

# Regulatory Impact Statement: Agricultural Emissions Pricing

## Coversheet

Purpose of Document	
Decision sought:	Agreement to consult on and then legislate for an emissions pricing system on agricultural greenhouse gases as an alternative to the New Zealand Emissions Trading Scheme
Advising agencies:	Ministry for the Environment Ministry for Primary Industries
Proposing Ministers:	Minister of Climate Change Minister of Agriculture
Date finalised:	16/09/2022
Problem Definition	
<p>Aotearoa New Zealand needs to reduce its agricultural greenhouse gas emissions in order to meet our legislated targets, emissions budgets, and Nationally Determined Contribution, as well as to remain internationally competitive and environmentally sustainable producers of food and fibre.</p> <p>The majority of our agricultural greenhouse gas emissions, including most of our national biogenic methane emissions, comes from farming livestock, in particular sheep, beef, and dairy. However, the absence of a price for agricultural emissions means that pastoral farmers have limited financial incentives to reduce their emissions. They are likely to be producing more food and fibre, or to be producing with lower emissions efficiency, than would be the case if they faced the true cost of emissions. Pastoral farmers are also not incentivised to adopt practices and technologies that could reduce emissions.</p> <p>Other producers of food products in Aotearoa New Zealand also contribute to our total greenhouse gas emissions, including methane emissions from minor animal and animal product sectors (pigs, poultry, and eggs, etc.) as well as emissions associated with fertiliser used by growers (fruit, vegetables, crops), and likewise face limited financial incentives to reduce emissions.</p>	
Executive Summary	
<p>The agriculture sector plays an important part in Aotearoa New Zealand's transition to a low-emissions, climate-resilient, high-wage future. Agricultural greenhouse gas emissions contribute to around 50 per cent of Aotearoa New Zealand's total emissions, including most of our nitrous oxide and methane emissions.</p> <p>Aotearoa New Zealand has legislated targets to reduce:</p> <ul style="list-style-type: none"><li>• methane by 24–47 per cent by 2050 (compared to 2017 levels);</li><li>• methane by 10 per cent by 2030 (compared to 2017 levels); and</li><li>• long-lived gases to net zero by 2050.</li></ul> <p>The Climate Change Response Act 2002 requires an agricultural emissions pricing system to be in place by 2025. To support this process, the Government partnered with the food and fibre sector bodies and the Federation of Māori Authorities (FOMA) through the He Waka Eke Noa – Primary Sector Climate Action Partnership (the Partnership). The Government also commissioned the Climate Change Commission to assess the Partnership's recommendations,</p>	

and farmer readiness for a pricing system by 2025, and advise on any assistance that should be provided to farmers and growers under an agricultural emissions pricing system.

Officials considered the Partnership's and Commission's recommendations and advice and assessed the following options for pricing agricultural emissions:

- Option 1 – Processor-level Pricing in the NZ ETS
- Option 2 – Basic Farm-level Levy
- Option 3 – Partnership's Farm-level Levy
- Option 4 – Farm-level Pricing in the NZ ETS

Officials conclude that Option 2: Basic Farm-level Levy, building on the He Waka Eke Noa Partnership's design recommendations, is the preferred option. This is based on the three key criteria of effectiveness, practical, and equitable. Sub-options were also considered for Option 2, but not preferred.

A Cost-Benefit Analysis was also undertaken, comparing the long-term benefits of emissions reductions (and market premia from carbon-neutral products), with the costs of losses in net farm revenue and administrative and compliance costs. The comparison was across different processor and farm-level pricing systems and varying methane prices.

The analysis found that all options would have positive benefit-cost ratios, indicating that all have positive impacts compared to not pricing agricultural emissions. Benefit-cost ratios were comparable across all options; options which result in higher emission reductions have higher benefits, but at a cost of higher losses in net farm revenue.

Modelling indicated that the largest impacts to emissions pricing are expected to be lower production on sheep and beef farms, which have high emissions relative to production, and limited options to reduce emissions other than by lowering stock numbers. Dairy farms are also likely to reduce production in response to emissions pricing, but proportionately less; and other types of farms (e.g. arable, horticulture) are projected to expand modestly as a result of land use changes from pasture.

Direct impacts on farm production from emissions pricing may have significant flow-on effects, including upstream impacts on production from reduced farm inputs (e.g. agricultural contractors), and downstream effects if processors (e.g. meat works or dairy factories) have fewer products to process. There may be offsetting impacts associated with alternative land uses and the spending and employment associated with this.

Māori may be disproportionately affected because of the concentration of their assets in sheep and beef farming – it is estimated that Māori operate up to 25 per cent of New Zealand's sheep and beef farmland – as well as high levels of employment in industries related to agriculture such as meat processing. It is important to work with Māori landowners to understand how we can manage these impacts, to support a transition to a low-emission, climate-resilient future.

The impacts of reduced agricultural production will be greatest in areas where farming is a large part of the local economy, especially in remote rural communities with few alternative employment opportunities. Potential mitigation measures may focus around two key themes: reducing the risk of widespread financial hardship; and building rural skills and support systems, for instance through extension services and programmes.

It is expected that more information about potential impacts will be obtained through the consultation process.

The Government will publicly engage on its proposed pricing system, including the detail of how it will work in practice, and the impact it will have. This includes elements such as how the price will be set, the governance arrangements of the pricing system, what actions farmers will be rewarded for, and how on-farm sequestration should be recognised. Following public consultation, the Ministers of Agriculture and Climate Change will release a report, at the end of the year, outlining a preferred agricultural emissions pricing system. Final policy decisions on a pricing system will be made in early 2023.

Appendix One includes description and qualitative assessment of system elements that were not integrated into any of the final options presented in the main body of this document.

Appendix Two outlines the options considered for rewarding on-farm sequestration, which were developed in parallel to the pricing system options, and largely apply to Option 2A: Basic Farm-level Levy.

### Limitations and Constraints on Analysis

Much of the scope and scale of this analysis is determined by the history of this policy process and by legislated or Cabinet-mandated pathways.

This RIS is intended as an interim document to support Cabinet decisions ahead of consultation, with a final RIS developed on the basis of this analysis to support the subsequent decision to legislate. Therefore, in agreement between our agencies and with the QA panel for this RIS, several elements of regulatory impact assessment either sit within our parallel discussion document (*Te tātai utu o ngā tukunga ahuhenua – Pricing agricultural emissions (2022)*) or will be updated following consultation. Please refer to the discussion document for additional details on the proposed options and implementation pathways.

The proposed discussion document supports a consultation process to gather feedback on the design elements of a proposed agricultural emissions pricing system. As this consultation process is intended to get stakeholder feedback on the proposed emissions pricing system, it is not possible to provide any detailed assessment of stakeholder views.

The analysis draws on modelling of the impacts of pricing agricultural emissions on the agricultural sector undertaken by Manaaki Whenua – Landcare Research.

However, modelling of major ‘shocks’ such as introducing emissions pricing is inherently subject to high margins of error, and the figures quoted in this document should be treated with caution. Notwithstanding this, we consider the comparisons between different options yield realistic conclusions about relative impacts.

There is considerable uncertainty about the nature, scale, and location of impacts of changes in agricultural production on the wider economy, Māori, and rural communities. Therefore, any quantitative assessment of such impacts would be highly speculative, and we have limited our assessment to qualitative factors.

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### Quality Assurance (completed by QA panel)

Reviewing Agencies:	Ministry for the Environment Ministry for Primary Industries The Treasury
Panel Assessment & Comment:	A quality assurance panel with members from the Treasury, the Ministry for Primary Industries and the Ministry for the Environment has reviewed the interim Regulatory Impact Statement, which is supporting a discussion document. The panel considers that it partially meets the Quality Assurance criteria, assuming Cabinet

chooses not to include the additional option of the Methane Market System in the discussion document (refer split recommendation 7).

The RIS usefully assesses a range of feasible options for pricing agriculture emissions against a set of key objectives and criteria, and sets out the costs and benefits of the different approaches relative to the status quo. It would be strengthened by an assessment of different combinations of options. As the RIS notes, one limitation is considerable uncertainty about the impacts of the different options on rural communities and Māori.

In the final RIS, the implementation, monitoring and review sections should be developed further, given the complexity, challenges and risks associated with implementing the system by 2025. The results of consultation on the discussion document should also be incorporated. We recognise the He Waka Eke Noa consultation process has developed one of the options, but the analysis does not yet draw strongly on the views of stakeholders across all the options.

If Cabinet agrees to include the Methane Market System in the discussion document, then the RIS in its current state would receive a “does not meet” rating, as analysis of this option is not currently included.

*(Note: Cabinet decided not to consult on the Methane Market System)*

## Section 1: Diagnosing the policy problem

### What is the context behind the policy problem and how is the status quo expected to develop?

1. Aotearoa New Zealand needs to do its part in mitigating the worst effects of anthropogenic climate change, by reducing greenhouse gas (GHGs) emission across the economy.
2. This has been reflected in our legislated target under the Climate Change Response Act 2002 (CCRA)<sup>1</sup>, which includes: reducing gross biogenic methane by 10% by 2030 from 2017 levels; reducing gross biogenic methane by 24–47% by 2050 from 2017 levels; and, reducing all other greenhouse gases to net zero by 2050.
3. As agriculture contributes around half of Aotearoa New Zealand's gross emissions, including 91% of our biogenic methane emissions and 94% of our nitrous oxide emissions, it is particularly important that significant reductions are achieved within the agricultural sector.

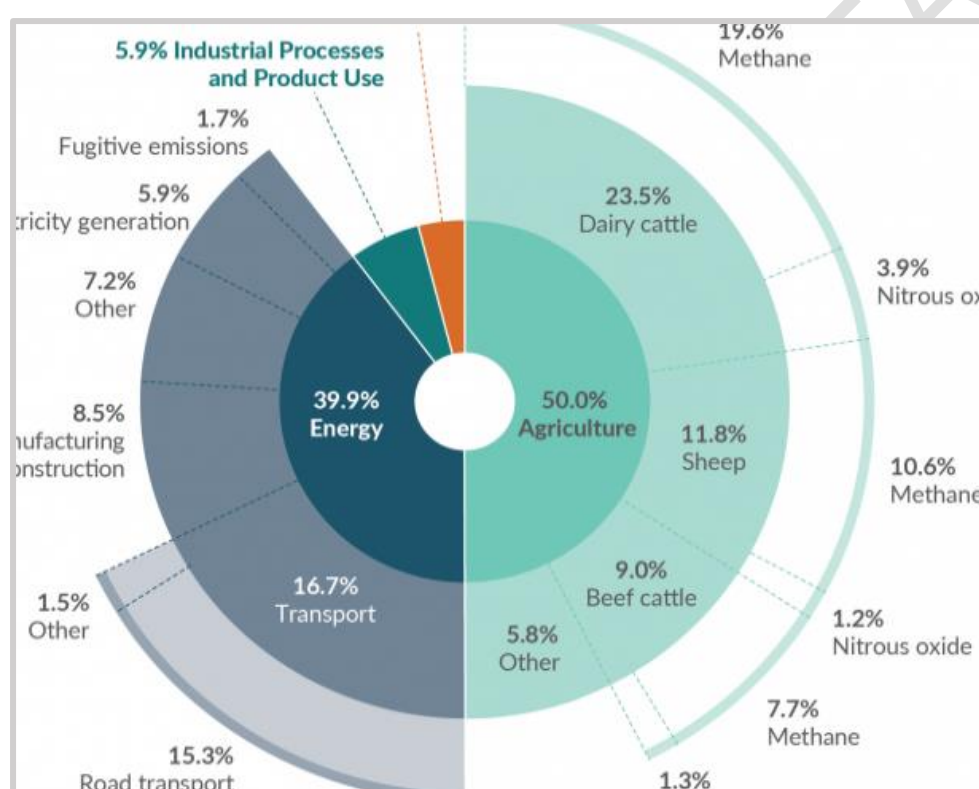


Figure 1: Greenhouse gas emissions by sector, with agriculture making up 50% of Aotearoa New Zealand's emissions profile<sup>2</sup>

### Purpose of current round of policy development and consultation

4. The government has already consulted on deciding between an alternative pricing system or the NZ ETS backstop through the Action on Agriculture consultation process in 2019, so this is not a focus of this current round of policy development and consultation. Rather, the focus is on the design details for implementation of an alternative pricing system, focusing on a preferred option for a farm-level levy that builds on the advice of the He Waka Eke Noa – Primary Sector Climate Action Partnership (the Partnership). However, for completeness, this Regulatory Impact Statement (RIS) also includes an assessment of multiple policy options considered by officials that will not form part of our consultation.

<sup>1</sup> [Climate Change Response Act 2002 \(legislation.govt.nz\)](https://www.legislation.govt.nz/act/public/2002/004/1.01/01.01/01.01.01.01/)

<sup>2</sup> [New Zealand Greenhouse Gas Inventory 1990–2020 snapshot \(environment.govt.nz\)](https://www.environment.govt.nz/our-work/assessing-our-environment/assessing-our-environment/assessing-our-environment/new-zealand-greenhouse-gas-inventory-1990-2020-snapshot/)

5. The current focus is on design elements for legislation (i.e. price settings and updates, point of obligation, governance) of the proposed alternative pricing system, particularly where it mirrors or differs from the design elements recommended by the He Waka Eke Noa Partnership and the Climate Change Commission (the Commission).
6. It will also be important for the package of policy documents including this RIS to inform farmers and the wider public of what the entire pricing system could look like (not just the elements that sit in legislation). This will support understanding of the impacts and preparation of submissions. Details that are likely to sit in regulations or operations will be highlighted where relevant, even if they are not the core focus of this RIS.

#### Detailed context and status quo

7. The primary instrument for reducing Aotearoa New Zealand's greenhouse gas emissions is the New Zealand Emission Trading Scheme (NZ ETS)<sup>3</sup>, through which most industries are required to pay a carbon price. Biological emissions from the agriculture sector do not face a price (agricultural processors report under the NZ ETS, but do not have surrender obligations, meaning that there is no price on their emissions associated with their participation).
8. If agriculture remains outside the NZ ETS, or is not subject to some other form of pricing, its emissions are projected to be 3% (1.2 MtCO<sub>2</sub>-e) higher than a scenario where agriculture emission pricing occurs.<sup>4</sup> Figure 2 and Figure 3 on the following page show the projected annual emissions for 2025, 2030 and 2035 based on modelling using the most recent carbon price pathway agreed by agencies. When compared to the three emission budget (EB) periods, all scenarios exceed the required budget.

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<sup>3</sup> See [Emissions Trading Scheme \(epa.govt.nz\)](https://www.epa.govt.nz/emissions-trading-scheme) for a description of the NZ ETS.

<sup>4</sup> Note the pricing scenarios used in the ERP precede pricing scenarios used in the He Waka Eke Noa economic modelling.



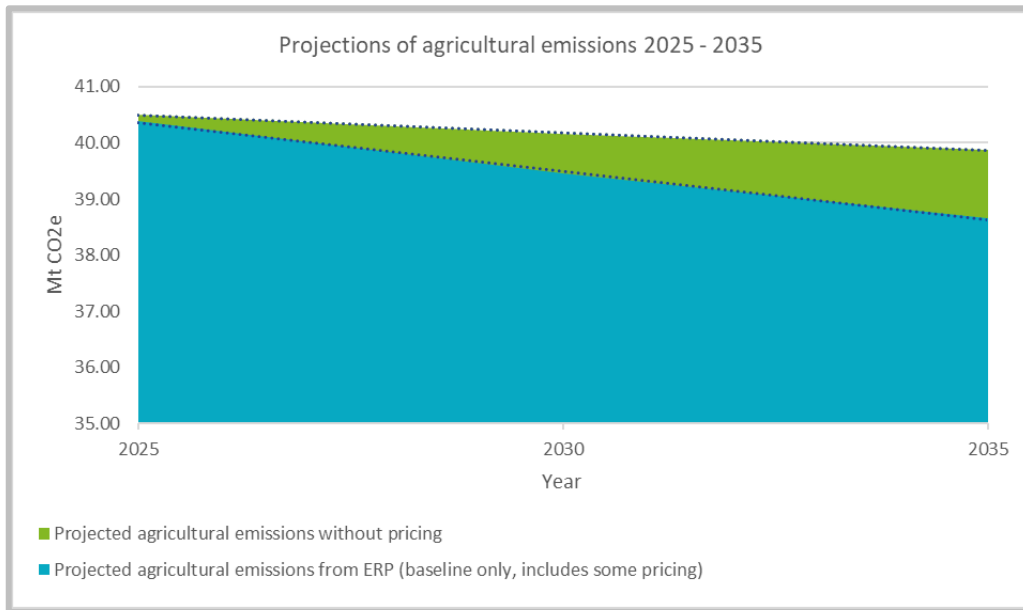


Figure 2: Expected trajectory of agricultural greenhouse gas emissions to 2035.

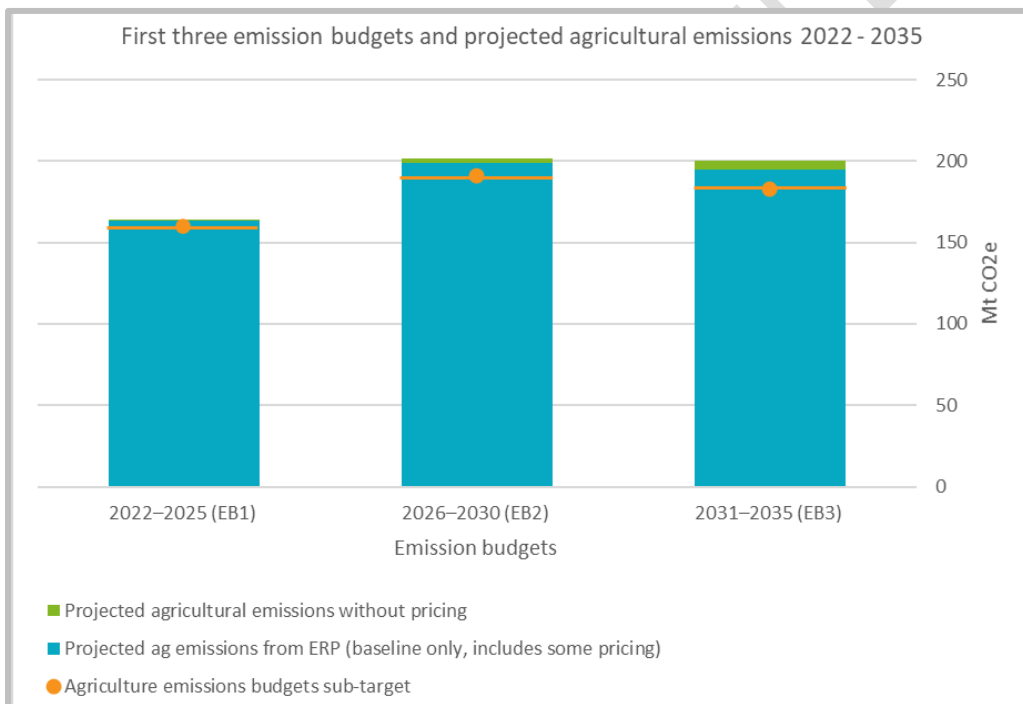


Figure 3: Emissions Budgets 1-3 and projected agricultural emissions until 2035

9. The analysis and options presented in this RIS build on previous policy work and the legislated decision that there will be a system to price agricultural emissions by 2025, to which the previous and current government and the agricultural sector have committed. Agricultural emissions can either be priced through the NZ ETS or an alternative emissions pricing system.
10. The table on the following page provides a high-level timeline of the policy processes underpinning these decisions and then subsequent work to progress emissions pricing system options, most notably by the Partnership and the Commission.

2019	The Interim Climate Change Committee (ICCC) recommended agricultural emissions pricing. <sup>5</sup>
	The agricultural sector presented an alternative proposal entitled <i>He Waka Eke Noa: Our Future in Our Hands – Primary Sector Climate Change Commitment</i> . <sup>6</sup>
	Government held the <i>Action on Agricultural Emissions</i> consultation. <sup>7</sup>
	Government accepted the proposal to partner with the agricultural sector and iwi/Māori.
2020	The Climate Change Response (Emissions Trading Reform) Amendment Act 2020 committed to a system on agricultural emissions from no later than 2025, including: <ul style="list-style-type: none"> <li>• A series of milestones against which progress toward farmer readiness for emissions pricing is measured – with a review carried out by the Commission (CCRA Schedule 5);</li> <li>• ‘Backstop’ provisions to bring agriculture into the NZ ETS should insufficient progress be made toward the milestones or a suitable alternative system not be implementable by 2025 (CCRA sections 220, 2A–2C, and various);</li> <li>• Considerations for the Minister of Climate Change and the Minister of Agriculture<sup>8</sup> when making final decisions on how agricultural emissions would be priced;</li> </ul>
	<ul style="list-style-type: none"> <li>• A requirement for the Ministers to release a public report outlining the alternative agricultural emissions pricing system to the NZ ETS no later than 31 December 2022 (CCRA section 215).</li> </ul> <p>The He Waka Eke Noa Partnership<sup>9</sup> was established to, among other activities, carry out a co-design policy process for an agricultural emissions pricing system that would be effective in reducing agricultural emissions, implementable and workable for the farmers, growers, and industry bodies whom it would directly affect.</p>
2021	The Partnership continues work on policy design and farmer engagement.
2022	The Partnership provided recommendations on an agricultural emissions pricing system: <ul style="list-style-type: none"> <li>• The Partnership developed policy recommendations on their preferred emissions pricing system as an alternative to the NZ ETS, including details for pricing and reporting of emissions and recognition of on-farm sequestration</li> <li>• The Partnership also began the work necessary to achieve the Schedule 5 milestones in the CCRA, and put in place a wider behaviour-change framework to support farmers and growers to transition to low-emissions agriculture</li> <li>• This report was delivered on 31 May 2022. It is referred to throughout the RIS as “the Partnership’s Recommendations Report.”</li> </ul>
	The Commission provided advice to support Ministerial decisions, <sup>10</sup> including: <ul style="list-style-type: none"> <li>• ‘What assistance, if any’ should be provided to participants an emissions pricing system. This advice was requested by the Ministers under section 5K of the CCRA, as required by section 215, and was delivered on 31 May 2022. It is referred to throughout the RIS as “the Commission’s 5K Advice.”</li> <li>• An ‘agricultural progress assessment’ (APA) report of progress toward milestones in Schedule 5 of the CCRA.</li> <li>• They also generally assessed farmer readiness, proposed principles for assessing agricultural emissions pricing system options, and an assessment of the Partnership’s recommended option against the NZ ETS.</li> </ul> <p>This review was required by section 220 of the CCRA, and delivered on 30 June 2022. It is referred to throughout the RIS as “the Commission’s APA Report.”</p>

Table 1: Timeline of recent policy processes from 2019 to 2022.

5 [Interim Climate Change Committee Report \(climatecommission.govt.nz\)](https://climatecommission.govt.nz)

6 [Primary Sector Climate Change Commitment \(dairynz.co.nz\)](https://dairynz.co.nz)

7 [Action on Agricultural Emissions Discussion Document \(environment.govt.nz\)](https://environment.govt.nz)

8 Hereafter, the Minister of Climate Change is referred to as ‘the Minister,’ and the Minister of Climate Change and Minister of Agriculture are collectively referred to as ‘the Ministers.’

9 [hewakaekenoa.nz/about](https://hewakaekenoa.nz/about)

10 [Climate Change Commission Reports \(climatecommission.govt.nz\)](https://climatecommission.govt.nz)





Figure 4: Key recent reports underpinning the current policy process

11. Within the context and decisions outlined above, this RIS assumes that emissions from agriculture will be priced in some form no later than 2025, and includes pricing system options for Cabinet consideration, which will form the basis of the Government's consultation and the subsequent legislation process. The assessment that underpinned the decision to use a pricing system to reduce agricultural emissions is detailed in the 2019 RIS, *Reducing Greenhouse Gas Emissions from the Agriculture Sector*.<sup>11</sup>
12. Our policy proposals have significant interdependencies with a number of other climate and environment interventions, including:
  - a. emissions budgets, the Emissions Reduction Plan, and Aotearoa's New Zealand's Nationally Determined Contribution (NDC);
  - b. the NZ ETS and other emissions pricing and incentives schemes (e.g. forestry policy, the Synthetic Greenhouse Gas Levy);
  - c. Freshwater Farm Plans and Integrated Farm Planning;
  - d. Resource Management reforms (both overarching reforms, and specific changes relating to the consideration of climate change by local government);
  - e. wider rural/agricultural policy, including sector and government initiatives (e.g. the National Policy Statement for Indigenous Biodiversity, Crown Pastoral Land and state-owned farming enterprises, Fit for a Better World roadmap).
13. Specific interactions with or impacts related to these interdependencies are discussed throughout this document. In particular, we need to ensure that processors and farmers are not faced with unnecessary duplication of effort and costs, or conflicting incentives, as a result of inconsistencies between different systems.

## Māori economy, climate change, and the primary sector

14. Māori play a significant role in the primary sector. Māori own an estimated 1.51 million hectares of land, across approximately 28,000 blocks, either under private ownership or as registered Māori land owned by Māori authorities, enterprises and individuals. Māori landowners have a substantial primary sector asset base including \$8.6 billion in sheep and beef farming; \$4.9 billion in dairy farming and \$2.6 billion in other agriculture (including horticulture). 19,170 Māori are employed across these sectors.
15. Within the Māori economy, pastoral farming makes up a significant proportion of the Māori economy gross emissions profile (excluding forestry) – dairy farming makes up 21% and sheep and beef farming make up 51%.
16. It is important to work with Māori landowners to understand mitigation options that are feasible on Māori land, to enable a transition to a low-emission and climate-resilient future, as well as to recognise the value of mitigations found in matauranga Māori and local/regional practices.
17. We have heard consistently that mitigating and adapting to climate change are significant priorities for Māori as well as being recognised for the actions they take on farm. Through engagement on agricultural emissions pricing since 2019, Māori have strongly expressed the importance of the Crown prioritising and upholding the principles of Te Tiriti o Waitangi. This includes the need for genuine engagement, recognition of te ao Māori, te taiao and mātauranga Māori, and support for Māori farmers, growers and landowners to participate in a pricing system.
18. Māori agribusinesses also provided input within the He Waka Eke Noa Partnership, through the Te Aukaha work stream led by the Federation of Māori Authorities (FOMA).
19. In addition, under Te Tiriti, the Crown has obligations to Māori when making decisions, including to:
  - a. identify the interests of affected Māori;
  - b. identify the likely impact of the proposal/decision on affected Māori; and
  - c. demonstrate active steps to or intends to take to protect the affected interest.

## Consultation process and next steps

20. More detail on the context of this policy process can be found in the discussion document, *Te tātai utu o ngā tukunga ahuhenua – Pricing agricultural emissions (2022)*, which has been developed in parallel with this RIS. This document will be updated with further analysis and content when Cabinet's input is sought on final policy decisions post-consultation.
21. Feedback from engagement on the discussion document will feed into the Ministers' section 215 report on an alternative agricultural emissions pricing system to the NZ ETS, due to be published by the end of the year. Final policy decisions to implement an agricultural emissions pricing system will be made in February 2023, and will be accompanied by an updated RIS.

## What is the policy problem or opportunity?

22. New Zealand needs to reduce its agricultural greenhouse gas emissions in order to meet our legislated targets, emissions budgets, and NDC, as well as to remain internationally competitive and environmentally sustainable producers of food and fibre.
23. However, the absence of a price for agricultural emissions means that farmers and growers have limited financial incentives to reduce them. They are likely to be producing more food and fibre than would be the case if they faced the true cost of emissions (and other less emissions-intensive types of agriculture such as fruit, vegetables and crops will produce less).

Farmers and growers would not be incentivised to adopt practices and technologies that could reduce emissions.

24. The 2019 RIS on reducing emissions from the agriculture sector established the following problem definition and opportunity, from which the decision was made to price agricultural emissions:

#### **Problem Definition**

*Reducing Greenhouse Gas Emissions from the Agriculture Sector, 2019 (summarised)*

Urgent transformational economy-wide action is needed in New Zealand as part of the global response to the challenge of constraining climate change. Further reductions in agricultural emissions of methane and nitrous oxide are required to meet New Zealand's domestic and international targets for 2030 and 2050.

The burden of making the necessary low-emissions transition also needs to be distributed efficiently and equitably across the economy. Other emissions (from energy, waste, and industrial processes) are already priced through the NZ ETS and only agricultural emissions are not priced.

Government intervention is necessary to deliver the emissions reductions required because the status quo does not provide sufficient incentive for the uptake of emissions-reducing practices and technologies across the agriculture sector.

An ideal policy mix would build the capacity and capability to find new and better ways to further reduce the biological emissions from agriculture over time, consistent with maintaining a profitable agricultural sector within a productive, sustainable, and inclusive economy.

*Box 1: Problem definition outlining the need to reduce agricultural emissions from the 2019 RIS*

25. The CCRA requires that there is some system to price agricultural greenhouse gas emissions by 2025, even if full farm-level pricing is delayed:
- a. If no suitable alternative emissions pricing system can be implemented by 2025, or if farmers are not ready to participate in this system, then the CCRA includes provisions to place NZ ETS surrender obligations on agricultural processors.
  - b. While this would need to be operationalised and conflicting provisions would need to be removed by Order in Council, from a legislative perspective the NZ ETS 'backstop' is automatic.
26. The policy opportunity is to ensure that the system chosen to price agricultural emissions is effective at reducing emissions in line with New Zealand's emission reduction targets and supports a viable agricultural sector. This includes the opportunity to either develop an alternative to the NZ ETS for pricing agricultural emissions, or to incorporate processors and/or farmers into the NZ ETS (which could include tweaking how they would interact by default under legislation and creating additional policy to support participation in the NZ ETS).
27. The opportunities, costs, and risks of putting agricultural processors and/or farmers in the NZ ETS are considered in Section 2 of this RIS, where farm-level, processor-level, and fertiliser-only NZ ETS options are considered alongside alternative emissions pricing systems.
28. Any of the options for pricing agricultural emissions, once implemented, will have significant distributional impacts, especially on the agricultural sector. Distributional impacts are therefore a key element of our assessment framework employed throughout this RIS, and are addressed where relevant in later sections.

#### **What objectives are sought in relation to the policy problem?**

29. Our objectives in addressing this policy problem build on decision-making frameworks and factors for consideration from several places:

- a. Legislated milestones and requirements, primarily those in section 215 of the CCRA (see paragraph 35);
  - b. the Climate Change Response (Zero Carbon) Amendment Act 2019 sets out Aotearoa New Zealand’s domestic emissions reduction target framework, including the separate biogenic methane targets for 2030 (10% reduction) and 2050 (24–47% reduction), as well as the net-zero target for all other gases by 2050;
  - c. Aotearoa New Zealand is using a system of emissions budgets to meet our 2050 target. The Government published the first three emissions budgets (2022–2025, 290 Mt CO<sub>2</sub>-e; 2026–2030, 305 Mt CO<sub>2</sub>-e; 2031–2035, 240 Mt CO<sub>2</sub>-e) in May 2022. The emissions reduction plan setting out policies and strategies for meeting emissions budgets was published on 16 May 2022;
  - d. New Zealand also has international obligations, in particular our Nationally Determined Contribution (NDC);
  - e. objectives and outcomes agreed in collaboration by the Partnership, including with government Partners, as well as the principles recommended by the Commission for general assessment of agricultural emissions pricing.
30. Officials have summarised these into three overarching objectives, presented in Box 2: Objectives for agricultural emissions pricing system:

<b>Policy Objectives</b>	
(1)	<p>The agricultural emissions pricing system must be <b>Effective</b>, in generating incentives that will result in meaningful reductions in emissions that contribute to meeting Aotearoa’s targets.</p> <p><i>While agriculture is not expected to achieve the 2030 target alone, agricultural emissions should be reduced to contribute to the gross reductions in biogenic methane of 10% from 2017 levels required to meet this target.</i></p>
(2)	<p>The agricultural emissions pricing system must be <b>Practical</b>, in that it can be implemented within statutory timeframes and established, operated, and modified in a cost-effective manner.</p>
(3)	<p>The agricultural emissions pricing system must be <b>Equitable</b>, within the agricultural sector, between it and other industries; and in terms of its impact on Māori agribusiness and broader iwi/Māori aspirations.</p>

*Box 2: Objectives for agricultural emissions pricing system*

31. The criteria outlined in the following section (see Table 2) expand on and define these objectives against which we assess the set of options. This includes by identifying specific metrics against which the more subjective elements of the objectives (e.g. equity) are assessed.

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

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

32. The following table outlines the criteria from the decision-making framework built by officials.
33. Officials have also endeavoured to reflect the principles for assessing agricultural emissions pricing proposed by the Commission in the detail of these criteria. These are described in full in the Commission’s APA review.

Objectives	Detailed Criteria	Key Trade-offs
<b>(1) Effective</b>	(a) at reducing emissions in line with domestic and international climate change targets and the emissions budgets	<p>The simplest way to achieve emissions reductions is through cuts in pastoral farm production; however, major reductions in production could have significant negative impacts on associated industries (suppliers, processors), farming regions and some rural communities.</p> <p>The data and verification required to recognise specific on-farm technologies and practices is complex and costly, reducing the ability to streamline the system to keep it practical.</p>
	(b) by recognising and incentivising the uptake of farm management, system, and land-use changes that result in emissions reductions	
	(c) by having independent, robust, and transparent policy setting and adjustment processes	
<b>(2) Practical</b>	(a) by being simple and easy to understand and participate in	<p>As the system is made more simple and low cost, fewer reductions and mitigations that can be incentivised, and fewer levers are available to ensure equity, as the price becomes a blunt signal.</p>
	(b) by being as low cost as possible to implement, audit, and verify	
	(c) by being adaptable, enabling changes to be incorporated over time	<p>Incorporating changes over time and aligning with other systems both introduce complexity, creating a trade-off within this group of criteria.</p>
	(d) by being actively aligned with other related climate and environmental systems	
<b>(3) Equitable</b>	(a) among agriculture sub-sectors, by minimising disproportionate losses in production and economic impacts	<p>Treating the agriculture sector equitably with the rest of the economy would require a high price on all emissions as soon as possible, in line with NZ ETS settings.</p> <p>However, to support effective transition and minimise undue disruption (including to livelihoods and wellbeing, as well as production) within the agriculture sector, and for Māori, a more gradual transition will be important.</p>
	(b) between agriculture and other sectors / the wider economy	
	(c) by supporting Māori agribusinesses and broader iwi and Māori aspirations	

Table 2: Criteria for assessment of agricultural emissions pricing system options



34. Assessment against these criteria will use a scoring system with a tick (or double tick), neutral, or cross (or double cross) to show whether each pricing system scores as exceeding/meeting the criterion, neutral against/partially meeting the criterion, or not meeting/failing by a significant margin to meet the criterion.

### What scope will options be considered within?

35. Much of the scope and scale of this policy is determined by the history of this policy process and by the legislated or Cabinet-mandated pathways. In summary, the options analysed here fall within the following constraints:
- c. The form of policy intervention is an economic instrument (pricing system), which applies to the producer (whether farmer or processor) not the consumer;
  - d. Agricultural emissions in this context refer to biological emissions from agricultural activities, including any methane, nitrous oxide, and carbon dioxide from livestock and fertiliser use, but not including emissions such as transport, electricity, industrial heat processing, etc.;
  - e. A backstop through the NZ ETS could come into effect prior to 2025 (if recommended by the Minister), and will come into effect from 2025 if no other system is put in place or it is determined by Ministers that farmers are not ready to comply with farm-level pricing;
  - f. No system considered places the full 'market' price on agricultural emissions, as the NZ ETS options include a 95% free allocation as provided for in legislation, and the pricing scenarios explored under the alternative pricing systems are all well below expected NZ ETS prices – noting that some sectors in the NZ ETS also receive free allocation, and early years of the NZ ETS included other discounting mechanisms to support transition;
  - g. A report on the design of a pricing system must be made public by the end of 2022 (per section 215 of the CCRA), and must consider the following issues outlined in Box 3;
  - h. Final policy decisions to implement the pricing system will be made in February 2023.

How emissions from those activities would be priced and accounted for.

Whether other activities or participants would be included in the system.

What methodologies would be used for calculating emissions and removals.

What assistance, if any, would be given to participants.

How emissions of methane would be treated relative to other greenhouse gases, including whether, how, and what types of removals would be recognised.

What information participants would need to provide and how that information would be used, shared, or made publicly available.

How participants and relevant industry groups would be engaged with in designing, implementing, and operating the system.

Who would be responsible for administering the system.

What amendments would need to be made to legislation to enable the system to work.

Box 3: Ministerial considerations under section 215 of the CCRA



36. In addition, Ministers must consider a range of independent advice (as outlined in Section 1) that they have received. Some of this advice forms a legislated part of this policy process (i.e. the Commission’s advice), and other pieces have significant public and sector expectations to be considered (i.e. the Partnership’s advice).

### What options are being considered?

37. The range of options draws on the pathways already set out in the CCRA, the recommendations of the He Waka Eke Noa Partnership, and further advice and analysis by the Commission and officials. The Partnership explored a greater range of options in their final recommendations throughout their policy design process. A summary of their policy design and assessment process can be found in the Partnership recommendations report.
38. Officials considered a range of approaches to effectively and feasibly implement agricultural emissions pricing from 2025, including whether to directly implement farm-level pricing or begin by pricing processors as a transitional step, and with varying levels of complexity introduced from day one or over time.
39. Due to constraints around the time required to legislate and implement, and outstanding policy design concerns, the government has identified that it will be necessary implement a ‘minimum viable product’ system to meet the 2025 deadline. Most options considered by this RIS include simplifications in the short to medium term with the intention of incorporating more comprehensive elements in the future.
40. The set of options assessed here include:

<p><b><u>Option 1 – Processor-level Pricing in the NZ ETS</u></b></p> <p>This is the option known as our ‘backstop,’ which could come into effect from 2025.</p>
<p><b><u>Option 2 – Basic Farm-level Levy</u></b></p> <p>This is officials’ version of simple farm-level pricing adapted from the Partnership’s recommendations, with enhancements to be incorporated over time. The implementation pathways for this option include:</p> <p><b>2A</b> – Direct implementation at the farm-level if the system is ready to come into effect and farmers are ready to participate; or,</p> <p><b>2B</b> – Triggering an interim processor-level levy that begins pricing emissions at this level for a short period of time, until farm-level obligations are possible.</p> <p><b>2C</b> – Consideration has also been given to pricing fertiliser via processors in the NZ ETS, while livestock emissions are priced through a Basic Farm-level Levy.</p>
<p><b><u>Option 3 – Partnership’s Farm-level Levy</u></b></p> <p>This is the Partnership’s recommended transitional option to a more comprehensive system unmodified by officials.</p>
<p><b><u>Option 4 – Farm-level Pricing in the NZ ETS</u></b></p> <p>This is comprehensive farm-level pricing as already provided for in the CCRA, either transitioned to from the backstop or directly implemented in 2025.</p>
<p><b>Other system design elements</b></p> <p>Significant design work was carried out on other key system elements, such as assistance to participants, which is also reflected in this section.</p> <p>These elements are described and assessed in Appendix One.</p>

Table 3: Four options (and sub-options) for agricultural emissions pricing

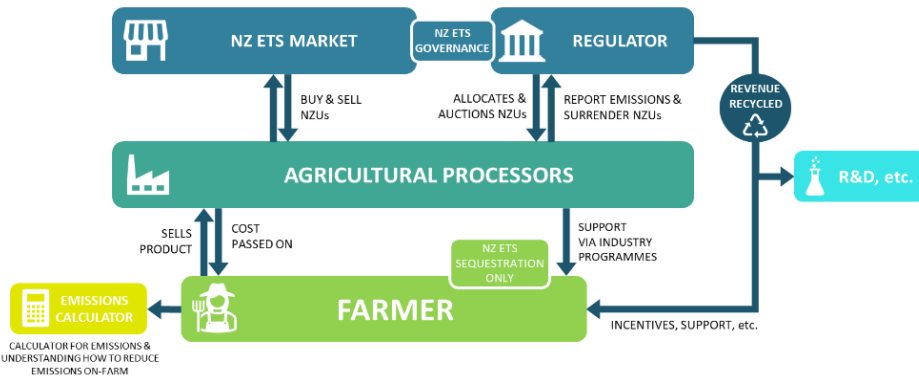
41. The baseline scenario is no pricing of agricultural emissions, with business-as-usual levels of output and emissions out to 2025 and 2030. This baseline is intended to provide a robust and consistent basis from which to assess and compare impacts of different options. This means that we are treating the absence of emissions pricing as the status quo, rather than any of the pricing options as a counterfactual.
42. However, Option 1: Processor-level Pricing in the NZ ETS is the 'backstop' option that will come into effect if no other option is agreed. Therefore, the no pricing status quo is not considered a valid option as a result of this policy process. Note that implementing Option 1 will nevertheless require Government decisions about expenditure (to establish appropriate systems within the NZ ETS) and development of regulations.
43. Detailed descriptions of options and the assessment of each are on the following pages.

#### Note on interpretation of emissions reduction figures

- The following tables, in which the options from Table 3 are described in detail, present emissions reduction figures as percentages to quantify the estimated effectiveness of each option for total greenhouse gases, and for biogenic methane and nitrous oxide separately.
- The model used by Manaaki Whenua – Landcare Research was built on a baseline of 2020 emissions and land uses, and projects a 'business-as-usual' scenario out to 2030 (2030 BAU); the results of the modelling are compared with the 2030 BAU scenario.
- New Zealand's target for 2030 is for a gross reduction in biogenic methane of 10% from 2017 levels. Therefore, the percentage reductions against the 2030 BAU scenario are not comparable to the figures presented in our targets.
- For a conversion of these results as a comparison against the legislated target, see our parallel discussion document, *Te tātai utu o ngā tukunga ahūwhenua – Pricing agricultural emissions (2022)*.

*Box 4: Emissions reduction percentages in this RIS are against a 2030 BAU*

## Option 1: Processor-level Pricing in NZ ETS



This is the 'backstop' option that already exists in legislation should insufficient progress be made toward farm-level emissions pricing. It draws on existing provisions to rapidly enable processors to participate in the NZ ETS, but would also include enhancements to incentivise reductions on-farm.

<b>System</b>	NZ ETS
<b>When would it start</b>	01 January 2025
<b>Point of obligation</b>	Processors (milk & meat) Importers/manufacturers (fertiliser)
<b>Emissions calculation</b>	Through existing NZ ETS reporting – based on emissions associated with livestock products, or with fertiliser sold
<b>Emissions price</b>	NZU surrender obligations for all gases in line with other NZ ETS participants
<b>Reduction incentives</b>	Cost of emissions passed onto farmers, incentivising lower production On-farm incentive regime that pays for mitigations and technology uptake
<b>Financial assistance</b>	95% free allocation (output-based) as prescribed in legislation
<b>Sequestration</b>	Primary channel is NZ ETS forestry, with investigation into improving access for agriculture
<b>Revenue recycling</b>	Goes into the general pool of revenue raised from the NZ ETS, but agriculture is then eligible for recycled revenue out of this pool
<b>Governance</b>	Uses existing NZ ETS governance structures
<b>Transitional options</b>	Long-term transition to NZ ETS at the farm-level if feasible and worthwhile

### Qualitative Assessment of Option 1

**Effective**

This option is expected to more than achieve the targets through a combination of sheep and beef farms reducing production and stock, and any revenue recycled to agriculture from the general NZ ETS funds.

Modelling results indicate that this option could achieve significant reductions, up to –15.7% in all gases (–16.7% methane, –12.6% nitrous oxide) below the baseline scenario in 2030. This and other results used a price of \$108.62/tCO<sub>2</sub>-e for all gases discounted by 90% (\$10.87/tCO<sub>2</sub>-e).

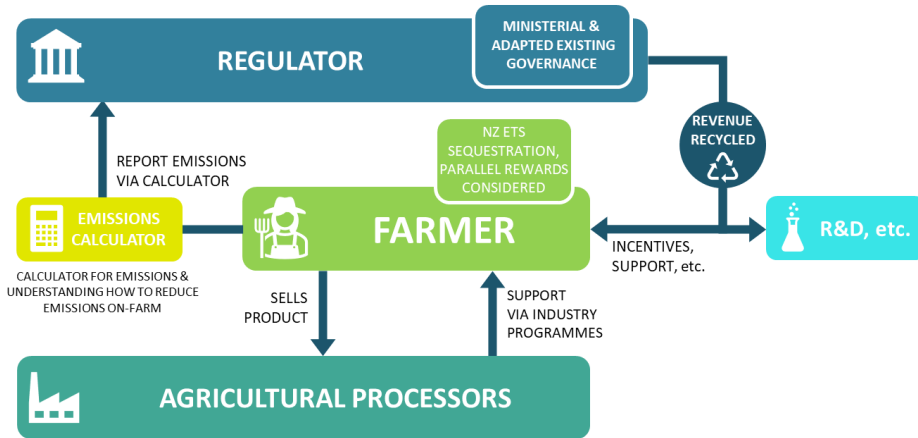
However, the flat price at the processor-level appears to incentivise greater reductions in stock and production than one with separate prices for carbon and methane; increases the risk of emissions leakage<sup>12</sup> and does not directly recognise or incentivise on-farm mitigation, (which would rely instead on incentive payments).

By operation through the NZ ETS, the policy-setting and adjustment processes are independent, robust, and transparent.

<i>Practical</i>	<p>This is the most practical of all the options as it is simplest to set up because primary legislation and the reporting system are already in place. Therefore, costs are relatively low (\$3m to set up, \$10m pa to operate).</p> <p>Can be adapted over time, though selecting this option would likely set a clear direction for pricing to continue via the NZ ETS.</p> <p>Aligns well with existing NZ ETS policy, including forestry, but will be more complex to align with farm planning.</p>
<i>Equitable</i>	<p>High costs concentrated on sheep and beef farms.</p> <p>It is equitable with other sectors because of common inclusion in the NZ ETS, but the 95% discount in 2025 limits the benefits of this.</p> <p>This option also limits Māori agribusinesses from making decisions and being recognised for actions on their farm. A blunt price passed down from the processor is also likely to not consider disproportionate disadvantages faced by Māori agribusinesses, as their specific on-farm circumstances cannot be differentiated from other farming operations; however, this can be alleviated by recycled revenue being used to support Māori agribusinesses.</p>
<i>Additional comments</i>	<p>This option is considered implementable in 2025.</p> <p>This option is likely to have very little buy-in from farmers and the sector as it diverges significantly from the Partnership's proposals.</p>

PROACTIVELY RELEASED

## Option 2A: Basic Farm-level Levy (implemented in 2025)



This option begins agricultural emissions pricing with farmers directly, and is delivered through a simple levy system. It includes rewards to incentivise reductions on-farm, and would incorporate further enhancements over time.

Officials have built this option on the basis of the Partnership's recommendations (see Option 3), incorporating additional simplifications to reduce costs.

<i>System</i>	Alternative pricing system
<i>When would it start</i>	01 January 2025
<i>Point of obligation</i>	Farmers and growers (business owner)
<i>Emissions calculation</i>	Using a simple calculator that uses a range of data points to directly estimate on-farm emissions
<i>Emissions price</i>	Long-lived gas price based on carbon price (discounted in 2025 to align with the 95% free allocation that agriculture would receive if priced through the NZ ETS), updates over time in line with carbon price Unique methane price, updates over time in line with progress toward targets
<i>Reduction incentives</i>	Cost of emissions passed onto farmers On-farm incentive regime that pays for the uptake of approved mitigations and technology
<i>Financial assistance</i>	No structured assistance or free allocation Low price to raise revenue for on-farm incentives Transitional assistance may be explored for Māori agribusinesses and farmers who are unduly impacted by the pricing system
<i>Sequestration</i>	A range of options for recognising sequestration within or alongside a farm-level system have been separately considered. These include integrating sequestration in the system (as per the Partnership's recommendations), rewarding sequestration in parallel through e.g. a grant scheme, or improving accessibility to the NZ ETS for on-farm vegetation. Discussion on the sequestration options and assessments against key criteria are include in Appendix Two.
<i>Revenue recycling</i>	Funds administration of the system and on-farm incentives
<i>Governance</i>	Ministers are responsible for the policy and price settings. Māori and the primary sector have an advisory role in proposing a revenue recycling strategy to Ministers
<i>Transitional options</i>	The effectiveness of the system will be improved over time, for example, by increasing the range of farm system changes and mitigations that can be recognised

### Qualitative Assessment of Option 2A

#### Effective

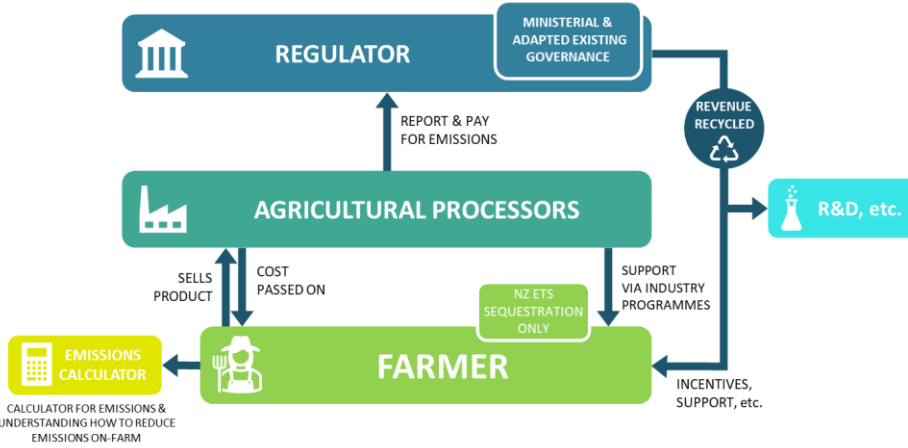
At appropriate levy prices, this option is expected to more than achieve the targets, primarily through a combination of reduced production and stock numbers (especially on sheep and beef farms) and (to a lesser extent) uptake of mitigation technologies across all farm system types through the price signal and incentive payments.

In the system elements material in a modelling context, this option does not vary significantly from the Partnership's recommendations, so the economic modelling aggregated these two options.

Effective (cont.)	<p>Modelling results indicate that this option could achieve significant reductions, from up to –10.1% to –12.3% in all gases (–11.2% to –13.6% methane, –6.5% to –8.2% nitrous oxide) below the baseline scenario in 2030. The results used a range of prices for methane (8c/kgCH<sub>4</sub>, 11c/kgCH<sub>4</sub>, and 14c/kgCH<sub>4</sub>), \$100/tCO<sub>2</sub>-e for nitrous oxide, and \$50/tCO<sub>2</sub>-e for incentive payments.</p> <p>The farm-level point of obligation allows on-farm mitigation actions to be recognised through the reporting and emissions bill.</p> <p>The proposed system governance arrangements include independent, robust, and transparent policy setting and adjustment processes.</p>
Practical	<p>A report prepared by Perrin Ag and advice from the Commission indicates that a simple farm-level pricing is feasible for farmers, albeit easier for dairy than sheep and beef.</p> <p>This option will involve much greater costs to both the administrator/regulator and farmers than any processor-level pricing system due to the large number of participants and time required by them to engage with the system.</p> <p>Estimated costs are:</p> <ul style="list-style-type: none"> <li>• establishment (administrator) – \$86m</li> <li>• operating (administrator) – \$32m pa</li> <li>• operating (farmers) – \$28-39 pa</li> </ul> <p>(The administrator’s costs may be partially or fully recovered from farmers.)</p> <p>Can be adapted over time.</p> <p>Aligns well with farm planning and other on-farm regulatory systems, but decisions on sequestration will impact on alignment with existing NZ ETS policy, including forestry.</p> <p>Decisions on how on-farm vegetation is recognised (via the NZ ETS or levy system) will have a significant impact on implementation and practicality of a pricing system. If vegetation is included:</p> <ul style="list-style-type: none"> <li>• in the NZ ETS - significant legislative and policy processes will be needed to include extra categories. For farmers and growers, this option will involve participating in the NZ ETS market through trading NZUs and meeting stringent requirements for measurement and proving sequestration is occurring.</li> <li>• in a farm-level levy system – legislation will be less complicated than the NZ ETS. For farmers and growers, there are lower barriers to entry because it will be integrated into the levy system.</li> </ul> <p><i>Discussion on the sequestration options and assessments against key criteria are include in Appendix Two.</i></p>
Equitable	<p>Depending on the price level, this option has greater impacts on the sheep and beef sector with less mitigation actions available.</p> <p>The relative price compared to the NZU value will affect how equitable this option is with other sectors; however, even if agricultural emissions are priced differently to the rest of the economy, it is still more equitable than the status quo because we are incentivising domestic reductions rather than purchasing mitigation overseas.</p> <p>A portion of revenue is ringfenced for Māori agribusinesses, which can help alleviate some of the impacts of the pricing system. Māori agribusinesses will be able to make decisions on their farming operations; however, if collectivisation is not available in 2025 (collectivisation can potentially reduce administration costs), this option will have a greater impact on Māori than other farmers.</p>
Additional comments	<p>This option is considered implementable in 2025, though higher risk than the processor-level options.</p> <p>This option is likely to have some buy-in from farmers and the sector as it builds on the Partnership’s proposals, but areas of divergence may reduce buy-in.</p>



## Option 2B: Interim Processor-level Levy (transitioning to Option 2A)



This option begins agricultural emissions pricing with processors, which can be triggered if necessary, based on the feasibility of Option 2A coming into effect from 2025. It includes rewards to incentivise reductions on-farm, and would transition over time to Option 2A. Officials have built this option on the basis of the Partnership's analysis of a processor-level system, which we further progressed as a potential interim option.

<i>System</i>	Alternative pricing system
<i>When would it start</i>	01 January 2025
<i>Point of obligation</i>	Processors (milk & meat) Importers/manufacturers (fertiliser)
<i>Emissions calculation</i>	Based on emissions associated with livestock products, or with fertiliser sold
<i>Emissions price</i>	Long-lived gas price based on carbon price (discounted in 2025 to align with the 95% free allocation that agriculture would receive if priced through the NZ ETS), updates over time in line with carbon price Unique methane price, updates over time in line with progress toward targets
<i>Reduction incentives</i>	Cost of emissions passed onto farmers On-farm incentive regime that pays for mitigations and technology uptake
<i>Financial assistance</i>	No structured assistance or free allocation Low price to raise revenue for on-farm incentives
<i>Sequestration</i>	Primary channel is NZ ETS forestry, with investigation into improving access for agriculture
<i>Revenue recycling</i>	Funds administration of the system and on-farm incentives
<i>Governance</i>	Ministers are responsible for the policy and price settings. Māori and the primary sector have an advisory role in proposing a revenue recycling strategy to Ministers.
<i>Transitional options</i>	Optional short-term implementation pathway to Option 2A

### Qualitative Assessment of Option 2B

Effective

At the right levy prices, this option is expected to more than achieve the targets through a combination of reduced production and stock numbers (especially on sheep and beef farms) and uptake of mitigation technologies through incentive payments.

Modelling results indicate that this option could achieve significant reductions, up to -9.1% in all gases (-9.4% methane, -8.1% nitrous oxide) below the baseline scenario in 2030. This result used a price of 11c/kgCH<sub>4</sub> for methane, \$100/tCO<sub>2</sub>-e for nitrous oxide, and \$50/tCO<sub>2</sub>-e for incentive payments.

However, there is no direct price signal on farmers to engage in mitigation technologies when the obligation sits with processors (though this option will include revenue recycling to incentivise mitigations). This means that reductions in production and stock will be much more likely than the uptake of mitigation.

The proposed system governance arrangements include independent, robust, and transparent policy setting and adjustment processes.

<i>Practical</i>	<p>The initial administrative costs are of a similar order of magnitude to Option 1A, with lower operating costs (\$6 million pa).</p> <p>The transition between two systems adds complexity, and the eventual farm-level system retains the same issues as directly going to farm-level.</p> <p>However, setting up processor-level pricing by 2025 is likely more achievable than farm-level pricing.</p> <p>Is not designed to be adaptable over time, as this option would only be implemented as a temporary mechanism before transitioning to farm-level pricing.</p> <p>Aligns well with farm planning and other on-farm regulatory systems, but does not align as well with existing NZ ETS policy, including forestry.</p>
<i>Equitable</i>	<p>Depending on the price level, this option has higher impacts on the sheep and beef sector and with less recourse to mitigation.</p> <p>The relative price compared to the NZU value will affect how equitable this option is with other sectors; however, even if agricultural emissions are priced differently to the rest of the economy, it is still more equitable than the status quo because we are incentivising domestic reductions rather than purchasing mitigation overseas.</p> <p>A portion of revenue is ringfenced for Māori agribusinesses, alleviating some of the impact of the pricing system. Māori agribusinesses will be able to make decisions on their farming operations when the system transitions to a farm-level levy system.</p>
<i>Additional comments</i>	<p>This option is considered implementable in 2025.</p> <p>This option is likely to have less buy-in from farmers and the sector as it diverges from the Partnership's proposals.</p>

## Option 2C: Fertiliser-only Pricing in NZ ETS

This option would separate out fertiliser pricing from livestock pricing.

Officials have built this option on the basis of the Commission's recommendation in their APA review to price fertiliser in the NZ ETS. Biogenic methane emission and nitrous oxide from livestock would be priced as per Option 2A.

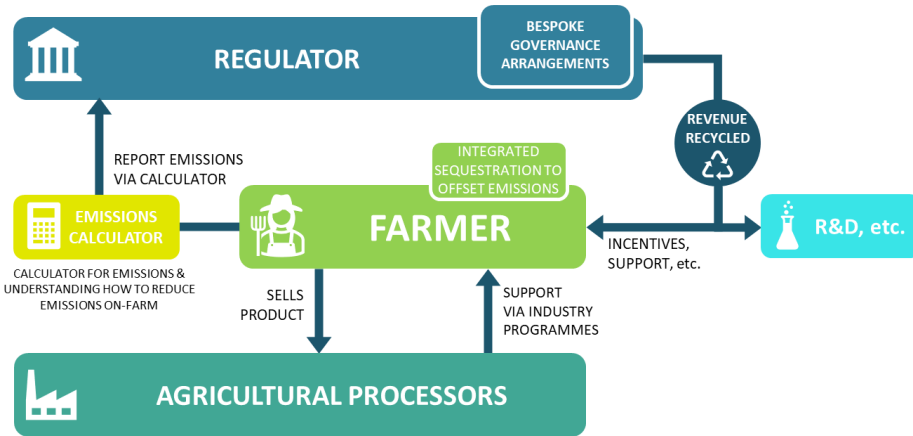
[For visualisation: fertiliser as per diagram of Option 1A, livestock as per diagram of Option 2A/B]

<i>System</i>	NZ ETS
<i>When would it start</i>	01 January 2025
<i>Point of obligation</i>	Fertiliser importers/manufacturers
<i>Emissions calculation</i>	Through existing NZ ETS reporting – based on emissions associated with fertiliser sold
<i>Emissions price</i>	NZU surrender obligations for all gases in line with other NZ ETS participants
<i>Reduction incentives</i>	Cost of emissions passed onto users of fertiliser, incentivising lower use
<i>Financial assistance</i>	95% free allocation (output-based) as prescribed in legislation
<i>Sequestration</i>	Fertiliser emissions could be offset through NZ ETS forestry
<i>Revenue recycling</i>	Goes into the general pool of revenue raised from the NZ ETS
<i>Governance</i>	Uses existing NZ ETS governance structures
<i>Transitional options</i>	N/A

### Qualitative Assessment of Option 2C

<i>Effective</i>	<p>Separating out fertiliser was not specifically modelled. However, Option 1 was modelled for all nitrous oxide (fertiliser and livestock), and suggests significant reductions in both.</p> <p>The flat price at the processor-level increases the risk of emissions leakage and does not directly recognise or incentivise on-farm mitigation, relying instead on incentive payments.</p> <p>By operation through the NZ ETS, the policy-setting and adjustment processes are independent, robust, and transparent.</p>
<i>Practical</i>	<p>This would be simple to set up in isolation because primary legislation and the reporting system are already in place.</p> <p>Costs are likely to be low because of the small number of firms involved and inclusion into the existing NZ ETS. However, it would be necessary to set up a parallel system to price methane emissions so the total cost would be similar to whatever option is selected for that purpose.</p> <p>Can be adapted over time, though selecting this option would likely set a clear direction for fertiliser pricing to continue via the NZ ETS.</p> <p>May cause misalignment between incentives on fertiliser versus livestock emissions created through different policies and systems.</p>
<i>Equitable</i>	<p>Avoids bringing livestock farmers who use fertiliser into the NZ ETS, which could potentially create disruption with the significant change to number of participants and total unit supply. Similarly, avoids bringing growers without livestock into a farm-level system that requires more complex reporting.</p> <p>Is expected to have slightly lower impacts than other options for sheep and beef farms as their reliance on fertiliser is lower than other sub-sectors such as dairy.</p> <p>It is somewhat equitable with other sectors because of common inclusion of a portion of agricultural emissions in the NZ ETS, but 95% discount limits the benefits of this.</p> <p>Is expected to have only minor equity differences from any other option for Māori agribusinesses (in particular, those with extensive systems) as their reliance on fertiliser is lower than other groups within the sector.</p>
<i>Additional comments</i>	<p>This option is considered implementable in 2025.</p> <p>Option is likely to have less buy-in from farmers and the sector as it diverges from the Partnership's proposals.</p>

### Option 3: Partnership's Farm-level Levy



This option begins with simplified emissions pricing at the farm-level, and is delivered through a levy system. It includes rewards to incentivise reductions and sequestration on-farm, and would incorporate further improvements over time.

Officials have endeavoured to present this option here without modifying the Partnership's recommendations.

<i>System</i>	Alternative pricing system
<i>When would it start</i>	01 July 2025
<i>Point of obligation</i>	Farmers and growers (business owner)
<i>Emissions calculation</i>	Using a simple calculator that uses a range of data points to directly estimate on-farm emissions
<i>Emissions price</i>	Long-lived gas price set to fund sequestration and admin costs Unique methane price set through advisory process and approved by Ministers
<i>Reduction incentives</i>	Cost of emissions passed onto farmers On-farm incentive regime that pays for technology uptake
<i>Financial assistance</i>	No structured assistance or free allocation Low price to raise revenue for on-farm incentives Levy relief available
<i>Sequestration</i>	Sequestration payments for vegetation (that are already verified elsewhere) are fully integrated into the levy, with a broad range of on-farm vegetation recognised over time
<i>Revenue recycling</i>	Funds administration of the system, on-farm incentives, and sequestration
<i>Governance</i>	New governance structures to advise on price, progress toward farm-level pricing, revenue use, etc.
<i>Transitional options</i>	Short-term implementation pathway to more detailed emissions reporting and recognition of sequestration as defined in the Partnership's recommendations (by 2027)

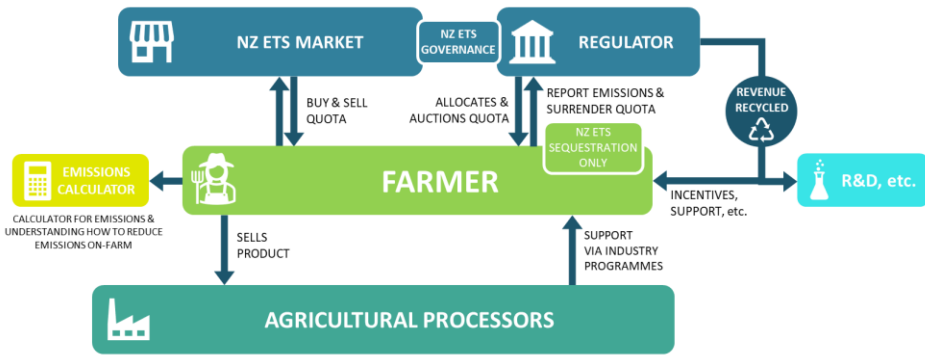
### Qualitative Assessment of Option 3

<i>Effective</i>	<p>At the right levy prices, this option is expected to more than achieve the targets through a combination of reduced production and stock numbers (especially on sheep and beef farms) and uptake of mitigation technologies through incentive payments.</p> <p>The economic modelling covered both this option and Option 2a with one scenario, as they did not significantly differ.</p>
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<i>Effective (cont.)</i>	<p>Modelling results indicate that this option could achieve significant reductions, from up to –10.1% to –12.3% in all gases (–11.2% to –13.6% methane, –6.5% to –8.2% nitrous oxide) below the baseline scenario in 2030. The results used a range of prices for methane (8c/kgCH<sub>4</sub>, 11c/kgCH<sub>4</sub>, and 14c/kgCH<sub>4</sub>), \$100/tCO<sub>2</sub>-e for nitrous oxide, and \$50/tCO<sub>2</sub>-e for incentive payments.</p> <p>The farm-level point of obligation allows on-farm behavioural change to be recognised through the reporting and emissions bill.</p> <p>The proposed system governance arrangements are relatively robust and transparent, but lack sufficient independence. The very low price and the framework for price settings are not target-oriented.</p>
<i>Practical</i>	<p>The option is considered infeasible to implement, as the ‘simplified’ initial system still has considerable cost and complexity. The 2027 elements need to be legislated and implemented as one phase of work, so this transitional period does not provide additional time for policy development, legislation, regulations, and implementation.</p> <p>Its costs were estimated<sup>13</sup> as:</p> <ul style="list-style-type: none"> <li>• establishment (administrator) – \$138–165m</li> <li>• operating (administrator) – \$41–45m pa</li> <li>• operating (farmers) – \$28–39m pa.</li> </ul> <p>The detail of the proposed sequestration option is impractical, creating a significant administrative and compliance burden. The detailed reporting requirements also limit the practicality of this option.</p> <p>Reporting will be particularly challenging for sheep and beef farms as fewer are currently using models or reporting farm activities. Also, monthly livestock reconciliations (or preferably livestock movements) will be relatively more complex and time consuming for this sector. The level of detail required for detailed reporting includes quarterly animal weighing, timing of mating, and dates of grazing different feeds.</p> <p>Can be adapted over time, and has set pathways for improvements.</p> <p>Could align with farm planning and other on-farm regulatory systems, but is significantly misaligned with existing NZ ETS policy, including forestry.</p>
<i>Equitable</i>	<p>The inclusion of a wide scope of sequestration mitigates the impacts on some sheep and beef farms and on Māori, and the overall option supports long-term economic viability for the sector.</p> <p>Not equitable between the agricultural sector and wider New Zealand with the sequestration component as currently designed.</p>
<i>Additional comments</i>	<p>This option is not considered implementable by 2025.</p> <p>As this is the Partnership’s proposal, it will achieve more sectoral buy-in (noting that complete buy-in is unlikely under any pricing option).</p>

13 [Pricing system administration costs \(hewakaekenoa.nz\)](https://www.hewakaekenoa.nz)

## Option 4: Farm-level Pricing in NZ ETS



This option already exists in legislation and puts farmers into the NZ ETS directly.

It could be implemented directly or transitioned to from the Option 1 'backstop.'

<i>System</i>	NZ ETS
<i>When would it start</i>	01 January 2025, or at a later date if beginning with Option 1
<i>Point of obligation</i>	Farmers and growers (likely business owner)
<i>Emissions calculation</i>	Through NZ ETS reporting – based on emissions associated with livestock, or with fertiliser bought
<i>Emissions price</i>	NZU surrender obligations for all gases in line with other NZ ETS participants
<i>Reduction incentives</i>	Direct signal to farmers through price on emissions Possibility of on-farm incentive regime
<i>Financial assistance</i>	Possibility of free allocation regime, likely output-based as already provided for in legislation
<i>Sequestration</i>	Primary channel is NZ ETS forestry, with investigation into improving access for agriculture
<i>Revenue recycling</i>	Goes into the general pool of revenue raised from the NZ ETS, but agriculture is then eligible for recycled revenue out of this pool and/or has a portion ringfenced for incentive payments
<i>Governance</i>	Uses existing NZ ETS governance structures
<i>Transitional options</i>	N/A (either directly implemented or a possible system transitioned to from Option 1)

### Qualitative Assessment of Option 4

<i>Effective</i>	<p>This option was not modelled, but given the significant reductions achieved through the NZ ETS by Option 1, these same prices applied at the farm-level are result in significant reductions.</p> <p>The farm-level point of obligation allows on-farm behavioural change to be recognised through the reporting and emissions bill, for those farmers able to sufficiently absorb the high prices to make changes on-farm.</p> <p>By operation through the NZ ETS, the policy setting and adjustment processes are independent, robust, and transparent.</p>
<i>Practical</i>	<p>This option is considered highly impractical and expensive, both from a regulatory perspective (because of the large number of participants introduced into the NZ ETS) and for farmers (as this is a much more complex system to interact with).</p> <p>Can be adapted over time, though selecting this option would likely set a clear direction for pricing to continue via the NZ ETS.</p> <p>Aligns well with existing NZ ETS policy, including forestry, etc., but will be more complex to align with farm planning.</p>
<i>Equitable</i>	<p>This option puts high costs on the sheep and beef sector, of a similar magnitude to Option 2A, and can potentially drive land-use change out of sheep and beef.</p> <p>It is equitable with other sectors because of common inclusion in the NZ ETS, but 95% discount limits the benefits of this.</p>



<i>Equitable (cont.)</i>	This option also limits Māori agribusinesses from making decisions and being recognised for actions on their farm. A blunt price passed down from the processor is also likely to not consider disproportionate disadvantages faced by Māori agribusinesses. However, this can be alleviated through ring-fenced revenue being used to support Māori agribusinesses.
<i>Additional comments</i>	<p>This option is not considered implementable by 2025 – the system and legislation already exist, but farmers would not be prepared to participate by 2025, and significant updates would be needed for the existing system to handle 23,000 or more new participants.</p> <p>This option is likely to have very little buy-in from farmers and the sector as it diverges significantly from the Partnership’s proposals.</p>

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## Key issues in and approaches to comparing options

### Modelling the impacts on agriculture

44. Economic modelling using farm-scale data was commissioned to support decisions on the preferred pricing option, and carried out by Manaaki Whenua – Landcare Research (MWLR) in 2022. The MWLR modelling used several pricing options, which collectively cover off the majority of the options presented here (noting that the modelling was limited to a core set of policy scenarios):

Modelled Scenarios	Policy Options
'Processor NZ ETS' – Agricultural processors and fertiliser manufacturers & importers in the NZ ETS	Option 1A
'Processor Levy' – with separate components for carbon (based on NZ ETS prices) and methane	Option 2B
'Farm-level Levy' – with separate components for carbon (based on NZ ETS prices) and methane	Option 2A Option 3
Not represented in the modelling	Option 2C Option 4

Table 4: The scenarios used by MWLR to represent the range of pricing system options

45. The farm-level option was further broken down by modelling the impacts of different prices for methane:

Units	Low CH <sub>4</sub> Price	Med CH <sub>4</sub> Price	High CH <sub>4</sub> Price
\$/tCO <sub>2</sub> -e	\$2.86	\$3.93	\$5.00
c/kgCH <sub>4</sub>	8c	11c	14c

Table 5: Range of prices used for biogenic methane in the farm-level levy

46. The modelling compares the impact of each option with a baseline of what would occur with no pricing of agricultural emissions in 2030, as seen in Table 6 and Table 7 on the following page.

	Processor NZ ETS	Processor Levy	Farm-level levy		
			Low CH <sub>4</sub> Price	Med CH <sub>4</sub> Price	High CH <sub>4</sub> Price
<b>Emissions Reductions</b>					
All gases	-16%	-9%	-10%	-11%	-12%
Methane	-17%	-9%	-11%	-12%	-14%
Nitrous oxide	-13%	-8%	-6%	-7%	-8%
<b>Commodity production</b>					
Milk solids (t)	-8%	-5%	-5%	-4%	-5%
Lamb (t)	-19%	-9%	-20%	-18%	-20%
Beef (t)	-51%	-44%	+11%	+8%	+10%
<b>Net revenue</b>					
Dairy	-10%	-6%	-6%	-6%	-7%
Sheep & beef	-32%	-17%	-18%	-21%	-24%
<b>Land-use change</b>					
Dairy	-4%	-2%	-2%	-2%	-2%
Sheep & beef	-16%	-7%	-8%	-10%	-12%
Indigenous forest / scrub	14%	+6%	+9%	+7%	+6%

Table 6: Key results from the MWLR model. Arable, fruit, vegetable, and forestry were also modelled, which can be found in the final report by MWLR.

[All gases (net, AR5) are expressed in Mt CO <sub>2</sub> -e]	Emissions Budget 2 (2026–30) Provisional	Additional emissions reductions required
Agriculture – emissions budgets sub-target	191.0	N/A
Agriculture – baseline	199.0	8.0
Processor-level NZ ETS	187.3	-3.7
Processor-level levy	196.5	5.5
Farm-level levy – low price	194.9	3.9
Farm-level levy – medium price	193.4	2.4
Farm-level levy – high price	191.4	0.4

Table 7: Estimate of how policies perform against Emissions Budget 2

47. The key finding from the modelling was that all options can meet the 2030 biogenic methane emissions reduction targets<sup>14</sup>. The price of methane, and consequential reductions in production and stock numbers, is a key driver of emissions reductions. The adoption of mitigation technology on farm in response to incentives is another driver of emissions reduction particularly under the farm level levy.
48. The NZ ETS option at processor-level would generate the highest reductions in emissions, but also the largest losses in production.
49. The modelling also incorporated the impacts of implementation of emissions-reducing technology, assuming slow versus rapid uptake ('headwind' and 'tailwind' scenarios);

14 See Box 4.

- and of payments to farmers for land-use change (especially to scrub and indigenous forest).
50. New technologies had minor impacts, even under the most optimistic assumptions about uptake.
  51. Sequestration incentives (particularly payments for new scrub sequestration) appear to improve the effectiveness of pricing. They reduce gross methane and nitrous oxide emissions through incentivising landowners to retire larger areas of marginal land and carry less livestock. Carbon removals from this vegetation are small in comparison.
  52. All options are expected to have little impact and only a small reduction in profit for horticulture and arable farming. Analysis undertaken for the He Waka Eke Noa Partnership's proposal<sup>15</sup> shows that horticulture and arable farms will simply pay the levy and are not expected to actively reduce emissions – in fact, their emissions will increase as a result of increased production from changes in land use away from sheep & beef and dairy farming.
  53. It should be noted that this modelling makes a range of assumptions and has limitations:
    - a. It assumes there is no uptake of farm system changes and mitigation practices in the baseline.
    - b. The impact of the National Policy Statement for Freshwater Management was not incorporated in the model, which could be significant as this policy is expected to drive widespread changes in farm practices and land-use by 2030.
    - c. Prices for farm outputs are assumed in 2030 to be equivalent to the average of the past five years.
    - d. The modelling framework assumes that farm and land-use decisions are driven by profit maximisation and that farmers have good information about the range of options available to them.
    - e. The commercial availability, cost and efficacy of mitigation technologies is highly uncertain.
  54. The MWLR modelling was used as the basis for a Cost-Benefit Analysis (CBA) model prepared by the New Zealand Institute of Economic Research (NZIER). Like MWLR, the CBA compares costs and benefits of each option to what would occur with no pricing of agricultural emissions in 2030.

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<sup>15</sup> [Pricing agricultural GHG emissions: sectoral impacts and cost-benefit analysis \(hewakaekenoa.nz\)](#)

## Cost-Benefit Analysis

55. A more detailed breakdown of costs and benefits of the preferred option (Option 2A: Basic Farm-level Levy) is presented in Table 11 and Table 12, following the summary of our analysis behind determining a preferred option.
56. This CBA incorporates the following:
- a. *benefits*, in terms of:
    - emissions reductions, valued at \$108.62/tCO<sub>2</sub>-e – split between reductions that achieve NZ's domestic targets, and reductions beyond that (with negative benefits where emissions do not achieve the targets);
    - demand in overseas markets for carbon neutral products – this is estimated to increase net revenue by 18% on farms that can supply carbon-neutral milk and meat.<sup>16</sup> Emissions reductions in New Zealand in line with targets will enable marginally more supply of carbon-neutral product from New Zealand. We assume an additional 10% of New Zealand product exported will be able to make carbon neutral claims and meet this demand.<sup>17</sup>
  - b. *costs*, in terms of:
    - losses in net farm revenue as a result of lower production;
    - administrative costs to government and compliance costs to farmers.
57. The CBA estimates the Net Present Value (NPV) of costs and benefits, in real (inflation adjusted) dollars, using a discount rate of 5% (per standard Treasury guidance<sup>18</sup>) over the period from 2023 to 2035.
58. Results are shown Table 8 on the following page.

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<sup>16</sup> A simple average of the range of 11–25% identified in Lucci, G, W Yang, S Ledgard, G Rennie, G Mercer, and M Wang. (2020). *The added value of value-add: brief synopsis of findings* [Credence Attributes On Farm - Our Land & Water – Toitū te Whenua, Toiora te Wai \(ourlandandwater.nz\)](#)

<sup>17</sup> This would incentivise higher levels of production on farms that would secure this premium, above the assumptions in the MWLR model. However, this has not been incorporated into the model.

<sup>18</sup> [Cost-Benefit Analysis for Social Investments \(treasury.govt.nz\)](#)

	Processor NZ ETS	Processor Levy	Farm-level Levy		
			Low CH <sub>4</sub> Price	Med CH <sub>4</sub> Price	High CH <sub>4</sub> Price
<b>Benefits</b>					
Value of achieving GHG domestic target	3,740	3,740	3,740	3,740	3,740
Value of over/(under) mitigation of GHGs	851	-544	-262	32	233
Value of additional supply of carbon neutral product	449	482	482	476	470
<b>Costs</b>					
Loss of net farm revenue	3,997	2,937	2,966	3,166	3,166
Administrative costs (government)	16	16	271	271	271
Compliance costs (farmers)	53	27	112	112	112
Total benefits	5,040	3,678	3,960	4,248	4,443
Total costs	4,067	2,980	3,349	3,548	3,548
<b>Net benefits</b>	<b>974</b>	<b>698</b>	<b>611</b>	<b>699</b>	<b>895</b>
<b>Benefit-cost ratio</b>	<b>1.24</b>	<b>1.23</b>	<b>1.18</b>	<b>1.20</b>	<b>1.25</b>
<b>Results without premium for carbon action</b>					
<b>Net benefits</b>	<b>524</b>	<b>216</b>	<b>129</b>	<b>223</b>	<b>425</b>
<b>Benefit-cost ratio</b>	<b>1.13</b>	<b>1.07</b>	<b>1.04</b>	<b>1.06</b>	<b>1.12</b>

Table 8: Cost-benefit analysis of options

59. The above table shows that:
- all options have positive net benefits and benefit-cost ratios greater than 1, which indicates that they have positive impacts compared to not pricing agricultural emissions
  - all options have similar benefit-cost ratios, ranging from 1.18 (the farm levy with low prices) to 1.25 (the farm levy with high prices)
  - options which result in higher emission reductions have higher benefits, but at a cost of higher losses in net farm revenue
  - the impact of removing any premium for carbon neutral product would lower benefit-cost ratios, but these still remain positive.
60. Sectoral impacts are discussed in paragraphs 75–80.

#### Key trade-off: processor versus farm-level pricing

61. The question of who within the sector should be subject to pricing involves the following trade-offs:
- Processors*, such as meat works, dairy factories, and fertiliser manufacturers and importers.
    - As these are relatively few in number (approximately 80), the pricing system would be low cost. The He Waka Eke Noa Partnership estimated establishment costs of \$3 million and operating costs of \$10m per annum to bring processors into the NZ ETS system, with most operating costs falling on



processors.<sup>19</sup> Separate estimates for a processor levy are for operating costs of \$6m per annum.

- The levies would be passed on to farmers through reductions in prices paid for milksolids and stock for slaughter, which would in turn influence on-farm decisions on production, stock, and land use.
- b. *Farmers*, including both farmers of livestock and growers of crops, fruit and vegetables
- As there are an estimated 23,000 farms potentially subject to pricing, this would be relatively expensive to operate. The Partnership estimated establishment costs of \$117–141 million (subsequently re-estimated at \$138–165m) and operating costs of \$69–84m per annum.
  - However, depending on specific policy design decisions, farm-level pricing has two advantages over processor-level pricing:
    - It more accurately aligns the profile of on-farm emissions for sheep and beef farms, in that prices would be based on livestock numbers at any given time, rather than when stock is sent to meatworks for slaughter, and therefore provides more appropriate incentives.
    - For all farm types, it would provide stronger incentives for the development and uptake of actions to reduce emissions such as farm management practices and new technologies. While these technologies are limited and expensive at present, improvements may be expected if sufficient numbers of farms demand them.

### Emissions leakage modelling

62. Dairy, meat, and wool products comprise over half of Aotearoa New Zealand's export revenue, with the majority of agricultural production exported into world markets, where it competes with product from other countries. Any loss in production associated with Aotearoa New Zealand's emissions reduction will reduce the amount of product sent to world markets. If those emissions increases are not offset by reductions elsewhere in those economies, this process reduces the impact that New Zealand's emission reductions have on overall global emissions, resulting in emissions leakage.
63. Recent OECD<sup>20</sup> modelling suggests that, in general, emissions leakage in agriculture will be lower if more mitigation technology is available and a wider range of countries reduce agricultural emissions. There are also other measures to minimise leakage risks, such as specific terms in New Zealand's free trade agreements.
64. The Commission's advice on agricultural assistance also considered emissions leakage and found that 'the risk of emissions leakage is highly uncertain but appears to be low for agriculture in Aotearoa in the near term'.

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19 [Pricing system administration costs \(hewakaekenoa.nz\)](https://www.hewakaekenoa.nz)

These are combined costs to the government and to processors/ farmers. Some or all of the government's costs may be cost recovered from levy payers.

The document also provides estimates of costs to government and farmers of systems to provide incentive payments for implementing new technologies and for sequestration of land.

20 OECD (2021), [Global assessment of the carbon leakage implications of carbon taxes on agricultural emissions \(oecd-ilibrary.org\)](https://www.oecd-ilibrary.org).

65. The Government has modelled the policy options considered in this discussion document for one illustrative scenario. This modelling uses the Aglink-Cosimo model, which analyses supply and demand of world agricultural products and is managed and developed by the OECD and FAO.<sup>21</sup> Agricultural greenhouse gas emissions have been added to Aglink-Cosimo in its most recent update.
66. Mitigation technology uptake under the basic farm-level levy results in less emissions leakage compared to the processor-level NZ ETS option. Availability of more and cheaper mitigation technology could reduce leakage further.

<b>Farm-level levy (Med price)</b>	<b>NZ emissions change</b>	<b>Global emissions change</b>	<b>Leakage</b>	
<i>Product</i>	<i>MtCO<sub>2</sub>-e</i>	<i>MtCO<sub>2</sub>-e</i>	<i>MtCO<sub>2</sub>-e</i>	<i>% of NZ reductions leaked</i>
Dairy	-0.7	-0.4	0.3	37%
Beef	-1.4	-1.4	0	0%
Sheep meat	-1.6	0.5	2.1	133%
<b>Total</b>	<b>-3.7</b>	<b>-1.1</b>	<b>2.4</b>	<b>65%</b>
<b>Processor-level NZ ETS</b>	<b>NZ emissions change</b>	<b>Global emissions change</b>	<b>Leakage</b>	
<i>Product</i>	<i>MtCO<sub>2</sub>-e</i>	<i>MtCO<sub>2</sub>-e</i>	<i>MtCO<sub>2</sub>-e</i>	<i>% of NZ reductions leaked</i>
Dairy	-1.3	-0.7	0.6	47%
Beef	-5.9	-1.3	4.6	78%
Sheep meat	-1.7	0.6	2.3	136%
<b>Total</b>	<b>-8.9</b>	<b>-1.4</b>	<b>7.5</b>	<b>84%</b>

Table 9: Emissions leakage modelling results

<sup>21</sup> The Food and Agriculture Organization of the United Nations.

## How do the options compare to the criteria?

67. The table below summarises how each option performs against the criteria. Note that in interpreting the table:

- The sub-criteria are condensed in the left-hand column of the table below for reference. The full descriptions are included in Table 2;
- Details of the qualitative assessment behind this scoring can be found in the tables that describe each option in the sub-section “What options are being considered?” under Section 2.

	<b>Option 1</b> <i>Processor-level Pricing in NZ ETS</i>	<b>Option 2A</b> <i>Basic Farm-level Levy</i>	<b>Option 2B</b> <i>Interim Processor-level Levy</i>	<b>Option 2C</b> <i>Fertiliser-only Pricing in NZ ETS</i>	<b>Option 3</b> <i>Partnership’s Farm-level Levy</i>	<b>Option 4</b> <i>Farm-level Pricing in NZ ETS</i>
<b>1 – Effective</b>						
(a) targets and budgets	✓ <i>Per modelling results, all options can achieve gross emissions reductions.</i>	✓ <i>Per modelling results, all options can achieve gross emissions reductions.</i>	✓ <i>Per modelling results, all options can achieve gross emissions reductions.</i>	✓ <i>Per modelling results, all options can achieve gross emissions reductions.</i>	✓ <i>Per modelling results, all options can achieve gross emissions reductions.</i>	✓ <i>Per modelling results, all options can achieve gross emissions reductions.</i>
(b) on-farm mitigation	✗ <i>May be more effective depending on the final form of the Early Adopters Fund.</i>	✓	✗ <i>May be more effective depending on the final form of the Early Adopters Fund.</i>	✗ <i>Does not allow farmers to consider their full emissions profile through one system.</i>	✓	✓
(c) policy setting processes	✓	✓	✓	✓	— <i>Transparent and somewhat robust, but not independent.</i>	✓
<b>2 – Practical</b>						e.
(a) simple and easy	✓	—	—	✓	—	✗
(b) low cost <sup>22</sup>	✗	✗✗	— <i>Though this option is low-cost, it is a short-term investment before transitioning to farm-level pricing.</i>	✗	✗✗	✗✗
(c) adaptable	✓	✓	— <i>Not designed to be adaptable as only temporary.</i>	— <i>Separating fertiliser out may limit future interactions between fertiliser and livestock emissions pricing.</i>	— <i>Though this option does incorporate changes over time and retain optionality for certain settings, it does so within a pre-determined framework that has limited flexibility.</i>	✓
(d) actively aligned	— <i>Aligns with NZ ETS, forestry, etc. Does not align with farm planning.</i>	— <i>Aligns with farm planning. Does not align with NZ ETS.</i>	— <i>Aligns with farm planning. Does not align with NZ ETS.</i>	— <i>Aligns with NZ ETS, forestry, etc. Does not align with farm planning.</i>	— <i>Aligns with farm planning. Does not align with NZ ETS, forestry, etc.</i>	— <i>Aligns with NZ ETS, forestry, etc. Does not align with farm planning.</i>
<b>3 – Equitable</b>						
(a) participants within the sector	✗	— <i>Major negative impacts on sheep and beef farms. Minor impacts on other farm types.</i>	✓	— <i>Similar equity issues to the backstop; could prevent fertiliser-only participants (e.g. growers) coming into a complex farm-level system.</i>	✓ <i>Inclusion of sequestration reduces the impacts on sheep and beef farms. Minor impacts on other farm types</i>	✗
(b) other sectors and wider economy	✓ <i>However, noting that agriculture will receive higher free allocation.</i>	— <i>Not priced the same as other sectors, but purchasing mitigations offshore would be more expensive.</i>	— <i>Not priced the same as other sectors, but purchasing mitigations offshore would be more expensive.</i>	— <i>However, noting that agriculture will receive higher free allocation, and this is only some of emissions from agriculture.</i>	— <i>Not priced the same as other sectors, but purchasing mitigations offshore would be more expensive.</i>	— <i>Agriculture will receive higher free allocation, and could disrupt the market with many new participants.</i>
(c) Māori agribusinesses	— <i>No specific funding in initial system.</i>	✓ <i>Specific funding for Māori agribusiness.</i>	— <i>No specific funding in initial system.</i>	— <i>No specific funding in system.</i>	✓ <i>Specific funding for Māori agribusiness.</i>	— <i>No specific funding in initial system.</i>
(d) Rural communities	✗	— <i>Negative impacts on sheep and beef farms could flow-on to some rural communities.</i>	✓	— <i>Similar equity issues to the backstop, but avoids bringing fertiliser-only participants into a farm-level system.</i>	✓ <i>Inclusion of sequestration reduces the impacts on sheep and beef farms and flow-on impacts on rural communities.</i>	✗
<b>Overall assessment</b>	<b>+1</b>	<b>+3</b>	<b>+3</b>	<b>+1</b>	<b>+3 (+1 excluding sequestration)</b>	<b>-1</b>

Table 10: Multi-criteria analysis for the full set of pricing system options considered

<sup>22</sup> Note that, since *no pricing* has been used as the baseline for the CBA, all options generate additional costs above this baseline. The difference between options is that some (farm-level) generate much higher costs than others (processor-level).

## What option is likely to best address the problem, meet the policy objectives, and deliver the highest net benefits?

68. Officials recommend that Option 2A: A Basic Farm-level Levy is the preferred option on the basis of the analysis presented in this RIS.
69. Agreement has not been reached by the Government (in particular, between the Minister of Climate Change, Minister of Agriculture, and Prime Minister) on a single preferred option ahead of Cabinet discussions and consultation.
70. In summary from our analysis of the range of options:
- a. The results of the economic modelling suggest that all of the options would be effective in terms of achieving absolute emissions reductions. Therefore all score positively against sub-criterion 1(a).
  - b. Processor pricing provides very little incentive for farm-level mitigation such as improved practices and technology, and therefore these options score negatively against sub-criterion 1(b). Note however that, at least in the initial stages, the impacts of farm-level mitigation are minor.
  - c. All options have costs above the no pricing baseline, and all farm-level options are very expensive to establish and operate compared to processor pricing.
  - d. All options improve equity between agriculture and other industries that are already subject to emissions pricing through the NZ ETS, recognising that agriculture will still be treated relatively generously because of initial pricing based on 90-95% free allocation of units.
  - e. All options have substantially different impacts across sub-sectors of agriculture. While the size of the impacts varies between options, the general trend is:
    - significant losses of production and revenue in sheep and beef farming;
    - some losses of production and revenue in dairy farming;
    - minor increases in production and revenue in other types of farming, in particular growers of crops, fruit and vegetables.
  - f. All options except the Partnership's proposal establish robust and transparent processes for price setting and other policy settings and therefore score positively against this sub-criterion. The Partnership's proposal is transparent, but does not meet the test of independence.
  - g. All options are designed in a way that can align with either the NZ ETS (e.g. forestry policy) or farm planning systems (e.g. freshwater farm plans), but none align well with both.
71. Three options achieve the most positive scores equally, being Options 3, 2A, and 2B. In terms of Option 3 (the Partnership's Farm-level Levy):
- a. The high score associated with Option 3 is primarily a result of the impact of sequestration in this option, which partly offsets the impacts of pricing on sheep and beef farms and avoids them being disproportionately affected (a more equitable outcome than other options).
  - b. However, officials have identified significant concerns about the feasibility of implementing this option. Excluding sequestration from this option would result in a much lower score, whereas mirroring this approach to sequestration in other options would increase their score.

- c. Alternative sequestration options are discussed in Appendix Two.
72. Officials conclude that the most effective and feasible approach is Option 2 (Basic Farm-level Levy). This includes both 2A and 2B:
- a. Option 2A would be the default pathway, with farm-level pricing directly implemented in 2025 so long as both the regulator and the agricultural sector have completed all of the work needed for this to be operationalised;
  - b. Option 2B would sit in legislation as a fallback, similar to the current legislative provisions for the NZ ETS Backstop, that could rapidly come into effect should Option 2A not be ready to proceed in 2025.
73. We see Option 2 as the best compromise for implementing the core aspects of the Partnership's recommended option, while also ensuring that pricing of some form comes into effect in 2025. This approach also draws on the Commission's advice that a farm-level approach is preferred but that it would need to be further simplified to be feasible within the timeframes.
74. While current intentions are for legislation to come into effect on 01 January 2025, officials are also exploring a later start date of 01 July 2025. This aligns better with a farmer-facing system, including normal seasonal activity levels and the tax calendar. It also allows for sufficient time for learning from the pilot and implementing the accounting system.

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## What are the marginal costs of Option 2A – Basic Farm-level Levy?

Additional costs of the preferred option compared to taking no action (All costs are in 2030, except establishment costs which span 2023-25)			
Affected groups	Comment	Impact	Evidence Certainty
Regulated groups	Significant administrative and compliance burden on participants in the pricing system.	Operating: \$41–45m pa	High
	Significant overall impact on the profitability and productivity of the agriculture sector.	\$494-620m loss in net revenue <ul style="list-style-type: none"> <li>• Dairy: \$250–295m</li> <li>• Sheep &amp; beef: \$242–325m (depending on methane price)</li> </ul>	
Regulators	Setting up a new pricing system will have both one-off and ongoing costs, and will require ongoing resourcing. (Note that some or all of these costs may be recovered from users.)	Establishment: \$117–141m Operating: \$28–39m pa	High
Others (e.g. wider government, consumers, etc.)	Some costs could be passed onto consumers through increased product prices and/or reduced availability of product.	Low	Medium
	Related industries beyond the farm gate would be affected by reduced agricultural output – suppliers to farms, processors such as freezing works and dairy factories, and transport operators and higher value-added food manufacturers.	High – could be of a similar order of magnitude to loss in on-farm net revenue	Low
<b>Total monetised costs</b>		<b>\$563-704m</b> (excluding establishment costs) (depending on methane price)	
<b>Non-monetised costs</b>		<b>HIGH</b>	<b>MEDIUM</b>

Table 11: Costs associated with Option 2A



## What are the marginal benefits of Option 2A – Basic Farm-level Levy?

Additional benefits of the preferred option compared to taking no action (All benefits are in 2030)			
Affected groups	Comment	Impact	Evidence Certainty
Regulated groups	Global perceptions that some NZ products are carbon-neutral secures premium in global markets increasing profitability of dairy and sheep & beef farms by 18%, for 10% of exports	\$92–94m pa (depending on methane price)	Medium
	Reducing emissions will support avoiding the worst effects of climate change, which could significantly affect our ability to produce food.		Low
Regulators	Will support meeting legislated targets.	\$605m pa	Medium
	Over/under-achieving targets	–\$51 to 91m pa (depending on methane price)	High
	Will avoid the significant cost of purchasing offshore mitigations if unable to meet NDC.		High
Others (e.g. wider government, consumers, etc.)	Some industries (arable, horticulture) will expand as a result of lower sheep and beef production and consequential land use changes.	\$34–88m pa (depending on methane price)	Medium
	Reducing emissions will support avoiding the worst effects of climate change, which could significantly affect most aspects of life. Shifting to low-emissions practices supports building resilience in our economy against changing consumer demands and emergent products and technologies.		Medium
<b>Total monetised benefits</b>		<b>\$735–802m pa</b> (depending on methane price) <sup>23</sup>	
<b>Non-monetised benefits</b>		<b>HIGH</b>	<b>MEDIUM</b>

Table 12: Benefits associated with Option 2A

<sup>23</sup> These are the combined values of these components for the farm levy with low and high methane prices respectively, and not the column totals.

75. The table below presents a simplified version of the cost-benefit analysis in paragraphs 54-59, with disaggregation by major sector in agriculture (compared to the 'no pricing' baseline) in 2030, for two options – including processors in the NZ ETS, and a basic farm-level levy with the medium methane price (11c/kg).<sup>24</sup>

Values in 2030 (\$ million)	Dairy		Sheep & beef		Other agriculture	
	NZ ETS	Farm levy (medium price)	NZ ETS	Farm levy (medium price)	NZ ETS	Farm levy (medium price)
<b>Benefits</b>						
Value of GHG mitigation	232	120	635	495	-2	-1
Value of premium for carbon action	71	74	17	19	0	0
<b>Costs</b>						
Loss of net farm revenue	415	272	430	286	-64	60
Administration costs	4	25	7	42	0	0
Total benefits	303	194	651	515	-2	-1
Total costs	419	297	436	328	-64	60
Net benefits	-116	-104	215	187	62	-61
Benefit-cost ratio	0.72	0.65	1.49	1.57		
<b>Results without premium for carbon action</b>						
Net benefits	-187	-177	198	167	62	-61
Benefit-cost ratio	0.55	0.40	1.45	1.51		

Table 13: Costs and benefits by agricultural sector

Notes:

- These values are from a national perspective; the value of GHG mitigation would be generated by each sector but would not provide benefits directly to them; whereas other costs and benefits would directly accrue to the relevant sector.
  - The estimates shown for 'Loss of net farm revenue' for Other agriculture represent increases in revenue and are shown as negative losses for consistency in presentation. Cost-benefit ratios calculated on this basis would not be meaningful and are not shown.
76. As with the results for all agriculture, there are no major differences between options. However, there is considerable inter-sectoral variation.
77. The key driver of this variation is differing levels of 'emissions intensity' between sectors. Both dairy and sheep & beef farming are projected to have similar emissions in the 'no pricing' baseline – 24 million and 26 million tonnes respectively. However, annual net revenue in 2030 is projected at \$4.4 billion for dairy farming, compared to \$1.4b for sheep & beef. Therefore emissions for any given level of net revenue are much lower in dairy farming than for sheep & beef.
78. Emissions reductions under all options are primarily a result of reduced production. In the case of less 'emissions-intensive' dairy farming, this results in costs significantly exceeding benefits. While the modelled reductions in emissions and losses in net revenue are low in percentage terms, the low emissions intensity of this sector means that revenue losses significantly exceed the benefits of reduced emissions.

<sup>24</sup> Equivalent calculations have been made for all other options. These show similar results to this table, and have been omitted for brevity.

79. The biggest contribution to both emissions reductions (benefits) and losses of net revenue (costs) comes from sheep & beef farming. However, the opposite effect applies to what occurs in dairy; it is modelled to have much larger reductions in output, and the high emissions intensity means that the value of reduced emissions exceed the losses in net revenue, resulting in positive benefit-cost ratios under all options.
80. The impacts in 'Other agriculture' are a result of land use changes and increased production in arable and horticultural sectors, resulting in modest increases in emissions and net revenue.

### **Wider impacts**

81. Direct costs to farmers and growers may have significant flow-on effects. There may be upstream impacts on production if farmers and growers reduce their inputs (eg agricultural contractors), and downstream effects if processors (eg meat works or dairy factories) have fewer products to process. The size of these indirect effects needs to be estimated empirically, but they are typically of a similar order of magnitude to the direct impacts.
82. There may be offsetting impacts associated with alternative land uses and the spending and employment associated with this.
83. Given projections of persistently low unemployment over the next few years, it is unlikely that job loss in the primary sector will result in equivalent unemployment.
84. With the considerable uncertainty about the impacts of emissions pricing on agricultural production, and the nature, scale, and location of wider impacts, any quantitative assessment of such impacts, including on Māori and rural communities, would be highly speculative. For this reason we have limited our assessment to qualitative factors in the following two sub-sections.
85. It is expected that more information about potential impacts will be obtained through the consultation process and any further policy development ahead of drafting legislation.

### **Impacts on Māori**

86. Māori landowners face multiple barriers to managing and developing their land, including land ownership and governance structures, access to capital and advice, and less productive land. These same factors will likely impact Māori landowners' ability to respond to an emissions pricing policy.
87. An emissions pricing system is likely to disproportionately disadvantage Māori landowners with flow on effects for Māori more broadly, particularly if there is no assistance in place to mitigate some of the impacts. Draft modelling shows the price of methane emissions, will drive reductions in production and stock numbers, and from this land-use change, which will in turn drive emissions reductions. Most of this land-use change will likely occur in the sheep and beef sector.
88. It is estimated that Māori operate up to 25 per cent of New Zealand's sheep and beef farmland. A high methane price would therefore significantly and disproportionately impact Māori sheep and beef farmers due to the barriers already mentioned, and the limited emissions mitigation options available to sheep and beef farmers, compared to dairy farmers.
89. Reduced production resulting from an emissions pricing policy are also likely to have a flow on effect on the Māori economy and communities. For example, any reduction in New Zealand's sheep and beef sector has the potential to impact Māori employment as approximately 28 per cent of meat processing workforce are Māori.

90. Looking ahead at the mitigations that are currently under different stages of development, these are more suited to dairy farmers than sheep and beef farmers, for example, EcoPond and Bovaer. With high rates of Māori-owned sheep and beef farms, this will impact on the ability of Māori farmers and landowners to take up mitigation incentives.
91. It is important to work with Māori landowners to understand how we can manage these impacts, to support a transition to a low emission, climate resilient future.

#### **Impacts on rural communities**

92. The impacts will be greatest in areas where farming is a large part of the local economy. The impact may be magnified if job losses occur among people living in remote rural communities, with few alternative employment opportunities (and any new jobs are filled by people from provincial towns and cities).
93. Potential negative effects could include a significant changes in spending power across rural communities, further de-population and impacts on community services, quality of living.
94. But it is also possible that some rural communities might benefit, for example from jobs arising from alternative land uses. Or businesses in other industries like tourism that are currently facing staff shortages may be able to expand through re-employing primary sector workers.
95. Affected rural communities with high Māori populations could suffer if people move to get alternative jobs. The social and cultural impacts of losing connection with ancestral whenua and whānau could contribute to loss of language and identity.
96. Potential mitigation measures may focus around two key themes: reducing the risk of widespread financial hardship; and building rural skills and support systems, for instance through extension services and programmes.

## Section 3: Delivering an option

97. Note that this section discusses consideration of implementation to date, but that implementation will be a significant focus of the upcoming consultation and continuing policy work. We expect the process for delivering an option to be a much greater focus in the final RIS in advance of legislating.

### How will the new arrangements be implemented?

98. A key implementation risk is that no decision had been made at the time this RIS was prepared as to which agency would be tasked with implementing the new system in particular whether this will be housed within an existing agency (or agencies) or a new agency set up. Once this has been decided, the implementation agency can start taking the next steps in the work programme.

99. For this reason, we refer to the 'Implementation Agency' in the rest of this section.

100. The nature and scale of implementation will be dependent on selection of option, with some options requiring significantly more upfront effort. The option chosen may also affect the choice of Implementation Agency.

### Implementation arrangements for an Implementation Agency

101. The Implementation Agency will need to be appointed in legislation for the farm levy and the interim processor levy. We are proposing the same agency implements both systems. More than one agency may need to implement and administer the system.

102. The implementation arrangements can be broadly divided into three categories:

- a. Product and service delivery – this function will primarily be carried out by the Implementation Agency, including participant management like the call centre and technical support (through which participants can gain more information and raise concerns), and enforcement.
- b. Delivery support – this function could in part align with functions already carried out by other departments (e.g. the Inland Revenue Department) including debt collection and registering customers in the system. The IT system is currently being scoped by MPI.
- c. Operational and technical policy – the Implementation Agency will carry out operational and technical policy, such as stakeholder management, regulation development, HR, legal service, and other functions.

103. For each of these functions there are a number of agencies that could pick up responsibility. Each of these agencies will have particular strengths.

104. There will likely be roles for sector representative groups in supporting extension services, and for rural accountants and professionals in product and service delivery.

<b>Product and service delivery</b> Front-stage interactions that interface with customers	<b>Participant management</b> <ul style="list-style-type: none"> <li>• Call centre</li> <li>• Webpage</li> <li>• Physical publications</li> <li>• Regional offices</li> <li>• Technical support and resolution</li> </ul> <i>Implementation agency will carry out this function; could be supported by rural professionals/farm advisors</i>	<b>Verification services</b> <ul style="list-style-type: none"> <li>• On-farm audit</li> <li>• Other data sets: NAIT, FW-FP</li> </ul> <i>Parts of this function could be supported/partly carried out by rural accountants</i>	<b>Enforcement</b> <ul style="list-style-type: none"> <li>• Voluntary compliance, assisted compliance, directed compliance and enforced compliance</li> </ul> <i>Implementation agency will carry out this function</i>
<b>Delivery support</b> Back-stage functions that directly support the delivery of services to customers	<b>Payment management</b> <ul style="list-style-type: none"> <li>• Invoicing</li> <li>• Debt collection</li> </ul> <i>Parts of this function could align with IR</i>	<b>Processing</b> <ul style="list-style-type: none"> <li>• Registering customers in the system</li> <li>• Changes in ownership</li> <li>• Receiving emissions-related data</li> </ul> <i>Parts of this function could align with IR</i>	<b>IT system</b> <ul style="list-style-type: none"> <li>• Emissions calculation and reporting tool</li> </ul> <i>Currently being scoped by MPI; will be carried out by the implementation agency</i>
<b>Operational and technical policy</b>	Including: stakeholder management, regulation development, technical guidance and decisions, emission and sequestration methods/tools, methods to measure the success of the policies  Enterprise support: enterprise audit and compliance; HR/talent/learning and development; engagement and communications; finance; IT; legal services; vision, strategy, government policy; government relationships; workforce management; training and information flows		

Figure 5: System overview – implementation of an on-farm pricing system

### Information required from farm businesses in a farm-level pricing system

105. Farm businesses required to report their emissions within the emissions pricing system, and pay the levy, will need to register on the system. The obligation will extend to recording relevant farm data, submit emission reports using approved tools, and payment of the requisite levy.
106. The data required on registering could include information on ownership, farm address, farm type/size, farming enterprise, stock type and numbers, farm map and GST number(s). This information would then be useful in aiding the audit, verification, and compliance processes. For agents registering for others, authority to act on behalf would need to be demonstrated. This could involve the completion of a signed agreement submitted with registration.
107. Participants will input farm information into the bespoke calculator on an annual basis. They will receive a notification directing them to do this.

### Development of a pilot farm-level accounting and reporting system

108. A pilot of a farm-level accounting and reporting system will be completed across a range of farm types by 01 January 2024. This will enable the testing of the system and its options before the deadline in 2025.
109. The pilot is an essential component to a pricing system being ready to come into force by 2025. Once decisions on the pricing system have been made, officials will be able to scope the pilot, undertake market engagement to determine the cost and availability of IT resources to develop the pilot, and complete procurement and contracting activities to enable the pilot development to commence in February 2023. MPI received \$3 million for the pilot under the Climate Emergency Response Fund for the 2022/23 Financial Year.



## **Auditing, Penalties and Compliance**

110. Given the large number of participants (approximately 23,000), not all can be audited in detail. There may be a need to carefully check those who emit most, and then randomly select a few others for auditing. Automated processes can be setup to flag errors, ensure compliance and provide evidence for any enforcement.
111. We propose to align requirements for levy calculation with other existing and planned farm audit systems to the extent that this is feasible (e.g., Industry Assurance Programmes or Freshwater Farm Plan audits). The scale of auditing should be proportionate to the risk of non-compliance and complexity of reporting requirements.
112. We are proposing a penalties and offences regime similar to that already established under the Climate Change Response Act 2002. This includes provisions for infringement offences to be set by regulation and a model to calculate penalties for a set of specific offences via an automated formula.
113. To ensure a high level of compliance, some enforcement will be needed. Powers to invoke and enforce penalties for noncompliance will be needed in legislation, with aspects also contained within regulations.
114. There will be costs associated with administering the farm levy, which could be funded from Crown revenue, revenue collected from the levy, or via separate fees. We are therefore considering enabling cost recovery for the functions involved in running the agricultural pricing system within legislation. If cost recovery is implemented, it would be applied through regulation and subject to consultation before fees are set or changed.

### **Is implementation of a farm level pricing system by 2025 feasible?**

115. The Government enshrined implementation milestones in the CCRA. These milestones, between 2020 and 2025, prepare the agricultural sector for calculating and reporting its annual emissions. The milestones – and the assessment this year by the Climate Change Commission (the Commission) of progress towards them – are set out in Table 14 on the following page.
116. While current intentions are for legislation to come into effect on 01 January 2025, officials are also exploring a later start date of 01 July 2025. This aligns better with a farmer-facing system, including normal seasonal activity levels and the tax calendar. It also allows for sufficient time for learning from the pilot and implementing the accounting system.








	Milestone	Due Date	Status
1	For 25% of farms, a person responsible for farm management holds a documented annual total of on-farm emissions, by methods and definitions accepted by the He Waka Eke Noa Steering Group	31 December 2021	 Complete 61% farms reached
2	For all farms, a person responsible for farm management holds a documented annual total of on-farm emissions, by methods and definitions accepted by the He Waka Eke Noa Steering Group	31 December 2022	 Very likely will not be met
3	A pilot of a farm-level accounting and reporting system has been completed across a range of farm types	1 January 2024	 Can be met
4	A system for farm-level accounting and reporting of 2024 agricultural emissions at farm level is in use by all farms	1 January 2025	 Likely will not be met
5	Guidance is provided to farmers on how to measure and manage emissions through farm planning	1 January 2021	 Complete
6	A quarter of farms have a written plan in place to measure and manage their emissions	1 January 2022	 Not complete 21% farms reached
7	All farms have a written plan in place to measure and manage their emissions	1 January 2025	 Very likely will not be met

Table 14: Implementation milestones and due dates from Schedule 5 of the CCRA

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

117. There will be a role for the Commission in monitoring the overall successes of the system as Section 5ZJ of the CCRA requires the Commission to monitor progress towards emission budgets, of which this pricing system will be key.
118. Key monitoring functions required within the system will be review of levy setting, mitigation incentives, and revenue recycling. These functions will need to be regularly monitored to ensure that they remain fit for purpose. Officials want to ensure that they have the ability to review these functions.
119. We will consult on how often these reviews might happen and who would be involved.
120. The short-lived and long-lived gas levy rates will be updated periodically, based on progress towards New Zealand's domestic biogenic methane targets, movements in the New Zealand Unit (NZU) price and, in the case of the long-lived gas levy, to phase out the initial 95 per cent discount. These updates will help ensure that the levies are effective in reducing New Zealand's greenhouse gas emissions and meet our domestic targets.
121. These periodic updates will also provide opportunity to review other aspects of how the system is operating – in particular, that it remains practical and equitable. For example, possible amendments to the regulations may be identified that will reduce compliance

burden, or it may become apparent that further support needs to be considered for particular sectors.

122. The information the Implementation Agency sector receives from farmers, the results of its monitoring and enforcement actions, and the uptake of revenue recycling programmes would also support the monitoring and evaluation of the policy.
123. The Ministry for Primary Industries, the Ministry for the Environment, and the Implementing Agency would be responsible for conducting these reviews. These are the agencies responsible for the agricultural sector and climate change policy and are therefore best placed to ensure the system is operating as intended, and support is being directed to where it is needed. If, for example, where the agencies identify that a particular sector requires additional support, they could recommend to Ministers to direct the Revenue Recycling Body (or Bodies) accordingly.
124. The regulator will periodically set/review the rate received by farmers and landowners as incentive payment for the uptake of approved actions that reduce emissions, such as the adoption and use of methane inhibiting technology. These will include payments or credit for on-farm vegetation which are not eligible for registration in the NZ ETS.
125. The regulatory body will determine the types of vegetation that are eligible to be entered as sequestration, the rates of carbon sequestration that are associated with those types of vegetation, the price per tonne of carbon sequestered, and the penalties that are associated with removing or failing to manage those types of vegetation.
126. This could include a focus on professional learning to upskill existing farm advisers on leading edge research on low-emissions farm practices. Specialised climate-focused services will complement wider efforts by industry and the Government to support whole-of-system farming change. The regulator will facilitate and enable extension services/programmes to reduce the risk of widespread financial hardship and building rural skills and support systems. So that farmers can carry out to mitigation measures.

## Appendix One: Other System Design Elements

1. A range of other system design elements were considered throughout this policy proposal, which do not constitute options in their own right but nevertheless were significant areas of work that officials assessed against our core criteria.
2. There are four key additional elements either not progressed, or are still under consideration for whether they can be incorporated into the initial system or should be considered possible improvements to the system over time:
  - a. Structured assistance;
  - b. Comprehensive reporting;
  - c. Farmer collectives.

### Structured Assistance

3. Structured assistance *not been progressed* within the final options.
4. Structured assistance is a potential mechanism for returning funds to farmers in a way that supports them to face and appropriately respond to the price on their emissions, without weakening the price signal necessary to achieve emissions reductions. Essentially, farmers would receive the full marginal benefit for every unit of reduction that they make, or taken on the full marginal cost for every unit of emissions that they increase, but the overall emissions bill would be offset with a rebate that softens the financial impact on the farm's viability.
5. Under any NZ ETS options, free allocation functions as a form of structured assistance, so this is considered built into the option.
6. For an alternative pricing system, the Partnership and government considered a range of methodologies for structured assistance, which were then assessed by the Commission. Their advice on assistance (which also included other forms of assistance) was provided to Ministers as the report linked in Table 1.
7. Several methodologies discarded early on included:
  - a. A proportional discount, where the price is simply lowered by a significant amount. This does not preserve a strong incentive, though the concept of using a low price with other system elements driving reductions continues to exist in all of the alternative pricing system options considered by this RIS.
  - b. Grandparenting, where farmers receive a rebate on the basis of their emissions reductions compared with a fixed historical year. This option creates a very strong incentive to reduce emissions, but comes with significant equity issues, especially for early adopters who cannot be recognised for past reductions and for Māori farms who have not had the same level of opportunity to intensify their land in the past unlike many other groups within the agricultural sector.
  - c. Rolling average, good management practices, and target-based rebates were also all considered. The Commission's report sufficiently covers the flaws in these methodologies.
8. Two key methodologies were designed in much more detail, and remained viable candidates for a significant portion of the policy design process:
  - a. Output-based rebates reward farmers on the basis of how emissions efficient they are per unit of product. It strongly rewards efficiency gains, and could be implemented in a basic form with minimal additional reporting. However, achieving

the full benefit of this methodology would require much more complex reporting. An output-based approach also creates equity issues between sub-sectors, as mitigations available to dairy often contribute to efficiency gains, but most of the already-limited mitigations available to the drystock sector would not be picked up within the benefit of this methodology.

- b. Carrying capacity (or land-based) rebates<sup>25</sup> reward farmers on the basis of how emissions efficient they are per hectare (within a range of land-use categories). It strongly rewards both deintensification and absolute emissions reductions. However, it could not be implemented without significant additional investment and much greater reporting complexity. This methodology builds on the concept of Land-use Classes (LUC), but to be effective and accurate would require a fit-for-purpose land-use map, which officials do not consider feasible in the near future. A carrying capacity approach also creates equity issues between sub-sectors, as dairy farms can best achieve emissions reductions while remaining viable through efficiency gains within their intensive systems, which would be disincentivised within this methodology.
9. Ultimately, officials continue to see structured assistance as useful tool for achieving emissions reductions, but this does not sufficiently stack up against the complexity and equity issues and other significant trade-offs required for structured assistance to function.
10. The on-farm technology and mitigation incentives approach outlined under the options considered in this RIS effectively takes the place of structured assistance, as a way of recycling funds back to farmers to simultaneously incentivise emissions reductions and soften the financial impact of the price.
11. Other approaches to assistance (such as levy relief or other funding or support provided on a conditional basis) are continuing to be explored by officials to mitigate the most strongly felt impacts of the pricing system, such as on Māori agribusinesses, as recommended by the Commission.

### Comprehensive Reporting

12. Comprehensive reporting has *not been progressed* within the final options. However, it is *still being* considered as a possible improvement to the system over time.
13. A comprehensive reporting system provides for farmers to be recognised for a wider range of mitigations on-farm, and to better understand their emissions footprint and where reductions can be achieved. It is referred to by the Partnership as the 'detailed method,' and could include farm-systems improvements (e.g. improved animal genetics, forage type, farm-specific management, timing of operations), efficiency gains not related to specific mitigations, and land-use change (for example, from pasture to arable or horticulture).
14. Comprehensive reporting is not considered practical to implement by 2025 as more work will be required for detail in regulations and for integration with the single, centralised calculator in the IT system.
15. There is also a question of the cost-benefit of comprehensive versus simple reporting system. Increasing the complexity of reporting comes with significant cost, including to

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<sup>25</sup> Carrying capacity or land-based assistance provides rebates on the basis of the natural productive capacity of the land.

farmers – particularly sheep and beef. However, it has potentially diminishing impacts on the ability to recognise and reward meaningful reductions.

16. The availability of comprehensive reporting could create equity issues, as some sub-sectors, such as the drystock sector, do not have robust systems to collect the data required and would need to invest more time compared to dairy sector participants in order to receive any benefit.

#### **Farmer Collectives**

17. Farmer collectives are still being considered either for implementation in 2025 or as a possible improvement to the system over time.
18. Collectives offer a way for business owners to opt-in and collaborate with other business owners to report and pay for their emissions.
19. If sequestration is included in the system, collectives could also provide an opportunity for farmers to offset emissions through vegetation owned by another enterprise.
20. Te Aukaha, the Māori agribusiness work stream of the Partnership led by the Federation of Māori Authorities, identified collectives as a mechanism to reflect the fact that whenua Māori is owned collectively with interests in across multiple, potentially non-contiguous land blocks. Collectivisation would support owners of whenua Māori to interact with the pricing system by reducing administration burden.
21. We recognise the importance of collectives but acknowledge that this may reduce the practicality of the basic farm-level levy in early years. We also need to test how collectives could impact the effectiveness of the pricing system at reducing emissions.
22. We are looking into simple solutions for supporting collectives (including those already used by government agencies) to interact with the farm-level levy that would allow some collectives (such as Māori agribusiness, and iwi, hapū, and whānau groups) to be enabled from 2025.
23. A wider range of collectives could be enabled later, once the pricing system is up and running.



## Appendix Two: Recognising sequestration options

### Option One: Inclusion of additional categories in NZ ETS

1. The Partnership recommended for the NZ ETS be improved and updated to allow more vegetation categories.
2. New categories for riparian vegetation and indigenous vegetation would sit alongside existing forestry activities that are available to farmers (and all other NZ ETS participants). Riparian vegetation and management actions on native vegetation categories would be open to all NZ ETS participants with eligible vegetation. The participant would earn New Zealand Units (NZUs) as their vegetation sequesters carbon or would need to surrender NZUs if this vegetation was cleared (or degraded).
3. There are a number of equity, policy, technical and implementation processes that would need to be worked through as part of the inclusion of this sequestration. For example:
  - a. Pre-1990 exotic forest owners may seek comparable reward for additional carbon from the management of production pine forests (for example by converting pre-1990 production forests to permanent carbon forests). This would be equivalent to the treatment pre-1990 indigenous forest owners receive under a NZ ETS mechanism and would have far-reaching ramifications for NZ ETS unit supply and the forest industry; and
  - b. Until further work establishes carbon stock changes resulting from these categories, rewarding these categories with one annual sequestration rate (regardless of age, species, or region) is not reflective of actual sequestration occurring, and could be seen to undermine the integrity of the NZU.

### Option Two: Integrate sequestration into the agricultural farm-level emissions levy

4. Under this approach, on-farm sequestration is an integral part of the farm-level levy. The legislation that authorises the levy and specifies the basis on which it is determined includes deductions for eligible sequestration in addition to charges for methane and nitrous oxide emissions on-farm.
5. To determine the sequestration component of the levy, legislation and regulation would need to define the eligible vegetation, the rates of sequestration associated with this vegetation, the price per tonne of carbon sequestered, and penalties as a consequence of clearing or failing to manage this vegetation. All these elements are integral to the levy that is charged to farmer participants.
6. This option allows individual farmers to offset their methane and nitrous oxide levy bill with these categories of carbon sequestration. This will reduce the overall revenue raised from the methane and nitrous oxide levy for any given levy rate. Government would need to maintain a degree of control around the reward of sequestration payments to ensure that levy funds are sufficient for activities to reduce methane and nitrous oxide emissions.

### Option Three: Sequestration as a use of funds raised by the levy

7. Another option is to use the levy funds to contractually pay farmers for eligible sequestration. Legislation would specify that funding these categories of sequestration is a purpose of the levy.
8. A set proportion of the money raised by the levy would be set aside for funding these categories of on-farm sequestration. Levy participants would need to apply for the on-farm sequestration reward in addition to paying their emissions bill. As with the other mechanisms, a participant would be rewarded for a set rate of carbon sequestered in

their stock-excluded indigenous vegetation and riparian vegetation for a fixed period of time. Applications would be assessed against vegetation eligibility, and payment would only be for carbon sequestered.

	Effective	Practical	Equitable
Option 1 – Inclusion of additional categories in NZ ETS	Is likely to be more <i>effective</i> at reducing agricultural emissions as levy revenue from an agricultural pricing system can fund more activities to reduce gross agricultural emissions, instead of funding sequestration.	Would require a significant legislative and policy process to add and alter the extra categories.  For small areas of vegetation, the NZ ETS mechanism becomes less <i>practical</i> because the NZ ETS involves trading in NZUs, has a high level of assurance for sequestration occurring, and has higher liability provisions for destroyed vegetation.	Recognition of this vegetation in the NZ ETS does not restrict access to reward only levy payers and is therefore more <i>equitable</i> to general New Zealand private landowners.
Option 2 – Integrate sequestration into the farm-level levy	This option will reduce the effectiveness of the farm-level levy as it directs funds away from activities that reduce methane and nitrous oxide emissions. If higher levy rates can be secured, this impact on effectiveness will be avoided.	Expect legislation to establish this mechanism to be less complicated than the NZ ETS. This option will be integrated into the levy pricing system so there is a lower barrier to entry for farmers to join.  From a farmer's perspective, this option has a lower transaction cost as they would interact with a single body for emissions and sequestration.	Only levy payers would have access to this sequestration reward, it is not an <i>equitable</i> option to private landowners who do not pay the levy. This is somewhat mitigated by the fact the reward is paid with levy revenue.  This is also a significant issue for Māori landowners who are not levy payers given there is significant eligible vegetation on whenua Māori.
Option 3 – Sequestration as a use of funds raised by the farm-level levy	This option will reduce the <i>effectiveness</i> of the farm-level levy as it directs funds away from activities that reduce methane and nitrous oxide emissions. If higher levy rates can be secured, this impact on effectiveness will be avoided.  This option does not provide as strong of an assurance of the permanence of carbon sequestration as the other two mechanisms analysed here. Due to the lower assurance and expectation around permanence, the rate of reward will be lower than in the NZ ETS to reflect this.	This mechanism is the most <i>practical</i> to set up and modify because, from a legislative perspective. This means it is more achievable to have established and modified faster. However, there would still be a significant amount of work from an operational perspective receiving and processing applications.  It would also be less practical for farmers who will have to apply for funding separate from their emissions return.	By having a defined and transparent allocation of levy revenue to be spent on sequestration, the fund would be more <i>equitable</i> within the agricultural sector than option two.  However, as there is a limited amount of money available, there will be participants who have eligible sequestration that may miss out once the money is allocated. The fund would be available to levy payers only, so has the same equity concerns as option 2 for non-levy paying landowners.