

Issues with the New Zealand Emissions Trading Scheme (ETS)

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While the Emissions Trading Scheme (ETS) has a number of aspects that should be improved, this note focuses only on those that directly impact forestry and land use.

Background: What is the ETS? How does it work?

The ETS is a market which prices greenhouse gas emissions. The higher the cost of emitting, the more incentive there is to make reductions. The ETS covers most of Aotearoa New Zealand's greenhouse gas emissions apart from agricultural methane and nitrous oxide.

Each year, covered companies are required to surrender one New Zealand Unit (NZU) for every tonne of carbon dioxide (or equivalent) emitted. Over time, the government can reduce emissions by reducing the number of NZUs made available. NZUs can be traded, which creates a market price and allows emissions reductions to be made where they are most cost effective.

Covered companies can obtain NZUs from several sources:

- Through regular government auctions
- Via free allocation from the government to "energy intensive trade exposed" companies
- From a large "stockpile" of unused NZUs that companies hold and have banked from previous years
- By purchasing forestry NZUs which correspond to removal of carbon dioxide (CO₂) from the atmosphere.

The ETS is currently structured to control "net" emissions¹: reductions in gross emissions are treated as fully equivalent to removals of CO₂ from the atmosphere through forestry. That is, if it is cheaper to do so, emitting companies have the option to purchase and surrender forestry NZUs rather than reduce their own emissions. The cost to convert marginal farming land to forestry is lower than the cost of many emission reduction options in the energy, transport, and industry sectors: as a result, the current ETS structure encourages substantial land-use change and has less impact on reducing gross emissions.

Forests established between 1990² and 2022 that are registered in the ETS earn or must surrender NZUs corresponding to their carbon "stock change", that is, the amount of carbon stored in the forest. As forests grow the carbon stock increases, earning NZUs, but if carbon stock is reduced

¹ "net" emissions = gross emissions - CO₂ removed through forestry

² Forests established before 1990 are not eligible to earn NZUs, but do face liabilities for deforestation. Pre-1990 forest owners were given a one-off allocation of NZUs when forestry entered the system as compensation for this. The distinction between pre- and post-1990 forests dates back to the accounting rules of the Kyoto Protocol which applied when the ETS was introduced. This accounting (with some modifications) is still used in the ETS and for New Zealand's domestic and international climate targets.

through harvest or conversion of land away from forestry (“deforestation”) then NZUs must be paid back accordingly.

From 2023 new ETS forestry rules apply:

- New production forests will earn NZUs only until they reach their long-run average carbon stock (averaged across planting and harvesting cycles). As a result, NZUs will only be earned during the growth phase of a first rotation of forestry. As long as trees are replanted there are no harvest liabilities and there are no NZUs earned on subsequent rotations. NZUs would still have to be paid back if land is converted away from forestry. This new regime, known as “averaging”, was intended to simplify participation for foresters.
- Forests registered in the new “permanent forestry” category (both new forests, and existing forests that are moved into the permanent category) can continue to earn NZUs on a stock-change basis. These forests must not be clear-felled for at least 50 years. The government consulted in late 2022 on whether to exclude exotic forests from the permanent category. It decided to redesign the permanent category, but not to exclude exotic forests in the meantime. In their decision, Ministers envisaged that a redesigned permanent category could put in place stronger measures around ongoing forest management, including requirements to transition to long-term indigenous carbon sinks.

Issue #1: CO₂ removals from forestry should not be traded off against gross emissions reductions: Both are important.

The International Energy Agency’s net-zero energy scenario shows that for 1.5C consistency, emissions from energy, transport and industry need to reach near zero globally by 2050, with the small amount of residual emissions captured and permanently stored. There is no offsetting of emissions with forestry. Developed countries’ emissions from these sectors reach near zero well before 2050. At the same time, global pathways show that halting deforestation and supporting reforestation are also critical for holding global temperature increase well below 2C (and ideally 1.5C). These international pathways show that both deep emission reductions and support for increased forestry removals are part of the climate change response.

New Zealand’s current long-term targets in the Climate Change Response Act (and as a result, our ETS settings) are based on a net-zero target for 2050³ that trades off emission reductions and CO₂ removals from forestry. Because buying forestry units is cheaper for companies than many emission reduction options, land conversion rather than emission reductions is currently the principal outcome.

In 2024, He Pou a Rangi (the Climate Change Commission) will provide its next advice on emissions budgets (adding a budget for 2036-40, and reviewing the existing budgets that have been set out to 2035). As part of this, it will assess and recommend whether the current 2050 target should be changed. The 2050 targets were set by political negotiation during the passage of the legislation, and in my view are not aligned with international expert views on 1.5C consistency, but this issue will not be debated until 2024.

However even with the current framework based on net emissions, He Pou a Rangi recommended a stronger focus on gross emissions reductions in the <manner> that the budgets are achieved. In

³ The net-zero target applies to gases other than biogenic methane (which has a separate target).

its 2021 advice, it found that continuing with current ETS design that only considers “net” emissions would lead to our 2050 net-zero target being met mostly through forestry removals, with very little reduction in gross emissions. Its modelling found that a steeply rising ETS price is expected to be needed to drive gross emission reductions, while even at a significantly lower price there is sufficient incentive for enough new forestry to meet the emissions budgets.

He Pou a Rangi advised that such a heavy reliance on forestry removals is not a durable net-zero strategy, because:

- to maintain net-zero after 2050 would require ever-increasing areas of land to be converted to forestry (remembering that forests only earn NZUs during the first rotation);
- it would leave Aotearoa out of step with the rest of the world which is making technology transition in these sectors; and
- it would leave future generations with the task of reducing gross emissions at the same time as they will need to be adapting to escalating climate change impacts.⁴

He Pou a Rangi also raised concerns about how “permanent” plantation pine forests are once mature, or whether they would be exposed to pests or windfall. Considering all these factors, they recommended *“Amending the NZ ETS to strengthen the incentive for gross emissions reductions and to manage the amount of exotic forest planting the NZ ETS drives, in line with the Commission’s advice on the proportion of emissions reductions and removals necessary for meeting emissions budgets”*.

The government agreed with this recommendation and has announced that there will be a consultation in Q2 of 2023 on ETS reform. This consultation provides an opportunity to realign the balance between emission reductions and land-use change driven by the ETS.

ISSUE #2: Under current ETS settings, there is a looming oversupply of forestry units.

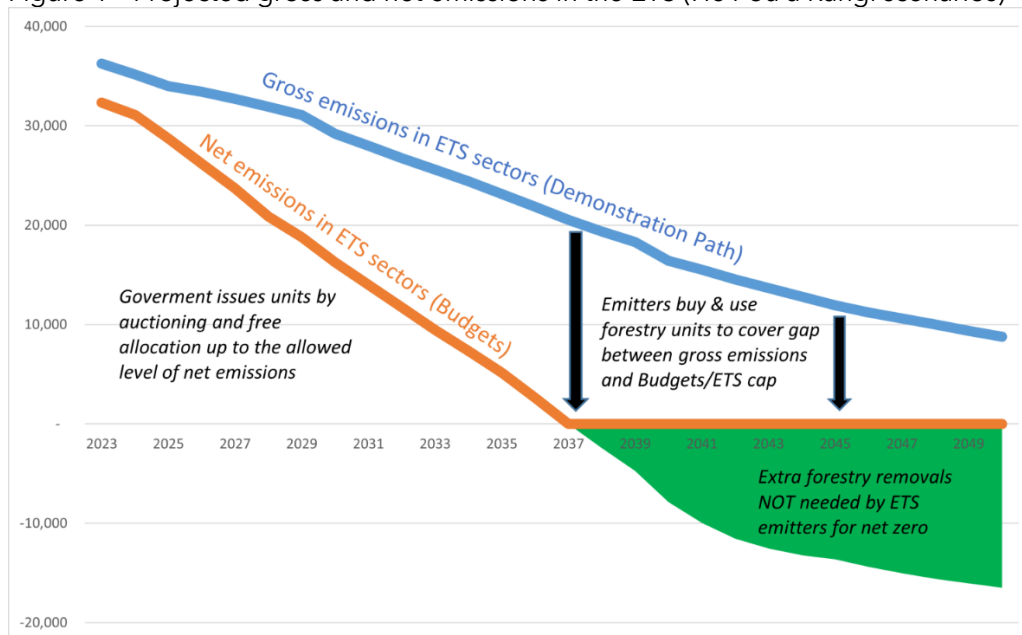
Under the current ETS design and current practice for making ETS settings, Figure 1 below shows the projections made by He Pou a Rangi for gross and net emissions in sectors covered by the ETS. The orange line shows the net emissions in ETS sectors consistent with meeting the legislated emissions budgets out to 2035. The government issues NZUs that allow emissions in ETS sectors up to that orange level. Companies can buy and use forestry credits to cover emissions beyond that level.

The projection for ETS sector net emissions goes to net-zero in around 2037. After 2037 if the ETS maintains a net-zero obligation on covered companies, then there will be a large surplus of forestry units that will not need to be bought by ETS emitters (the green area in Figure 1). That is, ETS emitters can buy forestry NZUs to cover all of their emissions, and still there will be a large quantity of forestry NZUs left over. There is currently no plan to deal with this surplus. Units could potentially be sold to other buyers such as

- the government, to meet New Zealand’s domestic and international targets
- farmers, if future governments were to bring in a requirement for agricultural emissions to be offset, or
- overseas buyers, if the government allows export of units.

⁴⁴ Ināia tonu nei, pg 90. <https://www.climatecommission.govt.nz/our-work/advice-to-government-topic/inaiatonu-nei-a-low-emissions-future-for-aotearoa/>

Figure 1 - Projected gross and net emissions in the ETS (He Pou a Rangi scenarios)



This means that even if the current “net” target is retained, the role of forestry in the ETS needs a major re-think.

Note that the government modelling still projects significant long-term oversupply of forestry NZUs even if exotic forestry were excluded from the “permanent forest” category. For example, Ministry for Primary Industries scenarios (which informed decisions on the permanent category) show that in 2050 there could be 30Mt of forestry removals vs 15Mt of emissions, even if exotic forests were excluded.⁵ In their modelling, including of exotic forests leads to a much higher surplus of forestry units that are not needed by ETS emitters.

ISSUE #3: The current ETS is much better aligned for fast-growing plantation pine forests than for slower-growing indigenous reforestation.

He Pou a Rangi recommended greater investment in new and regenerating native forests to deliver a long-term carbon sink, improve biodiversity, soil and water health, and realise recreational and cultural benefits. However native forests with long-lived tree species are slower growing, have high establishment and maintenance costs, and lack a downstream wood industry. These make the economic case for native reforestation challenging.

The government’s Emissions Reduction Plan proposed several responses:

- a review of the yield tables (carbon look up tables) that provide default values for carbon stored in different forest types, and extend these to greater than 50 years.
- Reducing the cost of native afforestation by working with the nursery sector

⁵ More discussion at <https://www.linkedin.com/pulse/forestry-ets-some-thoughts-ahead-fridays-consultation-christina-hood/>

- Investigating longer-term options, including supporting Māori-led approaches to native forest establishment⁶

These are worthwhile actions, but in themselves will not make the ETS a strong driver of native forest planting. The ETS is a system based around emissions and removals each year, which naturally favours rapidly-growing species. Other types of policy solutions to complement the ETS price signal are needed.

POSSIBLE ETS CHANGES

The government's review of ETS settings provides an opportunity to update the scheme to drive much deeper emission reductions in energy, transport and industry. The key challenge is how to realign the way forestry is supported so that it is done "as well as" not "instead of" making a transition away from fossil fuel emissions.

Because of the looming oversupply of forestry units in the ETS, solutions which propose to award native forests extra NZUs won't work. That type of proposal is also at odds with the fundamentals of the ETS, where each unit must represent one tonne of emissions emitted to or removed from the atmosphere.

In my view the best way forward at a high level is⁷:

- forests that receive NZUs should still be managed using the current architecture of the ETS (which is world-leading) to e.g. register forests, do measurement and reporting, set legal obligations, issue units, manage deforestation obligations, provide infrastructure for registries etc.
- However, there should be a change made to who <buys> forestry units. ETS participants should have cap for gross emissions, and no longer purchase/use forestry units. Forestry removals should instead be paid for by the government (which would receive enough increased auction revenue under a gross ETS cap to cover this cost) and/or by other purchasers. Most of the projected forestry removals to 2035 are needed to meet New Zealand's domestic emissions budgets, and any extra can reduce the need for offshore purchases toward New Zealand's current and next NDC. As such, the government could easily commit to being a backstop buyer for all forestry units issued until at least 2035.

This change would address the looming supply/demand imbalance in the ETS, and also means that a different price can be struck for forestry units than the ETS market price. Forest CO₂ removal would still be financially rewarded, but at its own appropriate level (reflecting its non-permanent storage of carbon) rather than the ETS price needed to drive energy system transformation.

Separation of forestry unit generation/management from purchase would also:

- make it easier to add additional payments that reflect other values beyond only short-term CO₂ removal: biodiverse native forests could for example receive added biodiversity credits or payment for erosion control.
- allow for better ongoing land-use flexibility, as land-use decisions would not be tied to the high and rising ETS price seen by emitters. The need for flexibility includes the potential future need for some forestry to be replaced with bioenergy or food crops.

⁶ Emissions Reduction Plan Action 14.2.3

⁷ A longer discussion can be found at <https://www.linkedin.com/pulse/nz-ets-re-design-gross-emission-reductions-better-land-christina-hood/>

- enable lower (social) discount rates to be used in assessment of policies to support long-term native reforestation. The short to medium term commercial returns from carbon forestry (reflected in commercial discount rates) do not capture the societal and environmental benefits of large-scale indigenous reforestation.
- open the door to long-term funding options, that “bring forward” the benefit of long-term sequestration to cover up-front costs. The government, or other buyers with very long-term interests (super funds etc.) could enter into long-term (e.g. 100 year) agreements for carbon rights, coupled with financial support for forest establishment and management.

In addition, it is critical that the government follow through with its intended redesign of the permanent forestry category: there should be strong and binding measures around long-term forest management, and an emphasis on indigenous carbon sinks for any newly planted forests. For Tairāwhiti a key question will be what the best transition path is for existing pine plantations. Should these be harvested at all? If not, how will ongoing forest management and transition to indigenous forest be funded? The permanent category in the ETS could potentially help transition existing forests that it is not appropriate to harvest, as well as to support new indigenous planting.

Finally, it is important to note that the ETS only provides a financial incentive relating to carbon, other policies are needed for appropriate land-use regulation. Land-use planning and resource management tools will be a critical part of improving forestry outcomes, but are additional to the ETS.