NEW ZEALAND

Submission on emissions removals to the Supervisory Body of the Article 6.4 Mechanism

July 2023

1. New Zealand welcomes the opportunity to provide input to the guidance on rules, modalities and procedures for carbon dioxide removals (CDR) under the mechanism established by Article 6, paragraph 4, of the Paris Agreement.
2. Key messages are detailed below. Appendix 1 responds to 'Elements for structured consultation and further work' in a tabular format. Appendix 2 provides context of New Zealand's forestry removals and emissions trading scheme.

Key messages

Definition of removals

3. New Zealand endorses the definition set out in the technical summary of Climate Change 2022: Mitigation of Climate Change, the Working Group III contribution to the IPCC's 6th Assessment Report:
    - *CDR refers to anthropogenic activities removing CO_2 from the atmosphere and durably storing it in geological, terrestrial, or ocean reservoirs, or in products. It includes existing and potential anthropogenic enhancement of biological, geochemical or chemical CO_2 sinks, but excludes natural CO_2 uptake not directly caused by human activities.*
4. This definition should be retained unless there are 1) clear reasons to amend it and 2) the revisions materially improve clarity.
5. This definition focuses on the results achieved and is neutral as to the methods or technologies employed. Risks and issues raised by different removals activities (including new technologies) will vary. Risks and issues should be assessed and managed with consistent rules, criteria and standards, rather than by excluding particular methods or technologies from the definition of removals for the Article 6.4 mechanism.
6. New Zealand encourages the Supervisory Body to consider including in the definition of removals: activities to abate and ultimately reverse emissions from degraded natural carbon sinks such as drained organic soils in peatland, where rewetting and restoration can reduce and ultimately reverse net emissions. This would require expanding the scope of the definition beyond CO_2 removals, to include the net change in N_2O and CH_4 emissions from these soils.

The role of removals

7. New Zealand endorses the description of the roles of carbon dioxide removals (CDR) in mitigation strategies set out in the technical summary of Climate Change 2022: Mitigation of Climate Change, the Working Group III contribution to the IPCC's 6th Assessment Report:
    - *As part of ambitious mitigation strategies at global or national levels, gross CDR can fulfil three different roles in complementing emissions abatement:*
        i. *lower net CO_2 or GHG emissions in the near term;*
        ii. *counterbalance 'hard-to-abate' residual emissions such as CO_2 from industrial activities and long-distance transport, or CH_4 and nitrous oxide from agriculture, in order to help reach net zero CO_2 or GHG emissions in the mid-term;*
        iii. *achieve net negative CO_2 or GHG emissions in the long term if deployed at levels exceeding annual residual emissions.*
8. Removals must complement rather than substitute for ambitious emission reductions. The role of removals in nations' mitigation strategies will vary according to countries' differing circumstances, including their emissions profiles, their economic characteristics, geography and ecology.

Crediting should be based on comprehensive monitoring and accounting

9. Comprehensive and regular monitoring and accounting for removals and emissions (reversals) is important for accurate crediting.
10. New Zealand is concerned that simply defining the length of time that removals are considered permanent issuing credits, based on an ex-ante forecast of the volume of removals expected to be achieved over this time period, is unlikely to fully account for natural fluxes in natural systems or provide an incentive for ongoing management of carbon sinks.
11. New Zealand encourages the Supervisory Body to, instead, adopt an approach that comprehensively monitors and accounts for emissions (reversals) and removals. This is likely to be more accurate. New Zealand employs this approach within its NDC and domestic ETS.

Liability for reversals should be maintained long-term, preferably indefinitely

12. New Zealand encourages the Supervisory Body to adopt an approach that imposes ongoing, indefinite liability for any reversal of credited removals. This is likely to achieve greater permanence of removals than any approach that defines a given minimum time period of sequestration as "permanent" and allows reversals after that period to occur with no liability arising.
13. Maintaining liability for reversals over an indefinite period provides an incentive to protect carbon sinks over the long term. New Zealand employs this approach within its NDC and domestic ETS. For example, in the New Zealand system carbon stocks (including reversals) are monitored and accounted for over time both within New Zealand's NDC and domestic ETS. Liability to surrender ETS units in the event of reversal generally remains with the landowner.
14. Liability should follow the beneficiary, and/or the party best placed to manage reversal risks, with appropriate arrangements and safeguards for the long-term (i.e. potentially indefinite) nature of the obligations.

New Zealand supports the use of emissions insurance products and buffer pools to manage non-permanence and reversal risks.

15. Insurance / guarantee / buffer pool requirements for different types of removal activity should reflect the nature and scale of risks involved.
16. New Zealand considers that important risk assessment components include:
    - identification of risk - including local climate conditions, susceptibility to natural disasters, governance and policy stability, and land-use trends
    - monitoring and accounting of emissions (reversals) and removals to ensure permanence
    - training and capacity building – to ensure host parties and projects are equipped to minimise non-permanence risk
    - ongoing review and improvements to review risks and associated mitigation strategies.

New Zealand has concerns with prescriptive rules around land-use change

17. Guidance should not be overly prescriptive with rules around long-term prohibition on land use change and/or intentional reversals (e.g. by deforestation of plantation forests). Landowners or project proponents who wish to reverse removals for which credits have been issued should be able to do so, provided they surrender credits equal to the volume of any resulting reversal (plus additional penalties in some cases).
18. New Zealand opposes the inclusion in international removals guidelines of a specified minimum permanence period for forestry during which forested land cannot be deforested (this unnecessarily constrains land-use). Instead, New Zealand recommends that this issue is addressed, allowing reversal if these are appropriately and fully compensated for (equivalent credits and appropriate penalties).

International guidelines should give effect to and not prejudice the rights and interests of indigenous peoples and vulnerable communities.

19. New Zealand is concerned that poorly governed and regulated removals activities can disadvantage indigenous people and vulnerable communities. Potential harms include:
    - the loss of use and control over land,
    - project operators capturing removal activity revenues, but transferring liability for reversals to indigenous land owners without fair compensation,
    - displacing alternative land uses such as food production, and
    - imposing other risks and costs on vulnerable communities.

    New Zealand is also aware that removals can offer significant benefits to indigenous peoples and vulnerable communities.
20. Well-governed markets and other mechanisms to incentivise forestry and other land-based CDR activities can offer communities valuable and sustainable options for economic use of their land. But inflexible rules developed with the intent to protect indigenous people and vulnerable communities can have perverse outcomes.

21. Excluding particular removals activities from the mechanism, or overly constraining communities' choices about land use may restrict the rights, interests and opportunities of indigenous people to make informed choices over the use of their land. This can compound the harms that many indigenous communities have historically experienced in the loss of their most productive agricultural land.
22. Māori, the indigenous people of Aotearoa New Zealand have extensive interests in forestry, agriculture and land, and make a large contribution to New Zealand's afforestation removals, incentivised through our Emissions Trading Scheme. Under this system, credits are earned as new forests grow and, for production forests, are calculated by averaging across multiple harvest cycles. Liability to repay any credits earned for forestry removals if these are reversed is permanent, with no expiry date. But landowners can (subject to environmental and land use laws) choose to deforest their land if they meet their liability for reversals. This right to make choices over land use is especially important in the case of communally owned land, to ensure intergenerational equity and avoid communities losing control over or otherwise becoming alienated from their land.
23. Setting a minimum time period for sequestration could impinge on these rights and local laws designed to protect them; for instance to help prevent alienation of Māori land Te Ture Whenua Māori Act places restrictions on long-term lease arrangements over 52 years.

Appendix 1: New Zealand's responses to 'Elements for structured consultation and further work'

Cross-cutting Questions	
1. Discuss the role of removals activities and this guidance in supporting the aim of balancing emissions with removals through mid-century.	
New Zealand shares the view that removals cannot substitute for gross emissions reductions, as evident through the New Zealand Government's decision to prioritise reducing gross emissions in New Zealand's first emissions reduction plan. New Zealand endorses the description of the roles of carbon dioxide removals (CDR) in mitigation strategies set out in the technical summary of Climate Change 2022: Mitigation of Climate Change, the Working Group III contribution to the IPCC's 6th Assessment Report: *As part of ambitious mitigation strategies at global or national levels, gross CDR can fulfil three different roles in complementing emissions abatement:* *(i) lowering net GHG emissions in the near term;* *(ii) counterbalancing 'hard-to-abate' residual emissions such as CO_2 from industrial activities and long-distance transport, or CH_4 and nitrous oxide from agriculture, in order to help reach net zero CO_2 or GHG emissions in the mid-term;* *(iii) achieving net negative CO_2 or GHG emissions in the long term if deployed at levels exceeding annual residual emissions.* *Climate Change 2022: Mitigation of Climate Change, Technical Summary Box TS.10, p114* Transparency requirements for voluntary mitigation activities could help to ensure an appropriate net vs gross balance is achieved. Disclosure of gross emissions reduction efforts could be required before entities are allowed to make claims of offsetting or carbon neutrality. Similar transparency mechanisms have been proposed by international governance bodies and expert groups (High-Level Expert Group On The Net Zero Emissions Commitments Of Non-State Entities and VCMI). Removals must complement rather than substitute for ambitious emission reductions. The role of removals in nations' mitigation strategies will vary according to countries' differing circumstances, including their emissions profiles, their economic characteristics, geography and ecology.	
2. What are the roles and functions of the following entities in implementing the operations referred to in this guidance: Activity proponent(s), Article 6.4 mechanism Supervisory Body (6.4SB), 6.4 mechanism registry administrator, Host Party, stakeholders?	
Activity proposant(s)	Responsible for: • designing and implementing the removal activities • following the methodologies and protocols accepted by the Supervisory Body for removal activities; and

Cross-cutting Questions	

	• provide documentation and data for:
	  ○ validation and verification,
	  ○ how the activity contributes to sustainable development
	  ○ how removals are measured and monitored.

Supervisory Body (6.4SB)	Responsible for: • overseeing the integrity of the mechanism under Article 6.4, focusing on removal activities. • setting standards and methodologies for removal activities, ensuring they meet high environmental standards and contribute to the goals of the Paris Agreement • accrediting any entities that can validate and verify removal activities • (optional) keeping a record of removal activities and/or issuing credits based on verified removals
Mechanism registry administrator	Responsible for: • maintaining the registry of removal activities • tracking the issuance and transfer of units • providing transparency and integrity in the accounting of removals to help avoid double counting
Host party **Definition:** the country where the carbon removal project or activity is implemented.	Responsible for: • Ensuring the removal activity aligns with its NDC and contributes to sustainable development • Authorising the activity domestically, and ensuring the removals are accurately accounted for and reported • Should have regard to potential issues like permanence and leakage: risks inherent to any removal project
Stakeholders **Definition:** anyone that has a role in providing input and feedback on the design and	Responsible for: • Raising concerns regarding the environmental, social, and economic impacts of the removal projects • Engaging with the relevant activity proponent(s) and host party to ensure the removal activities are sustainable, do not adversely impact local ecosystems and commodities, and a broad range of views are presented to decision markets so as to make the most informed decisions.

Cross-cutting Questions	
implementation of removal activities	
3. How are these elements understood, in particular, any interrelationships in their functions, timeframes, and implementation? (a) Monitoring period (b) Crediting period (c) Timeframe for addressing reversals	
Monitoring period:	Specific period of time during which the project performance is assessed and reported to calculate the issuance volumes for that specific period. The length of the monitoring period varies per project type. For sequestration-based projects, monitoring periods need to consider the length of the required permanence.
Crediting period:	The specific period in which mitigation outcomes will be verified and credits issued.
Timeframe for addressing reversals:	New Zealand welcomes further clarity on the definition for 'timeframe for addressing reversals', we are aware of two potential definitions: 1. Period of time for which the responsible party(ies) are responsible for addressing reversals, including after the end of the crediting period. 2. Maximum period of time in which the responsible party(ies) must address reversals following a reversal event.
The monitoring period should align with the crediting period. If this is not possible, then multiple monitoring periods can occur within a single crediting period. Monitoring timeframes need to include reversals. If reversals are identified, the project proponents must take measures as per the established guidelines to address these reversals. The timeframe to address reversals should extend beyond the crediting period to ensure credits issued represent permanent removals. This means that even after an activity is no longer eligible to earn new credits, obligations remain to monitor and address any reversals that affect previously issued credits.	

Questions on Specific Elements	
A. Definitions	
Defining Removals	As a starting point for **setting** a definition of carbon dioxide removals, New Zealand endorses the definition in the technical summary of *Climate Change 2022: Mitigation of Climate Change*, the Working Group III contribution to the IPCC's 6th Assessment Report.

Questions on Specific Elements		
		CDR refers to anthropogenic activities removing CO_2 from the atmosphere and durably storing it in geological, terrestrial, or ocean reservoirs, or in products. It includes existing and potential anthropogenic enhancement of biological, geochemical or chemical CO_2 sinks, but excludes natural CO_2 uptake not directly caused by human activities. This definition should be retained unless there are clear reasons to amend it and the revisions materially improve clarity. The definition of removals should focus on the results achieved, and should be neutral in regard to the method or technology employed. The definition should not refer to "net removals" if this risks double-counting emissions that result from a removal activity and that are captured by other measures (for example energy inputs to a removals activity that are accounted for upstream in energy sector emissions measurement. **New Zealand recommends that the Supervisory Body consider including in the definition of removals activities to abate and ultimately *reverse* emissions from degraded natural reservoirs such as drained organic soils in peatland, where rewetting and restoration can reduce and ultimately reverse net emissions. This would require expanding the scope of the definition beyond carbon dioxide to include the net change in N_2O and CH_4 emissions from these soils.**
B. Monitoring and reporting		
1.	What timeframes and related procedures should be specified for these elements referred to in A6.4-SB003-A03?	Guidance for land-based biological removals could follow a similar reporting and monitoring procedures as those required through our domestic compliance market (ETS). The adoption of digital monitoring, reporting and verification processes (GIS/aerial and satellite imagery) could play an integral part in the management of land-based removal activities, particularly for monitoring following the last crediting period.
a)	For **initial** monitoring and submission of monitoring reports (paragraph 3.2.14);	5-yearly monitoring periods are suitable for forestry-based removals as they strike the right balance between effective monitoring and burden/compliance cost. Interim monitoring reports could be undertaken voluntarily if project developers anticipate there has been a change to project carbon stock. Monitoring windows should recognise different types of land-based removal activities, their sequestration rates and risk of reversal.

Questions on Specific Elements		
b)	For **subsequent** monitoring and submission of monitoring reports (paragraph 3.2.14);	Further third-party monitoring within the specified monitoring period could provide additional safeguards. Additional reporting requirements could apply in instances where participants undertake certain actions that could increase risk of reversal (e.g., change of land ownership).
c)	For monitoring and submission of monitoring reports following an observed event that could potentially lead to a reversal (paragraph 3.2.14);	
d)	For monitoring and reporting, including any simplified reporting, conducted after the end of the last crediting period of activities involving removals (paragraphs 3.1.10 and 3.2.13).	This should be centralised to avoid double issuance of units. This may need to be integrated with domestic project registries. At a minimum, there needs to be reporting to the central registry if integration was not possible.
C. Accounting		
1.	Discuss any further considerations to be given to the core elements for accounting for removals in A6.4-SB003-A03; where possible, identifying their applicable scope, i.e., relevance to all 6.4 mechanism activities, to removals activities, or to specific removal activity categories or types.	The guidance should consider: • existing guidance on crediting in excess of baselines and when carbon pools can be excluded (draw from existing guidance) • how to quantify emissions leakage • clear differentiation for units issued for temporary vs permanent removal activities and how to manage reversals in future crediting periods.
2.	For activities involving removals that also result in emissions reductions, what are the relevant considerations, elements, and interactions between this guidance and the requirements for the development and assessment of mechanism methodologies, including.	The guidance should clearly differentiate between removals and reductions, and note any exclusions (e.g., if rewetting drained organic soils is included in “removals”). The guidance should also consider: • Separate baseline settings for both removals and reductions. (e.g., determine what the emission levels for removals would have been in the absence of the project). • Appropriate measurement references: ○ removals should be quantified in terms of carbon sequestered

Questions on Specific Elements		
		○ reductions should be quantified in terms of emissions reduced at the source • Independent verification: improved integrity of the removal and reduction claim. • Clear differentiation for units issued for removal vs reduction activities, if linked to the same project, to avoid double claiming.
D. Crediting period		
Discuss any further considerations to be given to the core elements for crediting periods in A6.4- SB003-A03; where possible, identifying the applicable scope.		Credit periods should be differentiated by type of removal.
E. Reversals		
In order to minimize the risk of non-permanence of removals over multiple NDC implementation periods, and, where reversals occur, ensure that these are addressed in full.		An approach that imposes ongoing, indefinite liability for any reversal of credited removals is likely to achieve greater permanence of removals than any approach that defines a given minimum time period of sequestration as "permanent" and allows reversals after that period to occur with no liability arising. Liability should follow the beneficiary, and/or the party best placed to manage reversal risks, with appropriate arrangements and safeguards for the long-term (i.e., potentially indefinite) nature of the obligations. Maintaining liability for reversals over an indefinite period would also provide an incentive to protect carbon sinks over the long term. New Zealand employs this approach within its NDC and domestic ETS. An approach that comprehensively monitors and accounts for removals and emissions (reversals) with regular monitoring is likely to be more accurate than an approach that defines a specific time period as "permanent" and issues credits based on ex-ante forecasts of removal volumes expected to be achieved over this period. However, we would strongly oppose including in the 6.4 mechanism any long-term prohibition on land use change and/or intentional reversals (eg by deforestation of plantation forests). Landowners or project proposants who wish to reverse removals for which credits have been issued should be able to do so, provided they surrender credits equal to the volume of any resulting reversal (plus additional penalties in some cases).
1.	Discuss applicability and implementation aspects of these approaches, including as stand-alone measures or in	

Questions on Specific Elements		
	combination, and any interactions with other elements of this guidance:	
a)	Non-permanence risk buffer (pooled or activity-specific)	New Zealand shares the view that the use of buffer pools in managing non-permanence risk is sensible. Caution that if there are centrally held buffer pools (e.g., host party) there should be clear thresholds for when/where buffer pools can be accessed vs where project developers are liable for addressing the reversal.
b)	Insurance / guarantees for replacement of ERs where reversals occur (commercial, sovereign, other);	New Zealand shares the view that the use of emissions insurance products in managing non-permanence risk is sensible. Question whether there should be different insurance/guarantee requirements for different types of removal activity, for instance these requirements could be lesser for removal activities with lower risk of reversal.
c)	Other measures for addressing reversals in full	The Supervisory Body explore additional products, such as • provisional credits (which are replaced with permanent credits after a certain time has passed). • legal agreements • sovereign/government incentives • domestic environmental management policies etc
2.	Discuss the appropriate timeframe(s) for applying the approaches, including any interactions with other elements of this guidance and the applicable scope, i.e., relevance to all 6.4 mechanism activities, to removals activities, or to specific removal activity categories or types.	Under the New Zealand Emissions Trading Scheme, liability for any reversal of forest sequestration for which credits have been issued continues indefinitely. This liability generally sits with ownership or control of the afforested land, and it does not cease once some minimum defined period for "permanence" has elapsed. "Permanence" in this case relates to the duration of liability for any reversals. It does not set a fixed period of time for which landowners are prohibited from deforesting their land or otherwise changing land use. Instead, it requires that they surrender credits equal to the volume of any reversal (plus additional penalties in some cases), if they fail to maintain the volume of removals for which credits have been issued.
3.	What risks of non-permanence need to be minimized, and how can these risks identified, assessed, and minimized?	
4.	In respect of risk assessment, how should the following elements be considered in the implementation of the	The risk assessment process should include:

Questions on Specific Elements		
	approaches in (a) and any other relevant elements in this guidance?	• identification of risk - examining factors could include local climate conditions, susceptibility to natural disasters, political stability and land-use trends • assessment of potential impact and likelihood of non-permanence • strategies to mitigate this risk • training and capacity building – to ensure host parties and projects are better equipped to minimise non-permanence risk • ongoing review and improvements to review risks and associated mitigation strategies.
F. Avoidance of Leakage		
N/A	Discuss any further considerations to be given to the core elements for leakage avoidance in A6.4-SB003-A03; where possible, identifying the applicable scope.	The guidance should prescribe quantification methods and territorial boundaries for addressing leakage.
G. Avoidance of other negative environmental, social impacts		
N/A	Discuss considerations to be given to core elements for avoidance of other negative environmental, social impacts; where possible, identifying the applicable scope, i.e., relevance to all 6.4 mechanism activities, to removals activities, or to specific removal activity categories or types.	In some circumstances, the development of commercially oriented carbon dioxide activities can create risks of negative social and environmental effects with disproportionate impacts on local communities and indigenous peoples. Removal activities may also involve opportunity costs such as forgone alternative land uses (e.g.: for food and fibre production). Measures to address these risks and issues under the 6.4 mechanism should recognise that they are highly context specific. New Zealand considers it would be inappropriate to exclude entire removal activity categories or types from the 6.4 mechanism on the basis that they may, in some contexts, have adverse effects. Instead, the rules developed for the mechanism should seek to ensure that risks are properly considered and managed, drawing on existing international standards for protecting communities' rights and interests. This may include setting criteria and minimum standards for decision making processes, governance and monitoring, requirements for social and environmental impact assessments, and protection of the rights and interests of affected communities.

Questions on Specific Elements		
		Land-based removals activities offer both risks and opportunities for local communities and indigenous peoples. Indigenous owners and custodians of land have interests in and rights to make informed choices about the commercial use of their land, including for removals activities. In New Zealand. Māori hold extensive interests in land, forestry and agriculture. For example, Māori have a significant interest in land used for sheep and beef farming which could be converted into forestry if that provided better returns and other outcomes to landowners. Well-governed markets and other mechanisms to incentivise land-based biological CDR activities can offer communities valuable and sustainable options for economic use of their land. Rules developed to protect the interests of indigenous peoples would have perverse outcomes if their effect were to unduly restrict the rights, interests and opportunities of indigenous people to make informed choices over the commercial use of land in which they hold interests for CDR activities.

Appendix 2:
New Zealand's context – a high integrity forestry removals system

New Zealand has managed forestry removals in our Emissions Trading Scheme (ETS) since 2008. This feeds into our Greenhouse Gas Inventory and NDC accounting. Both our ETS and our NDC accounting follow international guidelines to ensure removals from forestry are robust with high integrity, and represent real, additional, and permanent removals.

Comprehensive monitoring, reporting and verification ensures that removals are accurately measured, and permanence is assured. Historical geographic information system (GIS) analysis is core to the forestry ETS management, while forest eligibility and compliance are analysed using aerial and satellite imagery.

Following international guidelines, New Zealand's approach credits the long-term, enduring removals of carbon dioxide by new forestry activities, and ensures human-induced reversals (e.g. deforestation) are accounted for.

- The ETS includes systems to address reversals, additionality and permanence. Removal units must be surrendered when carbon stocks reduce. Deforestation of pre-1990 planted forest creates requirements to surrender units.
- A new averaging accounting approach better accommodates the cyclical nature of our fast-growing production forests. It aims to ensure only permanent removals by forests count towards our targets.
- New Zealand's system for removals has been evolving since the inception of our ETS. **New Zealand officials welcome the opportunity to discuss any aspects of our system with the Supervisory Body.**

New Zealand's forestry removals context

More than a third of New Zealand's land area consists of forests:

- 80% are *natural forests* protected by our Conservation and Forests Acts.
- *Production forests* make up around 20% of NZ's forest land, over which landowners have a degree of flexibility to make economic and other use of their land and resources.

New Zealand's deforestation rate is very low due to strong land and resource use laws. Combined with afforestation incentives under the ETS and other policies, this means that New Zealand has projected net afforestation.

The Government's vision for our forests for 2050 is set out in the Emissions Reduction Plan[1]. Forests will continue to play a critical role: as carbon sinks, directly offsetting emissions; and as a sustainable source of high-value low-emissions materials and bioenergy, as a key part of our low-emissions economy. Wood fibre-based products from our production forests provide a substitute for high-emissions materials, and offer opportunities to develop high-value exports.

[1] See Ministry for the Environment: New Zealand's First Emissions Reduction Plan 2022-25

Forest removals play a critical role in meeting New Zealand's NDC and achieving net-zero long-lived emissions by 2050

Forestry makes a significant contribution towards New Zealand's NDC[2] and domestic emission budgets and targets. New Zealand's NDC includes removals from post-1989 forests and emissions from deforestation of all forests.

New Zealand has adopted legislated[3] emissions reduction targets for 2050 of:

- net zero greenhouse gas emissions (except biogenic methane)
- a 24-47% reduction in biogenic methane.

A system of emissions budgets act as stepping-stones, or interim targets, to reaching our 2050 emissions reduction targets. The Government published the first three emissions budgets (2022–2025, 2026–2030, 2031–2035) in May 2022 with its first Emissions Reduction Plan.[4]

- For the first emissions budget (2022–2025), forecast net removals by forestry were 24.1 Mt CO_2-e (million tonnes CO_2-equivalent). For the second emissions budget (2026–2030) forecast forestry removals increase to 55.2 Mt CO_2-e.[5]
- Our native forests are significant carbon stores. They are estimated to hold about 1.8 billion tonnes of carbon in their biomass.[6]

New Zealand's unique emissions profile makes forest removals particularly important. More than 80% of New Zealand's electricity already comes from renewable sources, while half of New Zealand's emissions come from agriculture. Consequently, while New Zealand's priority is to reduce gross emissions[7], forestry plays an important role in offsetting emissions in sectors that cannot easily reduce their emissions.

New Zealand has developed robust systems for forestry removals since their inclusion in our Emissions Trading Scheme in 2008, which feed into our NDC accounting.

Our latest projection estimates that forestry could remove between 74 and 95 million tonnes of removals towards New Zealand's NDC[8]. In 2021, the Land Use, Land Use Change and Forestry (LULUCF) sector offset 27 per cent of New Zealand's gross emissions.[9]

New Zealand's Nationally Determined Contribution[10]

New Zealand's first NDC was updated on 31 October 2021 with the headline target of a 50 per cent reduction of net emissions below our gross 2005 level by 2030.

Meeting this target requires a mix of:

- reductions in domestic emissions, including all sectors and all GHGs, as reported under Paris Agreement following methodologies from the 2006 IPCC guidelines

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[2] New Zealand's first Nationally Determined Contribution period covers 2021-2030.
[3] See Climate Change Response Act (2002), section 5Q
[4] See Ministry for the Environment: Emissions budgets and the emissions reduction plan
[5] See table 6: 2022 LULUCF Accounting Projections (mpi.govt.nz)
[6] New Zealand's Greenhouse Gas Inventory 1990–2019, p. 260.
[7] New Zealand's first emissions reduction plan (environment.govt.nz)
[8] 2022 LULUCF Accounting Projections (mpi.govt.nz)
[9] New Zealand's Greenhouse Gas Inventory 1990-2021, Chapters-1-15
[10] https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/nationally-determined-contribution

- removal of carbon dioxide by forests, using an accounting approach based on a long-term average carbon stock for plantation forests and maturity for permanent forests.

NDC accounting

New Zealand has committed to account for NDC1 using a modified activity-based accounting framework (UNFCCC 2021). This includes emissions and removals associated with:

1. Afforestation and reforestation activities: for emissions and removals up to the long-term average stock for planted forests and maturity for permanent forests.
2. Deforestation activities: for emissions from land use conversion of forest land to non-forest land.
3. Forest management: for existing forests, which comprise forest planted before the 1990 activity start year (pre-1990 forests) and post-1989 forests above the long-term average carbon stock.

New Zealand's NDC accounting approach draws on the Kyoto Protocol forestry accounting rules that New Zealand used for the period 2013 to 2020. It modifies these rules to incorporate a **forest carbon "averaging" approach** for afforestation and reforestation activities.

This modified "averaging" approach better accommodates the cyclical nature of our fast-growing production forests and aims to ensure only permanent CO_2 removals by forests count towards our targets. It smooths out cyclical planting and harvesting, and only recognises the long term or permanent carbon store. This approach also has stronger environmental integrity by ensuring only long-term carbon storage counts towards our targets and aligns with some other countries' approaches, such as the European Union (EU). The averaging approach also greatly improves the incentives for new domestic afforestation when applied in NZ's ETS.

The environmental integrity of New Zealand's NDC is supported by comprehensive monitoring, reporting and verification, providing certainty that removals are accurately measured and permanence is assured. This is achieved through a long-running programme to monitor and measure land-use in New Zealand both geospatially and on-the-ground monitoring.

Benefits of the approach used within the NDC include:

- **Promoting additionality** – the rules incentivise new forest establishment, as only carbon storage in forests above a reference level is recognised as a credit in NDC accounts. They distinguish between new and existing activities - to provide credits or debits for anthropogenic GHG impacts, rather than pre-existing forest management.
- **Recognising national circumstances** – maintains NZ's Commitment Period 2 (CP2) (2013 – 2020) NDC accounting for flexible land-use (to offset carbon lost from production forest deforestation when it is replaced with a carbon equivalent new forest), flexible reference level accounting options, accounting for carbon stored in harvested wood products, and exclusions for natural disturbances (e.g.: unavoidable forest damage due to adverse events such as cyclones).
- **Discouraging deforestation** – decreases in carbon stored in forests are counted as emissions/debits in NDC accounting.
- **Managing risks to targets from production forest accounting** – using an averaging approach rather than continuing to account for temporary carbon storage changes in production forests reduces risks that New Zealand could reach or miss targets simply due to the timing of cyclical harvesting and replanting, rather than from new forest mitigation actions (or deforestation).

- **Better incentives for new forest establishment/additionality** – as most carbon storage is recognised upfront when a new forest is established, averaging creates a strong incentive to plant more forests to gain additional mitigation. Removing the cyclical impact of production forests also ensures the NDC better reflects new mitigation actions (and contributions are not just the product of past decisions to plant production forests).
- **Recognising permanence/likely long-term carbon storage and is consistent with UNFCCC reporting**. Averaging more accurately reflects carbon storage in forests and harvested wood products by only recognising the long-term average amount of carbon stored in them. For a production forest this is determined by accounting for carbon lost at harvest and stored by forest growth over several harvest rotations, this length of time is also sufficient to pick up carbon storage changes in permanent forests as they mature. The averaging approach addresses some countries' concerns under CP2 about treating carbon storage in plantation forests as the same as carbon storage in permanent forests, and depicting carbon storage in forests as permanent, when in reality all trees have a lifespan.

New Zealand's Emissions Trading Scheme (ETS)

The ETS is New Zealand's main policy mechanism to drive emission reductions and meet climate change targets. The ETS was designed to create incentives to reduce greenhouse gas emissions and help New Zealand meet international obligations under climate-change treaties like the Paris Agreement and the Kyoto Protocol. Forests have been included in the ETS since it was launched in 2008.

We follow international guidelines for NDCs under the Kyoto Protocol and Paris Agreement:

- sequestration is only recognised for additional afforestation after 1990 (the "BAU baseline")
- deforestation emissions are counted
- "forests" must meet minimum criteria
- only long-term carbon storage is recognised; and
- New Zealand's national circumstances are reflected (including allowing for "offsetting" for both pre-1990 and registered post-1989 forests, and mitigations for natural disturbances).

The ETS is based on trading New Zealand Units (NZUs). One NZU represents 1 tonne of carbon dioxide, or equivalent greenhouse gases.

NZUs can be bought or sold. The price for units reflects supply and demand in the scheme and changes over time. The government sets the number of units supplied into the scheme. Those responsible for GHG emissions in certain sectors must pay (or 'surrender') units. They must either surrender units they own, or buy units from the market to surrender. This increases the cost of emitting GHGs and incentivises businesses to reduce their net emissions.

Participants in the ETS can earn NZUs from activities that remove greenhouse gases from the atmosphere. The majority of NZUs earned for emissions removals are for carbon sequestered by forests as they grow. Projections (June 2022) indicate that over 80 per cent of emissions removals units over the next five years will be earned by forests planted after 1989 (known as Post-1989 forestry).

Eligibility for ETS

Forest land

To qualify as forest land in the ETS, the forest must:

- cover at least 1 hectare in area
- contain species that can reach at least 5 metres in height when mature in that location
- have (or be expected to reach) crown cover of more than 30% in each hectare
- be at least (or expected to reach) 30 metres across on average. [11]
    - Pre-1990 indigenous (native) forests are not included in the ETS. They are protected from deforestation under the Resource Management Act and the Forests Act.

[11] How forest land is defined in the ETS | NZ Government (mpi.govt.nz)

BAU baseline date – 1 January 1990

The ETS uses a baseline date of 1 January 1990, as agreed in the Kyoto Protocol. Forests in the ETS are therefore split into two principal classifications[12]:

- **Pre-1990 exotic forests**: forest land that was forest land at the end of 1989, and under exotic species at the end of 2007.
  Pre-1990 forests are counted as part of New Zealand's baseline, and cannot earn ETS units. Participants can harvest and replant these forests at no cost. However, they cannot deforest (i.e. change land use) without the landowner surrendering ETS units for the emissions associated with deforestation. The ETS creates an incentive for pre-1990 exotic forests to remain as forest.
- **Post-1989 forests**: forest land first established after 31 December 1989.
  Post-1989 forest land can enter the ETS **as standard or permanent forestry**.[13] Standard and permanent forestry differ in what participants are committing to once the land is in the ETS. Post-1989 forest land can include: regenerating and planted native (indigenous) forest; forests of exotic tree species; and mixed-species forest.

Permanent forestry

From 1 January 2023, eligible forests – exotic or indigenous – that are not intended to be clear felled for at least 50 years can be registered in the permanent forestry category. The permanent forest category allows participants to earn and trade NZUs based on the amount of carbon their forest removes from the atmosphere (sometimes referred to as "sequestration" or "removals" or "abatement"). Forests in the permanent forestry category will earn NZUs for as long as the forest is in the ground and the carbon stock is increasing, i.e., while forests within the permanent forest category continue growing.

The permanence period for permanent forestry within New Zealand's ETS of 50 years was set to recognise Māori right and interests. Under the wider legislation which governs Māori land (Te Ture Whenua Māori Act 1993), leases of over 52 years are treated as land alienation, and it is significantly more challenging for landowners to take part in the forestry activities. The now superseded Permanent Forest Sink Initiative (PFSI) initially had perpetual terms or 99-year terms and very low uptake. Following a review of the PFSI, it was determined a term of 50 years is most appropriate.

Permanence is ensured for permanent forestry within the ETS by monitoring and accounting for changes in carbon stocks, and units gained are required to be returned if the scheme is exited at the end of the 50-year term (the same approach is used in averaging accounting as below). There are options to keep the forest land in permanent forestry for another 25 years following the end of the initial term (and following subsequent terms).

Averaging accounting[14]

Averaging accounting is a carbon accounting method used in the ETS from 1 January 2023. Forests registered under averaging accounting earn units as a forest absorbs carbon until it reaches the amount of carbon it is expected to store in the long term. This is based on the average amount of carbon stored over many rotations (harvest cycles).

[12] Ministry for Primary Industries (2021): NZ Emissions Trading Scheme: Final policy decisions on regulations for forestry
[13] Post-1989 forest land in the ETS | NZ Government (mpi.govt.nz)
[14] Ministry for Primary Industries: Accounting for carbon in the ETS: Averaging accounting

This approach differs from the stock change accounting method, where participants earn and pay units based on calculations of the carbon stored in the forest at regular points in time. Before 2023, stock change accounting was the only accounting method available in the ETS.

Averaging accounting is intended to be simpler than stock change accounting, and better aligns our domestic settings with how we account for carbon stored in production forests internationally.

Summary of Standard and permanent forestry in the ETS

Standard forestry	Permanent forestry
Earn and pay (surrender) units based on averaging accounting in emissions returns.	Earn and pay (surrender) units based on stock change accounting in emissions returns.
Because the forest land enters the ETS under averaging accounting, participants only earn units while the first rotation of forest is younger than the ETS-specified average age for the forest.	Because the land is registered under stock change accounting, participants earn units as the trees grow and surrender units if there is a reduction in the carbon stocks.
Participants can harvest any area of the forest land at any time. They do not need to surrender units as long as they replant the forest so that the land isn't considered deforested.	Participants can only carry out limited harvesting of the forest. They may face a penalty if 30% or less of tree crown cover remains after clearing.
Participants can remove the land from the ETS at any time. They must pay (surrender) any units received for the land if they do (unless the land is permanently damaged by a natural event).	Participants cannot remove land from permanent forestry except in specific circumstances, with approval from the Minister for Climate Change. Participants have the option to remove the land from permanent forestry after 50 years, but doing so will require the full surrender of the unit balance.

Deforestation penalties apply to both types of forest.

Māori participation in forestry and the ETS

Māori, the indigenous peoples of New Zealand, are well positioned to contribute to and lead developments in forestry, both for exotic and native species. Māori own NZ$4.3 billion of assets in forestry and up to 2,200 Māori were employed in the sector[15].

Around 30 percent of New Zealand's 1.7 million hectares of plantation forestry is estimated to be on Māori land and this is expected to grow to 40 percent as Treaty of Waitangi settlements are completed. The roughly 1.4 million hectares of Māori customary and freehold land makes up approximately 5.7 per cent of all land in New Zealand.

Māori freehold and Māori customary land is disproportionately on remote, less versatile land (compared to general land) making it well suited to permanent afforestation. However, longer terms for permanence could disadvantage Māori by limiting their participation in the ETS. The Te Ture Whenua Act restricts the alienation of Māori land by long-term lease arrangements. These are defined in the Act as terms more than 52 years. To prevent the alienation of Māori land under the Act, the ETS permanent forest category term is limited to 50 years.

[15] New Zealand's first emissions reduction plan (environment.govt.nz)

Avoiding environmental and social impacts

New Zealand policy is designed to avoid unintended and harmful environmental and social impacts from removals, including on biodiversity, land and soils, ecosystem health, human health, food security, local livelihoods, and the rights of the indigenous peoples. Current policy is aligned with other outcomes via New Zealand's Emissions Reduction Plan and are managed through environmental and resource management laws which consider the impacts above.

To ensure regulatory settings deliver the right type and scale of forests, in the right place, the Government is considering changes to[16]:

- the ETS, to support a better mix of forest type, retain important productive land uses, avoid displacing gross emissions reductions, and better manage the potential long-term environmental effects of exotic forests - including restricting exotic forests from the permanent post-1989 forest category, and adjusting the application of accounting rules to land which is remote and/or marginal to harvest, to support production on this land.
- The National Environmental Standards for Plantation Forestry (NES-PF), to ensure environmental management of all exotic afforestation, including consulting on whether greater local control over location and forest types/species of forests is required.

[16] New Zealand's first emissions reduction plan (environment.govt.nz)