,000 people in production, processing and commercialisation. The sector accounts for around 2.1 million hectares (7%) of land use in New Zealand (MPI, 2022c).
  - b) Sheep & beef is also a key contributor to New Zealand's economy and export receipts, and provided \$10.7 billion of export revenue in 2020 (MPI, 2021). The sector employs around 92,000 people in the wider supply chain.

The sector is particularly important in some regions, contributing between 10 and 12 percent to the regional economies of Taranaki, Manawatu, Whanganui, Otago and Southland (Beef+Lamb NZ, 2021).

It is a significant land use in New Zealand with 7.4 million hectares of pasture (~27%) and 2.2 million hectares of tussock (8%).

## **Risks from land use change to permanent exotic forests on rural and local communities**

7. There is strong evidence that conversion of land use from production forestry and sheep & beef to permanent exotic forests will see fewer aggregate jobs where these are managed with minimal ongoing forest management (sometimes referred to as 'plant and walk away').
8. This is set out in a report by PwC New Zealand (2020) that found that permanent exotic forests, under a 'plant and walk away' regime, provide a lesser contribution to employment and the economy in comparison to production forestry and sheep & beef.<sup>48</sup>
9. This finding is supported by research commissioned by Beef+Lamb NZ (BakerAg, 2019) that found sheep and beef farming has the highest direct employment and spending in the Wairoa District when compared to permanent exotic forests (under a 'plant and walk away' regime) and production forestry.<sup>49</sup>
10. In addition to these local level impacts, export receipts from permanent exotic forests will be significantly less than for production forestry and sheep & beef, with predominant revenue for permanent exotic forests being the sale of NZUs to domestic emitters.
11. Shifts from sheep and beef to permanent exotic forestry also affect the type, distribution and location of jobs, where sheep & beef workers typically work on or close to the farm, but workers in the forestry sector may travel further for contracted harvest, forest establishment, and field measurements to estimate carbon.
12. These shifts can also affect agricultural supply chains that rely upon current land use (for example, affecting the viability of a meat processing site through reduced supply. With consequent impacts to both local employment and economic activity.
13. Where land use change to permanent exotic forests (managed in plant and walk away type regimes) is concentrated in areas, this can present changes that are acute or visible for local communities. For example, by reducing the number of local households around a town, this can be expected to impact use of services within the town.
14. Evidence through MPI's commissioned Afforestation and Deforestation Intentions Survey, set out in Table 6 below (Manley, 2021a), and the Tararua District (Page 24 refers) suggests that afforestation has been concentrated in some regions. With the highest concentrations of afforestation in the East Coast, eastern southern North Island, and Central North Island.

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48 PwC New Zealand (2020) estimated that permanent exotic forests contribute \$0.8 to GDP and 2 FTEs per 1,000 hectares. This compares with \$4.8 million and 38 FTE for production forestry and \$1.7 million and 17 FTEs for the meat and wool sector (includes low stocked high country South Island stations that bring down the average). This report excluded the impact of revenue from NZUs in the GDP calculations as it considers the benefit received by forest owners is offset directly by costs in emitting sectors.

49 This report found direct spending of \$316,000, \$247,000 and \$27,000 and employment of 7.4, 5.1 and 0.6 FTE for sheep and beef farming, production forestry and permanent exotic forestry respectively within the Wairoa District.

**Table 6:** Percentage of national exotic afforestation by region (2019-2021)

Region	Production forestry	Permanent forestry
Northland	14	3
Central North Island	12	11
East Coast	7	31
Hawkes Bay	20	3
Southern North Island (east)	12	41
Southern North Island (west)	10	6
Nelson and Marlborough	6	1
West Coast	1	0
Canterbury	6	4
Otago	6	0
Southland	8	0

**Source:** Manley. (2021a).

15. The status quo will have sizable ongoing effects on land prices in these regions with higher levels of afforestation, as the expected income from the highest and best use of land is typically partially capitalised into land price in New Zealand.
16. Anecdotal evidence from forestry and farming stakeholders indicates that the expectation of returns from permanent exotic forestry has been a large contributing factor in the recent increase in the price of land suitable for production forestry and sheep and beef farming.
17. This is supported by information provided by Land Information New Zealand that indicates pastoral grazing land valuations have increased by between 45 and 100 percent since 2017 in regions with high rates of afforestation (e.g., Tararua and Wairoa districts). This compares with around 20 percent increases in land valuations in regions with low afforestation (e.g., Selwyn and Marlborough districts).
18. There are trade-offs associated with this increase in land price. Landowners who sell their land will benefit significantly from increased capital gains on the sale of land. However, at high land prices it is less likely that the returns from other productive uses, such as sheep and beef farming, will be able to meet the return on investment required to justify investment. This may see these land uses increasingly priced out of the market.
19. These factors can also impact succession planning and entrance of newer/younger farmers to the sheep & beef sector (key existing issues for the red meat sector, Beef+Lamb NZ, 2019). Where young farmers seeking to purchase property outside of existing family properties will face significantly higher costs in establishing a farm.

#### **Potential benefits from land use change to permanent exotic forests**

20. However, submitters to consultation also cited evidence suggesting that some variations of permanent exotic forests can present higher employment than the forest regimes looked at by the 2020 PwC New Zealand report and BakerAg (2019) report commissioned by Beef+Lamb NZ.
21. Further work commissioned by New Zealand Carbon Farming from PwC New Zealand (2022) provided information suggesting that managed transition of exotic forests to indigenous forests (transition forests) can generate comparable or greater employment at the local scale to existing land uses.

22. This suggests that some models of permanent exotic forests (such as transition forests) may have the potential to provide local employment and economic benefits that can mitigate risks presented in the status quo. This was reinforced by submissions and feedback (particularly from Māori submitters) that indicated intentions to use permanent exotic forests for the likes of co-products through effective management of the understorey of the forest.
23. Māori submitters also indicated that the direct carbon revenue from permanent exotic forests itself would be recycled back within their communities, providing a stronger economic benefit than alternate land uses (e.g, extensive sheep & beef, scrub) on marginal land held by Māori.
24. While increasing land use prices present risks to existing industries and potential issues for succession. Increasing land prices could also encourage greater uptake of mixed farm-forestry models that retire less productive areas of farms (to achieve sufficient return on land for the investment to be justified). Where this occurs, some of the impacts to exports and local employment can be mitigated.
25. These farm forestry models can create a revenue stream allowing for reinvestment into farming capital, such as fencing or stock water reticulation systems (providing benefits to the landowner, while potentially increasing overall productivity of the farm). However, Reisinger et al (2017) caution that *“committing large land areas to forestry reduces flexibility in how the farm is managed, and generally requires an intensification of the remaining pastoral enterprise to minimise overall costs, which requires increased skill. Both aspects can present significant barriers to widespread implementation.”*
26. Other submitters provided general commentary on how the Government should view use of the NZ ETS, suggesting either that shifts to land uses with higher aggregate economic returns (when encompassing the value of carbon) was a positive outcome. Or that the NZ ETS shouldn't be used to address rural economy land use objectives (and instead allow the NZ ETS to drive low-cost outcomes towards meeting New Zealand's targets and budgets).

### **General interpretation considering evidence**

27. Evidence gathered prior to and during consultation presented evidence suggesting risks of negative impacts to communities and employment levels (associated with more concentrated activity of permanent exotic forestry and in regimes that see little active management). As well as evidence of potential benefits from some permanent exotic forest models (associated with more actively managed regimes) and from the higher direct returns of permanent exotic forests (through recycling of revenue).
28. However, realisation of these benefits is not guaranteed by the status quo. The status quo does not place any measures or controls to ensure that these potential benefits are realised across New Zealand (for example, ensuring that forests are not operated as 'plant and walk away', or where/how the carbon revenues from these forests are spent).
29. Some behaviours that increase local employment benefits (e.g, active management of a forest to transition it to indigenous) will run directly counter to the incentives provided under the status quo. For example, transition forests will see decreased carbon stocks in the forest through strip harvesting or lightwells relative to a 'plant and walk away' management regime, decreasing revenue for the participant.

## **High levels of permanent exotic forests entering the NZ ETS would result in unsustainable volumes of supply from forestry**

### **How do we think about forestry as part of the NZ ETS? Is it supply or demand?**

30. As forestry participants both create emissions (at harvest or deforestation) and remove emissions (during growth of the forest), forestry can be conceptually thought about either as part of:
  - a) demand (where demand for NZUs is framed as 'net emissions demand' inclusive of net forestry surrenders and entitlements and gross emissions), or
  - b) supply (where 'net unit supply' is the sum of NZUs from forestry, industrial allocation, auctioning and other removals).
31. Current regulated settings for the NZ ETS (Climate Change Commission, 2022, p 28) focus on managing the level of net emissions demand. Regulated settings set the level of supply of units from auctions and industrial allocation to a level of 'capped' net emissions within the scheme. Under this framework, mitigation from forestry and gross emitting sectors is needed to reduce emissions below 'business as usual' to reach the 'cap'.<sup>50</sup>
32. However, to understand long-term risks related to NZ ETS market conditions it is helpful to consider forestry as a form of supply, relative to mandatory obligations for gross emissions as demand (gross emitters must surrender NZUs for all of their emissions each year).
33. This helps us to understand how many units from forestry are likely to be available to participants each year for them to buy to meet their surrender obligations (and the degree of supply liquidity in the market). This section considers forestry as a form of supply from here.

### **How much supply liquidity from forestry can we expect under the status quo? How does this compare with demand?**

34. Plausible pathways for gross emissions covered by the NZ ETS examined by the Climate Change Commission (2021) saw decreasing gross emissions over time as part of meeting New Zealand's long-term domestic target of net-zero emissions, other than biogenic methane, by 2050.<sup>51</sup>
35. The pathways examined by the Commission see NZ ETS covered gross emissions demand for NZUs reaching around 6-13.5 million NZUs in 2050 (calculation by MPI, based on Climate Change Commission, 2021a). Significantly less than current covered gross emissions demand of 36.6 million NZUs in 2020 (EPA, 2021).
36. When framed in terms of area of permanent exotic forests, an area of around ~350,000 hectares of permanent exotic forests could fully supply the scheme in the 2040s under the Commissions pathway.<sup>52</sup> Even a few years of high rates of afforestation of permanent exotic forests could quickly fill up needed units to cover gross emissions in the scheme.

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50 Current regulated settings also seek to drawdown levels of stockpiled units held in private accounts (Climate Change Commission, 2022, p 10).

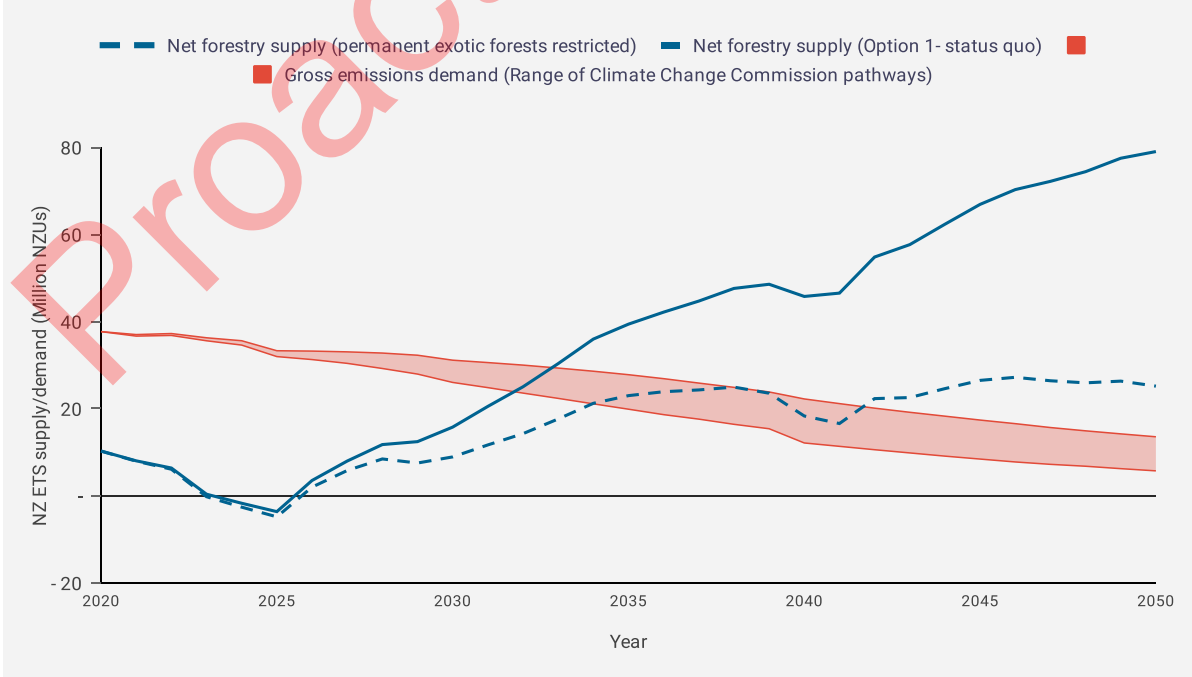
51 The target also requires New Zealand to be 'net-zero' in every year after 2050.

52 Calculation based on average removal rate for pine forests over 50 years in weighted average FMA tables of 36 tonnes per hectare per annum (36 NZUs per hectare per annum).



- 37. As permanent exotic forests remove emissions for several decades and at a high rate, this creates tensions within current legislated settings for the NZ ETS. Supply from forestry under the status quo is almost certain to fully saturate demand from gross emissions within the scheme over the medium/long-term. This could see forestry supply exceed demand from gross emissions in the scheme by the early/mid 2030s.
- 38. This is shown in Figure 4 (next page), that compares:
  - a) **forestry supply priced at carbon prices tracking with the Commission demonstration pathway** (\$35 in 2021, rising up towards ~\$200 in real terms) for:
    - i. option 1 - Status quo - permanent exotic forests are not restricted; and
    - ii. scenario where permanent exotic forests are restricted; with
  - b) **covered NZ ETS gross emissions demand** in Commission pathways.
- 39. This graph helps to illustrate that levels of forestry supply that would occur at carbon price pathways consistent with advice from the Commission under the status quo would create significant risks of excessive supply liquidity.
- 40. If the status quo is retained, this is almost certain to result in carbon price trends that track significantly lower than potential pathways that might be desired by future governments (constraining future options for controlling the market).
- 41. Restricting permanent exotic forestry in the NZ ETS significantly reduces long-term supply. This scenario (representing policy options 2, 3 & 4) would still see forestry supply reaching levels of covered gross emissions in the 2040s. However, this will be implicitly needed for New Zealand to reach net-zero emissions by 2050 (its domestic climate change target), and projections of longer-term emissions and removals are subject to increasing degrees of uncertainty.

**Figure 4:** Estimated NZ ETS gross emissions in Climate Change Commission pathways compared with potential forestry supply with and without permanent exotic forests at fixed price pathway.<sup>53</sup>



<sup>53</sup> Note these figures differ from those in table 4 due to the different forestry accounting rulesets that apply within the NZ ETS and target and budget accounting. The underlying data and assumptions are the same.

**Source:** Forestry supply: MPI projection (March 2022); NZ ETS covered gross emissions in Commission pathways: calculation by MPI drawn from Climate Change Commission (2021a).<sup>54</sup>

**Notes:**

- The upper blue line (solid) representing the status quo should be interpreted with caution. The level of forestry supply is modelled based on exogenous carbon price assumptions. In reality, the supply of forestry units under this scenario would not be able to be supported by the market, meaning that carbon prices would instead track well below prices anticipated by the Commission out to 2050 and gross emissions pathways tracking higher than the shaded area in red.
- Forestry supply based on forecast NZ ETS entitlements and surrender obligations (units that enter foresters' accounts minus units required to be surrendered in each year). As some landowners are likely only to sell a portion of their units (e.g., trading strategies for production forests on stock change accounting that only trade 'safe carbon'), this means supply figures in blue may overstate actual levels of units traded.
- Long-term projections of greenhouse gas emissions are inherently subject to increasing levels of uncertainty the further out these are projected.

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<sup>54</sup> Adjustment factors applied for sectors outside NZ ETS (non-municipal waste, synthetic greenhouse gases, and agriculture), and correction factor for liquid fossil fuels and coal (based on Climate Change Commission, 2022, p 37). Correction factor linearly reduced from 1.3 million NZUs 2027 to 0 at 2050. Agriculture is assumed to remain priced outside NZ ETS (so does not generate demand).

## **What does this mean for how the Government acts?**

42. For the Government to attempt to address these supply liquidity risks under current legislation, it might need to significantly reduce cumulative supply from auctioning and industrial allocation (in the late 2020s and 2030s). However, by doing so, the Crown would see the effectiveness of its measures for affecting prices and market conditions within the NZ ETS diminish (as auctioning would form a small or negligible part of supply to the market).
43. While the Government may have some other alternative means to address the imbalance between demand and forestry supply, and consequent loss in efficacy of measures affecting carbon prices (under option 1 - status quo). These would require significant wider primary legislative change and time. For example, through:
  - a) Measures affecting demand: Introduction of agriculture into the NZ ETS or linking with a parallel agriculture pricing scheme.
  - b) Measures affecting available supply levels: Export of NZUs, mechanisms for purchase of excess NZUs from the market (e.g., by the Crown), or overall limits on removals generated.
  - c) Measures affecting the ambition of the scheme: Re-calibrating the NZ ETS to NDCs post-2030 (or seeking for a greater share of reductions contributed towards future NDCs to come from sectors covered by the NZ ETS).
  - d) Other structural reforms to the NZ ETS: time limits on NZUs, top-up carbon prices for desired sectors, or shaping of carbon prices seen by forestry.
44. All of these (and other related ideas) would carry significant impacts affecting other parties and risks that would need to be carefully considered. These would take considerable time to work through beyond the timeframes for the permanent forest category starting (1 Jan 2023).
45. Some of these options may also be limited in practise. For example, priced at equivalent of 95% free allocation, agriculture would only generate around ~2 million tonnes in NZU demand (on current emissions levels).
46. On balance, changes to the permanent forest category to control for these risks now provides a more direct means of addressing risks, and one that can be achieved in the short-term.
47. By acting to manage permanent exotic forests now, it will allow for a wider scope of options for the future of the NZ ETS to be considered (of which some may subsequently allow for more permissive management of permanent exotic forests with time).
48. The scale of this risk, and how best to manage it, is also being considered by other work the Government is progressing. The ERP is the Government's response to the Commission's advice for meeting emissions budgets. The ERP has agreed to prioritise gross emissions reductions, while maintaining support for net emissions, and to consider the design and role of the NZ ETS with respect to these objectives.
49. The Commission's recommendations (2021) in relation to management of permanent exotic forests were premised on similar risks to those identified by the Government. The Commission suggested that the current NZ ETS will drive a relatively low-cost abatement option of permanent exotic forests, rather than more costly gross emissions reductions that it considered should be prioritised.

50. Projections for Option 5 are not shown in Figure 4 above. Uncertainty around the area of exotic forest that could enter the category while it remains open to exotic forests means levels of afforestation and consequent NZU supply in this option are difficult to estimate.

**Permanent exotic forests can have environmental risks associated with them, but they also can provide environmental benefits**

51. Permanent exotic forests are a new forest model for New Zealand, and more research is needed to understand the long-term environmental and forest management consequences as these forests come to the end of their natural lifespans. This needs to be balanced against the environmental benefits that permanent exotic forests can provide (e.g., reduce erosion, improve soil conservation and water quality).
52. Permanent exotic forests also have the potential to transition from exotic to indigenous species over time to provide a long-term carbon sink, although this forest model presents risks within the NZ ETS. These risks and benefits are outlined further in this section.

**Plantation forests must be managed, but there is currently no requirement for the environmental effects of permanent exotic forests to be managed**

53. There are environmental factors to consider in relation to the planting of any exotic forest. Careful consideration needs to be carried out prior to planting with exotic conifers to manage wilding risk. This includes consideration of species growth, palatability, location, and surrounding land-uses. Active management is then required over the life of the forest to mitigate other environmental impacts and risks such as fire, disease, and pests.
54. These management requirements are widely acknowledged for plantation forests, but there is currently no requirement to manage these environmental effects for permanent exotic forests (aside from existing restrictions on the registration of naturally regenerated exotic forests in the NZ ETS which have a wilding spread risk).
55. Plantation forests must adhere to the National Environmental Standards for Plantation Forestry (NES-PF) which provides controls for wilding conifer spread risk (MPI, 2018). Permanent exotic forests are currently exempt from these regulations so can present a wilding risk if not located or managed appropriately.
56. The risk of wildfire in forests is expected to increase as the climate warms. A recent study assessed the wildfire risk within New Zealand over the 21<sup>st</sup> century (Melia et al, 2022). It estimated a widespread increase in wildfire risk for most of New Zealand, with extreme levels occurring at the district and local scale. The research found that the increased wildfire risk in New Zealand's forests, afforestation, and carbon farming activities has the potential to disrupt the achievement of climate change budgets and targets. Wildfire risk is not currently explicitly managed within the NZ ETS or resource management system.
57. There is also an opportunity for these risks to be better managed, such as through changes to the Resource Management Act that will be consulted on later this year. This work will consider expanding the scope of the existing NES-PF to ensure the environmental effects of existing permanent exotic forests are managed.

### **Permanent exotic forests are a new forest model for New Zealand, and we need more research to understand the risks they may pose**

58. There is little empirical evidence in the New Zealand context to ascertain the long-term environmental and forest management consequences of permanent exotic forest models. Exotic forests have, in the past, not been grown to the end of their natural lifespan, with this forestry model only becoming popular as the NZU price has increased.
59. Researchers from the University of Canterbury (Woollons & Manley, 2011) used historic sample plots of radiata pine stands older than 50 years, with the oldest sample plot measured at over 100 years. Their report concluded that growing radiata pine on a rotation of 60 years is biologically feasible, and it may be possible to use longer rotations on favourable sites. However, forest vigour and health beyond these timeframes and any environmental issues that may arise due to senescence is unknown.

### **Permanent exotic forests can provide some environmental benefits**

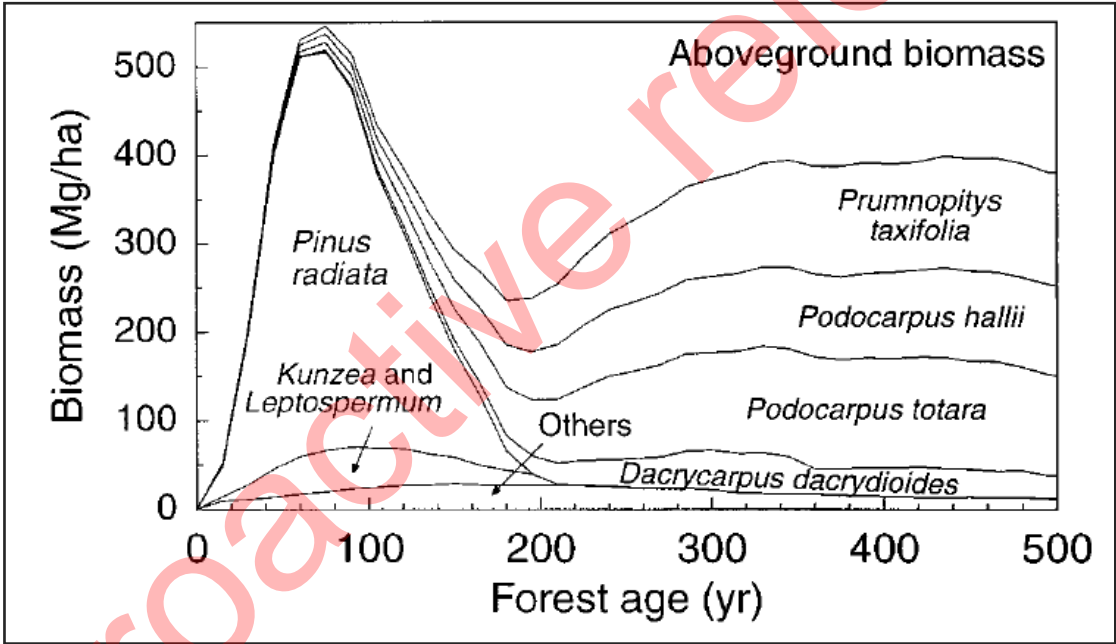
60. Permanent exotic forests can provide some environmental benefits. An estimated 1.1 million hectares of land is deemed at risk of severe erosion and suitable for permanent forest cover, 840,000 hectares of which is in the North Island (Ministry for the Environment & StatsNZ, 2018). Closed-canopy tall forests have also been found to reduce landslides in large storms by 70 to 90 percent (Basher, 2013) and forests can also play a role in flood regulation.
61. Permanent exotic forests can provide a cost-effective solution for severely erosion prone land and could contribute to meeting the Government's sediment bottom lines under the National Policy Statement for Freshwater Management by improving soil conservation and water quality (Manaaki Whenua, 2019).
62. However, the scale of erosion prone land in New Zealand means there would likely be supply consequences resulting from large scale afforestation on this land. Therefore, the NZ ETS only has a limited ability to address the erosion risks presented by this land.

### **Permanent forests can transition from exotic to indigenous species over time (transition forests)**

63. The Commission (2021) recommended greater investment in new and regenerating indigenous forests to deliver a long-term carbon sink to offset emissions that are hard to reduce. However, indigenous forests are slow growing and have higher establishment and maintenance costs than exotic forests.
64. Transition forests, if managed appropriately, could play a role in establishing a cost-effective long-term carbon sink. These forests have the added benefit of improving indigenous biodiversity, along with providing a long-term carbon sink, erosion control, soil conservation and improved water quality.
65. Permanent exotic forests are a relatively new forestry model and there is increasing interest in the transition from exotic to indigenous forests over time (referred to as transition forests in this document). MPI commissioned a review of the state of knowledge on transition forests to investigate their feasibility, management and any pre-conditions that need to exist to be successful.
66. The report (Forbes Ecology, 2021) found that the transitioning forest model is relatively new and there has been a lack of time and research to demonstrate the level of commitment and management required for it to be successful. The report concluded that given these uncertainties, transitioning forests should only be attempted in favourable environments and at smaller scales, and where the process is actively managed.

- 67. The transition forest model also needs to resolve several financial challenges. Transition forests risk incurring significant liabilities within the NZ ETS as large exotic trees are replaced by smaller and slower growing regenerating indigenous species and carbon stocks reduce. These liabilities may impact the financial viability of the transitioning forests model due to NZUs being surrendered as carbon stocks reduce. Exotic species within transitioning forests may have to be intensively managed at young ages to minimise liabilities and ensure effective transition to indigenous forests.
- 68. This risk is indicated in Hall (2001) that investigated the long-term feasibility of undertaking forest restoration for the offsetting of emissions. The study simulated a mixed exotic–native forest at a single site in the South Island and predicted that the forest would store maximum carbon at 80 years of age with most native species being suppressed. The model predicted that native podocarp species would gradually replace radiata pine over the next 120 years. They concluded that this forest model could provide high levels of carbon removals relatively quickly but highlighted the need to consider the forthcoming long-term drop in carbon stored by the forest. (Figure 5).

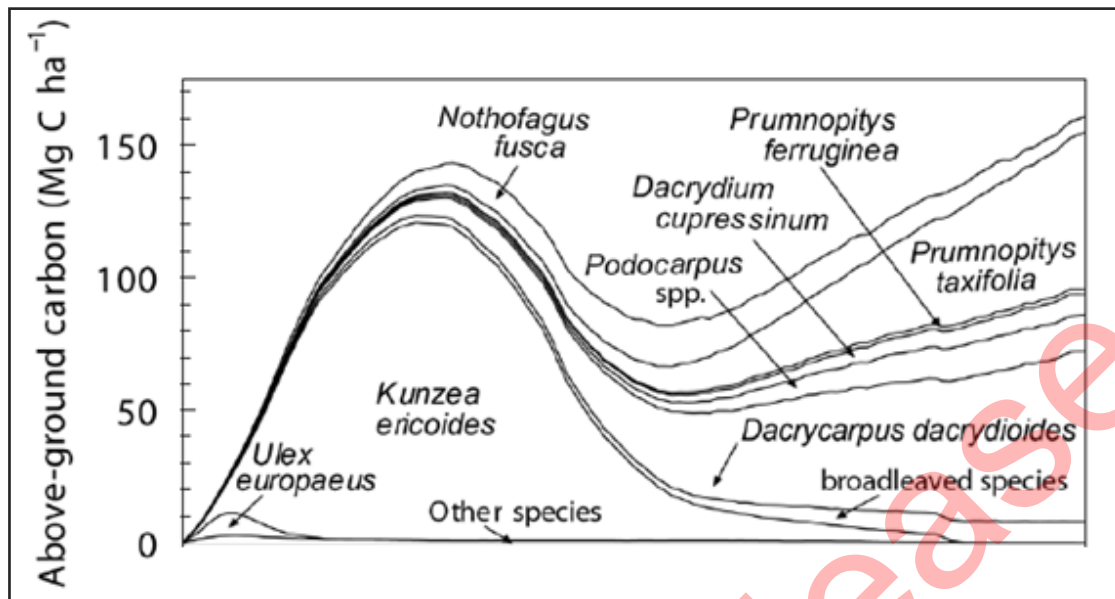
**Figure 5:** Simulated transition of exotic to indigenous forests and the reduction in carbon as exotic species are replaced by indigenous species



Source: Hall (2001).

- 69. This drop in carbon as forest succession occurs is not limited to exotic forests. The same trend was predicted (Carswell et al., 2012) to occur during kānuka–red beech succession (Figure 6) albeit the reduction in carbon is lower and therefore the potential liability less.

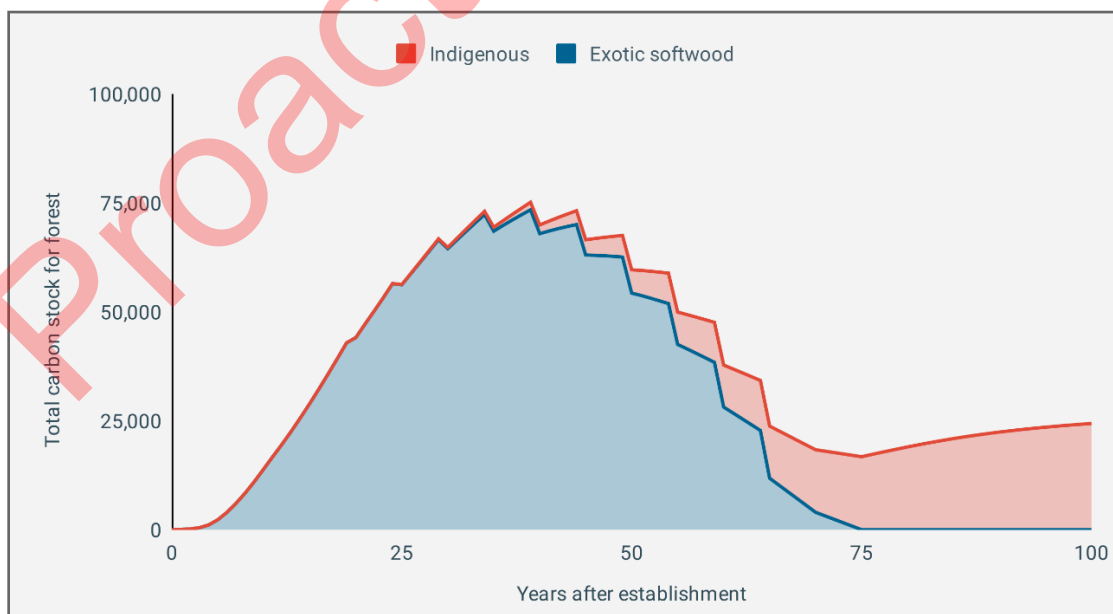
**Figure 6:** Simulated transition of indigenous forest species and the reduction in carbon as regenerating species are replaced by tall forest species



**Source:** Carswell et al. (2012).

70. The regeneration models in the Landcare Research studies are likely to be environment and climate sensitive, and sites for the study were selected had good local native seed source and intensive pest control with natural regeneration underway.
71. These trends in carbon stocks are reflected in modelling by MPI of a transition forest using stock change accounting, shown in Figure 7 below.<sup>55</sup> The modelled forest sees a peak in total carbon stock around age 40, with exotic softwoods making up over 95% the total carbon stored in the forest at this point. Total carbon stocks are progressively reduced as the forest is made up of greater proportions of indigenous species.

**Figure 7:** Modelled total carbon stock per species type (tonnes of CO<sub>2</sub>) for a 100-hectare transition forest (via progressive strip harvesting) under stock change accounting



**Source:** Modelling by MPI, June 2022.

<sup>55</sup> Forest established with exotic softwood species, 10% of forest harvested at age 20 and replanted with indigenous species (eg, Totara). Further strips (10% of exotic softwoods) subsequently harvested every 5 years, until forest fully transitioned at age 65.

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## Annex E: Modelling used

Estimates in this RIA are primarily based on three internal models held by MPI:

### ***Forestry projection model [MPI]***

Projection model used to estimate forestry emissions and removals accounted towards domestic budgets and NDCs (under averaging accounting) and accounted net emissions and removals in the NZ ETS. Estimates in this report use the March 2022 dataset and are based on Manley (2021) and Manley (2021a).

- a) **Status quo (option 1):** Permanent exotics unrestricted, priced at pathway tracking with Commission demonstration pathway carbon prices. (sees 1.65 million ha new permanent exotic afforestation 2022-2050)
- b) **Option 2:** Restricted permanent exotics from 2022 (11,700ha new permanent exotic afforestation 2022-2050). Other forests (production exotic, indigenous) priced at Commission demonstration pathway carbon prices.
- c) **Option 3:** As for option 2. Note, level of permanent exotics introduced via managed exceptions regime not modelled, as these will be affected by future policy decisions on design of managed exceptions.
- d) **Option 4:** As for option 3.
- e) **Option 5:** Not directly modelled due to uncertainties in area of permanent exotic forest that may be entered in 'rush to enter' prior to managed exceptions regime entering into force.

### ***Investment return for different land uses [MPI]***

Calculates investment returns for different land uses, based on published literature and expert assessments for costs and revenues of different land uses. Calculations of carbon stock change for different types of forest (and corresponding carbon revenue/costs) are included in the model. Updated July 2022.

### ***Stock change for transition forest calculator [MPI]***

Calculates carbon stock and residues for transition forests and production forests based on NZ ETS stock change accounting. Accounting may differ for the permanent forest category from spreadsheet (due to clearfell harvest rules). Updated June 2022.

Please contact [mpi.forestry@mpi.govt.nz](mailto:mpi.forestry@mpi.govt.nz) for further information on evidence and modelling presented in this RIS.