Cost Recovery Impact Statement

Forestry in the Emissions Trading Scheme: Proposed updates to cost recovery settings (Tranche 1)

SCOPE

The Ministry for Primary Industries (MPI) is designing a replacement operating model and technology platform for forestry in the Emissions Trading Scheme. The new system will come with updated cost recovery settings for which there will be a separate cost recovery impact statement (CRIS).

In the meantime, there are financial deficits in providing services under the current system.

The preferred options in this CRIS set charges for the interim period before the new system rolls out. The preferred approach is made up of increases to six existing charges, three new charges, and no charge for forty three other services. The nine new or updated charges are for the following services:

Increases to current fees

(a) Apply to register

(b) Emissions return processing

(c) Travel for purpose of checking that land is post-1989 forest land

(d) Adding one or more Carbon Accounting Areas

(e) Notification of transmission of interest

(f) Emission ruling

New fees

(g) Removing a Carbon Accounting Area (whole)

(h) Removing a Carbon Accounting Area (part)

(i) Request for forest carbon stock table

AGENCY DISCLOSURE STATEMENT

This CRIS has been prepared by MPI.

There are many caveats in the data and analysis. These are discussed in the CRIS in more detail as the arise. Major caveats are summarised in this disclosure statement.

Afforestation and carbon sequestration

The degree of afforestation depends on many factors including the price of New Zealand Units (NZUs) which foresters receive, the increase in cost recovery which makes afforestation less profitable, among many other factors and policy settings.

This CRIS estimates afforestation at different NZU prices and cost recovery settings, drawing on MPI cost estimates, forecasts of the NZU price by the International Energy Agency and the New Zealand Climate Change Commission, and estimates of afforestation at different NZU prices (and, therefore, prices net of cost recovery) in an MPI Technical Paper from 2022. There are caveats with each of these:

- The analysis makes best use of available cost estimates. At times, different sets of estimates have to be used in combination. As the estimates use different methods which have not been reconciled, the results are inexact.
- There is considerable uncertainty around future NZU prices, and the scenario the Climate Change Commission used for its NZU price forecast is not consistent with the scenarios in this CRIS (and cannot be made consistent).
- The Technical Paper's model of afforestation fits historical data well, but extrapolating to higher NZU prices and higher afforestation carries greater uncertainty.

Identification and assessment of options

Options have been developed and assessed in accordance with the cost recovery principles of Transparency, Justifiability, Efficiency and Equity defined in relevant legislation and MPI's cost recovery guidance. A constraint on the range of feasible options and the assessment of options is the lack of time recording and time recording data.

Without time recording to inform the design of options, staff judgement has been used. This carries uncertainty around the accuracy of the charges.

Whether the principles have been sufficiently met also involves a level of judgement. MPI considers that the principles have been sufficient met for new or updated charges as proposed in the preferred options. Where changes could not sufficiently meet the principles at this time, they have not been preferred.

Additional judgement is required around the Equity principle. Equity involves consideration of fairness and, therefore, value judgements. Submissions emphasised that cost recovery increases have a proportionately bigger impact on smaller forests and, in particular, smaller native forests. Submitters proposed discounting charges for very small forests. This CRIS provides options for discounted charges for very small forests and leaves the judgement to the Government about whether the best balance of the Efficiency and Equity principles is fuller cost recovery with lower cost to taxpayers, or discounted charges for very small forests with lower cost foresters.

Te Tiriti / Treaty implications

While this cost recovery impact statement incorporates feedback from Tairāwhiti Whenua (a Māori landowner group managing $738 million in assets across 144,000 owners) and considers options which Tairāwhiti Whenua are supportive of which directly address their feedback, a Te Tiriti analysis has not been completed.

Forest land is the single largest commercial asset class transferred to Māori through Treaty settlements and many groups rely on income streams from this land to grow their wealth. Policies that have an impact on income potentially raises the Treaty principle of redress.

A Te Tiriti analysis will be conducted for the complete set of cost recovery proposals for the new system when it rolls out.

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B. Arnold.

Bruce Arnold, Director Cost Recovery

16/11/2022

Quality Assurance

Regulatory impact analysis

The Ministry for Primary Industries Regulatory Impact Analysis Panel has reviewed the cost recovery impact statement 'Forestry in the Emissions Trading Scheme: Proposed updates to cost recovery settings (Tranche 1).

The Panel considers that the CRIS meets the Quality Assurance criteria. There is a clear problem definition, the options are well set out and considered, and overall the CRIS is well-written, clear, and thorough.

Climate implications of policy assessment

A climate implications of policy assessment (CIPA) is contained within the CRIS and summarised in the attached disclosure statement. The Ministry for the Environment's CIPA team has reviewed the modelling approach and results at a high level and considers them reasonable for providing an indication of the likely scale and range of emissions impact.

1 EXECUTIVE SUMMARY

1.1 Context

1. Te Uru Rākau – New Zealand Forest Service[1], a business unit within the Ministry for Primary Industries, is undertaking a multi-year work programme to deliver a replacement operating model and technology platform for forestry in the Emissions Trading Scheme[2].
2. The current system risks the integrity of the forestry ETS. In addition to securing the integrity of the forestry ETS, the new system will:
   - implement requirements under the Climate Change Response (Emissions Trading Reform) Amendment Act 2020[3], and
   - offer other service improvements such as better satellite imagery to improve accuracy, and reduce time, around Te Uru Rākau decisions.
3. The system is expected to be fully operational from 2025. The scope and costs for services are yet to be finalised. Cost recovery for new and replaced services will only begin when services are operating.
4. In the meantime, services will continue to be provided using the current system. Services can be cost recovered provided MPI's cost recovery principles are sufficiently met.

1.2 Problem

5. There are financial deficits in the provision of current forestry ETS services. The current system costs around $16.9 million to run, of which around $11.8 million is potentially cost recoverable. Only around $0.5 million per annum would be recovered with current cost recovery settings.
6. There are several factors contributing to this:
   - MPI has not been recovering all the hours spent providing services.
   - Existing hourly fees were last updated in 2011 and do not reflect the hourly cost of services.
   - Many services have no charge.
7. Amplifying these factors has been a large increase in volumes. Participation in the forestry ETS has grown rapidly over recent years as a result of increases in the carbon price and, thus, the profitability of forestry. Participation has also spiked because the Amendment Act makes participation in the forestry ETS easier.
8. A further problem is that current charges for one service are likely over-recovering costs from some forestry ETS participants.
9. Constraints on addressing the problems include that time recording is currently viewed as impractical and that a new system – and, with it, new cost recovery settings – will soon be in place. These constraints combine to mean that it is not worthwhile attempting to address under-recovery in every service.

1.3 Preferred approach to best achieve the Efficiency principle

10. In developing the preferred approach to best achieve the Efficiency principle, we reviewed all existing charges (as they were overdue for review) and reviewed as many other services for potential recovery as we could within the constraints above. In reviewing the other services, we focussed on services with the greatest amount of under-recovery.
11. MPI's preferred approach to best achieve the Efficiency principle is made up of the following key features for the interim period before the new system is rolled out:
    - Increasing fees for six services with current fees.
    - New fees for three services which do not currently have any cost recovery.
    - No recovery of forty-three other services.[4]

[1] Shortened to 'Te Uru Rākau' in this document.
[2] Shortened to 'forestry ETS' in this document.
[3] Shortened to 'the Amendment Act' in this document.
[4] This may change once the new system is rolled out.

- In the absence of time recording, and where appropriate, moving from hourly charges to fixed charges or tiered charges by forestry size.

12. The increased and new charges seek to recover future costs only, not historical deficits, and to fully recover costs for seven of the nine services.
13. Demand for services is expected to remain particularly high due to changes under the Amendment Act that take effect from 1 January 2023. The preferred approach would be in place on, or as near to as possible, 1 January 2023 so that fees for service reflect actual cost during this spike.
14. The status quo and preferred approach are set out in Figure 2.[5]
15. Options that address Equity concerns raised during consultation are discussed in chapter 1.5 below.

1.4 Impacts of the approach that best meets the Efficiency principle

1.4.1 Increase in amount cost recovered

16. The approach is expected to increase the costs of these services to foresters by about 350%, with the total amount cost recovered increasing from around $0.5 million per year to around $2.1 million per year. While this is a big increase in percentage terms, it is from a low starting point. The preferred approach would see the proportion of recoverable costs that are actually recovered increase from around 4.0% to 17.5%.

1.4.2 Increase in economic efficiency

17. The reduction in taxpayer funding will reduce the deadweight loss associated with distorted decisions about how much to work, save and invest. In line with Treasury guidance, deadweight loss is assumed to be 20% of the amount of taxpayer funding. By reducing the amount of taxpayer funding by $1.6 million per annum, the preferred approach reduces deadweight loss by $0.3 million per annum.
18. The reduction in under-recovery of costs also reduces the deadweight loss of overuse of MPI services (due to them being cheaper than they should be). This benefit has not been estimated, though is expected to be small.

1.4.3 Overall reduction in afforestation and carbon sequestration

19. The increase in costs reduces the profitability of forestry, decreasing the amount of afforestation, and decreasing carbon sequestration. In our core scenario, the increase in cost recovery has the following estimated impacts:

    - The increase in cost recovery is 0.31% of the NZU price in 2023, declining to 0.09% of the NZU price by 2050. The reduction in the percentage decrease is due to rising NZU prices over time.

      The increase in cost recovery is 0.18% of the NZU value of plantings in 2023, declining to 0.11% of the NZU value of plantings in 2033.

    - A decrease in afforestation by 0.08% over the 2023 to 2050 period, ranging from 0.36% in 2023 to less than 0.01% in 2050.

      This amounts to a reduction in afforestation in 2023 of 227 hectares from 67,174 hectares to 66,947 hectares, and in 2050 of 1 hectare from 115,642 hectares to 115,641 hectares.

    - A decrease in carbon sequestration / increase in emissions[6] of 1.3 million tonnes (0.14%) from 899.8 million tonnes sequestered to 898.4 million tonnes over the 2023 to 2050 period.

20. The decrease in carbon sequestration ranges from 0.02% (0.2 million tonnes) to 0.25% (1.6 million tonnes) depending on the scenario.

[5] The fees and levies in this CRIS are GST-exclusive.
[6] 'Higher emissions' is shorthand here. Emissions are capped under the ETS, so New Zealand's total emissions will be unchanged whatever happens with cost recovery around the forestry ETS, but less afforestation means less supply of NZUs from forestry. With less afforestation, more emission reductions must come from other, more costly, sources to remain under the cap.

1.5 Public submissions and the Equity principle

21. The increase in cost recovery is a greater proportion of NZU value is smallest for large exotic forests and largest for small native forests.[7]

22. Submitters including the CarbonCrop (a company that assists landowners around forestry offsets), the New Zealand Farm Forestry Association (represents small forest owners), Tairāwhiti Whenua (a Māori landowner group managing $738 million in assets across 144,000 owners), and three individuals said the cost recovery increases would make some very small forests uneconomic. Tairāwhiti Whenua also pointed out that if small forests become uneconomic there may be no other economic use of some Māori land.

23. The issue was also identified in the Government's consultation document about pricing agricultural emissions as one farmers were concerned about and which would need to be considered.

24. Submitters concerns about the economic viability of small forests are correct. Officials' best estimates[8] are that the main proposals would reduce afforestation rates by around:

    - 65% for native forests between one and two hectares[9], and 15% for exotics
    - 44% for native forests between two and three hectares, and 10% for exotics
    - 31% for native forests between three and four hectares, and 7% for exotics
    - 24% for native forests between four and five hectares, and 5% for exotics
    - 13% for native forests between six and ten hectares, and 3% for exotics.

25. While some of these impacts are large, the overall impact on the sector is small as small forests represent a small proportion of overall ETS area. For example, forests under ten hectares are about 0.6 percent of total area in the forestry ETS, and the total reduction in afforestation under the main proposals is estimated at around 2,000 hectares out of 2.9 million hectares that are estimated to occur with the rising NZU price.

26. Submitters asked MPI to consider discounts for very small forests, focusing on forests up to five or ten hectares. The CRIS considers an option which keeps the current charges for registering in the forestry ETS and adding land for small forests. These two services are the focus as they:

    - have large increases from $488.89 to $1,815.00 (one-off cost to register) and from $88.89 respectively to $1,815.00 (each time land is added)
    - are likely to be barriers to small forests' participation in the forestry ETS, particularly for native forests where land may be added over time as forest is restored
    - were the focus of most submitters (submitters only rarely mentioned the cost increases for other services).

27. Furthermore, discounting other services is considered to be infeasible to operationalise during the first stage of the new system's rollout. The financial cost of options to discount other services was estimated, but has not been included in this CRIS as the options are considered infeasible in the early rollout.

28. Whether the best balance of the Efficiency and Equity principles is fuller cost recovery with lower cost to taxpayers, or discounted charges for very small forests with lower cost foresters, is a decision for Government.

29. Figure 1 present results for discounting the two services for three selected forest sizes. These selected sizes were most commonly suggested by submitters, including Tairāwhiti Whenua which favoured five or ten hectares[10], and the increase in cost recovery for forests beyond 10 hectares would have considerable cost for little benefit. Figure 1 is intended to compare the costs and benefits of a range of options without the range of options being overwhelming. The selection of options is not intended to inhibit Government from selecting other sized forests for discounts and options up to 50 hectares are analysed in chapter 8.4.3.

[7] The percentage loss of value reduces as forests get larger. While owners of larger foresters use services more frequently and would pay more per use for some services, the increased cost is offset by economies of scale – that is, the costs of services are spread over larger forests such that the average cost reduces.
Native forests sequester less carbon than exotic forests and, so, earn fewer NZUs. The resulting lower value per hectare means that the loss of value from higher cost recovery is higher for native forests than for exotic forests.

[8] These estimates assume an NZU price at the current $80.
The estimates should be treaten as indicative as the assumed frequency of service use by very small forests is likely to be too high, and the estimates use an afforestation model which may not be well suited for use for very small forests.

[9] The minimum size to include in the forestry ETS is one hectare.

[10] Tairāwhiti Whenua also suggested a 50% discount for Māori landowners to reflect the Treaty partnership. Option (1) provides about a 60% discount on the increase in cost recovery charges, and 50% of total cost recovery for all small landowners.

30. Option (1c) is likely to meet the concerns of submitters, while Option (1b) is likely to meet the concerns of most submitters.

31. If the Government chooses to discount services, the discounts should be reviewed if the price of New Zealand Units that foresters receive rises and means the costs of MPI services which generate the NZUs are more affordable.

Figure 1: Summary of the impact of options that discount costs for very small forests

Forestry size tier	Option (1) Targets services most likely to be a barrier to participation and which were the focus of submissions
(a) Less than 2ha	Option (1a) would reduce the drop in afforestation by 39.9 percentage points from 64.6% under the main proposals to 24.7% if applied to forests up to two hectares and cost taxpayers $5,700 per annum. Total cost: $5,700 per annum
(b) Less than 5ha	An additional $29,700 per annum under Option (1b) would expand discounts to forests up to five hectares and reduce the drop in afforestation: • in forests between two and five hectares, by 19.5 percentage points under the main proposals from 29.2% to 9.8% • in addition to the 39.9 percentage point reduction from 64.6% under the main proposals to 24.7% for forests up to two hectares under Option (1a). Total cost: $35,400 per annum

(c) Less than 10ha	A further additional $89,900 per annum under Option (1c) would expand discounts to forests up to ten hectares and reduce the drop in afforestation:
	• in forests between five and 10 hectares by 8.8 percentage points from 13.1% under the main proposals to 4.3%
	• in addition to:
	  • in addition to the 39.9 percentage point reduction from 64.6% under the main proposals to 24.7% for forests up to two hectares under Option (1a)
	  • and the 19.5 percentage point reduction from 29.2% under the main proposals to 9.8% for forests between two and five hectares in Option (1b).
	Total cost: $125,400 per annum

Figure 2: Proposed updates to cost recovery for implementation from 1 January 2023

Service	Description of service	Current fee[11]	Proposed fee	Explanation
Currently charged services				
(a) Apply to register	Processing application to register as a participant in the ETS with post-1989 forest land.	$488.89 plus $115.55 per hour, or part hour, in excess of 4.25 hours	0-49ha: $1,815.00 50-99ha: $1,980.00 100-500ha: $2,640.00 500+ha: $4,125.00	Changes to a tiered charge by forest size. Proposed fee uses the new base hourly rate of $165 with the following average processing times per application: • 0-49ha forests – 11 hours • 50-99ha forests – 12 hours • 100-500ha forests – 16 hours • 500+ha forests – 25 hours
(b) Emissions return processing	Emissions returns are used to calculate changes in the carbon stock, including: • at the end of a 5-year mandatory return period • when participants choose to voluntarily claim carbon credits during the 5-year period • when deregistering from ETS or removing forest land • when selling or transferring forest land.	$88.89 plus $115.55 per hour in excess of 45 minutes	$165.00	Changes to a fixed charge at the average time of 1 hour at the new base hourly rate of $165.
(c) Travel for purpose of checking that land is post-1989 forest land	MPI staff can be required to travel for certain services.	$115.55 per hour plus disbursements at actual costs	$165.00 per hour plus disbursements at actual costs	Remains a time-variable charge, but at the new base hourly rate of $165.
(d) Adding one or more Carbon Accounting Areas	An application to add additional Carbon Accounting Areas (CAAs).	$88.89 plus $115.55 per hour in excess of 45 minutes	0-49ha: $1,815.00 50-99ha: $1,980.00 100-500ha: $2,640.00 500+ha: $4,125.00	Changes to a tiered charge by forest size. Proposed fee uses the new base hourly rate of $165 with the following average processing times per application: • 0-49ha forests – 11 hours • 50-99ha forests – 12 hours • 100-500ha forests – 16 hours • 500+ha forests – 25 hours
(e) Notification of transmission of interest	Registered participants in the forestry ETS must tell Te Uru Rākau of changes that affect their participation in the scheme, such as sale of their land.	$88.89 plus $115.55 per hour in excess of 45 minutes	$990.00	Changes to a fixed charge at the average time of 6 hours at the new base hourly rate of $165.
(f) Emission ruling	Determines whether a forester's activity means legislative requirements apply	$408.70 plus $102.17 per hour in excess of 4 hours	$495 plus $165 per hour in excess of 4 hours	Remains a time-variable charge, but with a 1 hour reduction in the minimum time from 4 hours to 3 hours and an increase in the hourly rate to $165.
Newly-charged services				
(g) Removing a carbon accounting area (whole)	Application to remove one or more CAAs		$495.00	A new fixed charge at 3 hours and $165 per hour.
(h) Removing a carbon accounting area (part)	Application to remove part of one or more CAAs		$1,072.50	A new fixed charge at 6.5 hours and $165 per hour.
(i) Request for forest carbon stock table	Participants with more than 100ha of forest land in the ETS must use the Field Measurement Approach (FMA) to calculate their forest's carbon stock. The use of participant-specific forest carbon stock tables is required to calculate forest carbon stocks for FMA participants.		$1,980.00	A new fixed charge at 12 hours and $165 per hour.
Uncharged services	See Appendix 2 for a list of services to remain without cost recovery in the interim period.			

* https://legislation.govt.nz/regulation/public/2008/0355/48.0/DLM1633709.html

[11] Note that the regulations record the charges with GST included. They are reported here with GST excluded.

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2 BACKGROUND

2.1 New Zealand's climate change commitments

32. New Zealand has committed to reducing our greenhouse gas emissions to limit the global average temperature rise to 1.5˚C above pre-industrial levels. The Government has set the following targets to help achieve this commitment:

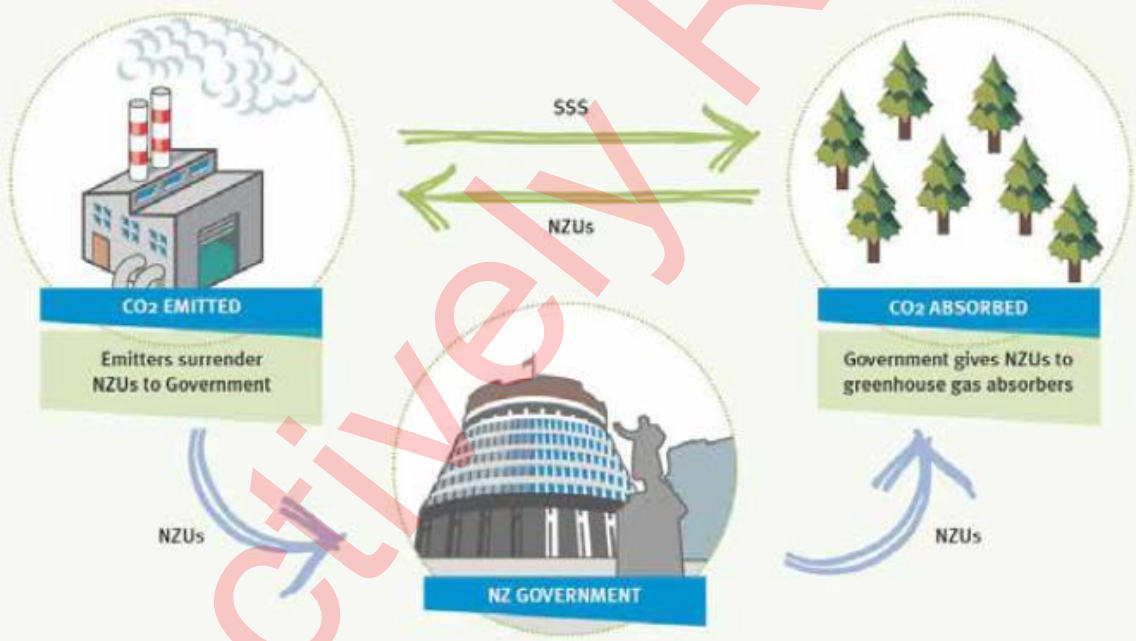
    - all greenhouse gases, other than biogenic methane, to reach net zero by 2050
    - emissions of biogenic methane to reduce to at least 10 percent below 2017 levels by 2030, and at least 24 to 47 percent below 2017 levels by 2050.

33. To help meet these targets, the Climate Change Response Act 2002 (CCRA) establishes a system of emissions budgets and Emissions Reduction Plans. Emissions budgets set a limit on the amount of greenhouse gas emissions allowed across the five-year budget periods. These budgets can be met using a combination of gross emissions reductions and net emissions removals.

2.2 The New Zealand Emissions Trading Scheme

34. Established in 2008 under the CCRA, the ETS is New Zealand's primary tool to help meet its emission reduction budgets, domestic targets and international climate obligations. By capping and pricing greenhouse gas emissions, the ETS encourages investment in lower emissions technologies and practices, including forestry.

Figure 3: How the New Zealand Emissions Trading Scheme works



35. The ETS limits the amount of emissions New Zealand produces.

36. Emitters must obtain (and surrender to the Government) NZUs covering their emissions.[12]

37. Activities that absorb carbon dioxide, such as planting and managing forests, reduce emissions and can earn NZUs. When they earn credits, forest owners can either:

    - sell them to emitters to use to offset their emissions
    - hold onto them
    - surrender them back to offset their activities that emit greenhouse gases (such as burning fossil fuels) or reduce stored carbon (like harvesting trees).

[12] An emission unit represents one metric tonne of carbon dioxide or the equivalent of any other greenhouse gas (carbon dioxide equivalent).

2.3 The forestry ETS

38. Forestry is a key part of the ETS and, by offsetting emissions, is needed to help New Zealand meet its climate change targets and emissions budgets. Forests can be a carbon sink (while growing) or a source of emissions (for example, from harvesting or deforestation).

39. Te Uru Rākau administers the forestry component of the ETS on behalf of the Environmental Protection Authority. This is a core regulatory role mandated by the Act.

40. The level of service provided in the forestry ETS system is primarily driven by the level of assurance required to ensure that the system is operating effectively. This assurance relates directly to ensuring the ongoing integrity of the system and the consequent benefits participants receive.

41. Participants in the forestry ETS can accrue New Zealand Units (NZUs) from forests as they grow. The benefits of participating in the forestry ETS have significantly increased over time – from a low of under $2 per NZU in 2011 to prices exceeding $75 in July 2022.

2.3.1 Legislative changes in 2020 included changes to the forestry ETS

42. In June 2020 the Climate Change Response (Emissions Trading Reform) Amendment Act 2020 (the 'Amendment Act') was passed into law. The Amendment Act made extensive changes to the NZ ETS. The changes are intended to increase the incentive for afforestation and simplify the NZ ETS for participants.

2.3.1.1 New carbon accounting approach called 'averaging accounting'

43. All forest land entered into the ETS from 1 January 2023 will use averaging accounting unless the participant is registered in the permanent forestry category. Under averaging accounting, a first rotation forest will earn units up to its long-term average carbon stock (e.g. for radiata pine, this is at age 16). If forest land is entered into the ETS between 1 January 2019 and 31 December 2022 you will be able to switch to averaging accounting in 2023 for that forest land if you give notice to do so before 1 June 2023, or you can continue to use stock change accounting.

2.3.1.2 New activity for permanent forests in the ETS

44. The permanent forestry activity will replace the Permanent Forest Sink Initiative (PFSI). It will be available for post-1989 forest land from 1 January 2023, but once entered you cannot clear-fell this forest land for at least 50 years without incurring penalties in addition to your surrender liability.

2.3.1.3 New exemption from carbon liabilities for temporary adverse events

45. If all or part of a registered post-1989 forest is cleared by a temporary adverse event such as a fire, the owner will be able to apply for a suspension from accounting for emissions and removals. If granted, the participant will not be liable to surrender or entitled to earn units until the forest land recovers and reaches the carbon stock it was before the adverse event.

2.3.1.4 New ability to offset deforestation liabilities

46. When a post-1989 forest under averaging accounting is deforested, the owner will be able to establish a forest elsewhere to offset their deforestation liability. This will only be available to first rotation forest that has met its long-term average carbon stock (e.g. for radiata pine at age 16 or above) and subsequent rotation forest.

2.3.2 Services from 1 January 2023

47. From 2023, Te Uru Rākau will be carrying out around 50 individual activities/services as part of administering the forestry ETS, including around classifying forests, registering forests, emissions returns, carbon accounting records, deforestation offsets, suspending accounts in the event of an adverse event, adding or subtracting land, among others.

2.3.3 New and replacement services will be rolled out over time

48. Te Uru Rākau is undertaking a multi-year work programme to transform the administration of forestry ETS. The new operating model and technology solution is required to administer the new legislative requirements introduced through the changes to the CCRA and to replace the current system which is no longer fit for purpose. It will be fully implemented from 2025.

49. The new system will underpin existing services and offer enhancements. Enhancements include investment in imagery to support decision making, development of calculators that will improve the accuracy of participants' emissions returns, and new processes to update forest information.

50. The new system will replace the current system. The current system risks the integrity of the forestry ETS. The new system will secure the forestry ETS's integrity and is intended to be more effective and efficient.

2.3.4 Services can be cost recovered where appropriate

51. The CCRA provides the legal authority to recover costs for services provided in the forestry ETS system The CCRA provides wide flexibility in the type and level of charges that than can be applied.

52. Two sets of regulations cover current cost recovery settings: The Climate Change (Forestry Sector) Regulations 2008 and the Climate Change (Emissions Rulings: Fees and Charges) Regulations 2010.

2.4 Participation in the forestry ETS

2.4.1 Total registered land is increasing

53. As of July 2022, there was around 387,000 hectares registered by 2,600 participants.

54. The number of hectares of forest land submitted for participation in the ETS from the start of 2018 until the second quarter of 2021 averaged around 7,000 hectares per quarter. From then the number of hectares submitted has increased rapidly to more than 80,000 hectares in the second quarter of 2022. Te Uru Rākau estimates that around 570,000 hectares will be registered in the ETS by the end of 2022 by 3,300 participants.

55. The upsurge in participation reflects the increased benefit from participating in the forestry ETS as the NZU price has increased from around $35 in late 2020 to $75 by mid-2022. This has significantly increased the profitability of afforestation. NZU prices are expected to increase further in future.

56. The Amendment Act making participation easier has also likely contributed to increased participation.

2.4.2 Forest sizes

57. Around two thirds of foresters (1,650 participants) are small scale with less than 50 hectares each and less than 10% of land in total. The other 90% of land is registered with one third of foresters, with 62% registered with around 100 large-scale foresters with 500 or more hectares each.

58. Around 90% of forest land in the ETS is classified as exotic, with pine being the main species. The remaining 10% is classified as native forest land.

Figure 4: Participant numbers and total area by forest size as at July 2022

Forest size (ha)	Count of participants	Percentage of participants	Total area (ha)	Percentage of total land
0-49	1,650	65%	33,700	9%
50-99	440	17%	32,800	8%
100-499	350	14%	80,900	21%
500-999	50	2%	33,300	9%
1000+	50	2%	207,000	53%
Total	**2,550**	**100%**	**387,600**	**100%**

3 Cost recovery principles

59. This chapter summarises MPI's cost recovery principles, how they relate to each other, and what this means for the overall approach to cost recovery. MPI uses the principles to help define problems, identify options, and assess options.

3.1 Summary

60. MPI's four Cost Recovery Principles are in summary:

    - Transparency – costs are transparent
    - Justifiability – costs are reasonable
    - Efficiency – net benefits are maximised, and
    - Equity – costs are fair.

61. These principles appear in most legislation MPI administers, though not the CCRA.

62. The principles also appear in MPI's cost recovery guidelines and were adopted by the Office of the Auditor General in 2021. As such, they are used whether or not they appear in legislation.

63. The principles build on each other with Transparency and Justifiability providing a foundation to the consideration of, and sometimes trade-offs between, Efficiency and Equity. Essentially, MPI can only cost recover if it has sufficiently met the Transparency and Justifiability principles.

64. Once the Transparency and Justifiability principles have been met, the Efficiency and Equity principles state that the beneficiaries of a service should generally pay for that service. That is, beneficiaries pay 100% of costs of a service they use unless there is a strong efficiency or equity reason for why they should not.

65. A more comprehensive description of the principles, how they relate to each other, and what they mean for whether fees or annual charges / levies are appropriate is set out in Appendix 1.

3.2 Overall approach to cost recovery

66. The principles, and how they relate to each other, result in the following overall approach.

3.2.1 Beneficiaries generally pay

67. The beneficiaries of forestry ETS services are participants who earn NZUs, and emitters who purchase those NZUs.[13]

68. Beneficiaries should generally pay for the services they demand and use.

69. Charging beneficiaries encourages them to demand and use only the quantity and quality of services they value highly enough. If the costs of services are subsidised by others, beneficiaries would demand more and higher quality services without concern for how those services are funded. The higher demand is an inefficiency, as it leads to more resources being expended in the provision of services than their beneficiaries actually value or are willing to pay for.

70. Charging participants helps ensure that the quality and volumes of MPI services are not higher than is economically efficient.

71. Charging beneficiaries may take the form of fees where the benefits of a service are only to individual participants or annual charges / levies where the benefits are to sectors or groups of businesses as a whole.

3.2.2 When beneficiaries might not pay

72. Beneficiaries might not pay full costs in four situations:

[13] The New Zealand Farm Forestry Association submitted that the Government is a beneficiary of demonstrating climate commitments, and other people around the world benefit from New Zealand's emission reductions. These are benefits, but they are benefits that arise from the setting of carbon budgets and an ETS cap that declines over time. The Government and people would not gain any further benefit by subsidising participation in the forestry ETS as emission reductions are guaranteed by the carbon budgets and declining ETS cap.

3.2.2.1 Transparency and Justifiability

73. The first is where MPI has not sufficiently demonstrated that it is doing all it reasonably should to keep costs low (i.e. that it cannot meet the Transparency and Justifiability principles).

74. If MPI has not sufficiently demonstrated that past expenditure is justified, then write-offs might occur. If MPI has not sufficiently demonstrated that expected future expenditure is justified, then it may be appropriate for MPI to:

- change fees/levies to a level that can be justified for the time being, and
- cover the remainder of costs, or
- recover the deficit from a future time period after further work has been undertaken, or
- guarantee that prices will not exceed a certain level over the next period, or
- charge fees at a fixed level, rather than variable with time, to encourage efficient service delivery.

3.2.2.2 Administration costs

75. The second is where the administrative costs of charging (e.g. identifying those who should pay, invoicing costs, costs of processing payments by payers and MPI) are excessive compared to the revenue raised or the efficiency gain of precisely charging beneficiaries.

76. If it isn't practical or efficient to charge precise beneficiaries, then costs might be paid by the Government or by the best proxy for the beneficiaries depending on which is considered more efficient.[14]

3.2.2.3 Externalities

77. The third is where there are externalities. Externalities are positive or negative impacts on third parties that result from the demand and supply of a good or service. MPI primarily deals with negative externalities. An example of a negative externality is consumers demanding, and importers supplying, overseas products, creating a biosecurity risk from pest incursions on domestic farmers. Charging importers for MPI activities around managing negative externalities would encourage importers to reduce risk at their end and, therefore, the need for MPI services.[15]

78. Charging these parties would be via a levy on the activity, or proxy for the activity, that causes the harm or risk.

3.2.2.4 Equity

79. The fourth is where the Government determines that there are equity (fairness) reasons why the Government, or some other party, should contribute to costs.

[14] Two factors are relevant here. First, spreading costs over all taxpayers through Government paying will result in a lower average charge per taxpayer compared with a charge on a smaller number of proxy beneficiaries. Second, the proxy for beneficiaries will include some or all actual beneficiaries and some parties that are not beneficiaries.
The disadvantage of taxpayers paying is that they don't benefit. The advantage is that the cost, and thus inefficiency, is relatively small.
The disadvantage of proxies paying is that some of them don't benefit and they pay a greater amount than taxpayers would, with a higher inefficiency. The advantage is that some of them benefit and are charged, though not the full amount.
Which approach is better depends on which approach has the least inefficiency after considering the relative disadvantages and advantages.
[15] Administration costs of charging to account for externalities are also relevant.

4 Introduction to the problems

80. This chapter sets out an overall description of the problem and constraints on addressing the problem.

81. Chapters 5 to 7 address each contributor to the problem, options to address them, and assessment against the cost recovery principles in more detail. The purpose of these chapters is to identify the most efficient option for each component – the option that best meets the Transparency, Justifiability and Efficiency principles. The order in which each contributor is addressed is the order which best covers all of them with as little duplication as possible.

82. Chapter 8 sets out an overall description of the problem and whether there are any fairness reasons, including issues raised in submissions, under the Equity principle to depart from the most Efficient approach. Chapter 8 also includes an analysis of the economic impact on the value of forestry of the proposals. The impact on the value of forestry is important for judging whether cost recovery is fair.

83. Where submitters had comments on particular components and options, this feedback has been incorporated into chapters 5 to 7. Where submitters had more general comments on the overall approach, these have been incorporated into chapter 8.

4.1 General nature of the problem

4.1.1 Overall deficits

84. Overall, MPI under-recovers the costs of administering the forestry ETS. This means there are financial deficits which taxpayers are paying for. Deficits are an efficiency problem – either charges are too low for the desired level of service, or the level of service or costs are too high.

85. Charges that are too low will result in a higher level of demand for services than is efficient. At the same time, charges that are too low encourage less supply of services than is efficient in order to reduce costs. These two impacts cause an excess demand for services and an increase how long participants wait for services to be provided. Alternatively, if MPI increases supply to match demand and keep wait times low, then services will be provided to some participants where the costs exceed the benefits.

86. Charges that are too low, and subsidised by taxpayers, will also generally be considered to be inequitable.

4.1.2 Surplus revenue from some participants

87. In some situations, participants are likely to be over-charged. This is also an efficiency problem as it will result in a lower level of demand for services than is efficient and either fewer services being provided than is efficient or excess capacity / low productivity in MPI.

88. Charges that are too high will also generally be considered to be inequitable.

4.2 Components of the problem

89. The problem has multiple components:

    (I) Current charges largely vary by time charging but MPI typically only charges the minimum amount of time resulting in under-recovery when time spent is more than the minimum. Additionally, the minimum charges are likely to be too high resulting in over-recovery from some participants. The overall effect is under-recovery.

    (II) Only six services out of around 50 services currently have some amount of cost recovery.

    (III) The hourly charge that underpins fees has not been changed since 2011 and does not account for cost increases since then.

    (IV) Demand for services has increased.

90. This CRIS addresses components (I) to (III).

91. With regards to component (IV), there has been an approximate tripling of demand due to the increased benefit from participating in the forestry ETS as the NZU price has increased from around $35 in late 2020 to around $80 at the time this CRIS was prepared and from the Amendment Act making participation easier. Demand is expected in increase further over the long-term as NZU prices track higher.

92. Achieving the Efficiency principle requires MPI to increase the volume of services to meet demand. If MPI does not meet this demand, then foresters will lose out on services they are prepared to pay for to secure NZUs – a net cost to New Zealand and one that makes it harder to meet our climate commitments.

4.3 Size of the problem

93. The current forestry ETS system is expected to cost around $16.9 million per annum to administer between 2022/23 and 2025/26. Around $11.8 million per annum is expected to be eligible for cost recovery[16]. With current cost recovery settings, only $0.5 million per annum would be recovered. Without change, the deficit in 2022/23 would be $11.4 million per annum.

94. The effect of under- and, in some cases, over-recovery on the demand and supply of services, and the 'deadweight loss' associated with this, has not been estimated. Taxpayer funding of the deficit also carries a deadweight loss which is estimated at around $2.3 million per annum.[17]

95. There are some caveats with these figures.

96. The first is that the new system will progressively replace the current system over that time period so the above numbers are only illustrative of what would happen if the current system were to remain in place.

97. The second is that the $11.8 million is an estimate for the purposes of establishing the rough scale of the total under-recovery. As later sections will cover, we are not proposing to recover the full deficit. This CRIS does a fuller analysis of selected services to sufficiently meet the cost recovery principles. A fuller analysis has not been done for all services that make up the $11.8 million estimate. A fuller analysis might show the true number to be higher or lower than $11.8 million.

98. The third is that the $16.9 million and $11.8 million figures have been estimated on a different basis than the $0.5 million and are not perfectly comparable. Specifically, the $16.9 million and $11.8 million figures are arrived at using estimates of expenditure while the $0.5 million and other revenue figures in this CRIS have been arrived at using estimates of revenue (i.e. no. of applications × time per application × hourly cost). The two methods have not yet been reconciled to ensure that revenue and expenditure balance for each service. This is partly because in the time available we are only proposing to address under-recovery for a minority of services in the interim period before the new system rolls out. Because these figures are not perfectly comparable, estimates of how much of the $11.8 million would be recovered are approximate.

4.4 Constraints on addressing the problem

99. Contributors (a) and (b) can only be partially addressed at the moment. The rollout of the new system means there has been limited time and resource to fully analyse the entire problem, develop options, and consult.

4.5 Other issues

4.5.1 Māori land

100. Tairāwhiti Whenua provided feedback to MPI on the barriers to the economic development of Māori land including for forestry. This CRIS considers options to discount costs for small forests which could assist Māori-owned forests to participate in the ETS, but does not address other barriers such as costs involved with fencing and predator control.

101. It is beyond the scope of this work to address those barriers, including those identified in the MPI reports *Growing the Productive Base of Māori Freehold Land* and *Māori Agribusiness in New Zealand*.

102. The issue is highlighted here as additional context to the analysis in this CRIS and so that Ministers can ask for more advice if wanted.

103. Tairāwhiti Whenua, among other submitters, also discussed benefits of native forests in addition to those the forestry ETS facilitates. This is covered in chapter 4.5.2.

[16] Costs are of a type that would be recovered if the cost recovery principles are sufficiently met.
[17] Deadweight loss is the loss of economic value from, in this CRIS, distorted decisions by participants due to under- and over-recovery and, for Crown funding, distorted taxpayer decisions about how much to work, spend, save and invest.
The deadweight loss from taxation is set at 20% of the amount of taxpayer funding in Treasury guidelines.
https://www.treasury.govt.nz/sites/default/files/2015-07/cba-guide-jul15.pdf, p. 15.

4.5.2 Native forests

104. A further issue is around native forests. There is a legitimate Efficiency issue here that has been beyond the scope of this work to address, and is beyond the scope of the ETS regulatory regime, at this time. This chapter records our current thinking in case the Government wishes to pursue the issue further in future.

4.5.2.1 The issue

105. Charges recover costs of providing services to any forest owner that wants them. It is economically-efficient, and will generally be considered fair, to recover costs of services from those that want them.

106. Native forests provide biodiversity and cultural benefits[18], in addition to the NZU benefits to landowners.

107. A concern, including by several submitters, is that, as chapter 8.3.3.8 shows, while the preferred options are the same in dollar terms for native and exotic forests, they are larger in proportion to the NZU benefit for native forests compared to exotic forests. The reason for this is that native forests sequester less carbon per hectare and, therefore, earn fewer NZUs per hectare. Increased cost recovery will, therefore, result in a greater reduction in the profitability of native forests compared to exotic forests. This will flow through to a greater decrease in afforestation of native forests compared to the decrease in afforestation of exotic forests and a decrease in biodiversity and cultural benefits.

108. The biodiversity and cultural benefits can be considered positive externalities of benefit to parties other than the foresters themselves (or just the foresters themselves). Under the Efficiency principle, if these benefits are worth paying to secure, then the beneficiaries should pay for them.

4.5.2.2 Who might pay

109. Beneficiaries are likely to be diffuse and difficult to identify. People from around the country may put existence value on the biodiversity and cultural aspects, while other people close enough to directly enjoy those benefits will receive greater value. If funding to cover these benefits is appropriate, it may be that Crown funding or a mix of Crown and local government funding is appropriate.

110. These benefits vary by the amount of native forest planted, and other factors such as location. Financial incentives to encourage more native forestry would target these factors – e.g. a set subsidy per hectare, or per hectare in particular locations.

111. Governments have so far not indicated a desire to provide a direct financial incentive, instead focussing on other ways of increasing native forests including the following:

- NZ ETS Yield Tables – considering options relating to methods to ensure that carbon stored in NZ ETS forests is accurately accounted for. This includes developing new yield tables for native species.
- Approaches to lowering the costs of native afforestation – a research programme to explore options to improve survivability, including propagation techniques and the benefits of economies of scale.
- Provision of advice, best-practice sharing and further research – including operational, scientific and innovate solutions and improving our understanding of management interventions that provide measurable increases in carbon stock in existing native forests.
- Barriers to entering indigenous forest into the NZ ETS – for example, examining eligibility criteria of shrub and scrub land as post-1989 forest land.
- System issues – alignment with wider work on pest management and valuing biodiversity.

4.5.2.3 How cost recovery charges could provide financial incentives (if desired)

112. Cost recovery charges currently vary by time. The biodiversity and cultural benefits vary by hour and other factors. There is not a good link between current cost recovery charges and the biodiversity and cultural benefits such that a discount on time would provide an effective incentive.

113. However, the preferred options in this CRIS would see charges set by area for registering forests and adding, though not subtracting, carbon accounting areas. If area charges continue beyond just the interim period, it is plausible that adjusting the area charges to account for biodiversity and cultural benefits could provide a reasonably accurate vehicle by which to provide the financial incentive.

[18] These are positive externalities.

4.5.2.4 Further work would be required

114. Adjusting cost recovery charges is only one option, and may not be the best vehicle. The lack of area charges for subtracting carbon accounting areas means there would be no way of clawing back payments if areas are deforested. Better options could include an increase the value of NZUs for native forests which would clawback incentive payments as NZUs are surrendered.

115. As flagged in chapter 4.5.2.2, further work would be required around who would pay and what the appropriate amount of incentive is.

116. Ultimately, this is a significant issue that, if worth investigating, would require co-ordinated policy work between multiple agencies including, potentially, local government. This is beyond the scope of this cost recovery work to address.

5 Component (I): The amount of time recovered does not match actual time for current cost recovered services

5.1 Status quo

5.1.1 The structure of current charges

117. Current charges typically have a minimum charge and a variable component. Services are charged at the fixed minimum amount if the time taken to provide the service is less than a threshold. If the time taken is above the threshold, then the actual amount of time can be charged.

118. For instance, the threshold for registering a participant in the ETS is 4.25 hours. Any registration that takes 4.25 hours or less is charged for 4.25 hours. A registration that takes more than that would be charged its actual hours, e.g. a registration that takes 10 hours is eligible for a charge of 10 hours.

119. The structure of the current charges is in Figure 5.

Figure 5: Current charges

Service		Current fee	
		Minimum charge	Plus variable charge
(a) Apply to register	Processing application to register as a participant in the ETS with post-1989 forest land.	$488.89	$115.55 per hour in excess of 4.25 hours
(b) Emissions return processing	Emissions returns are used to calculate changes in the carbon stock, including: • at the end of a 5-year mandatory return period • when participants choose to voluntarily claim carbon credits during the 5-year period • when deregistering from ETS or removing forest land • when selling or transferring forest land.	$88.89	$115.55 per hour in excess of 0.75 hours
(c) Travel for purpose of checking that land is post-1989 forest land	MPI staff can be required to travel for certain services.	None	$115.55 per hour plus disbursements at actual costs
(d) Adding one or more Carbon Accounting Areas	An application to add additional Carbon Accounting Areas (CAAs).	$88.89	$115.55 per hour in excess of 0.75 hours
(e) Notification of transmission of interest	Registered participants in the forestry ETS must tell Te Uru Rākau of changes that affect their participation in the scheme, such as sale of their land.	$488.89	$115.55 per hour in excess of 4.25 hours
(f) Emission ruling	Determines whether a forester's activity means legislative requirements apply	$408.70	$102.17 per hour in excess of 4 hours

120. Charges (a) to (e) appear in the Climate Change (Forestry Sector) Regulations 2008. Charge (f) appears in the Climate Change (Emissions Rulings: Fees and Charges) Regulations 2010.

121. The Climate Change (Forestry Sector) Regulations 2008 also list application to 'remove 1 or more carbon accounting areas' but the charge is set at zero.

5.1.2 The purpose of thresholds and minimum charges

122. There will be some level of natural random variability in how long it takes to complete an application[19]. For example, staff productivity may vary day to day, or applicants may not provide slightly different information to that required due to forms not being perfectly clear.

123. It would not be reasonable to charge one participant more than another because, by chance, the applications took different times to complete.

124. On the other hand, some applications take longer to complete than others because of the nature of the particular applications, e.g. they are more complex.

125. The longer an application takes to process, the more likely that is to be as the result of the nature of the application than natural variability. For example, if Application 1 takes 3.5 hours to complete, Application 2 takes 4 hours to complete and Application 3 takes 10 hours to complete, Applications 1 and 2 are relatively more likely to be the result of natural variation than Application 10 which might have been more complex or had significant missing information that required follow-up.

126. The fixed minimum charges are intended to account for natural variability, with thresholds intending to mark where the time spent on an application is likely to be result of differences in the application rather than random variability.

5.2 Problem

127. There are two problems with the status quo. The problems mean that there is under-recovery of variable charges and an over-recovery where services are below the thresholds for variable charges. The overall result is under-recovery.

5.2.1 Perceptions that time recording is costly means MPI does not recover all time spent

128. Except in a small number of cases, MPI has not recovered the cost of time beyond the thresholds.

129. Staff typically work on many applications at any point in time and multiple staff can be involved in the same application. Staff may begin progressing an application and, while seeking input from other staff, work on other applications before picking up the original application again. Compounding this is that there is no system by which applications can be tracked in these situations.

130. These factors make it difficult to meet the cost recovery principles for any individual application. The transparency principle is not sufficiently met because it is difficult to track actual time spent on individual applications. This makes it difficult to establish that costs are reasonable (Justifiability principle) and form a good basis for efficiency (Efficiency principle).

131. If time recording was brought in, a rough estimate based on staff judgement is that it might add around 10% in cost in total across current services. While this is not a small cost, it isn't so high that it's clear that time recording would be inefficient. For comparison, the deadweight loss associated with taxpayer funding is 20%.[20]

132. MPI will investigate time recording further as part of the rollout of the new system. This CRIS considers whether other options are appropriate in the meantime.

5.2.2 The charges with minimums and thresholds are incorrectly set

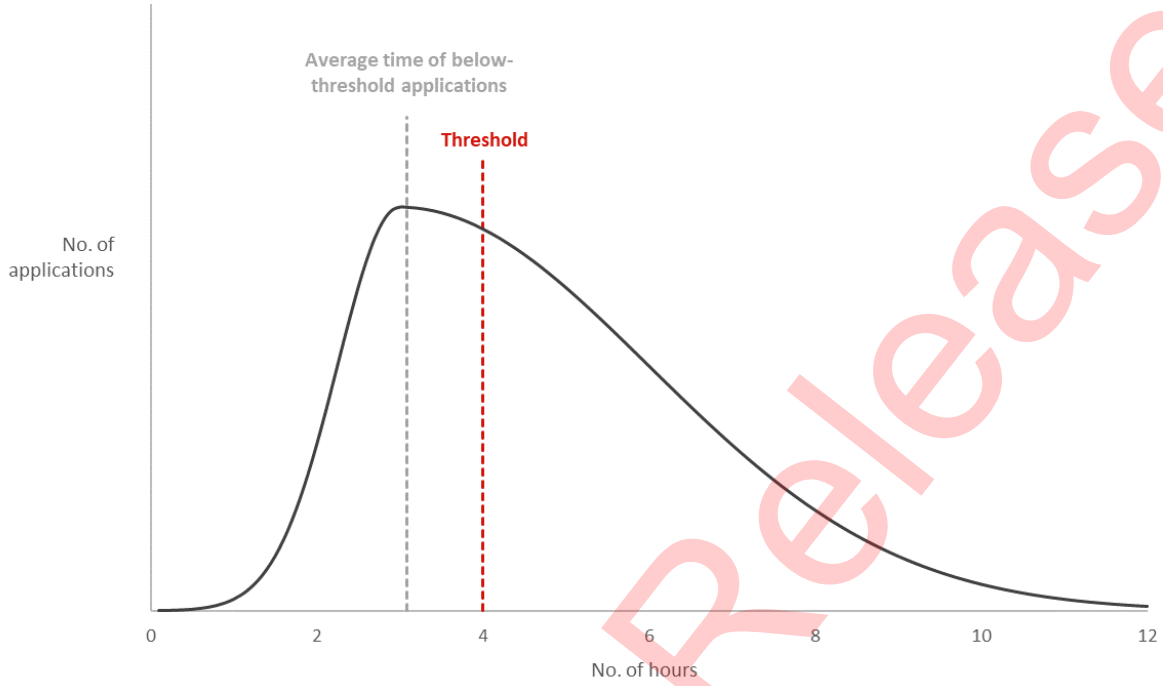
133. Thresholds should be set at a point where the time spent on the application is likely to be the result of differences in the application rather than random variation.

134. The minimum charge should not be the same as the threshold. The average time spent on applications is not the threshold, but the average of the applications below the threshold. Current charges are, however, set at the level of the threshold.[21] Charges will be over-recovering costs from applications below the thresholds.

[19] 'Service' is used to refer to different service types (the 50 services). 'Application' is used here to uses of a particular service. 'Application' is used where the CRIS is talking about participants using the same service. The distinction is to help make clear where we use examples to illustrate differences between participants or situations, rather than differences between services.
[20] https://www.treasury.govt.nz/sites/default/files/2015-07/cba-guide-jul15.pdf, p. 15.
[21] The minimum charge is set at exactly the threshold for service (v). For an unknown reason, the charges are set very slightly different from the thresholds (around $2.50, or around 1 minute of time, less).

135. Figure 6 sketches an illustrative example[22]. The black line shows the number of applications by hours. The threshold is set at 4 hours. In this illustration, the average time spent on below-threshold applications is around 3 hours, not 4. Charging 4 hours would overcharge participants with below-threshold applications.

Figure 6: Illustrative example of minimum charges and thresholds



5.2.3 Why is under- and over-recovery a problem?

136. Those participants with under-recovered costs will demand a higher level of service than is efficient. Charges that are too low will also generally be considered to be inequitable for taxpayers. There is also an inequity from charging only the minimum amounts – participants with lower-time applications are charged disproportionately more than participants with higher-time applications.

137. Those participants with over-recovered costs will demand a lower level of service than is efficient. Charges that are too high will also generally be considered to be inequitable to those being over-charged.

5.2.4 How big is the under- and over-recovery?

5.2.4.1 Total under-recovery

138. MPI has forecasted volumes of applications for services (a), (b), (d), (e), (f) and, in the absence of time recording, estimated the number of hours per application. It hasn't been possible to forecast volumes for service (c) travel.

139. Except in a very few number of instances, time is not recorded and only the minimum amount is charged. Revenue under the status quo is estimated by multiplying the minimum charges by the forecast number of applications. Revenue if all hours were charged is estimated by multiplying the number of applications by the hours per application and by the hourly rate.

140. Overall, around 66% of hours are not cost recovered from services which currently have charges with the under-recovery ranging from 23% for emission returns (service (b)) to 94% for adding one or more carbon accounting areas (service (d)). The total amount not recovered because all hours are not charged for amounts to $880,300 per year between 1 January 2023 and 30 June 2026 with a deadweight loss from taxation of around $176,100 per year.

141. Figure 7 summarises key estimates of the under-recovery which is net of over-recovery.

[22] Not a real example from the current charges.

Figure 7: Average annual under-recovery, 1 January 2023 to 30 June 2026

Service	Estimated current revenue	Estimated revenue if actual hours charged	Amount not recovered		Deadweight loss from taxation
(a) Apply to register	$148,400	$486,500	$338,100	69%	$67,600
(b) Emissions return processing	$261,600	$340,000	$78,500	23%	$15,700
(c) Travel for purpose of checking that land is post-1989 forest land	Not estimated	Not estimated	Not estimated	100%	Not estimated
(d) Adding one or more Carbon Accounting Areas	$15,900	$286,200	$270,300	94%	$54,100
(e) Notification of transmission of interest	$16,900	$131,800	$114,900	87%	$23,000
(f) Emission ruling	$14,600	$93,100	$78,500	84%	$15,700
Total	**$457,400**	**$1,337,600**	**$880,300**	**66%**	**$176,100**

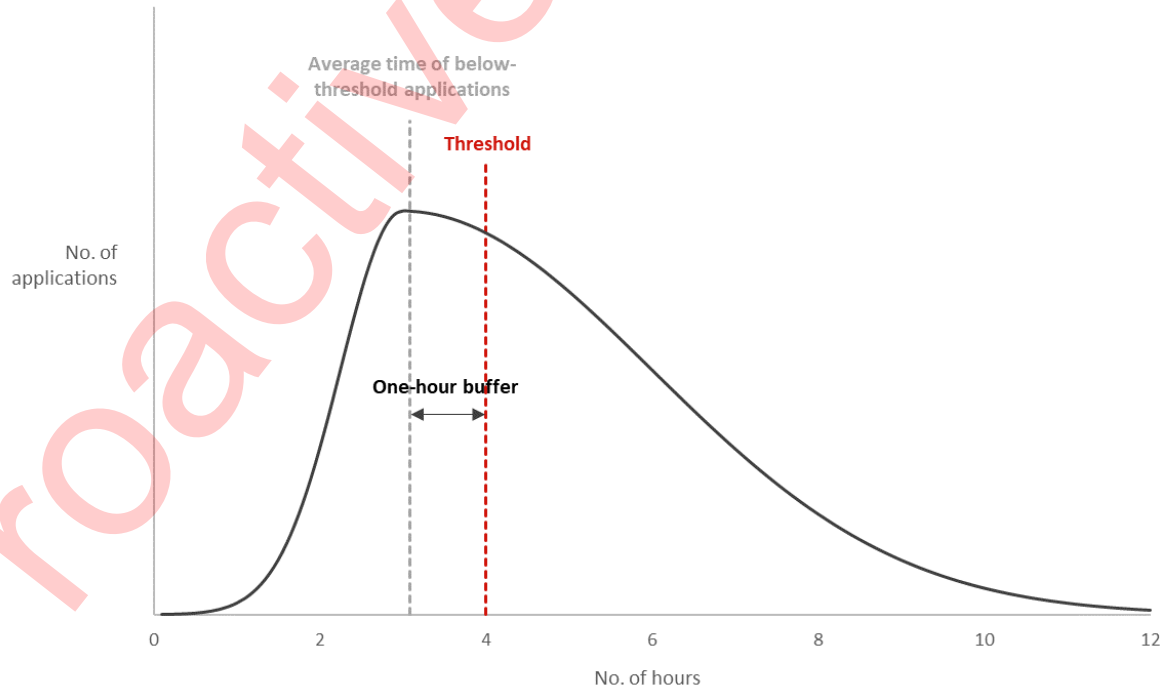
5.2.4.2 Under- and over-recovery at a participant level

142. Without time-recording data, it is not possible to reliably estimate the range of under- and over-recovery at a participant level.

143. With regards to under-recovery, we can only say that any hour above the thresholds is almost never cost recovered and avoids the relative hourly charge ($115.55 for services (a) to (e) and $102.17 for service (f)). For example, a participant with a registration that took 10 hours to complete is charged $488.89 (the minimum charge) rather than $1,155.50 (10 hours at the current hourly rate of $115.55).

144. With regards to over-recovery, the lack of time-recording data means we cannot say how much lower the minimum charge should have been below the threshold. However, from recent proposals introducing minimum charges for food regulations[23], there was a one-hour buffer between the 'typical' time it took to provide services and the threshold beyond which actual time would be charged (Figure 8 illustrates). If a one-hour buffer between the average time and the threshold would also be appropriate for forestry applications, then the participants with low-time applications are being overcharged $115.55 or $102.17 per application depending on the service type.

Figure 8: Illustration with the one-hour buffer identified



[23] https://www.mpi.govt.nz/dmsdocument/48472/direct

5.2.4.3 Impact on demand

145. We have not estimated the degree to which the under- and over-recovery has led to over- or under-demand for services, but it is expected that the impact will be small.

5.3 Options

146. Four options have been identified for each service:

- Option (1): The status quo combinations of minimum charges and time-variable charges
- Option (2): Updated minimum charges and time-variable charges
- Option (3): Fixed charges
- Option (4): Charges that vary by a metric other than time such as forest size or forest type

147. Options (3) and (4) are about moving away from time-based charges to charging on some other basis. These options can potentially reduce both the under- and over recovery.

148. Option (2) keeps time-based charges, but reviews whether the minimum charges and thresholds are set correctly. This option can only potentially address the over-charging problem, and not the under-charging problem that arises from the lack of time-recording.

149. Option (2) is also constrained in that the problem it addresses was identified after consultation started. The problem, option and analysis around the option have not been consulted on. Additionally, as the problem was identified relatively late in the policy process, the time to fully develop it and analyse it has been limited. This means that the thresholds have not been reviewed. Option (2) is limited to adjusting the minimum charge to allow for a buffer between it and the threshold.

5.4 Identifying the most efficient options

5.4.1 How the options have been considered

5.4.1.1 Evidence

150. The lack of time-recording information means that data analysis of the distribution of cost (time) is not possible. Staff judgement has been used instead. While staff judgement will contain error, we consider that there can be reasonable confidence in the judgments for a couple of reasons.

151. First, currently charged services have reasonably high volumes. Staff have handled enough applications to form an understanding of them. Lower volume services would be harder to judge as small numbers make it hard to form a view about the average time to complete an application.

152. Secondly, there has been some validation of staff judgment. Staff were asked to state how long they thought certain services would take to complete, and then to measure the actual time. The actual time closely matched the expected time. This gave confidence that staff judgements about typical time would be accurate across other currently-charged services.

5.4.1.2 Options are considered in sequence

153. If viable[24], Options (3) and (4) can potentially reduce both the under- and over-recovery, Option (2) reduces only the over-recovery, and Option (1) addresses neither. Options (3) or (4) would, therefore, best meet the Efficiency principle, Option (2) would next best meet the Efficiency principle, and Option (1) would least meet the Efficiency principle.

154. With this in mind, we considered first whether Options (3) or (4) would be viable. If not, we considered whether Option (2) would be viable and, if not, preferred Option (1).

[24] If options sufficiently meet the Transparency and Justifiability principles.

5.4.2 Service (a): Apply to register

5.4.2.1 Overall

155. The best approach for this service is Option (4) with tiers based on forest size. This approach best achieves the Efficiency principle. The Justifiability principle is met and, while there were some gaps in consultation, the Transparency principle has been sufficiently met.

5.4.2.2 Efficiency

156. Staff judgement is that the time, and therefore, cost to process applications to register is mainly driven by forest size. As such, Option (4) would better meet the Efficiency principle than Option (3). Forest type was not considered to be a driver of cost.

157. Staff judgement was that the average processing time per application by forest size is:

0 to 49 hectare forests	11 hours
50 to 99 hectare forests	12 hours
100 to 500 hectare forests	16 hours
500+ hectare forests	25 hours

158. Option (4) fully recovers the number of hours spent providing the service. The gain is large as 9.75 more hours will be charged for on average per application (the average application takes 14 hours compared to 4.25 hours charged for currently).

159. The overall reduction in under-recovery is around $338,100 per annum. The associated reduction in deadweight loss from less taxpayer funding is $67,600 per annum.

160. Option (4) generates other efficiencies and inefficiencies relative to the status quo.

161. An efficiency is that tiers by forestry size eliminate the problem of overcharging low-time cost applications due to natural variability in time.

162. An inefficiency arises from the choices and number of tiers**.** For example, the difference in time between a 99 hectare farm and a 100 hectare farm will not actually be four hours. Staff judgement was that these four tiers, rather than more tiers or a formula-based approach[25] to increase precision, best balanced charging participants true costs with administrative simplicity and transparency (understandability).

163. A further inefficiency is that while area is considered to be the main driver of staff time, it is not the only driver. This will result in some under- and over-recovery due to the particular characteristics of the application.[26] A submitter gave this example when expressing a preference for time-variable charges:

> *A small 5ha woodlot planted in 2005 with planting plans and evidence would take much less time than 5ha of indigenous reversion with little information and more historical research to determine eligibility.*

164. Normally, Option (4) would have, relative to the status quo the further advantage of encouraging MPI to provide services in the least time possible and the relative disadvantage of less incentive on participants to provide full information with applications to reduce the time associated with follow-ups from MPI. These advantages and disadvantages largely do not exist here as MPI is not charging the time-variable part of current fees.

165. Overall, Option (4) will fully recover costs as compared to the status quo. Option (4) will not be perfectly Efficiency and Equitable, but the gains of recovering all costs in a reasonably straightforward way are considered to outweigh these inefficiencies. The use of staff judgement carries with it uncertainty, particularly around the tiers. Future reviews of cost recovery settings may identify tweaks to the settings that can improve efficiency further.

5.4.2.1 Transparency

166. The option in paragraph 157 was consulted on with the rationale in paragraph 156 that forest area is the main driver of time to process applications. The consultation document didn't outline the evidence used or discuss some of the smaller efficiency aspects.

[25] A formula would generate a charge based on the exact number of hectares.
[26] If time recording was considered practical in the interim period, charging by time would be more efficient.

167. The consultation document also didn't break down the charge into steps and time so that submitters could test whether the time was reasonable (the amount of time to provide services was a concern of one submitter).

168. Despite these gaps, the consultation document had sufficient information for interested parties to understand the impact of proposed changes, to identify other options and issues and have been identified above. Further information may have affected the precise design of Option (4), but not that a version of Option (4) would be identified as best.

5.4.2.2 Justifiability

169. The lack of time recording and the use of staff judgement means there is uncertainty about the accuracy of the estimated time. We have not identified any reasons why the estimated time is unreasonable and none were identified during consultation, though, as above, this may have been somewhat hampered by the lack of a breakdown of the service into steps and associated time. That MPI has been bearing the cost of this service will, however, have incentivised MPI to be time efficient meaning that there are unlikely to be significant time inefficiencies.

170. Overall, while the proposed charges do not charge exact costs, we consider that the costs they do charge are a good approximation and are, therefore, reasonable.

171. MPI will use normal performance management processes to ensure that staff productivity is reasonable.

5.4.3 Service (b): Emissions return processing

5.4.3.1 Overall

172. The best approach for this service is Option (3) – a fixed charge of one hour. This approach best achieves the Efficiency principle. The Justifiability principle is met and, while there were some gaps in consultation, the Transparency principle has been sufficiently met.

5.4.3.2 Efficiency

173. Staff judgement is that the time, and therefore, cost to process applications to register is fairly constant at around one hour per application. As such, Option (3) would better meet the Efficiency principle than Option (4).

174. Charging a flat one hour rate fully recovers the number of hours spent providing the service. The gain is small per application at only 0.25 more hours, but occurs over a large number of applications.

175. The overall reduction in under-recovery is around $78,500 per annum. The associated reduction in deadweight loss from less taxpayer funding is $15,700 per annum.

176. Normally, Option (3) would have, relative to the status quo the further advantage of encouraging MPI to provide services in the least time possible and the relative disadvantage of less incentive on participants to provide full information with applications to reduce the time associated with follow-ups from MPI. These advantages and disadvantages largely do not exist here as MPI is not charging the time-variable part of current fees.

177. Overall, Option (3) will fully recover costs as compared to the status quo. The use of staff judgement in the one hour rate carries uncertainty. Future reviews of cost recovery settings may identify tweaks to the settings that can improve efficiency further.

5.4.3.1 Transparency

178. The option in paragraph 174 was consulted on along with the rationale that one hour was the average time for this service. The consultation document didn't outline the evidence used.

179. The consultation document also didn't break down the charge into steps and time so that submitters could test whether the time was reasonable (the amount of time to provide services was a concern of one submitter).

180. Despite these gaps, the consultation document had sufficient information for interested parties to understand the impact of proposed changes, to identify other options and issues. Further information is unlikely to have substantially affected submissions and the preferred option.

5.4.3.2 Justifiability

181. The lack of time recording and the use of staff judgement means there is uncertainty about the accuracy of the estimated time. We have not identified any reasons why the estimated time is unreasonable and none were identified during consultation, though, as above, this may have been somewhat hampered by the lack of a breakdown of the service into steps and associated time. That MPI has been bearing the cost of this service will, however, have incentivised MPI to be time efficient meaning that there are unlikely to be significant time inefficiencies.

182. MPI will use normal performance management processes to ensure that staff productivity is reasonable.

5.4.4 Service (c): Travel for purpose of checking that land is post-1989 forest land

5.4.4.1 Overall

183. The best approach for this service is the status quo. No other option sufficiently meets the cost recovery principles. A further review of this service and charge may take place as part of Tranche 2.

5.4.4.2 Transparency, Justifiability and Efficiency

184. Staff judgement is that travel time varies considerably from application to application and cannot be reasonably and transparently linked to any other metric such as forest size or forest type. As such, neither Option (3) nor Option (4) are appropriate under any of the cost recovery principles.

185. With regards to Option (2), there is currently no minimum charge. In the absence of time recording, a minimum charge might be more efficient[27] than effectively no charge under the status quo if a minimum charge could be properly established (e.g. all forests are at least 'X' hours distance away). We have not investigated this within the time constraints for this tranche meaning Option (2) does not sufficiently meet the cost recovery principles.

186. The status quo is the only option remaining.

5.4.5 Service (d): Adding one or more carbon accounting areas

5.4.5.1 Overall

187. The tasks required for this service are similar to service (a) apply to register. The analysis is the same as for service (a) except that the size of the efficiency gain will be larger due to a greater degree of under-recovery currently.[28] Other than the summary below, the analysis is not duplicated.

188. The best approach for this service is Option (4) with tiers based one forest size. This approach best achieves the Efficiency principle. The Justifiability principle is sufficiently met and, while there were some gaps in consultation, the Transparency principle has been sufficiently met.

189. The overall reduction in under-recovery is around $270,300 per annum. The associated reduction in deadweight loss from less taxpayer funding is $54,100 per annum.

5.4.6 Service (e): Notification of transmission of interest

5.4.6.1 Overall

190. The analysis is the same for service (a) except that the size of the efficiency gain will be larger due to a greater degree of under-recovery currently.[29] Other than the summary below, the analysis is not duplicated.

191. The best approach for this service is Option (3) – a fixed charge of six hours. This approach best achieves the Efficiency principle. The Justifiability principle is sufficiently met and, while there were some gaps in consultation, the Transparency principle has been sufficiently met.

192. The overall reduction in under-recovery is around $114,900 per annum. The associated reduction in deadweight loss from less taxpayer funding is $23,000 per annum.

[27] Though perhaps less equitable as participants would be charged the same amount no matter the travel distance.
[28] 13.25 more hours charged for on average application compared to 9.75 more hours for service (i).
[29] 13.25 more hours charged for on average compared to 9.75 more hours for service (i).

5.4.7 Service (f): Emission ruling

5.4.7.1 Overall

193. The best approach for this service is Option (2). The status quo will involve over-charging some participants due to a lack of a buffer between the minimum charge and the time-variable component. In the absence of other information, we assume that the time-variable threshold was appropriately set and that there should be a buffer of one hour. The effect of this is to reduce the minimum charge from four hours to three hours.

5.4.7.2 Justifiability and Efficiency

194. The actual time to provide this service is estimated at around 25.5 hours compared to the current minimum actually charged of 4 hours. Due to time constraints, however, this service has not been reviewed as to whether a fixed or tiered charge would be appropriate. This eliminates Options (3) and (4).

195. With regards to the choice of Option (2) and the status quo, there is currently a minimum charge and it is set at the same point at which the time-variable component starts. As in chapter 5.2.2, this means either the time-variable threshold is set too low or the minimum charge is set too high. Absent any other information, the most likely explanation is that the threshold was set at the right point and that an error was made in not identifying that the minimum charge should be set lower than the threshold.

196. The recovery of costs up to the current four hour threshold is not reasonable and, thus, does not sufficiently meet the Justifiability principle. The over-recovery is also an economic inefficiency.

197. The question then becomes what an appropriate threshold is. In the absence of time-recording data or reliable staff judgement, the next best indicator is the one-hour buffer used for the recent food regulation changes (see chapter 5.2.4.2).

198. Option (2) reduces the minimum charge from four hours to three hours.

199. The overall reduction in over-recovery is around $3,600 per annum. The reduction is, however, met by an increase in taxpayer funding with an associated increase in deadweight loss of $700 per annum.

5.4.7.3 Transparency and Justifiability

200. Other than a mention that emission rulings have a charge in regulations, this service was not discussed in the consultation document. The problem around the minimum charge and threshold was not identified at the time of consultation.

201. While the problem, options and analysis were not consulted on, the option reduces cost recovery to a level that is justified on the best available information and has a greater level of transparency than the status quo.

5.5 Preferred options

202. The status quo and preferred options to meet the Transparency, Justifiability and Efficiency principles for services (a) to (f) are summarised in Figure 9:

Figure 9: Status quo vs preferred option

Service	Status quo		Preferred option		
	In regulation	In practice	In regulation and practice		
(a) Apply to register	Minimum of 4.25 hours Variable above that	4.25 hours	Option (4)	0 to 49 ha: 50 to 99 ha: 100 to 500 ha: 500+ ha:	11 hours 12 hours 16 hours 25 hours
(b) Emissions return processing	Minimum of 0.75 hours Variable above that	0.75 hours	Option (3)	1 hour	
(c) Travel for purpose of checking that land is post-1989 forest land	Fully variable	0.00 hours	Status quo		
(d) Adding one or more Carbon Accounting Areas	Minimum of 0.75 hours Variable above that	0.75 hours	Option (4)	0 to 49 ha: 50 to 99 ha: 100 to 500 ha:	11 hours 12 hours 16 hours

				500+ ha: 25 hours
(e) Notification of transmission of interest	Minimum of 0.75 hours Variable above that	0.75 hours	Option (3)	6 hours
(f) Emission ruling	Minimum of 4.00 hours Variable above that	4.00 hours	Option (2):	Minimum of 3 hours Variable above that (which will currently not be charged in practice)

5.6 Summary of the impact on the problem

203. The overall impact of the preferred options is to increase cost recovery by $0.92 million per annum (75%) from $0.53 million to $1.44 million. This reduces the under-recovery of hours for services which currently have charges from 66% to 6%[30] and deadweight loss from taxation for these services from $202,500 to $18,900.

204. The preferred options fully address the under-recovery due to fewer hours than actual spent for four of the six services. There is no change for service (c), and the amount recovered for service (4) decreases.

Figure 10: Summary of the impact on the problem

Service	Estimated revenue			Estimated under-recovery				Deadweight loss from taxation	
	Status quo	Preferred option	Actual hours charged	Status quo		Preferred option		Status quo	Preferred option
(a) Apply to register	$148,400	$486,500	$486,500	$338,100	69%	$0	0%	$67,600	$0
(b) Emissions return processing	$261,600	$340,000	$340,000	$78,500	23%	$0	0%	$15,700	$0
(iii) Travel for purpose of checking that land is post-1989 forest land	Not estimated	Not estimated	Not estimated	Not estimated	100%	Not estimated	100%	Not estimated	Not estimated
(iv) Adding one or more Carbon Accounting Areas	$15,900	$286,200	$286,200	$270,300	94%	$0	0%	$54,100	$0
(v) Notification of transmission of interest	$16,900	$131,800	$131,800	$114,900	87%	$0	0%	$23,000	$0
(vi) Emission ruling	$14,600	$10,900	$93,100	$78,500	84%	$82,100	88%	$15,700	$16,400
Total	**$457,400**	**$1,255,500**	**$1,334,000**	**$876,600**	**66%**	**$82,100**	**6%**	**$176,100**	**$16,400**

5.7 Consultation

205. One submission (out of five in total) commented specifically about component (I). The submitter expressed a preference for time-variable charges rather than fixed or tiered charges on the grounds that tiered charges will result in over- (and under-) charging in some situations. We agree that this is an inefficiency of fixed and tiered charges, but that it is outweighed by efficiency gains of the preferred options in the interim period.

206. This submission is incorporated in the analysis in chapters 5.4.2.2 and 5.4.2.1.

207. More general submissions on the overall preferred approach can be found in chapter 8.

[30] These percentages exclude travel for which there is no estimate of the current amount of under-recovery.

5.8 Conclusion, monitoring and review

208. There is significant under-recovery of time under current charges. Preferred options are to:

    - address the under-recovery of four service through fixed and tiered charges where these sufficiently meet the cost recovery principles for the interim period until the new system rolls-out
    - make no change where no option other the status quo sufficiently meets the cost recovery principles
    - make one change to reduce the amount of cost recovery where particular participants are likely being over-charged.

209. The lack of time recording is the primary driver of problems. While it's possible that time recording is more difficult and costly than for other MPI regulatory systems, it is not clear that the cost of time recording means under-recovering services, or using fixed or tiered charges, is the best approach other than in the interim period. The feasibility and cost of time recording and time-variable charges will be investigated as part of the roll out of the new system. Cost recovery settings for these services may change again during the roll-out.

210. While changes have only been made where the cost recovery principles are sufficiently met for this interim period, it may be that the cost recovery principles can be better met with further review and changes over time. It is possible that there will be tweaks to the cost recovery settings if new information emerges.

6 Component (II): Range of services cost recovered

6.1 Status quo

211. MPI categorises effort against around 50 services. The full list is attached as Appendix 2.

212. Of these, only six have some level of cost recovery. These six are addressed in chapter 5.

6.2 Problem

6.2.1 The nature of the problem

213. Forty-six services without cost recovery are contributing to the forestry ETS deficit. Deficits are an efficiency problem. Free services will result in a higher level of demand for services than is efficient. Free services for participants paid for by taxpayers will also generally be viewed as inequitable.

6.2.2 The size of the problem

214. At the current hourly rate of $115.55, the unrecovery of time from the 46 services is contributing around $7.8 million per year to the $11.8 million per year deficit.[31]

215. The impact of unrecovery on demand for, and supply of, services (and the degree to which the preferred options address this impact) has not been estimated.

216. The deadweight loss from taxpayers funding the deficit is around $1.6 million per year.

6.3 Options

217. The options are essentially the same as for chapter 5:

- Status quo: No cost recovery
- Charge based on time, with minimum charges where appropriate
- Fixed charges
- Charges that vary by a metric other than time such as forest size or forest type.

6.4 Identifying the most efficient options

6.4.1 How the options have been considered

218. The evidence (staff judgment) and method (considering the most efficient options first) of analysing the options is also broadly the same as for chapter 5.

6.4.2 How services were prioritised for analysis

219. Time has also been a constraint here – the rollout of the new system means there has been limited time and resource to fully analyse all services.

220. MPI triaged services[32] by whether the service had stable cost drivers and a strong ability to forecast volumes.

221. These criteria helped identify services where setting a charge could be justified – services where MPI knows what skills are required to provide the service and has confidence that staff will have enough work for productivity to be high.

[31] Estimated by adjusting the full cost recovery amount of $11.8 million down by 30% to account for differences in the hourly rate at full recovery of $165 (see chapter 7) and the current hourly rate of $115.55, and subtracting the
recovered from currently charged services. As noted in the agency disclosure statement, this estimate is approximate because there are two methods of estimating costs which are used in this calculation and which have not been reconciled. This estimate also has not been adjusted to account for changes coming in halfway through the 2022/23 financial year

[32] With a large number of services and time constraints, the above criteria were not applied thoroughly, but to quickly identify potential services.

222. Time constraints also meant MPI focussed on identifying services which would make a more-than-minor contribution to reducing the deficit. This included:

- services with a more-than-minor volume of applications and time per application, and
- with time recording issues limiting how much could be recovered through time-based charges, services where it was suspected that the time spent on applications is fairly stable from application to application (in which case full recovery of time using Option (3) would be preferred) or that time could be reliably tied to some other metric like forest size or forest type (in which case full recovery of time using Option (4) would be preferred).

223. The services progressed to the point of complete analysis are:

(g) removing a carbon accounting area (whole)

(h) removing a carbon accounting area (part)

(i) request for forest carbon stock table[33].

224. The 43 other services could not, in the time available, be analysed to the point where the cost recovery principles could be sufficiently met.

6.4.3 Assessment of the three services against the cost recovery principles

6.4.3.1 Overall

225. The best approach is a fixed change for each of the three services. These approaches best achieve the Efficiency principle. The Justifiability principle is met and, while there were some gaps in consultation, the Transparency principle has been sufficiently met.

226. The summary of the analysis is presented together as the analysis is broadly the same across the three services.

6.4.3.2 Efficiency

227. Staff judgement is that the time, and therefore, cost to process applications is fairly constant for each of the three services at:

- 3 hours for service (g)
- 6.5 hours for service (h)
- 12 hours for service (i)

228. As such, Option (3) would better meet the Efficiency principle than Option (4). Option (4) was given more consideration for carbon stock tables but, while the output varies by forest type, the work to complete the table does not vary much by forest type.

229. The flat rates fully recover the number of hours spent providing the services. The overall reduction in under-recovery is around $200,300 per annum. The associated reduction in deadweight loss from less taxpayer funding is $40,100 per annum.

6.4.3.1 Transparency

230. The fixed charges were consulted on along with the rationale that one hour was the average time for this service. The consultation document didn't outline the evidence used.

231. The consultation document also didn't break down the charge into steps and time so that submitters could test whether the time was reasonable (the amount of time to provide services was a concern of one submitter).

232. Despite these gaps, the consultation document had sufficient information for interested parties to understand the impact of proposed changes, to identify other options and issues. Further information is unlikely to have substantially affected submissions and the preferred options.

[33] Participants with more than 100ha of forest land in the ETS must use the Field Measurement Approach (FMA) to calculate their forest's carbon stock. The use of participant-specific forest carbon stock tables is required to calculate forest carbon stocks for FMA participants.

6.4.3.2 Justifiability

233. The lack of time recording and the use of staff judgement means there is uncertainty about the accuracy of the estimated time. We have not identified any reasons why the estimated time is unreasonable and none were identified during consultation though, as above, this may have been somewhat hampered by the lack of a breakdown of the service into steps and associated time. That MPI has been bearing the cost of this service will, however, have incentivised MPI to be time efficient meaning that there are unlikely to be significant time inefficiencies.

234. MPI will use normal performance management processes to ensure that staff productivity is reasonable.

6.5 Preferred options and summary of the impact on the problem

235. Figure 11 summarises the preferred options for meeting the Transparency, Justifiability and Efficiency principles, along with the impact on the problem.

236. The overall reduction in under-recovery is around $200,300 per annum. The associated reduction in deadweight loss from less taxpayer funding is $40,100 per annum. While costs are fully recovered for the three services, the other 43 services remain unrecovered at about $7.9 million per year and an associated deadweight loss of taxation of $1.6 million per year.

Figure 11: Preferred options and summary of the impact on the problem

Service	Preferred option	Increase in cost recovery	Reduction in deadweight loss from taxation
(vii) Removing a carbon accounting area (whole)	Fixed charge of 3 hours per application	$27,200	$5,400
(viii) Removing a carbon accounting area (part)	Fixed charge of 6.5 hours per application	$22,500	$4,500
(ix) Request for forest carbon stock table	Fixed charge of 12 hours per application	$150,500	$30,100
Total		**$200,300**	**$40,100**

6.6 Consultation

237. No submissions commented specifically about component (II). More general submissions on the overall preferred approach can be found in chapter 8.

6.7 Conclusion, monitoring and review

238. There are 46 services for which there is currently no cost recovery. Time constraints have heavily limited how many of these could be investigated for cost recovery in the interim period. Three services were investigated to the point where we are satisfied the Transparency, Justifiability and Efficiency principles are sufficiently met. The preferred approach for these services involves fixed charges equivalent to:

- 3 hours for removing a carbon accounting area (whole)
- 6.5 hours for removing a carbon accounting area (part)
- 12 hours for a request for forest carbon stock table.

239. The lack of time recording means time-variable charges are not feasible. While we consider that fixed charges are reasonable for the above services, the use of staff judgement means there is uncertainty.

240. As discussed in chapter 5.2.1, while it's possible that time recording is more difficult and costly than for other MPI regulatory systems, it is not clear that the cost of time recording means fixed charges are the best approach other than in the interim period. The feasibility and cost of time recording and time-variable charges will be investigated as part of the roll out of the new system. Cost recovery settings for these services may change again during the roll-out.

241. While changes have only been made where the cost recovery principles are sufficiently met for this interim period, it may be that the cost recovery principles can be better met with further review and changes over time. It is possible that there will be tweaks to the cost recovery settings if new information emerges.

7 Component (III): Hourly rate

242. Components (I) and (II) were about the amount of time that is charged for. Component (c) is about the cost per hour of time that underpins variable, fixed and tiered charges.

7.1 Status quo

243. The current hourly rates are:

- $115.55 for services (a) to (e) which appear in the Climate Change (Forestry Sector) Regulations 2008, and
- $102.17 for service (f) which appears in the Climate Change (Emissions Rulings: Fees and Charges) Regulations 2010.

7.2 Problem

7.2.1 The nature of the problem

244. The cost of MPI providing the services is $165.00 per hour. The current hourly rate is lower than the cost by 30% for services (a) to (e) and 38% for service (f).

245. The difference is contributing to the deficit. Deficits are an efficiency problem – either charges are too low for the desired level of service, or the level of service or costs are too high. Charges that are too low will result in a higher level of demand for services than is efficient and either more services being provided than is efficient or participants waiting longer for services to be provided than if full costs were charged.

7.2.2 The size of the problem

246. The difference between the regulated hourly rates and the actual hourly rate is contributing the following estimated amounts to the deficit in the following scenarios:

- $188,900 at the status quo number of hours recovered, with a deadweight loss from taxpayer funding of $37,800.
- $539,400 if the preferred options in component (I) are adopted, with a deadweight loss from taxpayer funding of $107,900.
- $625,100 if the preferred options in component (I) and (II) are adopted, with a deadweight loss from taxpayer funding of $125,000.

247. The impact of unrecovery on demand for, and supply of, services (and the degree to which the preferred options address this impact) has not been estimated.

7.2.3 The causes of the problem

248. Potential causes of the problem include inflation in the costs of staff time and other inputs, higher quality inputs than are necessary, and decreases in productivity.

249. As MPI has been bearing the financial risk around deficits, higher quality inputs than are necessary and decreases in productivity are unlikely to be significant factors.

250. Cost inflation is likely to be the cause of the difference between the $115.55 hourly rate and the $165.00 hourly rate, however, this hasn't been able to been conclusively demonstrated using data within the time constraints.

251. Using an MPI cost index, which measures inflation in the cost of inputs used by MPI as a whole, $115.55 in quarter 2 of 2011 is $140.61 in quarter 2 of 2022 (an annual inflation rate of 1.8%).[34] The $165 is $24.39 (17.3%) higher.

252. A likely contributor is higher inflation in salaries for staff needed to run the ETS, compared to staff within MPI as a whole but data to examine this staff view has not been able to be generated within time constraints.

[34] The MPI cost index is made up of the labour cost index and the producers price index for the Central Government Administration, Defence and Public Safety sector weighted by the amount of money MPI spends on labour versus other inputs. The MPI cost index will be a better indicator of cost inflation in MPI services than the consumers price index as the latter is about products consumers buy which MPI typically does not.

253. Overall, however, the $165 per hour rate is not dissimilar from hourly rates in other MPI services, which include $155 for technical specialists under the Biosecurity (Costs) Regulations 2010 and $155 for staff time under the Food (Fees and Charges) Regulations 2015, and when we consider that forestry ETS services have higher depreciations costs that other MPI services.

254. There is more uncertainty for service (f) and the difference between the $102.17 rate and the $115.55 rate. How the $102.17 rate was calculated is known, but if depreciation costs were not included because the IT system was run by MPI rather than the Environmental Protection Agency, then this might explain much of the difference.

Figure 12: Cost components of services

Component	Share of costs
Personnel	51%
Contracts	9%
IT costs	2%
Depreciation	21%
Other costs	3%
Overheads	14%

7.3 Options

255. The options for each service are:

- Option (1): The status quo rates of $115.55 per hour or $102.17 per hour depending on the service
- Option (2): $165.00 per hour

7.4 Identifying the most efficient options

7.4.1 Transparency and Justifiability

256. Option (2) sufficiently meets the Transparency and Justifiability principles for all services.

257. On Justifiability, cost inflation around staff time is likely to be the main driver of the increase in the hourly rate. There are unlikely to be significant inefficiencies from higher quality inputs than needed or declining productivity as MPI has been bearing the financial costs of deficits for many years. Additionally, the $165 rate is not dissimilar from hourly rates for MPI services for other sectors.

258. This analysis against the Justifiability principle was not provided in the consultation document, however, as the consultation document included incorrect status quo charges. The consultation document provided GST-inclusive rather than GST-exclusive charges for the status quo and then compared them to the GST-exclusive $165 rate.

259. This was a genuine error, but caused incorrect analysis in the consultation document suggesting that the increase in the rate was in line with the MPI cost index.

260. It is possible that submissions would have been made testing our now corrected analysis if the error had not been made. The $165 rate was, however, consulted on and the consultation document was clear that the $165 was GST-exclusive.

261. Service (f) was not included in the consultation document due to the service being overlooked for review. The rationale for updating its rate is the same and not listing it is unlikely to have significantly affected feedback on whether the base rate should be $165.

262. Overall, while not perfectly met, we consider that the Transparency principle has been met.

7.4.2 Efficiency

263. The $165 rate under Option (2) would fully recover MPI's costs per hour and address this component of the under-recovery. Option (2) meets the Efficiency principle. But continuing to under-recover costs, Option (1) does not meet the Efficiency principle.

7.5 Preferred options and summary of the impact on the problem

264. Option (2):

- at the status quo number of hours recovered, increases cost recovery by $188,900 and reduces deadweight loss from taxpayer funding by $37,800
- if the preferred options in chapter 5 are adopted, increases cost recovery by $539,400 and reduces deadweight loss from taxpayer funding by $107,900
- if the preferred options in chapters 5 and 6 are adopted, increases cost recovery by $625,100 and reduces deadweight loss from taxpayer funding by $125,000.

7.6 Consultation

265. No submissions commented specifically about component (III). More general submissions on the overall preferred approach can be found in chapter 8.

7.7 Conclusion

266. Increasing the hourly rate to $165 (Option (2)) sufficiently meets the Transparency and Justifiability principles and best meets the Efficiency principle.

7.8 Monitoring and review

267. MPI monitors the financial performance of all cost recovered systems it administers on an ongoing basis throughout the year. Notwithstanding the time between cost recovery reviews for the forestry ETS, MPI generally undertakes a thorough review of each cost recovery regime at least once every three years. This ensures that cost recovery regulatory settings remain appropriate. Reviews consider both cost recovery policy settings (who should pay for services, and how) and the rates of fees and levies.

268. Fees and levies may also be updated outside this review cycle if a material surplus or deficit accumulates in a memorandum account. MPI aims to set fees and levies at levels that ensure memorandum accounts trend towards zero over a three-year period.

269. The hourly rate is likely to need to be reviewed again as the new system rolls out.

8 Preferred approach and overall impacts

270. This chapter brings together the options from chapters 5 to 7 that best meet the Efficiency principle into an overall approach along with the overall financial, economic and climate impact.

271. This chapter then considers submitters general feedback on the overall approach and whether there are any reasons, particularly around the Equity principle, to depart from the most efficient approach.

8.1 Preferred approach to best meet the Efficiency principle

272. The overall preferred approach for the interim period before the new system rolls out is summarised below and in Figure 26 on page 52:

Component (I): Time recovered from currently charged services

- Most services that currently have some cost recovery would move from time-variable charges to fixed or tiered charges.
- Services (a), (b), (d) on and (e) would move from time-variable charges to fixed or tiered charges.
- Services (c) would remain time variable as fixed and tiered charges were assessed as not sufficiently meeting the Transparency, Justifiability and Efficiency principles
- Service (f) would remain time variable as time constraints prevented a full assessment into whether fixed or tiered charges could meet the Transparency, Justifiability and Efficiency principles. A reduction in the minimum number of hours that can be charged addresses likely over-recovery from some participants.

Component (II): Range of services cost recovered

- Three services without previous cost recovery would have new fixed charges.
- Forty-three other services remain without any cost recovery as time constraints prevented a full assessment into whether fixed or tiered charges could meet the Transparency, Justifiability and Efficiency principles.

Component (III): Hourly rate

- The base hourly rate which underpins charges would increase from $115.55 per hour (or $102.17 per hour in the case of service (f)) to $165 per hour.

8.2 The Transparency, Justifiability and Efficiency principles

273. Chapters 5 to 7 set out why these options are preferred when considering the Transparency, Justifiability and Efficiency principles.

274. In addition to the specific option-by-option analysis and submitter feedback in chapters 5 to 7, Figure 13 summarises and addresses submitter feedback at a more general level that is relevant to these three principles. Most feedback was about matters related to the Equity principle and is covered in chapter 8.4.

Figure 13: Consultation feedback

Submitter comment	Relevant cost recovery principles	MPI response
A preference for time-variable charges rather than fixed or tiered charges on the grounds that tiered charges will result in over- (and under-) charging in some situations	Justifiability Efficiency	We agree that this is an inefficiency of fixed and tiered charges, but consider that it is outweighed by efficiency gains of the preferred options in the interim period. The potential for time recording will be the subject of further review including as part of Tranche 2. This submission is incorporated in the analysis in chapters 5.4.2.2 and 5.4.2.1.
Concern that the current forestry ETS system isn't efficient and that, with better IT, the costs would be lower, particularly for small applications	Justifiability Efficiency	We agree that the forestry ETS system could be more efficient. This is the subject of Tranche 2. Our commitment to exploring more efficient ways of implementing the forestry ETS means, in our view, that it is reasonable to recover current costs (where appropriate). If we were not exploring a more

A preference that the Government absorb the costs until a new system can replace it		efficient system, then it could be that we weren't sufficiently meeting the Justifiability and Efficiency principles.
Government is a beneficiary of demonstrating climate commitments, and other people around the world benefit from New Zealand's emission reductions	Efficiency	We disagree with this. These are benefits, but they are benefits that arise from the setting of carbon budgets and an ETS cap that declines over time. The Government and people would not gain any further benefit by subsidising participation in the forestry ETS as emission reductions are guaranteed by the carbon budgets and declining ETS cap.
Higher cost recovery will reduce the economic value of native forests more than exotic forests and, with it, biodiversity and other value loss	Efficiency	We agree that this is an impact, but it one beyond the scope of this work to address. We have included discussion of this in chapter 4.5 so that Ministers can consider it further.

8.3 Overall impacts

275. This chapter analyses the impacts of the preferred approach in chapter 8.1 to best meet the Efficiency principle. There is impact analysis of further options in chapter 8.4 which may better achieve different views of Equity.

8.3.1 Financial impact

276. The overall financial impact is to increase cost recovery from by $1.6 million per annum from around $0.5 million per annum to around $2.1 million per annum. Appendix 3 breaks this down into components (I) to (III).

277. The proposals will increase costs to foresters by about 350%. While this is a big increase in percentage terms, it is from a low starting point. The preferred approach would see the proportion of recoverable costs that are actually recovered increase from around 4.0% to around 17.5%.

8.3.2 Reduction in deadweight loss

278. The reduction in taxpayer funding reduces the deadweight loss associated with distorted decisions about how much to work, save and invest. In line with Treasury guidance, deadweight loss is assumed to be 20% of the amount of taxpayer funding. By reducing the amount of taxpayer funding by $1.6 million per annum, the preferred approach reduces deadweight loss by $0.3 million per annum. Appendix 4 breaks this down into components (I) to (III).

8.3.3 Economic and climate impacts

8.3.3.1 Requirement for a climate implications of policy assessment

279. For forestry-related proposals, a climate implications of policy assessment (CIPA) is required where the impact on emissions is likely to be equal to or above 3 million tonnes over a 30 year period. Preliminary analysis of the impact of increased cost recovery on forestry value suggested that the threshold would likely not be met and, so, was not included in the consultation document. An analysis has nevertheless been undertaken for the final analysis to help inform Government decisions.

8.3.3.2 The counterfactual

280. As covered in chapter 4.1.1, increasing surety of funding can increase the amount of service provided while increasing costs to foresters decreases the amount of service they demand. Proper cost recovery would see the amount of service demanded and supplied match.

281. If there is uncertainty about whether Government will fully fund services, then under-provision of services will result and, along with that, less afforestation and higher emissions[35]. In this scenario, proper cost recovery increases afforestation and decreases emissions. The increase in afforestation happens even though the

[35] 'Higher emissions' is shorthand here. Emissions are capped under the ETS, so New Zealand's total emissions will be unchanged whatever happens with cost recovery around the forestry ETS, but less afforestation means less supply of NZUs from forestry. With less afforestation, more emission reductions must come from other, more costly, sources to remain under the cap.

increase in cost recovery decreases the amount of service demanded as the amount of service demanded is higher than the amount supplied when costs are under-recovered.

282. If the Government fully funds services, then increasing the costs of services will decrease the amount of services demanded and the amount of afforestation over time. So long as charges are set to only recover costs, the decrease is economically efficient, but there is a decrease nevertheless.

283. The second of these two scenarios seems more likely – that if services are not cost recovered, that the Government will provide the $1.6 per annum. This scenario is used for the economic and climate analysis that follows.

8.3.3.3 The overall method

284. The analysis estimates the level of afforestation at expected NZU prices and estimates how much afforestation would decrease due to the increase in cost recovery.

8.3.3.4 NZU prices

285. For the path of the NZU price, we have used the paths prescribed by Treasury[36]. These paths come with a significant caveat: These paths come from the Climate Change Commission modelling (increasing to $140 in 2030 and $250 in 2050), but these prices apply only to the energy and transport sectors in the Climate Change Commission's scenarios with afforestation assumed separately. With afforestation levels set by assumption rather than being allowed to increase when the carbon price increases, sequestration from forestry is less than it would be otherwise and the more other sectors need to reduce emissions. The reduced supply of NZUs means that the NZU price will be higher in these paths than if afforestation was unrestricted.

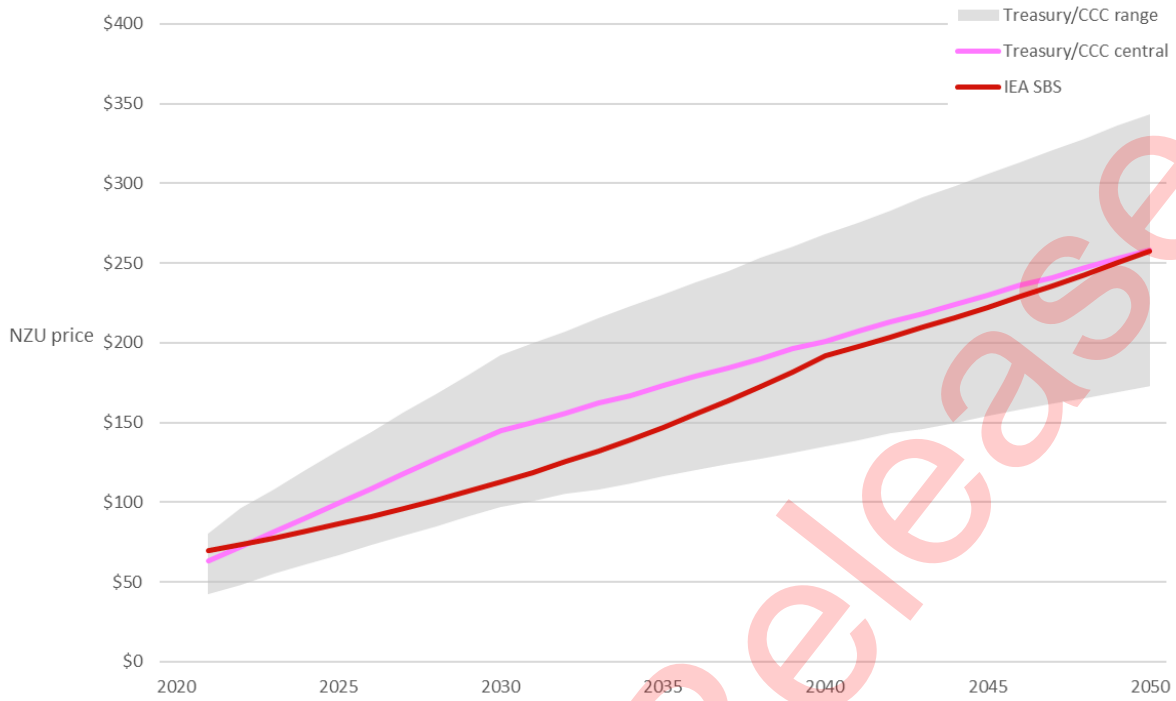
286. Another way of thinking about this issue is that this chapter will be modelling afforestation in response to NZU prices from a study where afforestation is limited by design. This creates a significant inconsistency between the Commission's modelling and this CRIS.

287. With this in mind, we tried to find other forecasts. The Productivity Commission's modelling has a range of scenarios, but only one of those had the NZU price at the current $80 level by even 2030. However, one set of estimates which appears in the Productivity Commission's data release, though not the published report, does appear to be close. The International Energy Agency's Sustainable Development Scenario forecast has a price of $86 in 2025 growing by 5.5% annually to 2040 and 3.3.% beyond that. Backwards forecasting from 2025 to 2022 at 5.5% annual growth shows the price would have been $74 in 2022 (which it has been).

288. In addition to Treasury's paths, we use the International Energy Agency's price path.

[36] https://www.treasury.govt.nz/sites/default/files/2021-09/cbax-guide-sep21.pdf

Figure 14: Assumed NZU prices



8.3.3.5 Reduction in afforestation, and decrease in sequestration / increase in emissions

Afforestation response to prices

289. We have based the afforestation response to different prices on the MPI Technical Paper *Afforestation Economic Modelling*[37] from 2022.

290. The Technical paper has three sets estimates of afforestation by NZU price in its Figure 3 on page 7. In the paper, afforestation varies by several factors with the key one for the purposes of this analysis being recent NZU prices.[38] The Technical Paper says 'given the level of extrapolation, the model estimates need to be used with caution'. The model estimates are used here as the best available evidence.

291. The paper sets out the formula used for its figure, but some values for the formula are missing. The missing values were estimated by identifying points on the chart (combinations of NZU price and afforestation), using the points to create versions of the formula, and solving the versions simultaneously to generate the missing values. These calculations will not exactly match the values in formula used in the paper, but the resulting complete formula generates afforestation rate estimates that match the figure well.

292. The rate of afforestation in the paper is between 75,000 and 109,000 hectares per year at a NZU price of $80. This is higher than Productivity Commission modelling[39] which estimated afforestation of between 55,000 and 70,000 hectares depending on the policy scenario[40]. A fourth set of the Technical Paper's estimates was generated with afforestation at the midpoint of the Productivity Commission's range at the $80 NZU price.

293. This chapter uses the lowest two paths of afforestation in the Technical Paper and the fourth, generated, path, and does not use the highest path of afforestation.

294. Figure 15 shows the Technical Paper's Figure 3 with the attempt to replicate the formula overlayed in red dots, along with the fourth set of estimates. Figure 14 shows the four sets alongside the Productivity Commission's scenarios.

[37] https://www.mpi.govt.nz/dmsdocument/50302-Afforestation-Economic-Modelling-Report
[38] The Technical Paper has afforestation as a product of the NZU price for the past two years rather than a discounted present value of expected future prices.
[39] The Climate Change Commission expectations for afforestation were also looked at but these were assumed and only for a fixed $50 NZU price. Consideration was also given to generating formulas for the Productivity Commission scenarios, but there was insufficient information to do so.
[40] A further factor in these scenarios is that some of them assume 100% exotic, and others assume 67% exotic and 33% native.

Figure 15: *Afforestation Economic Modelling*'s Figure 3 with replicated formula

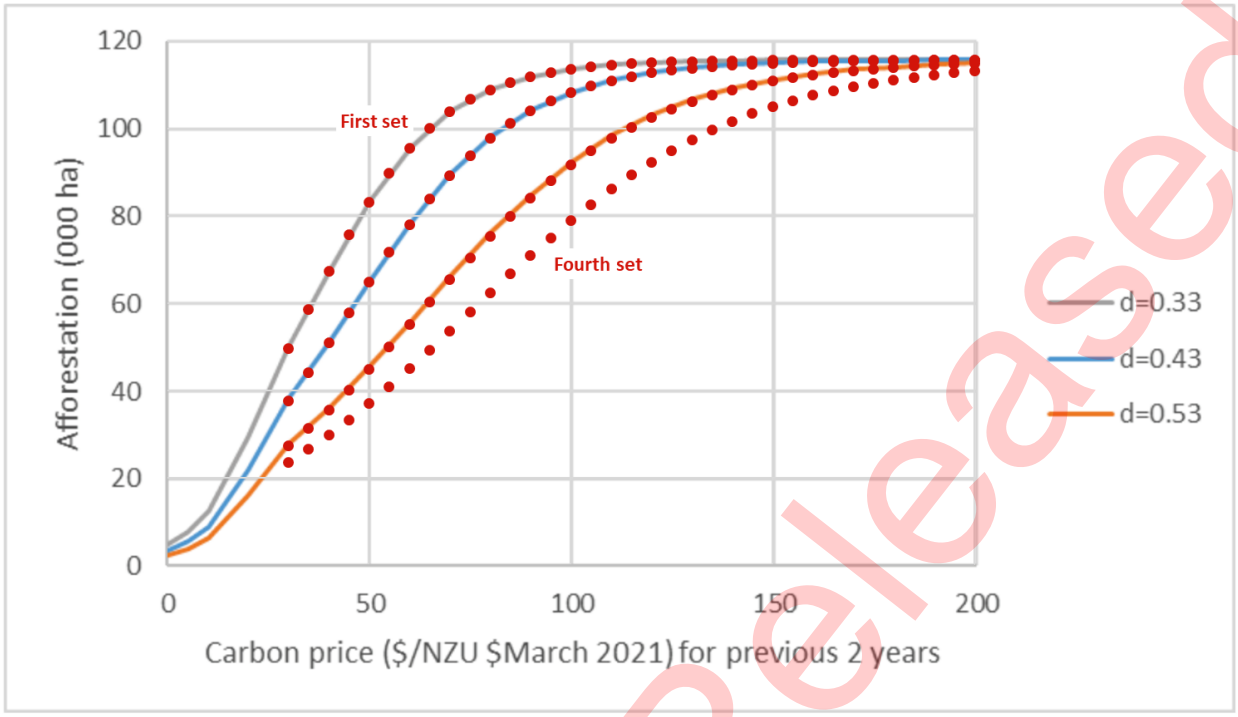
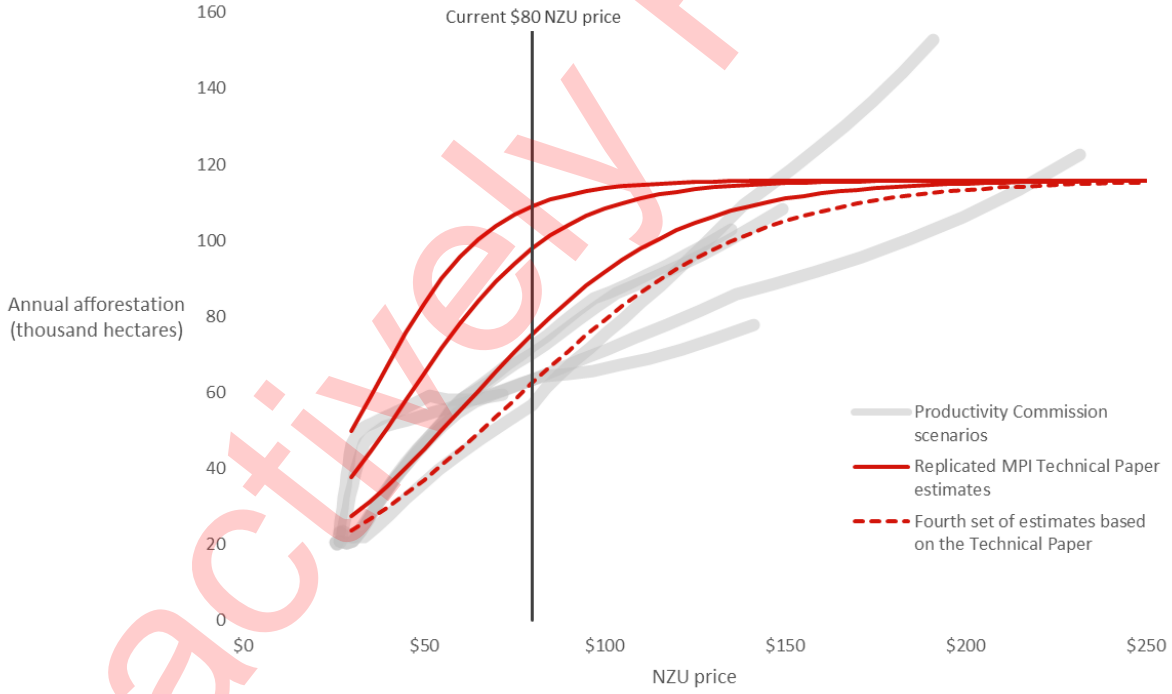


Figure 16: Technical Paper estimates versus Productivity Commission scenarios



8.3.3.6 Reduction in the value of forestry at different NZU prices

295. The impact on the value of forestry has been estimated using the following method:

Costs and benefits are estimated as if the participant numbers and hectares in Figure 4 are newly planted in year 1. This isn't to say that this is the level of new planting, but just to have a distribution of size and forest type to model.

Establishment costs in year 1 of registering and, for forests of 100 hectares or more, getting a carbon stock table. The increase in establishment costs is calculated by multiplying the proposed fees, less the current minimum charge, by the number of participants (by size of forest where appropriate).

The increase in ongoing costs in year 1 and beyond are assumed using historical data about the frequency of use of services.[41]

Benefits accumulate from carbon sequestration and the accompanying NZUs up to year 16. The level of sequestration for exotic and native trees is assumed at the level set by the Ministry for the Environment in its climate implications of policy assessment (CIPA) tool.[42]

A discounted present value of these costs and benefits is calculated over 30 years and infinity using a 5% discount rate[43] and an 8% discount rate[44].

296. Figure 17 presents the results for a selection of NZU prices[45] with, for example, the increase in cost recovery being about 0.28% of the current NZU price of around $80.[46] The NZU price affects the percentage reduction in value as costs are constant while value increases with the NZU price. The choice of discount rate has little impact on the results. A longer time period results in a higher loss of value because benefits are time-limited under the averaging approach, while costs occur forever.

Figure 17: Increase in cost recovery as a percentage of static NZU prices

Time period	Discount rate	NZU price			
		$80	$100	$125	$150
Infinity	5%	0.28%	0.22%	0.18%	0.15%
	8%	0.26%	0.21%	0.17%	0.14%
30 years	5%	0.23%	0.18%	0.15%	0.12%
	8%	0.24%	0.19%	0.16%	0.13%

297. The impact on the rate of afforestation has been estimated by comparing afforestation at before and after NZU prices with the difference being the reductions in value from Figure 17 (sum to infinity at a 5% discount rate).

298. While, according to the Technical Paper, it is recent NZU prices that drive afforestation rates, the true value loss depends on current and future NZU prices and when forests are planted. These are presented in Figure 18 with, for example, the increase in cost recovery representing 0.18% of the NZU value of forests planted in 2023 (sum to infinity at a 5% discount rate and with the International Energy Agency's price path).

Figure 18: Reduction in forest value at selected planting dates and with increasing NZU prices

Time period	Discount rate	Planting date		
		2023	2033	2043
Infinity	5%	0.18%	0.11%	0.08%
	8%	0.17%	0.10%	0.08%
30 years	5%	0.15%	0.09%	0.07%
	8%	0.16%	0.10%	0.07%

8.3.3.7 Results

299. The four price paths and three afforestation responses generate 12 scenarios. Figure 19 presents the scenario of the International Energy Agency's price and the third set of afforestation response estimates,

[41] Historical data about service use from two services was available and combined with data in Appendix 3 to estimate use of other services. The estimated increase in cost is very similar to the increase in costs from Appendix 3 for ongoing services (services other than service (a)).
[42] https://environment.govt.nz/assets/Publications/Files/Climate-implications-of-policy-assessment-excel-tool-1.xlsx
[43] 5% is Treasury's prescribed discount rate as at September 2022. https://www.treasury.govt.nz/information-and-services/state-sector-leadership/guidance/financial-reporting-policies-and-guidance/discount-rates
[44] The 8% discount rate is used as sensitivity as interest rates are currently rising and landowners are likely to face interest rates closer to 8%. The 8% discount rate also matches the discount rate used in the MPI Technical Paper *Afforestation Economic Modelling* at https://www.mpi.govt.nz/dmsdocument/50302-Afforestation-Economic-Modelling-Report. This paper is later used to estimate how much cost recovery might reduce afforestation.
[45] In line with the Technical Paper, it is these recent NZUs, rather than increasing future NZU prices, that drives afforestation.
[46] The estimates will slightly under-estimate the impact as benefits from NZUs are assumed to accrue annually, but that would require emission returns submitted annually. Our data shows around a third of small forests submit returns in any year (i.e. they submit returns every three years), and 70% of large foresters submit returns in any year. This data has been used in the cost estimates. As such, the cost and benefit estimates are not perfectly consistent.

and the scenarios that result in the lowest and highest levels of increase in emissions. Estimates for all scenarios are in Appendix 5.

300. Under our selected scenario, the increase in cost recovery has the following estimated impacts:

- The increase in cost recovery is 0.31% of the NZU price in 2023, declining to 0.09% of the NZU price by 2050.

  The reduction in the percentage decrease is due to rising NZU prices over time.

- A decrease in afforestation by 0.08% over the 2023 to 2050 period, ranging from 0.36% in 2023 to less than 0.01% in 2050.

  This amounts to a reduction in afforestation in 2023 of 227 hectares from 67,174 hectares to 66,947 hectares, and in 2050 of 1 hectare from 115,642 hectares to 115,641 hectares.[47]

- A decrease in carbon sequestration / increase in emissions of 1.3 million tonnes (0.14%) from 899.8 million tonnes sequestered to $898.5 million tonnes over the 2023 to 2050 period.[48]

301. The decrease in carbon sequestration is highest at 0.25% in the scenario with the lowest price path from Treasury and the lowest rates of afforestation (the fourth set from Figure 15), and lowest at 0.02% with the highest price path and highest rates of afforestation.

302. There are a couple of reasons for this as set out below using the highest impact scenario to explain:

- The value of afforestation is lowest in this scenario (relatively low value per hectare due to the relatively low NZU price) so an increase in cost recovery decreases the value, and level, of afforestation by a greater amount.

- From Figure 15, the low afforestation path is more sensitive to changes in the NZU price (net of cost recovery changes).[49] This is because, in the Technical Paper's model, the lower afforestation rates are due to higher land prices to purchase and convert to forestry. Land prices are high when there are other good uses for the land, such as sheep and beef farming. The more profitable sheep and beef farming is, the more sensitive forestry will be to cost recovery changes for forestry.

Figure 19: Impact on sequestration[50] and afforestation in the selected, lowest impact, and highest impact scenarios[51]

	2020 to 2025	2026 to 2030	2031 to 2035	2036 to 2040	2041 to 2045	2046 to 2050	Total
Sequestration (tonnes CO_2-e)							
Selected scenario							
Before	608,100	21,936,900	90,029,600	171,314,300	268,722,300	347,144,800	899,756,000
After	606,200	21,870,500	89,807,700	171,003,600	268,357,700	346,834,000	898,479,500
Change	-2,000	-66,400	-221,900	-310,800	-364,600	-310,800	-1,276,500
	-0.33%	-0.30%	-0.25%	-0.18%	-0.14%	-0.09%	-0.14%
Lowest impact scenario							
Before	929,600	32,912,200	126,691,200	220,848,100	326,084,800	395,037,800	1,102,503,900
After	928,700	32,888,200	126,644,300	220,799,300	326,031,400	395,012,900	1,102,304,800
Change	-900	-24,000	-47,000	-48,900	-53,400	-24,900	-199,100
	-0.10%	-0.07%	-0.04%	-0.02%	-0.02%	-0.01%	-0.02%
Highest impact scenario							
Before	314,000	12,010,300	55,708,900	117,961,400	196,183,700	271,731,900	653,910,100
After	312,500	11,957,100	55,499,500	117,610,100	195,705,600	271,219,400	652,304,200
Change	-1,500	-53,200	-209,500	-351,300	-478,100	-512,400	-1,605,900

[47] The hectares are unrounded. This isn't to suggest that the estimates are this precise, but is necessary to show the degree of change.
[48] The Technical Paper does not distinguish between exotic and native forests, so the reduction in afforestation and sequestration is an average. The increase in cost recovery will be a greater proportion of NZU value for native forests compared to exotic forests and, so, the reduction in afforestation higher for native forests as a percentage of current afforestation than for exotic forests. As native forests sequester carbon less than exotic forests, the decrease in carbon sequestration will be slightly less than estimated here.
[49] A change in NZU price from $80 to $100, for example, causes a greater increase in afforestation in the low path than in the high path.
[50] The amount of carbon sequestered decreases with increased cost recovery. The increase in emissions is the opposite of this. For example, 1,711,200 fewer tonnes are sequestered in the highest impact scenario, which can be described as a 1,711,200 tonne increase in emissions.
[51] Figures in the thousands or higher are rounded to the nearest 100. Figures in the hundreds or tens are rounded to the nearest 10. Single digit figures are reported as single digits. Percentages are reported to two decimal places.

	-0.47%	-0.44%	-0.38%	-0.30%	-0.24%	-0.19%	-0.25%
Afforestation (hectares)							
Selected scenario							
Before	213,300	434,400	515,800	560,200	574,600	577,600	2,876,000
After	212,700	433,500	515,300	560,100	574,600	577,600	2,873,800
Change	-660	-870	-450	-150	-30	-9	-2,200
	-0.31%	-0.20%	-0.09%	-0.03%	-0.01%	0.00%	-0.08%
Lowest impact scenario							
Before	323,900	574,200	578,700	579,000	579,000	579,000	3,213,700
After	323,600	574,200	578,700	579,000	579,000	579,000	3,213,400
Change	-240	-50	-3	-1	0	0	-290
	-0.07%	-0.01%	0.00%	0.00%	0.00%	0.00%	-0.01%
Highest impact scenario							
Before	115,000	294,600	403,900	466,000	509,500	537,800	2,326,800
After	114,400	293,700	403,100	465,400	509,100	537,500	2,323,200
Change	-520	-970	-830	-620	-420	-240	-3,600
	-0.45%	-0.33%	-0.21%	-0.13%	-0.08%	-0.04%	-0.15%

8.3.3.8 Reduction in forest value by size and type

303. The percentage loss of value reduces as forests get larger. While owners of larger foresters use services more frequently and would pay more per use for some services, the increased cost is offset by economies of scale – that is, the costs of services are spread over larger forests such that the average cost reduces.

304. Native forests sequester less carbon than exotic forests and, so, earn fewer NZUs. The resulting lower value per hectare means that the loss of value from higher cost recovery is higher for native forests than for exotic forests.

305. Figure 20 presents estimates of the loss of value by forest size and type. At an NZU price of $80 and a 5% discount rate, the increase in cost recovery ranges from 0.1% of NZU value for large exotic forests to 6.6% for small native forests. At $150, the range is up to 3.5%.

306. These estimates are significantly higher than the estimates in the consultation document which had the loss of value ranging between less than 0.1% for large exotic forests to 0.9% for small forests. The consultation document said 'the analysis suggests that the proposed fees are likely to have minimal impact on decisions to participate in forestry ETS' for different types and size of forests. This was incorrect.

307. The estimates in the consultation document were over a 'typical' five year period and included only some services. While the time period and limited number of services was noted in the consultation document, the impacts are significantly smaller than the estimates in this chapter and may have affected submissions and how concerned foresters could be about the preferred approach. Those that made submissions, however, did challenge this claim, one with their own estimates which were closer to those in this chapter than in the consultation document though they had to 'reverse engineer' some assumptions which were not detailed in the consultation document.

Figure 20: Reduction in forest value by size and type at static NZU prices

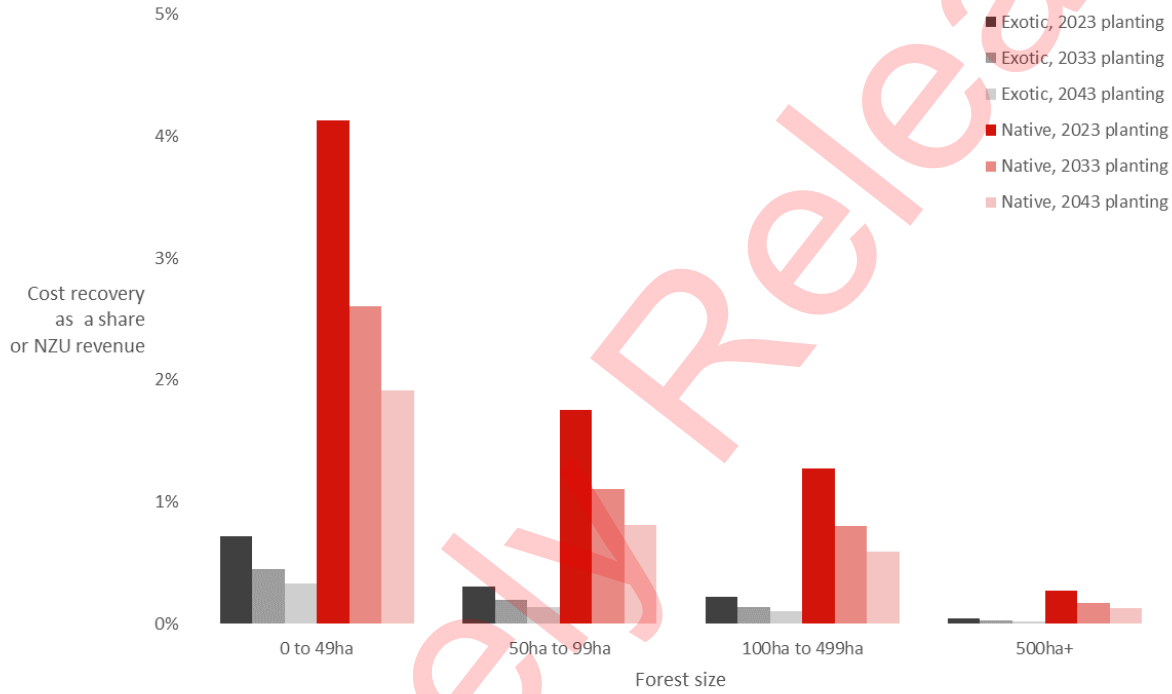
Forest size	NZU $80		NZU $100		NZU $125		NZU $150	
	Exotic	Native	Exotic	Native	Exotic	Native	Exotic	Native
0 to 49ha	1.1%	6.6%	0.9%	5.3%	0.7%	4.2%	0.6%	3.5%
50ha to 99ha	0.5%	2.8%	0.4%	2.2%	0.3%	1.8%	0.3%	1.5%
100ha to 499ha	0.3%	2.0%	0.3%	1.6%	0.2%	1.3%	0.2%	1.1%
500ha+	0.1%	0.4%	0.1%	0.3%	0.0%	0.3%	0.0%	0.2%

308. Figure 21 presents the estimated loss in value by planting date with an NZU price that increases over time in line with the International Energy Agency's price path. Here, the increase in cost recovery ranges, for plantings in 2023, from less than 0.1% for large exotic forests to 4.1% for small native forests. For plantings ten years later in 2033, the range is up to 2.6%.

309. The estimates in Figure 20 are presented because, according to the Technical Paper, it is recent NZU prices that predict afforestation. Overall estimates in Figure 21 are presented because, by accounting for rising NZU prices, they are an estimate of the true amount of NZU value going to the increase in cost recovery.

Figure 21: Reduction in forest value by size and type at selected planting dates and with increasing NZU prices

Forest size	2023 planting		2033 planting		2043 planting	
	Exotic	Native	Exotic	Native	Exotic	Native
0 to 49ha	0.7%	4.1%	0.4%	2.6%	0.3%	1.9%
50ha to 99ha	0.3%	1.8%	0.2%	1.1%	0.1%	0.8%
100ha to 499ha	0.2%	1.3%	0.1%	0.8%	0.1%	0.6%
500ha+	0.0%	0.3%	0.0%	0.2%	0.0%	0.1%



8.4 Equity

310. The Equity principle considers whether there are any reasons relating to fairness for why the most efficient options should not be preferred.

311. Governments' view of what is fair is generally that the most efficient option is also the fairest in that beneficiaries, or risk exacerbators in relevant situations, pay for the costs of the services they demand. On occasion, Governments have other objectives (e.g. supporting an emerging sector) which lead to less than full cost recovery.

312. Views about what is equitable in forestry and around the forestry ETS varies. This chapter outlines different views on what might be considered equitable so that the Government can determine whether the most efficient approach (in chapter 8.1) should be preferred, or whether other options which address foresters' concerns should be preferred.

8.4.1 Overall cost recovery under the most efficient approach for the interim period

313. Current cost recovery settings are recovering less than 4% of estimated recoverable costs. The proportion of costs recovered is expected to increase to around 18% under the approach in chapter 8.1. This leaves more than 80% of costs being funded by taxpayers during the interim period. Taxpayers might consider 80% taxpayer funding to be inequitable and options that involve more taxpayer funding to be even more inequitable.

314. We received submissions only from those with forests and have not attempted to test general taxpayer views beyond the release of the consultation document.

8.4.2 Forester views

315. We received five six submissions from foresters including the CarbonCrop (a company that assists landowners around forestry offsets), the New Zealand Farm Forestry Association (represents small forest owners), Tairāwhiti Whenua (a Māori landowner group managing $738 million in assets across 144,000 owners), and three individuals.

316. Additionally, the He Waka Eke Noa – Primary Sector Climate Action Partnership has previously raised the impact of cost recovery. This is reflected in the Government's consultation document from October 2022 on pricing agricultural emissions:[52]

> *Costs for participants associated with cost recovery [of the forestry ETS] by the regulator need to be considered, particularly for small areas of vegetation or vegetation with low sequestration rates. This has been raised as an issue by the Partnership and will affect the overall attractiveness of the system for participants.*

317. While recovering the reasonable costs of services that participants demand is economically efficient (subject to addressing the positive externalities of native forests on biodiversity and other values being out of scope for this work), we agree that these are Equity concerns that Government and others debating the proposals may consider are worth trading off some economic efficiency to address.

318. A common view was that the proposed increases in charges would have a significant impact on the value of smaller forests and, within that group, native forests in particular. Submitters said this would make putting many small forests in the forestry ETS uneconomic with the big driver being the proposed cost increase to register in the forestry ETS from $488.89 to $1,815 (a one-off cost) and the proposed cost increase to add more area from $88.89 to $1,815 (charged each time a participant wants to add area).

319. This suggestion is correct. Figure 22 shows estimates of how much forestry ETS cost recovery is as a percentage of NZU value at the current $80 price, and the reduction in afforestation[53].

320. For example, for native forests less than 2 hectares in size, cost recovery increases from 16.3% of the NZU to 72.1% (that is, MPI services cost more than the value of the NZU value of the forest). Using the Technical Report, this is expected to reduce afforestation of native forests this size by 64.6%. The remaining afforestation can be interpreted as taking place outside of the forestry ETS or, if inside the ETS, as a way to protect the forest if the land is subsequently sold as an alternative to covenants.

321. These estimates are likely to over-estimate the true impact for forests less than 20 hectares as all forests in the 0 to 49 hectare tier are assumed to use services at the same frequency. Economies of scale are likely to mean that bigger forests within that tier use services more frequently and smaller forests less frequently.

Figure 22: Cost recovery as a share of NZU value and the impact on afforestation by small forest size[54]

Forest size		Native			Exotic		
Tier	Average size	Current cost	Proposed cost	Afforestation impact	Current cost	Proposed cost	Afforestation impact
1ha to <2ha	1.6ha	16.3%	72.1%	-64.6%	4.0%	17.8%	-15.4%
2ha to <3ha	2.4ha	10.6%	47.0%	-43.6%	2.6%	11.6%	-9.7%
3ha to <4ha	3.3ha	7.8%	34.3%	-31.4%	1.9%	8.5%	-7.0%
4ha to <5ha	4.3ha	6.0%	26.5%	-23.8%	1.5%	6.6%	-5.3%
5ha to <6ha	5.4ha	4.7%	21.0%	-18.4%	1.2%	5.2%	-4.2%
6ha to <7ha	6.2ha	4.1%	18.3%	-15.9%	1.0%	4.5%	-3.6%
7ha to <8ha	7.2ha	3.6%	15.8%	-13.5%	0.9%	3.9%	-3.1%
8ha to <9ha	8.2ha	3.1%	13.9%	-11.8%	0.8%	3.4%	-2.7%
9ha to <10ha	9.2ha	2.8%	12.4%	-10.4%	0.7%	3.1%	-2.4%
10ha to <20ha	14.4ha	1.8%	7.9%	-6.5%	0.4%	2.0%	-1.5%

[52] *Te tātai utu o ngā tukunga ahuwhenua – Pricing agricultural emissions*, p. 49, https://environment.govt.nz/publications/pricing-agricultural-emissions-consultation-document/

[53] The reduction in afforestation is estimated using the formula in the Technical Report. This may be stretching the use of the Technical Report, but is the best indicator available. Caution should be exercised around relying too heavily on the results.
The formula in the Technical Report is for New Zealand and does not differentiate between regions or for Māori land versus other land.

[54] The analysis around submitter concerns and options to discount costs uses an 8% discount rate, rather than 5%, as this is likely to better reflect actual real interest rates faced by landowners and it is important to closely reflect the actual experience of small landowners.
Exotic forests are assumed to use averaging accounting. Native forests are assumed to be permanent.

20ha to <30ha	23.4ha	1.1%	4.9%	-3.9%	0.3%	1.2%	-0.9%
30ha to <40ha	33.4ha	0.8%	3.4%	-2.7%	0.2%	0.8%	-0.7%
40ha to <50ha	43.2ha	0.6%	2.6%	-2.1%	0.1%	0.7%	-0.5%

322. A number of other related issues were also raised.

323. Tairāwhiti Whenua emphasised that Māori land is, due to colonisation and other policies, often small and uneconomic for any purpose other than permanent forestry. If forestry was made uneconomic, no use could be made of the land.

324. Another submitter said that the greater impact on native forests would results in relatively more afforestation of exotic trees compared to native trees while the Climate Change Commission called for more natives and less exotics. We do not have a view on this as the Government and future Governments may decide the overall direction for the mix of native and exotic forestry and whether to adopt the Climate Change Commission's preferences.

325. Another point was that, even where participation in the ETS was economic, small foresters would delay adding additional area to the forestry ETS. This was of particular concern for smaller foresters who, according to submitters, often regenerate native forest in steps of one or two hectares at a time. In these situations, foresters would be bearing costs of planting/restoring, but have to delay income until the point where they can afford the $1,815 cost to register the additional forest. In other cases, native restoration would be delayed. We agree that this will be an impact. Around 5% of small foresters add area per year, though we are unable to estimate the extent to which that would reduce under the proposed increase in charges.

326. A similar point was made around emissions returns which would increase from $88.89 to $165.00 and cause some foresters to reduce how frequently they submit emissions returns and receive NZUs. We agree that there will be an impact on here, but are unable to estimate how big the impact might be. However, we consider this to be a smaller issue than for adding land. Data around the frequency that small foresters use our services suggest the cost of this service is about 20% of the cost of adding land.

8.4.3 Options suggested by foresters

327. Options put forward by submitters included lower charges, particularly around registering as a participant and adding land, or the ability to pay off costs over time.

8.4.3.1 Paying costs off over time

328. The option to pay costs off over time was suggested as a potential solution to a claimed issue that some foresters might not have money upfront to pay for services and that it could take many years before the NZUs from sequestration would generate enough money.

329. There has been insufficient time to fully develop and assess options that would allow foresters to pay costs over time, including around whether there are constraints that mean foresters can't get credit to pay the registration cost and pay the debt off over time back to the lender.

330. We will look consider this option further if costs on small forests are significant under Tranche 2.

8.4.3.2 Reduces charges for small forest blocks

331. Submitters asked MPI to consider reduced charges for small forest blocks of up to around five hectares or ten hectares.

332. Tairāwhiti Whenua suggested looking at around 50 hectares and for a 50% discount to reflect the Treaty partnership. MPI investigated the costs and benefits of discounts to this level and re-consulted with Tairāwhiti Whenua. Tairāwhiti Whenua subsequently expressed support for discounts around the 5 hectare or 10 hectare level noting that impacts on for forests from ten hectares to 50 hectares dropped away to low levels.

333. This chapter looks at the impacts of keeping the current charges for registering in the forestry ETS and adding land[55]. These two services are the focus as they:

- have large increases from $488.89 and $88.89 respectively to $1,815.00

[55] Services (a) and (d).

- are likely to be barriers to small forests' participation in the forestry ETS, particularly for native forests where land may be added over time as forest is restored.
- were the focus of most submitters (submitters only rarely mentioned the cost increases for other services).

334. Furthermore, discounting other services is considered to be infeasible to operationalise during the first stage of the new system's rollout. The financial cost of options to discount other services was estimated, but has not been included in this CRIS as the options are considered infeasible in the early rollout.

335. Given the greater impact on native forests, consideration was given to targeting discounts to native forests. However, charging native forests differently from exotic forests may require legislative change and could be impractical to implement. As above, the adding land service is likely to be used more frequently for native forests than exotic forests, so there is some targeting towards native forests in the discount option.

Cost to taxpayers

336. Figure 23 shows the estimated annual financial cost to taxpayers over the 2023 to 2025/26 period of keeping the current charges for registering and adding new forests and of keeping the current charges for all services.

337. For example, Option (1) will cost taxpayers around $5,700 per annum to exempt forests under two hectares and $35,400 to exempt forests under five hectares in size. This compares to an additional $1.6 million per annum of additional cost recovery from all forests under the approach in chapter 8.1.

338. The amount of foregone revenue rises to $125,400 under Option (1) for up to 10 hectares.

339. Exempting up to 50 hectares would cost taxpayers an estimated $551,000 under Option (1).

340. These estimates are likely to over-estimate the true cost for forests less than 20 hectares as all forests in the 0 to 49 hectare tier are assumed to use services at the same frequency. Economies of scale are likely to mean that bigger forests within that tier use services more frequently and smaller forests less frequently.

341. At the same time, these estimates are likely to under-estimate costs if the NZU price rises as more small forest pockets will become economic to include in the forestry ETS.

Figure 23: Financial cost to taxpayers of discounting services for small forests

Forest size		Option (1): Keep current charges for registering and adding new land	
Tier	Average size	Additional cost	Cumulative cost
1ha to <2ha	1.6ha	$5,700	$5,700
2ha to <3ha	2.4ha	$5,000	$10,700
3ha to <4ha	3.3ha	$13,300	$24,000
4ha to <5ha	4.3ha	$11,400	$35,400
5ha to <6ha	5.6ha	$16,800	$52,200
6ha to <7ha	6.5ha	$16,400	$68,600
7ha to <8ha	7.5ha	$14,900	$83,500
8ha to <9ha	8.5ha	$17,500	$101,000
9ha to <10ha	9.5ha	$24,400	$125,400
10ha to <20ha	14.4ha	$167,300	$292,700
20ha to <30ha	23.4ha	$118,100	$410,800
30ha to <40ha	33.4ha	$81,900	$492,700
40ha to <50ha	43.2ha	$58,300	$551,000

Benefit to small foresters

342. Figure 24 shows the estimated impacts of this option versus the status quo and the approach in chapter 8.1. For example, for forests of less than 2 hectares, Option (1) would reduce cost recovery from 72.1% of NZU value to 35.0% of NZU value and the impact on afforestation from a 64.6% reduction to a 24.7% reduction.

343. As we would expect, the benefit to foresters of discounted costs falls as the size of forest increases. For example, while for native forests less than two hectares, the impact on afforestation drops from an 64.6%

reduction to a 24.7% reduction under Option (1) – a 39.9 percentage point reduction in the drop in afforestation – for native forests of between 40 and 50 hectares the reduction is only 1.4 percentage points.

344. Again, the estimates are likely to over-estimate the true impact for forests less than 20 hectares as all forests in the 0 to 49 hectare tier are assumed to use services at the same frequency.

Figure 24: Cost recovery as a share of NZU value and the impact on afforestation by small forest size, with discounted cost options

Forest size		Native			
Tier	Average size	Chapter 8.1 cost	Afforestation impact	Option (1) cost	Afforestation impact
1ha to <2ha	1.6ha	72.1%	-64.6%	35.0%	-24.7%
2ha to <3ha	2.4ha	47.0%	-43.6%	22.8%	-15.0%
3ha to <4ha	3.3ha	34.3%	-31.4%	16.7%	-10.5%
4ha to <5ha	4.3ha	26.5%	-23.8%	12.9%	-7.8%
5ha to <6ha	5.6ha	21.0%	-18.4%	10.2%	-6.0%
6ha to <7ha	6.5ha	18.3%	-15.9%	8.9%	-5.2%
7ha to <8ha	7.5ha	15.8%	-13.5%	7.7%	-4.4%
8ha to <9ha	8.5ha	13.9%	-11.8%	6.7%	-3.9%
9ha to <10ha	9.5ha	12.4%	-10.4%	6.0%	-3.4%
10ha to <20ha	14.4ha	7.9%	-6.5%	3.8%	-2.1%
20ha to <30ha	23.4ha	4.9%	-3.9%	2.4%	-1.3%
30ha to <40ha	33.4ha	3.4%	-2.7%	1.7%	-0.9%
40ha to <50ha	43.2ha	2.6%	-2.1%	1.3%	-0.7%
Forest size		Exotic			
Tier	Average size	Chapter 8.1 cost	Afforestation impact	Option (1) cost	Afforestation impact
1ha to <2ha	1.6ha	17.8%	-15.4%	8.7%	-5.1%
2ha to <3ha	2.4ha	11.6%	-9.7%	5.6%	-3.2%
3ha to <4ha	3.3ha	8.5%	-7.0%	4.1%	-2.3%
4ha to <5ha	4.3ha	6.6%	-5.3%	3.2%	-1.8%
5ha to <6ha	5.6ha	5.2%	-4.2%	2.5%	-1.4%
6ha to <7ha	6.5ha	4.5%	-3.6%	2.2%	-1.2%
7ha to <8ha	7.5ha	3.9%	-3.1%	1.9%	-1.0%
8ha to <9ha	8.5ha	3.4%	-2.7%	1.7%	-0.9%
9ha to <10ha	9.5ha	3.1%	-2.4%	1.5%	-0.8%
10ha to <20ha	14.4ha	2.0%	-1.5%	0.9%	-0.5%
20ha to <30ha	23.4ha	1.2%	-0.9%	0.6%	-0.3%
30ha to <40ha	33.4ha	0.8%	-0.7%	0.4%	-0.2%
40ha to <50ha	43.2ha	0.7%	-0.5%	0.3%	-0.2%

8.4.3.3 Summary of options that discount costs

345. The previous two sections covered an option that discount costs and a wide range of tiers. This section summarises the results for three selected tiers of up to two hectares, up to five hectares and up to ten hectares.

346. The impact on exotic forestry is fairly small, and not a focus of submissions. Other than noting that discounts would have to be paid for exotic forests[56] for little gain, this section focuses on the impact on small native forests.

[56] See paragraph 48335.

347. The estimates in Figure 25 are very approximate. The true cost, and drop in afforestation, may be lower as smaller forests are likely to use services less frequently than assumed for these estimates. The true cost to taxpayers may be higher as, with a rising NZU price, we are likely to see more small forests become economic for inclusion in the forestry ETS and becoming a greater proportion of ETS participants.

348. Additionally, there is a risk that participants break large applications up into multiple smaller applications to get discounted services. There has been insufficient time to design and analyse options that could mitigate this risk such as caps on the amount discounted. If discounted costs for very small forests are preferred, MPI will need to monitor that the discounts are not abused and look to review the discounts if they are.

349. The estimates assume the current NZU price of $80. As the NZU price rises, the cost of MPI services will become more affordable. At an NZU price of $150 (expected to occur by around 2035), for instance, only forests of two hectares or less will be as significantly affected by the increase in cost recovery as forests of five hectares would be under the main proposals.

350. The financial cost estimates include only foregone revenue from the discounts and not the additional administrative cost of having more tiers. As the early stage rollout has planned for tiered pricing for these services, including manual processing of charges, the additional administration costs are expected to be minimal.

351. Option (1c) is likely to meet the concerns of submitters, while Option (1b) is likely to meet the concerns of most submitters.

Figure 25: Summary of the impact of options that discount costs for very small forests

Forestry size tier	Option (1) Targets services most likely to be a barrier to participation and which were the focus of submissions
(a) Less than 2ha	Option (1a) would reduce the drop in afforestation by 39.9 percentage points from 64.6% under the main proposals to 24.7% if applied to forests up to two hectares and cost taxpayers $5,700 per annum. Total cost: $5,700 per annum
(b) Less than 5ha	An additional $29,700 per annum under Option (1b) would expand discounts to forests up to five hectares and reduce the drop in afforestation: • in forests between two and five hectares, by 19.5 percentage points under the main proposals from 29.2% to 9.8% • in addition to the 39.9 percentage point reduction from 64.6% under the main proposals to 24.7% for forests up to two hectares under Option (1a). Total cost: $35,400 per annum

(c) Less than 10ha	A further additional $89,900 per annum under Option (1c) would expand discounts to forests up to ten hectares and reduce the drop in afforestation:
	• in forests between five and 10 hectares by 8.8 percentage points from 13.1% under the main proposals to 4.3%
	• in addition to:
	  • in addition to the 39.9 percentage point reduction from 64.6% under the main proposals to 24.7% for forests up to two hectares under Option (1a)
	  • and the 19.5 percentage point reduction from 29.2% under the main proposals to 9.8% for forests between two and five hectares in Option (1b).
	Total cost: $125,400 per annum

8.5 Conclusion

352. The approach in chapter 8.1 best meets the Efficiency principle within the constraints of this interim period, the perceived impracticality of time recording, and the inability to address biodiversity and other values within the scope of this work.

353. Whether the approach in chapter 8.1 best meets both the Efficiency and Equity principles is a matter of judgement which we leave to Government and the public. Figure 25 above summarises the cost to taxpayers and benefits to foresters of options that discount costs for small foresters. If the Government chooses to discount costs to small foresters, the need for the discount should be reviewed in future if the NZU price rises and MPI's services become affordable.

354. Whichever approach is selected, we also consider that the options sufficiently, though not perfectly, meet the Transparency and Justifiability principles. Particular issues that mean the principles have not been perfectly

met include that the increase in the hourly rate was inadvertently understated, the proposed changes around service (f) were not directly consulted, the impacts by forest size and type significantly under-estimated the likely true impact, breakdowns of the services into steps so that submitters could test the reasonableness of the time were not provided, and the option to keep current charges for small forests was not consulted on depriving general taxpayers the opportunity to comment.

355. While the increase in the hourly rate was understated, this was because the status quo rate was overstated rather than understating the new rate. Submitters had the opportunity to understand what the new hourly rate could be.

356. While the changes around service (f) were not directly consulted on, one change reduces the hours recovered and the other change increases the hourly rate in line with the hourly rate for other services which was consulted on. Overall, we consider this to have a negligible impact on the meeting of the Transparency principle.

357. The under-estimate of the impact by forest size and type has a bigger impact on meeting the Transparency principle but is not large enough to mean the Transparency principle has not been met as submitters identified the issue and it has been reflected in further options being developed.

8.6 Monitoring and review

358. The lack of time recording is the primary driver of problems. While it's possible that time recording is more difficult and costly than for other MPI regulatory systems, it is not clear that the cost of time recording means under-recovering services, or using fixed or tiered charges, is the best approach other than in the interim period. The feasibility and cost of time recording and time-variable charges will be investigated as part of the roll out of the new system. Cost recovery settings for these services may change again during the roll-out.

359. While changes have only been made where the cost recovery principles are sufficiently met for this interim period, it may be that the cost recovery principles can be better met with further review and changes over time. It is possible that there will be tweaks to the cost recovery settings if new information emerges.

360. If the Government chooses to discount costs for small foresters, a review should take place if the NZU price rises and the affordability of MPI's services improves. Monitoring should also take place around the risk that participants break larger applications into multiple smaller applications to get discounted services.

361. These reviews would take place as needed within MPI's existing annual review process which updates cost recovery settings across all of MPI's systems (food safety, fisheries, forestry, etc).

Figure 26: Proposed updates to cost recovery for implementation from 1 January 2023

Service	Description of service	Current fee	Proposed fee	Explanation
Currently-charged services				
(a) Apply to register	Processing application to register as a participant in the ETS with post-1989 forest land.	$488.89 plus $115.55 per hour, or part hour, in excess of 4.25 hours	0-49ha: $1,815.00 50-99ha: $1,980.00 100-500ha: $2,640.00 500+ha: $4,125.00	Changes to a tiered charge by forest size. Proposed fee uses the new base hourly rate of $165 with the following average processing times per application: • 0-49ha forests – 11 hours • 50-99ha forests – 12 hours • 100-500ha forests – 16 hours • 500+ha forests – 25 hours
(b) Emissions return processing	Emissions returns are used to calculate changes in the carbon stock, including: • at the end of a 5-year mandatory return period • when participants choose to voluntarily claim carbon credits during the 5-year period • when deregistering from ETS or removing forest land • when selling or transferring forest land.	$88.89 plus $115.55 per hour in excess of 45 minutes	$165.00	Changes to a fixed charge at the average time of 1 hour at the new base hourly rate of $165.
(c) Travel for purpose of checking that land is post-1989 forest land	MPI staff can be required to travel for certain services.	$115.55 per hour plus disbursements at actual costs	$165.00 per hour plus disbursements at actual costs	Remains a time-variable charge, but at the new base hourly rate of $165.
(d) Adding one or more Carbon Accounting Areas	An application to add additional Carbon Accounting Areas (CAAs).	$88.89 plus $115.55 per hour in excess of 45 minutes	0-49ha: $1,815.00 50-99ha: $1,980.00 100-500ha: $2,640.00 500+ha: $4,125.00	Changes to a tiered charge by forest size. Proposed fee uses the new base hourly rate of $165 with the following average processing times per application: • 0-49ha forests – 11 hours • 50-99ha forests – 12 hours • 100-500ha forests – 16 hours • 500+ha forests – 25 hours
(e) Notification of transmission of interest	Registered participants in the forestry ETS must tell Te Uru Rākau of changes that affect their participation in the scheme, such as sale of their land.	$88.89 plus $115.55 per hour in excess of 45 minutes	$990.00	Changes to a fixed charge at the average time of 6 hours at the new base hourly rate of $165.
(f) Emission ruling	Determines whether a forester's activity means legislative requirements apply	$408.70 plus $102.17 per hour in excess of 4 hours	$495 plus $165 per hour in excess of 4 hours	Remains a time-variable charge, but with a 1 hour reduction in the minimum time from 4 hours to 3 hours and an increase in the hourly rate to $165.
Newly-charged services				
(g) Removing a carbon accounting area (whole)	Application to remove one or more CAAs		$495.00	A new fixed charge at 3 hours and $165 per hour.
(h) Removing a carbon accounting area (part)	Application to remove part of one or more CAAs		$1,072.50	A new fixed charge at 6.5 hours and $165 per hour.
(i) Request for forest carbon stock table	Participants with more than 100ha of forest land in the ETS must use the Field Measurement Approach (FMA) to calculate their forest's carbon stock. The use of participant-specific forest carbon stock tables is required to calculate forest carbon stocks for FMA participants.		$1,980.00	A new fixed charge at 12 hours and $165 per hour.
Uncharged services	See Appendix 2 for a list of services to remain without cost recovery in the interim period.			

* https://legislation.govt.nz/regulation/public/2008/0355/48.0/DLM1633709.html

APPENDIX 1: MPI'S COST RECOVERY PRINCIPLES

Transparency

Costs should be identified and allocated as closely as practicable in relation to tangible service provision for the recovery period in which the service is provided.

Transparency means providing adequate information to people such that they can understand charges and have an opportunity to input into their calculation and setting. 'Allocated' does not mean charged – how costs are charged is a result of consideration of all the principles.

Justifiability

Justifiability means costs are reasonable, that is, are only those costs necessary to deliver the service at the demanded quantity and quality.

Efficiency

Efficiency is made up of several elements:

- Costs should be the lowest necessary to provide the service.[57]
- Costs should be charged to those who benefit from the service and/or those whose behaviour generates the need for the service:
    - Those who benefit from the service – If the customer pays, they have the incentive to demand only those services that provide them benefit compared to other things they might purchase. If parties other than the beneficiary pays, then the beneficiary will demand more services than otherwise.
    - Those whose behaviour can reduce the need and cost of the service – Typically both the supplier (MPI) and the participant/applicant will be able to do things to reduce the need and cost of the service. For example, fixed charges with MPI bearing some financial risk can encourage MPI to deliver services more time efficiently, while businesses can reduce cost by providing accurate information in applications (requiring less follow-up by MPI).

      If MPI has transparently justified its costs, it will not normally be appropriate for MPI to contribute to the costs.
- Charges should account for administrative costs – for instance, sometimes it will be administratively prohibitive to charge those that benefit or those that can reduce costs so a simplified approach is warranted.
- Charges should be competitively neutral – MPI should not use any dominant market position to charge inflated prices and make more than a fair economic return.

Efficiency and the type of costs

All relevant costs are potentially recoverable, including:

- direct costs associated with services, such as staff time, travel costs, systems and equipment used in delivering the specific service; and
- support costs associated with delivery of the service, such as training and development costs for staff, administrative support costs, management costs, project costs and capital costs; and
- a proportion of wider business support or common costs, for example costs associated with corporate functions like finance, human resources management, information technology, and costs of property and utilities.

It is administratively impractical to precisely allocate wider business support or common costs to the wide range of MPI services. Instead, staff hours are used as a proxy on the assumption that the more staff hours are part of a service, the more property, human resources and other wider support and common costs the service will use.

[57] A re-emphasis of the Justifiability principle. The concept appears twice to help ensure MPI keeps cost efficiency top of mind.

Efficiency and type of services

If costs are to be recovered from beneficiaries, the appropriate type of charge to use depends on whether the service is a private good or club good.[58]

Fees are used for private goods – services that are of direct benefit to individual businesses. This includes services like registering as a participant. The benefit of registering as a participant is the potential to receive NZUs. The benefits of NZUs are received by the individual participant rather than participants as a group or the wider public.

Annual charges or levies pay for club goods – services that benefit sectors or groups of businesses as a whole. Monitoring and compliance activity, for example, helps ensure that the forestry ETS is robust and protects value for all participants.

If costs are to be recovered from exacerbators, the appropriate type of charge is a levy on the activity, or proxy for the activity, that causes the risk.

Equity

The Government will usually deem it fair that beneficiaries pay.

On other occasions, the Government will determine that other fairness considerations mean that another party contributes to the costs. For example, sometimes industry will be happy to support parts of its industry. Other times, Governments will want to provide additional support.

Relationship between the Cost Recovery Principles

The principles build on each other with Transparency and Justifiability providing a foundation to the consideration of Efficiency and Equity.

Figure 27 summarises the relationship between the principles.

Transparency and Justifiability come before considering Efficiency and Equity

MPI cannot be confident that the efficient way of cost recovering has been identified if costs have not been sufficiently justified, or affected parties have not had a reasonable opportunity to test the costs. For this reason, Transparency and Justifiability come before Efficiency and Equity. MPI can only consider how best to meet the Efficiency and Equity principles after sufficiently meeting the Transparency and Justifiability principles.

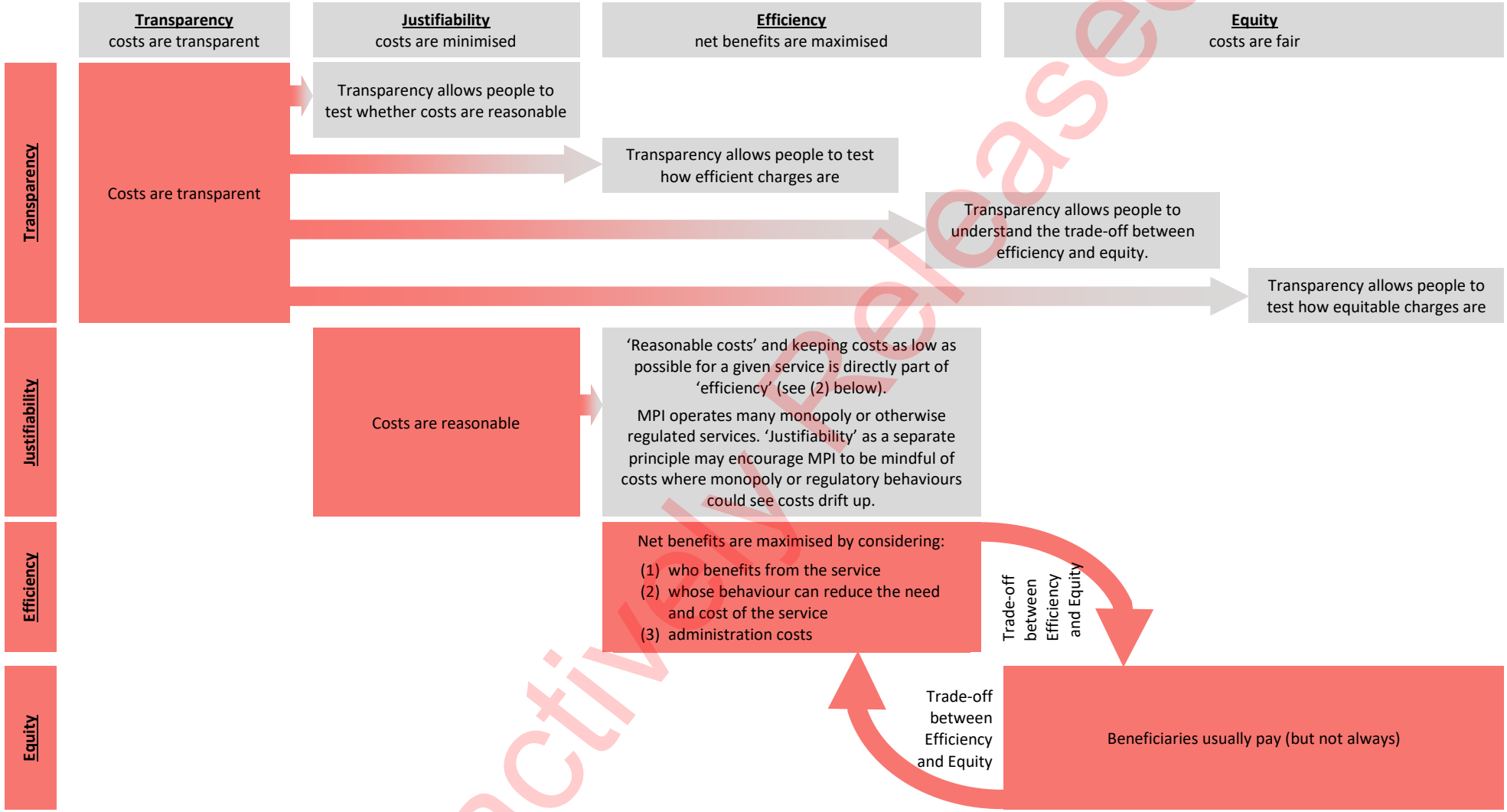
There will sometimes be trade-offs between Efficiency and Equity

The Equity principle says beneficiaries will generally pay. This is consistent with the Efficiency principle.

Sometimes the Government will decide, for fairness reasons, to charge someone other than the beneficiary (e.g. general taxpayers). In this situation, there is a trade-off between Efficiency and Equity – the Government prefers a certain outcome which it deems more equitable, and is willing to lose some efficiency to achieve it.

[58] There is also a category of merit goods – services which the community as a whole desires more of than would be provided if charged for at full cost.

Figure 27: Relationship between the Cost Recovery Principles



Appendix 2: All current services

Services where cost recovery settings would change under the preferred approach for Tranche 1

Apply to register as the owner of forest[59]
Submit an emissions return all post-1989 forestry activities
Travel for purpose of checking that land is post-1989 forest land
Notify a change to ownership, rights or leases
Apply for a ruling
Apply to remove forest - Whole Carbon Accounting Area
Apply to remove forest - Part Carbon Accounting Area
Request forest carbon stock tables

Services where cost recovery settings would not change under the preferred approach for Tranche 1

Notify deforestation - Landowner
Notify deforestation - Non-landowner
Apply to offset deforestation - Pre 1990 Land
Apply to offset deforestation - Post 1989 Land
Notify early clearing or deforestation of offset forest
Apply for exempt from deforestation obligations - Tree Weed
Apply for exempt from deforestation obligations - Under 50ha
Apply to register PFSI forest in the ETS
Input return processing
Emissions return processing for all pre-1990 forestry act
Stock change to av emission return (one off, one time)
Submit an emissions return - averaging to PP89 transition
Submit an emissions return - PP89 to averaging transition
Request waiver from collecting forest info - Temporary
Request waiver from collecting forest info - Permanent
Apply to suspend acct on land cleared by an adverse event
Request time extension
Request carbon accounting record
Classify forest - Assign Class
Classify forest - Change Class
Request sample plot locations for collecting forest info
Request updated sample plot locations for collecting info
Appoint/remove a representative - Assign
Appoint/remove a representative - Update
Request removal of land status notice
Apply to reconfigure forest area(s)
Notify offset deforestation complete
Apply to add more land to an offset deforestation appl
Apply to change registered activity
Request a review of decision
Register Land Status Notice
Remove Land Status Notice
Apply to deregister as the owner of forest - Post 1989
Apply to deregister a participant from pre-1990 forestry act
Request exemption from obligations - Section 60/60A
Criminal / Prosecutions
Customer enquiries/other requests - Refund
Customer enquiries/other requests - Payment Waiver
Update forest details
Deregister the owner of forest - Persistent non-compliance
Deregister the owner of forest - Activity never undertaken
Submit an enquiry
Inter-agency reporting
Compliance investigations
Revoke P90 offsetting application

[59] This includes the 'adding one or more Carbon Accounting Areas' service.

Appendix 3: Financial impacts of the preferred approach

Figure 28: Total amount cost recovered from different combinations of components

	Service	Status quo	Component (I)	Components (I) and (II)
Status quo hourly rates	Apply to register	$148,400	$486,500	$486,500
	Emissions return processing	$261,600	$340,000	$340,000
	Travel for purpose of checking that land is post-1989 forest land		Not estimated	
	Adding one or more Carbon Accounting Areas	$15,900	$286,200	$286,200
	Notification of transmission of interest	$16,900	$131,800	$131,800
	Emission ruling	$14,600	$10,900	$10,900
	Removing a carbon accounting area (whole)			$27,200
	Removing a carbon accounting area (part)			$22,500
	Request for forest carbon stock table			$150,500
	Total	$457,400	$1,255,500	$1,455,800
	Service	**Component (III)**	**Components (I) and (III)**	**Components (I), (II) and (III)**
Increase in hourly rates	Apply to register	$212,900	$694,700	$694,700
	Emissions return processing	$364,200	$485,600	$485,600
	Travel for purpose of checking that land is post-1989 forest land		Not estimated	
	Adding one or more Carbon Accounting Areas	$22,100	$408,700	$408,700
	Notification of transmission of interest	$23,500	$188,200	$188,200
	Emission ruling	$23,600	$17,700	$17,700
	Removing a carbon accounting area (whole)			$38,800
	Removing a carbon accounting area (part)			$32,200
	Request for forest carbon stock table			$215,000
	Total	$646,300	$1,794,900	$2,080,900

Figure 29: Change in amount cost recovered by adding components

				Adding components (I) and (II)
	Service	**Status quo**	**Component (I)**	**Components (II)**
Status quo hourly rates	Apply to register		+$338,100	
	Emissions return processing		+$78,500	
	Travel for purpose of checking that land is post-1989 forest land		Not estimated	
	Adding one or more Carbon Accounting Areas		+$270,300	
	Notification of transmission of interest		+$114,900	
	Emission ruling		-$3,600	
	Removing a carbon accounting area (whole)			+$27,200
	Removing a carbon accounting area (part)			+$22,500
	Request for forest carbon stock table			+$150,500
	Total		+$798,200	+$200,300
			Adding component (III) to the status quo and other components	
	Service	**Status quo**	**Component (I)**	**Components (II)**
Increase in hourly rates	Apply to register	+$64,500	+$143,800	
	Emissions return processing	+$102,600	+$42,900	
	Travel for purpose of checking that land is post-1989 forest land		Not estimated	
	Adding one or more Carbon Accounting Areas	+$6,200	+$116,300	
	Notification of transmission of interest	+$6,600	+$49,800	
	Emission ruling	+$9,000	-$2,200	
	Removing a carbon accounting area (whole)			+$11,600
	Removing a carbon accounting area (part)			+$9,600
	Request for forest carbon stock table			+$64,400
	Total	+$188,900	+$350,500	+$85,700

Appendix 4: Reduction in deadweight loss from the preferred approach

Figure 30: Reduction in deadweight loss from taxpayer funding by adding components

			Adding components (I) and (II)	
	Service	**Status quo**	**Component (I)**	**Components (II)**
Status quo hourly rates	Apply to register		$67,600	
	Emissions return processing		$15,700	
	Travel for purpose of checking that land is post-1989 forest land		Not estimated	
	Adding one or more Carbon Accounting Areas		$54,100	
	Notification of transmission of interest		$23,000	
	Emission ruling		-$700	
	Removing a carbon accounting area (whole)			$5,400
	Removing a carbon accounting area (part)			$4,500
	Request for forest carbon stock table			$30,100
	Total		$159,600	$40,100
		Adding component (III) to the status quo and other components		
	Service	**Status quo**	**Component (I)**	**Components (II)**
Increase in hourly rates	Apply to register	$12,900	$28,800	
	Emissions return processing	$20,500	$8,600	
	Travel for purpose of checking that land is post-1989 forest land		Not estimated	
	Adding one or more Carbon Accounting Areas	$1,200	$23,300	
	Notification of transmission of interest	$1,300	$10,000	
	Emission ruling	$1,800	-$400	
	Removing a carbon accounting area (whole)			$2,300
	Removing a carbon accounting area (part)			$1,900
	Request for forest carbon stock table			$12,900
	Total	$37,800	$70,100	$17,100

Appendix 5: Climate implications of policy assessment results for all scenarios

Carbon sequestration (tonnes CO_2-e)

Status quo

Scenario	Afforestation responsiveness	NZU price path	2020 to 2025	2026 to 2030	2031 to 2035	2036 to 2040	2041 to 2045	2046 to 2050	Total
1	MPI Technical Report - 2nd set	Treasury/CCC - Lower	547,200	20,759,800	91,978,900	178,701,800	277,665,800	358,417,300	928,070,800
2		Treasury/CCC - Central	797,100	28,968,600	117,155,500	210,501,300	314,597,600	388,044,500	1,060,064,600
3		Treasury/CCC - Higher	929,600	32,912,200	126,691,200	220,848,100	326,084,800	395,037,800	1,102,503,900
4		IEA SBS	815,500	28,931,400	113,616,900	204,493,600	307,741,600	380,600,700	1,036,199,600
5	MPI Technical Report - 3rd set	Treasury/CCC - Lower	380,000	14,586,500	67,468,400	140,002,100	227,807,500	308,189,100	758,433,500
6		Treasury/CCC - Central	590,900	22,259,400	97,279,700	186,337,800	286,895,200	366,825,400	960,188,300
7		Treasury/CCC - Higher	767,100	28,148,500	115,323,800	208,440,500	312,321,500	386,686,700	1,051,688,200
8		IEA SBS	608,100	21,936,900	90,029,600	171,314,300	268,722,300	347,144,800	899,756,000
9	MPI Technical Report - 4th set	Treasury/CCC - Lower	314,000	12,010,300	55,708,900	117,961,400	196,183,700	271,731,900	653,910,100
10		Treasury/CCC - Central	485,900	18,535,100	83,924,400	167,544,300	264,136,300	346,150,100	880,776,100
11		Treasury/CCC - Higher	654,100	24,531,500	105,010,600	196,249,400	298,502,000	376,561,300	1,001,508,900
12		IEA SBS	500,100	18,129,100	75,625,400	148,172,500	239,449,600	319,098,200	800,974,900

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Scenario	Afforestation responsiveness	NZU price path	2020 to 2025	2026 to 2030	2031 to 2035	2036 to 2040	2041 to 2045	2046 to 2050	Total
1	MPI Technical Report - 2nd set	Treasury/CCC - Lower	544,400	20,669,700	91,701,100	178,349,200	277,255,800	358,086,800	926,607,000
2		Treasury/CCC - Central	795,200	28,913,500	117,026,000	210,361,600	314,442,800	387,952,900	1,059,492,100
3		Treasury/CCC - Higher	928,700	32,888,200	126,644,300	220,799,300	326,031,400	395,012,900	1,102,304,800
4		IEA SBS	813,700	28,874,700	113,453,300	204,293,900	307,518,300	380,436,100	1,035,390,000
5	MPI Technical Report - 3rd set	Treasury/CCC - Lower	378,100	14,519,100	67,219,300	139,620,700	227,320,700	307,711,300	756,769,300
6		Treasury/CCC - Central	588,900	22,195,400	97,092,500	186,111,400	286,636,300	366,629,200	959,253,800
7		Treasury/CCC - Higher	765,600	28,104,200	115,218,600	208,326,100	312,194,700	386,610,400	1,051,219,600
8		IEA SBS	606,200	21,870,500	89,807,700	171,003,600	268,357,700	346,834,000	898,479,500
9	MPI Technical Report - 4th set	Treasury/CCC - Lower	312,500	11,957,100	55,499,500	117,610,100	195,705,600	271,219,400	652,304,200
10		Treasury/CCC - Central	484,200	18,476,800	83,733,200	167,289,500	263,834,200	345,891,700	879,709,500
11		Treasury/CCC - Higher	652,500	24,482,400	104,878,700	196,097,700	298,331,400	376,443,100	1,000,886,000
12		IEA SBS	498,400	18,069,300	75,411,800	147,847,100	239,048,900	318,730,300	799,605,700

Change

Scenario	Afforestation responsiveness	NZU price path	2020 to 2025	2026 to 2030	2031 to 2035	2036 to 2040	2041 to 2045	2046 to 2050	Total
1	MPI Technical Report - 2nd set	Treasury/CCC - Lower	-2,700	-90,100	-277,800	-352,600	-410,000	-330,500	-1,463,800
2		Treasury/CCC - Central	-1,900	-55,100	-129,500	-139,700	-154,800	-91,600	-572,600
3		Treasury/CCC - Higher	-900	-24,000	-47,000	-48,900	-53,400	-24,900	-199,100
4		IEA SBS	-1,800	-56,700	-163,600	-199,700	-223,300	-164,600	-809,500
5	MPI Technical Report - 3rd set	Treasury/CCC - Lower	-1,900	-67,400	-249,100	-381,400	-486,800	-477,700	-1,664,300
6		Treasury/CCC - Central	-2,000	-64,000	-187,100	-226,400	-258,900	-196,200	-934,500
7		Treasury/CCC - Higher	-1,500	-44,300	-105,200	-114,400	-126,800	-76,300	-468,600
8		IEA SBS	-2,000	-66,400	-221,900	-310,800	-364,600	-310,800	-1,276,500
9	MPI Technical Report - 4th set	Treasury/CCC - Lower	-1,500	-53,200	-209,500	-351,300	-478,100	-512,400	-1,605,900
10		Treasury/CCC - Central	-1,700	-58,300	-191,300	-254,800	-302,100	-258,300	-1,066,600
11		Treasury/CCC - Higher	-1,600	-49,100	-131,900	-151,700	-170,500	-118,200	-622,900
12		IEA SBS	-1,700	-59,800	-213,700	-325,400	-400,600	-368,000	-1,369,200

Percentage change

Scenario	Afforestation responsiveness	NZU price path	2020 to 2025	2026 to 2030	2031 to 2035	2036 to 2040	2041 to 2045	2046 to 2050	Total
1	MPI Technical Report - 2nd set	Treasury/CCC - Lower	-0.50%	-0.43%	-0.30%	-0.20%	-0.15%	-0.09%	-0.16%
2		Treasury/CCC - Central	-0.24%	-0.19%	-0.11%	-0.07%	-0.05%	-0.02%	-0.05%
3		Treasury/CCC - Higher	-0.10%	-0.07%	-0.04%	-0.02%	-0.02%	-0.01%	-0.02%
4		IEA SBS	-0.22%	-0.20%	-0.14%	-0.10%	-0.07%	-0.04%	-0.08%
5	MPI Technical Report - 3rd set	Treasury/CCC - Lower	-0.50%	-0.46%	-0.37%	-0.27%	-0.21%	-0.16%	-0.22%
6		Treasury/CCC - Central	-0.34%	-0.29%	-0.19%	-0.12%	-0.09%	-0.05%	-0.10%
7		Treasury/CCC - Higher	-0.20%	-0.16%	-0.09%	-0.05%	-0.04%	-0.02%	-0.04%
8		IEA SBS	-0.33%	-0.30%	-0.25%	-0.18%	-0.14%	-0.09%	-0.14%
9	MPI Technical Report - 4th set	Treasury/CCC - Lower	-0.47%	-0.44%	-0.38%	-0.30%	-0.24%	-0.19%	-0.25%
10		Treasury/CCC - Central	-0.35%	-0.31%	-0.23%	-0.15%	-0.11%	-0.07%	-0.12%
11		Treasury/CCC - Higher	-0.24%	-0.20%	-0.13%	-0.08%	-0.06%	-0.03%	-0.06%
12		IEA SBS	-0.35%	-0.33%	-0.28%	-0.22%	-0.17%	-0.12%	-0.17%

Afforestation (hectares)

Status quo

Scenario	Afforestation responsiveness	NZU price path	2020 to 2025	2026 to 2030	2031 to 2035	2036 to 2040	2041 to 2045	2046 to 2050	Total
1	MPI Technical Report - 2nd set	Treasury/CCC - Lower	200,600	469,300	544,500	564,900	573,300	576,700	2,929,400
2		Treasury/CCC - Central	283,500	554,600	575,700	578,200	578,800	578,900	3,149,700
3		Treasury/CCC - Higher	323,900	574,200	578,700	579,000	579,000	579,000	3,213,700
4		IEA SBS	283,000	527,200	564,500	576,400	578,700	578,900	3,108,800
5	MPI Technical Report - 3rd set	Treasury/CCC - Lower	139,800	356,100	466,000	516,000	545,300	561,400	2,584,500
6		Treasury/CCC - Central	215,300	491,700	556,200	570,600	575,900	577,900	2,987,700

7		Treasury/CCC - Higher	275,600	550,800	574,900	578,000	578,700	578,900	3,136,900
8		IEA SBS	213,300	434,400	515,800	560,200	574,600	577,600	2,876,000
9		Treasury/CCC - Lower	115,000	294,600	403,900	466,000	509,500	537,800	2,326,800
10	MPI Technical Report - 4th set	Treasury/CCC - Central	178,100	436,600	528,400	556,600	569,300	574,900	2,843,900
11		Treasury/CCC - Higher	238,700	520,200	566,800	575,200	577,800	578,600	3,057,300
12		IEA SBS	175,900	369,800	466,400	536,000	566,000	574,100	2,688,200

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Scenario	Afforestation responsiveness	NZU price path	2020 to 2025	2026 to 2030	2031 to 2035	2036 to 2040	2041 to 2045	2046 to 2050	Total
1		Treasury/CCC - Lower	199,660	468,390	544,160	564,780	573,250	576,700	2,926,940
2	MPI Technical Report - 2nd set	Treasury/CCC - Central	282,960	554,310	575,650	578,160	578,790	578,950	3,148,820
3		Treasury/CCC - Higher	323,630	574,150	578,680	578,950	578,990	579,000	3,213,410
4		IEA SBS	282,450	526,740	564,380	576,390	578,660	578,930	3,107,540
5		Treasury/CCC - Lower	139,080	354,990	465,260	515,560	545,000	561,280	2,581,170
6	MPI Technical Report - 3rd set	Treasury/CCC - Central	214,650	491,150	556,010	570,550	575,910	577,890	2,986,170
7		Treasury/CCC - Higher	275,140	550,540	574,900	577,970	578,730	578,930	3,136,220
8		IEA SBS	212,680	433,550	515,350	560,060	574,610	577,610	2,873,840
9		Treasury/CCC - Lower	114,440	293,670	403,060	465,390	509,090	537,540	2,323,200
10	MPI Technical Report - 4th set	Treasury/CCC - Central	177,520	435,870	528,080	556,490	569,250	574,880	2,842,090
11		Treasury/CCC - Higher	238,200	519,900	566,740	575,150	577,770	578,610	3,056,370
12		IEA SBS	175,310	368,910	465,810	535,750	565,940	574,020	2,685,730

Change

Scenario	Afforestation responsiveness	NZU price path	2020 to 2025	2026 to 2030	2031 to 2035	2036 to 2040	2041 to 2045	2046 to 2050	Total
1		Treasury/CCC - Lower	-910	-950	-350	-150	-60	-20	-2,400
2	MPI Technical Report - 2nd set	Treasury/CCC - Central	-560	-250	-40	-9	-2	0	-860
3		Treasury/CCC - Higher	-240	-50	-3	-1	0	0	-290
4		IEA SBS	-570	-510	-150	-30	-4	-1	-1,300
5		Treasury/CCC - Lower	-670	-1,100	-730	-450	-260	-120	-3,300
6	MPI Technical Report - 3rd set	Treasury/CCC - Central	-650	-580	-180	-70	-20	-7	-1,500
7		Treasury/CCC - Higher	-450	-210	-30	-8	-2	0	-710
8		IEA SBS	-660	-870	-450	-150	-30	-9	-2,200
9		Treasury/CCC - Lower	-520	-970	-830	-620	-420	-240	-3,600
10	MPI Technical Report - 4th set	Treasury/CCC - Central	-590	-710	-310	-150	-70	-20	-1,800
11		Treasury/CCC - Higher	-500	-350	-80	-30	-8	-2	-970
12		IEA SBS	-590	-900	-610	-270	-90	-30	-2,500

Percentage change

Scenario	Afforestation responsiveness	NZU price path	2020 to 2025	2026 to 2030	2031 to 2035	2036 to 2040	2041 to 2045	2046 to 2050	Total
1		Treasury/CCC - Lower	-0.45%	-0.20%	-0.06%	-0.03%	-0.01%	0.00%	-0.08%
2	MPI Technical Report - 2nd set	Treasury/CCC - Central	-0.20%	-0.05%	-0.01%	0.00%	0.00%	0.00%	-0.03%
3		Treasury/CCC - Higher	-0.07%	-0.01%	0.00%	0.00%	0.00%	0.00%	-0.01%
4		IEA SBS	-0.20%	-0.10%	-0.03%	0.00%	0.00%	0.00%	-0.04%
5		Treasury/CCC - Lower	-0.48%	-0.30%	-0.16%	-0.09%	-0.05%	-0.02%	-0.13%
6	MPI Technical Report - 3rd set	Treasury/CCC - Central	-0.30%	-0.12%	-0.03%	-0.01%	0.00%	0.00%	-0.05%
7		Treasury/CCC - Higher	-0.16%	-0.04%	-0.01%	0.00%	0.00%	0.00%	-0.02%
8		IEA SBS	-0.31%	-0.20%	-0.09%	-0.03%	-0.01%	0.00%	-0.08%
9		Treasury/CCC - Lower	-0.45%	-0.33%	-0.21%	-0.13%	-0.08%	-0.04%	-0.15%
10	MPI Technical Report - 4th set	Treasury/CCC - Central	-0.33%	-0.16%	-0.06%	-0.03%	-0.01%	0.00%	-0.07%
11		Treasury/CCC - Higher	-0.21%	-0.07%	-0.01%	0.00%	0.00%	0.00%	-0.03%
12		IEA SBS	-0.34%	-0.24%	-0.13%	-0.05%	-0.02%	0.00%	-0.09%

Appendix 6: Options that discount charges for very small forests

Red shading indicates where Option (1) differs from the main proposals.

Service	Current fee	Main proposals (no discount for very small forests)	Options which discount charges for very small forests Option (1)
Currently charged services			
(a) Apply to register	$488.89 plus $115.55 per hour, or part hour, in excess of 4.25 hours	0-49ha: $1,815.00 50-99ha: $1,980.00 100-500ha: $2,640.00 500+ha: $4,125.00	For very small forests below 2ha for Option (1a), 5ha for Option (1b), or 10ha for Option (1c): $488.89 Otherwise: up to 49ha: $1,815.00 50-99ha: $1,980.00 100-500ha: $2,640.00 500+ha: $4,125.00
(b) Emissions return processing	$88.89 plus $115.55 per hour in excess of 45 minutes	$165.00	$165.00
(c) Travel for purpose of checking that land is post-1989 forest land	$115.55 per hour plus disbursements at actual costs	$165.00 per hour plus disbursements at actual costs	$165.00 per hour plus disbursements at actual costs
(d) Adding one or more Carbon Accounting Areas	$88.89 plus $115.55 per hour in excess of 45 minutes	0-49ha: $1,815.00 50-99ha: $1,980.00 100-500ha: $2,640.00 500+ha: $4,125.00	For very small forests below 2ha for Option (1a), 5ha for Option (1b), or 10ha for Option (1c): $88.89 Otherwise: up to 49ha: $1,815.00 50-99ha: $1,980.00 100-500ha: $2,640.00 500+ha: $4,125.00
(e) Notification of transmission of interest	$88.89 plus $115.55 per hour in excess of 45 minutes	$990.00	$990.00
(f) Emission ruling	$408.70.00 plus $102.17 per hour in excess of 4 hours	$495 plus $165 per hour in excess of 4 hours	$495 plus $165 per hour in excess of 4 hours
Newly-charged services			
(g) Removing a carbon accounting area (whole)		$495.00	$495.00
(h) Removing a carbon accounting area (part)		$1,072.50	$1,072.50
(i) Request for forest carbon stock table		$1,980.00	$1,980.00