



He Waka Eke Noa

Primary Sector Climate Action Partnership

Recommendations for pricing agricultural emissions

Report to Ministers

31 May 2022



He Waka Eke Noa

Primary Sector Climate Action Partnership

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Primary Sector Climate Action Partnership

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Foreword

He Waka Eke Noa, the Primary Sector Climate Action Partnership, is a world-first collaboration between government, the primary sector, and Māori agribusiness to create a plan that will reduce agricultural emissions while enabling sustainable food and fibre production for future generations and competitiveness in international markets.

The partnership was proposed in 2019 by the Food and Fibre Leaders Forum in response to the Government's plan for the primary sector to join other sectors of the economy in paying a price on emissions. He Waka Eke Noa provided an opportunity to find an alternative to including agriculture in the New Zealand Emissions Trading Scheme (NZ ETS).

At the time primary sector leaders said that "taking urgent action and responsibility now is critical in order to protect, restore and sustain our environment and to enhance our wellbeing and that of future generations".

In forming the partnership, the primary sector leaders committed to "work in good faith with government and iwi/Māori to design a practical and cost-effective system for reducing emissions at farm level by 2025. The primary sector will work with government to design a pricing mechanism where any price is part of a broader framework to support on-farm practice change, set at the margin and only to the extent necessary to incentivise the uptake of economically viable opportunities that contribute to lower global emissions."¹

Our work has reinforced the diversity of the primary sector. Every farmer and grower every day makes decisions that reflect the unique nature of their land and climate, market demands and returns, and their own values, priorities, and knowledge.

Consultation has reinforced that farmers and growers care about the environment, and many are already taking action to reduce their footprint, but they're worried about the viability of their businesses.

Some farming systems have more opportunities to reduce emissions, and some landscapes offer more opportunities to increase sequestration without planting on the most productive land.

Reducing on-farm emissions requires a broader approach than just putting a price on emissions. The Partners are proud of progress in providing farmers with tools and information to know their numbers and understand and take up opportunities to reduce emissions.

We welcome the Government's commitment in the Emissions Reduction Plan to investing in helping farmers get new tools and technology to reduce on-farm emissions more quickly. We look forward to continuing to work in partnership with the Government to get the right tools, technology, and support in place.

Designing a pricing system has been particularly challenging. The Partners have worked hard to provide a unified view. There has been collaboration and compromise across varied interests in a diverse primary sector. The Partners have drawn on feedback from farmers and growers and considered the challenges and concerns raised by government Partners, the Ministry for the Environment (MfE) and the Ministry for Primary Industries (MPI). MfE and MPI officials have worked in good faith to provide advice and support to sector and iwi/Māori partners on the development of an effective, workable agricultural emissions pricing system.

The Government will now consider the Partnership's advice alongside advice from the Climate Change Commission, before making decisions later this year on how agricultural emissions are to be priced from 2025. Ministers will be supported by MfE and MPI officials during this process, which is why the government

¹ For more information, see Primary Sector Climate Change Commitment <https://hewakaekenoa.nz/wp-content/uploads/2020/12/primary-sector-climate-change-commitment-july-2019.pdf>

agencies are not signatories to the final report and are not able at this stage to endorse or not endorse its recommendations.

The pricing system recommended in this document is the best option to create incentives and opportunities to reduce emissions while aligning with legislative requirements for a price on agricultural emissions and maintaining the viability of the primary sector.

Modelling indicates the recommended pricing system will be more effective in achieving emissions reductions than the NZ ETS as currently legislated.

Levy rates need to be as low as possible while still achieving the objectives of reducing emissions, increasing integrated sequestration, and minimising impacts on primary sector production and profitability. This includes providing for investment in research and development into new mitigations technologies and funding for extension to support uptake of actions to reduce emissions.

As the Government considers these recommendations, Partners urge Ministers to be mindful of the impact of their decisions on the well-being of the primary sector.

The primary sector continues to be a major player in our economy, contributing one in seven jobs, over 80% of exports and 11% of GDP² and was integral to maintaining a thriving New Zealand economy through the COVID-19 pandemic.

Farmers and growers, while on board with the need to transition to a lower environmental footprint, are anxious about the cumulative impact of new environmental legislation and regulations. It is essential that farmers and growers are recognised for their work to date to reduce their environmental footprint; supported on their journey to lower-emissions, environmentally sustainable farming; are treated fairly and equitably compared to other sectors of the economy; and remain internationally competitive.

To this end, the organisations involved in He Waka Eke Noa will continue to speak up on behalf of farmers and growers.



² <https://www.mpi.govt.nz/dmsdocument/49066-Situation-and-Outlook-for-Primary-Industries-SOPI-December-2021>

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Executive Summary

He Waka Eke Noa – the Primary Sector Climate Action Partnership was formed in 2019 to design a practical, credible, and effective system for reducing emissions at farm level, as an alternative to government policy to bring agriculture into the New Zealand Emissions Trading Scheme (NZ ETS).

The Partners acknowledge change is required to encourage the transition to lower-emissions, more environmentally sustainable farming systems. The primary sector sees that consumers are increasingly demanding products with a low environmental impact.

Many farmers and growers are already taking action to reduce the environmental footprint of their businesses, and it is important that they are supported on their journey to lower-emissions farming in a fair and equitable way.

What He Waka Eke Noa is aiming to achieve

He Waka Eke Noa is developing a practical framework to support farmers to measure, manage and reduce agricultural emissions; recognise, maintain, or increase integrated sequestration on farms; and adapt to a changing climate.

Farmers and growers are using the tools and guidance provided through the He Waka Eke Noa framework, with 61% knowing their numbers (i.e., calculating their emissions

at farm level) and 21% having a written plan (i.e., recording actions to reduce or offset emissions in their farm plan) by the end of 2021. The Partnership is working towards 100% of farmers knowing their numbers by 31 December 2022, and 100% of farmers having a written plan by 1 January 2025³. This level of knowledge of on-farm emissions is world-leading.

Recommending a practical, credible, and effective farm-level pricing system

This report outlines recommendations from the primary sector and Māori agribusiness Partners (the Partners) for a farm-level pricing system as part of a broader framework to encourage emissions reductions. Ministry for the Environment (MfE) and Ministry for Primary Industries (MPI) officials have worked in good faith to provide advice and support to sector and iwi/Māori partners on the development of an effective, workable agricultural emissions pricing system.

The Government will now consider the Partnership's advice alongside advice from the Climate Change Commission, before making decisions later this year on how agricultural emissions are to be priced from 2025. Ministers will be supported by MfE and MPI officials during this process, which is why the government agencies are not signatories to the final report and are not able at this stage to endorse or not endorse its recommendations.

The Partners considered a range of options for an alternative pricing system to the NZ ETS. Following a robust policy and consultation process, the Partners recommend a **farm-level split-gas levy**. Its key features are:

- Farms calculate their short- and long-lived gas emissions through a single centralised calculator (or through existing tools and software that are linked to the centralised calculator).
- Calculated on-farm emissions determine the levy cost rather than the use of national averages.
- Recognition of reduced emissions from on-farm efficiencies and mitigations as they become available.
- Incentives are provided for uptake of actions (practices and technologies) to reduce emissions.
- A split-gas approach applies different levy rates to short- and long-lived gas emissions.

³ For more information, see He Waka Eke Noa Milestone update and six-month progress report <https://hewakaekenoa.nz/wp-content/uploads/2022/03/He-Waka-Eke-Noa-Six-Month-Progress-Report-March-2022.pdf>

- On-farm sequestration is recognised, which could offset the cost of the emissions levy.
- Levy revenue is invested in research, development, and extension (providing technical advice and information) including a dedicated fund for Māori landowners.
- A System Oversight Board with expertise and representation from the primary sector, will work closely with an Independent Māori Board to provide recommendations on levy rates and prices, and set the strategy for use of levy revenue.

The Partners consider the recommended system to be a practical, credible, and more effective alternative to pricing agricultural emissions via the NZ ETS.

Levy rates need to be as low as possible while still achieving the objectives of reducing emissions, increasing integrated sequestration, and minimising impacts on primary sector production and profitability. This includes providing

for investment in research and development into new mitigations technologies and funding for extension to support uptake of actions to reduce emissions.

The Partners have worked hard to provide a unified view on a pricing system, including collaboration and compromise across varied interests in a diverse primary sector and government Partners, the Ministry for Primary Industries (MPI) and the Ministry for the Environment (MfE). Te Aukaha, led by the Federation of Māori Authorities, provides input from a Māori farmer and grower perspective into the Partnership to ensure support of the land-management aspirations of Māori farmers.

The recommendations represent the best option to create incentives and opportunities to reduce emissions while aligning with legislative requirements for a price on agricultural emissions and maintaining the viability of the primary sector, and vibrancy of rural communities.

What we heard from farmers and growers

The Partners engaged extensively with farmers and growers, as well as others including rural professionals, during February and March 2022.

The Partners heard that farmers want a transparent, accessible, and integrated system for pricing agricultural emissions that ensures the primary sector remains productive, profitable, and internationally competitive.

Of the options consulted on, there was a strong preference for a farm-level pricing system to give farmers control and autonomy over their farm business and emissions profile and recognition for their actions on farm. Farmers acknowledged the size of the challenge to get a farm-level system established and operational by 2025.

Farmers supported split-gas pricing, the investment of revenue into research and development and the recognition of sequestration from on-farm vegetation, especially types not recognised in the NZ ETS.

Farmers raised concerns for the future of the primary sector, including the impact on the financial viability of some farm

systems and other businesses along the supply chain, the social impact on rural communities, generational farming, and mental wellbeing.

Farmers expressed the importance of remaining internationally competitive and taking care to avoid emissions leakage (shifting production to less emissions-efficient producers offshore).

The key issues raised by Māori agribusiness, landowners, and managers⁴ were the impact on business viability and inadequate resourcing and funding. They also highlighted the importance of Te Tiriti o Waitangi being the foundation for any regulatory and/or policy development, and that it is time for a system reset that recognises the interconnectedness of Te Taiao. Of the options presented, the majority preferred a farm-level pricing system.

For further information on the feedback received, the He Waka Eke Noa Feedback summary report can be found on the He Waka Eke Noa website.

⁴ In feedback received by the Federation of Māori Authorities (FOMA).

How this meets the criteria

The Partners have worked to design a system that is:

- Effective – reduces agricultural emissions in total and per unit of product and maintains a profitable primary sector
- Practical – clear and simple system that minimises administration costs
- Credible – scientifically robust (includes mātauranga Māori) and transparent
- Integrated – aligns with wider primary sector and government objectives and activities
- Equitable – recognises early adopters and has 'equitable' impacts across the primary sector.

There are some decisions in the design of the system that require trade-offs between these criteria. These trade-offs are discussed in the relevant sections of the report. Overall, Partners consider the recommended system to best meet these criteria in light of those trade-offs.

In addition to these criteria, giving effect to Te Tiriti o Waitangi, which includes Te Tiriti principles of partnership and active protection, must be considered in the system design and pricing system.

What this will achieve

The Partners recognise that creating incentives and opportunities to reduce on-farm emissions requires a broader approach and framework than just focusing on a system for pricing emissions. He Waka Eke Noa is developing a framework that includes guidance, support, and tools to help farmers and growers measure their emissions and make informed decisions on actions to reduce or manage emissions. Any emissions management approach must also support farmers' and growers' resilience to changing market drivers and climate conditions.

Government legislated emissions reduction targets:

- CH₄ emissions to reduce by 10% below 2017 levels by 2030, and by 24 – 47% by 2050.
- N₂O and CO₂ to reduce to net zero by 2050

The targets are out of scope for He Waka Eke Noa, industry partners will be engaging with the Government on targets outside of He Waka Eke Noa.

This framework, including an appropriate pricing system, is expected to lead to an estimated reduction in methane emissions of between 4 and 5.5%, depending on the availability of technology options. Alongside reductions that will occur as part of business as usual and via the waste

sector, this would achieve methane emission reductions in line with the 10% reduction target in legislation.

He Waka Eke Noa modelling estimates that by 2030, agricultural emissions of methane (CH₄) will reduce by 4.4% and nitrous oxide (N₂O) by 2.9% under existing government policies (e.g. National Policy Statement for Freshwater, and Forestry in the NZ ETS) and market and economic drivers⁵. It is anticipated that the waste sector could achieve a reduction in total biogenic methane of at least 1.7% by 2030⁶.

Prices have yet to be set for emissions pricing within He Waka Eke Noa but current scenario modelling estimated that if a farm-level split-gas levy was applied to agricultural emissions along with incentives for actions to reduce emissions then an additional 4 – 5.5% reduction in gross methane emissions, and 2.9 – 3.2% in gross nitrous oxide emissions between now and 2030 is achievable (over and above the baseline achieved by other environmental policies)⁷. These emissions reductions come from a combination of within-farm land-use change, practice change and technology uptake. As discussed in [Section 10: Impacts and insights](#), it is possible the emissions reductions could be higher at the prices modelled.

⁵ Resource Economics, 2022, Pricing agricultural GHG emissions: sectoral impacts and cost benefit analysis.

⁶ Climate Change Commission, 2021, <https://ccc-production-media.s3.ap-southeast-2.amazonaws.com/public/Evidence-21/Evidence-CH-12-Long-term-scenarios-to-meet-the-2050-target.pdf> (see 'headwinds' scenario)

⁷ Resource Economics, 2022, Pricing agricultural GHG emissions: sectoral impacts and cost-benefit analysis.

Table 1: Estimated gross emissions reductions achieved through existing policies, waste and farm-level levy by 2030

	Farm-level Levy and revenue recycling	Existing policies	Waste sector	Total
CH ₄	4 – 5.5%	4.4%	1.7%	10.1 – 11.6%
N ₂ O	2.9 – 3.2%	2.9%		5.8 – 6.1%

What the impact is estimated to be

Until the actual price is set, the Partnership modelling is based on prices that are estimates of what could be required to meet the primary sector’s assumed contributions to emissions reductions targets. The Partners are not recommending the use of these prices in future, rather the price settings will be recommended by the System Oversight Board based on a range of factors more comprehensive than those used in the modelling.

The modelling found that the indicative prices will have a wide range of impacts given the different types of farm systems. The modelled impact on average farm profit varies from zero up to 7.2%, but there is significant variation across farm systems and some farms may be impacted significantly more than this.

In general, deer, sheep and beef operations will face a greater impact on their bottom line than dairy operations under the same levy rates. In addition to the Sectoral impacts report⁸, Beef + Lamb New Zealand analysis of over 300 actual farms indicates a large variation in the impact on farm profit. At the extreme, based on 70 years of Economic Service analysis of farmer behaviour, this would see a significant number of farms exiting meat production. This could result in much higher methane reductions as a result of land-use change than modelled in the Sectoral

impacts report. The conclusion being that more emissions reductions are likely to occur at lower levy prices than modelled.

Current modelling estimates that a farm-level split-gas levy will result in a fall in production of milk of 1.4% and meat of 0.1%. This is the lower of the impacts discussed during consultation. Analysis⁹ identified that there is an emissions leakage risk for milk, beef and sheep meat associated production decreases. Emissions reductions modelled in the sheep and beef sector in response to the farm-level split-gas levy result almost exclusively from the uptake of mitigation technologies. These affect the emissions intensity of output but do not have any impact on meat production. The largest emission reductions in sheep and beef are from existing policies i.e., land use change to forestry driven by the NZ ETS carbon price. The impacts are discussed further in [Section 10: Impacts and insights](#).

Minimising these impacts requires a careful balancing of the systems settings, in particular levy rates. If the system settings do not adequately take into account risks to farmer profitability and international competitiveness it could have significant impacts on the viability of New Zealand’s agricultural sector.

Recognising Māori rights and interests

The pricing system must consider the unique circumstances, rights and interests of Māori agribusiness, landowners, and landholdings, and recognise the unique land tenure and ownership structures that Māori land authorities operate within as a result of legislation, and the

historical impediments that constrain the development and use of Māori land. This report includes a section from the Federation of Māori Authorities (FOMA) that outlines Māori values and position. FOMA membership represents Māori landowners across Aotearoa.

⁸ Resource Economics, 2022, Pricing agricultural GHG emissions: sectoral impacts and cost-benefit analysis.

⁹ Resource Economics, 2022, Pricing agricultural GHG emissions: impacts on emissions leakage.

What is next?

Government will consider the Partners' recommendations and make a final decision in December 2022.

If the Government agrees to the Partners' recommendations for pricing agricultural emissions, then the relevant legislation will need to be drafted in 2023.

The Partners have identified areas for further work on policy design detail and are committed to progressing this work alongside government while the recommendations are being considered. There is also additional work required to

ensure the farm-level pricing system is fit for purpose for industries not directly represented by the Partnership e.g., pork and poultry.

Partners will continue to work alongside farmers and growers to ensure that all farms in New Zealand have a documented annual total of on-farm greenhouse gas emissions ('know their number') by 31 December 2022. They will also progress towards all farms having a written plan to measure and manage their greenhouse gas emissions ('have a plan') by 1 January 2025.

What He Waka Eke Noa is recommending

How you would measure, manage and reduce on-farm emissions under a farm-level split-gas levy

NOW

Know your numbers, have a plan



Use a greenhouse gas calculator to understand your farm's agricultural emissions.



Identify opportunities and actions relevant to your farm to manage and reduce emissions.

FROM 2025: IF RECOMMENDATIONS ARE ACCEPTED

Register in the system

Who needs to register?

If you're GST registered and annually average over any of the following, you have to register:

- 550 stock units (sheep, cattle, deer and goats)
- 50 dairy cattle
- 700 swine*
- 50,000 poultry*
- 40 tonnes of synthetic nitrogen fertiliser use.

**subject to further work*

Who is responsible?

Business owners (with approval from landowners for sequestration, if required).

You can register as:



Individual farm



Supported individual farm (reporting delegated e.g. to accountant or processor)

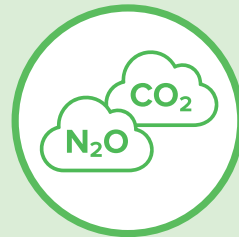


Collective of farms

Calculate your emissions



Enter your farm data to calculate your emissions via the central standardised emissions calculator.



Get your farm's emissions numbers for methane (in kgs) and long-lived gases (in kgs of CO₂e).

The lower your emissions numbers, the lower your levy cost.

Inputs into setting levy rates

Further reduce your emissions and levy costs

You'll get recognition for:

Incentivised actions

such as using eligible technologies and practices that deliver measurable emissions reductions (e.g. low methane sheep genetics and urease inhibitors)

Maintained and increased sequestration

such as areas of eligible vegetation, including existing or new natives, riparian plantings, and some exotics (e.g. shelter belts)



The more incentivised actions and sequestration on your farm, the lower your levy cost.

Inputs on eligible incentives

See the levy at work



Your levy will be invested into agricultural sector emissions research and technology development.

Remaining funds will cover system costs.

There will be a separate fund to support the specific needs of Māori landowners.

Sets strategy and directs investment

ONGOING

Our climate change commitment



Lowering emissions will decrease your levy and show our sector is committed to playing our part in addressing climate change.

A PARTNERSHIP APPROACH A System Oversight Board, with primary sector and Māori agribusiness representatives

He Waka Eke Noa
Primary Sector Climate Action Partnership

Introduction

He Waka Eke Noa – the Primary Sector Climate Action Partnership (He Waka Eke Noa) is a collective commitment between the primary sector, Māori agribusiness and government. The partnership has 13 partners: Apiculture NZ; Beef + Lamb New Zealand; Dairy Companies Association of NZ; DairyNZ; Deer Industry NZ; Federated Farmers of New Zealand; Federation of Māori Authorities; Foundation for Arable Research; Horticulture NZ; Irrigation

NZ; Meat Industry Association; Ministry for Primary Industries and Ministry for the Environment. These partners are supported by other contributing organisations including AgResearch, Department of Conservation, Fertiliser Association, Manaaki Whenua, NZ Agricultural Greenhouse Gas Research Centre, Pastoral Greenhouse Gas Research Consortium and Scion.

He Waka Eke Noa is developing a practical framework to support farmers to measure, manage and reduce agricultural emissions; recognise, maintain, or increase integrated sequestration on farms; and adapt to a changing climate. The Partners are working to enable sustainable food and fibre production for future generations while remaining profitable and competitive in international markets. Farmers and growers are using the tools and guidance provided through the He Waka Eke Noa framework, with 61% knowing their numbers (i.e., calculating their emissions at farm level) and 21% having a written plan (i.e., recording actions to reduce or offset emissions in their farm plan) by December 2021.

This report outlines recommendations for a farm-level pricing system from the primary sector and Māori agribusiness Partners (the Partners) as part of a broader framework to encourage emissions reductions.

Ministry for the Environment (MfE) and Ministry for Primary Industries (MPI) officials have worked in good faith to provide advice and support to sector and iwi/Māori partners on the development of an effective, workable agricultural emissions pricing system.

He Waka Eke Noa covers all biological agricultural greenhouse gas emissions from livestock and synthetic nitrogen fertiliser including:

- **Biogenic methane** (CH_4) – generated by ruminants as a by-product of digestion (less than 5% comes from dung and effluent systems)
- **Nitrous oxide** (N_2O) – released into the atmosphere from dung and urine patches, and nitrogen (N) fertilisers
- **Carbon dioxide** (CO_2) – urea N-fertilisers contribute to farm CO_2 emissions.

The Government will now consider the Partnership's advice alongside advice from the Climate Change Commission, before making decisions later this year on how agricultural emissions are to be priced from 2025. Ministers will be supported by MfE and MPI officials during this process, which is why the government agencies are not signatories to the final report and are not able at this stage to endorse or not endorse its recommendations.

An integrated approach

Taking an integrated approach to managing agricultural greenhouse gas emissions is critical.

Actions taken on-farm to reduce agricultural greenhouse gases may affect many aspects of the farming system. It is essential that an integrated approach is taken to the development of the pricing system. This includes alignment with existing data-management and reporting systems, other environmental policy such as freshwater and biodiversity, as well as support for increased farm and community resilience in the face of changing climate conditions.

In developing these recommendations, the Partnership has explored how a pricing system could integrate with a wide range of existing and future reporting systems and tools including:

- Existing and developing government reporting systems
- Existing government data systems
- Greenhouse gas calculation tool providers (both commercially operated and industry body calculators)
- Data-management and reporting systems
- Industry assurance programmes (where appropriate)

- Future freshwater and biodiversity management reporting requirements

The key features of an integrated approach are:

- Recognition and prioritisation of sequestration that has broad co-benefits for the environment and cultural values.
- Alignment of the reporting system with government's digital identity system and other related farm reporting requirements.
- The use of Industry Assurance Programmes (where appropriate) to provide emissions reporting and potentially data verification.
- The use of rural professionals including farm consultants and chartered accountants to provide emissions reporting and potentially data-verification support services.
- Enabling data exchange between farm data-management systems and greenhouse gas emissions calculation tools and the centralised calculator.
- Ensuring that policy requirements align with those set for other policy areas (e.g., biodiversity and animal welfare).

The New Zealand Agritech sector has signalled a strong willingness to be part of the solution to a cost-effective farm-level pricing system. In partnership with the Agritech

sector, there are opportunities to explore and deliver integrated solutions including method development, reporting and the audit process. Further work needs to be undertaken around the best fit for the emissions pricing system (e.g., how it may integrate with existing government reporting systems such as the NZ ETS, Freshwater Farm Plans or the IRD reporting and payment system).

Emissions pricing is one part of a broader framework to support farmers to reduce emissions and increase their resilience to climate change. Farmers are currently facing many new regulatory and market requirements, so it is important they are enabled to proactively identify, plan, and manage these in an integrated way.

While farm planning is not the regulatory vehicle for managing farm greenhouse gas emissions, it is a very important decision support tool. The Partnership has developed guidance to help farmers and growers incorporate a greenhouse gas module into their farm plans. This has been designed to integrate with existing farm plan programmes and become part of an integrated farm planning approach. The guidance highlights that most opportunities to measure, manage and reduce greenhouse gas emissions on-farm can also have positive freshwater and biodiversity outcomes.

Estimating the impact through modelling and case studies

The Partnership modelling approach includes industry-specific models for sheep and beef, dairy, and horticulture. These models are summarised and aggregated in a peer-reviewed, Sectoral impacts and cost-benefit analysis report. The report summarises the impacts of a range of emissions pricing options on sheep and beef, dairy, and horticulture industries. There has been limited modelling completed on the arable industry. The analysis includes the impact on emissions, production, and profit. A cost-benefit analysis of different emissions pricing options has also been undertaken to compare across options - establishment costs, the cost of rewarding the estimated amount of sequestration in the system, and the cost of encouraging emissions reductions.

The Partnership also developed a Farm case studies report for 20 farm systems that show the financial impacts of the emissions pricing options. These are representative farm models constructed in Farmax, based on Beef +

Lamb New Zealand (B+LNZ) Economic Service data to develop an 'average' sheep and beef farm in a given farm class, a hypothetical deer farm, and DairyNZ statistics for the dairy farms. The Māori farm case studies included are based on actual farms, which include six trusts and two incorporations. B+LNZ and Deer Industry NZ (DINZ) did further analysis to assess additional farm system types and explore the financial sensitivity across those systems.

The modelling does not incorporate all of the important factors to consider in setting or updating levy rates and so is not intended to be determinative of the actual levy rates that will be needed to meet system objectives. All modelling is a simplification of reality and so requires assumptions to be made. This is why all modelling output should be interpreted as indicative only. For more detail, the reports on Sectoral impacts and Farm case studies can be found on the He Waka Eke Noa website and a summary in [Section 10: Impacts and insights](#).

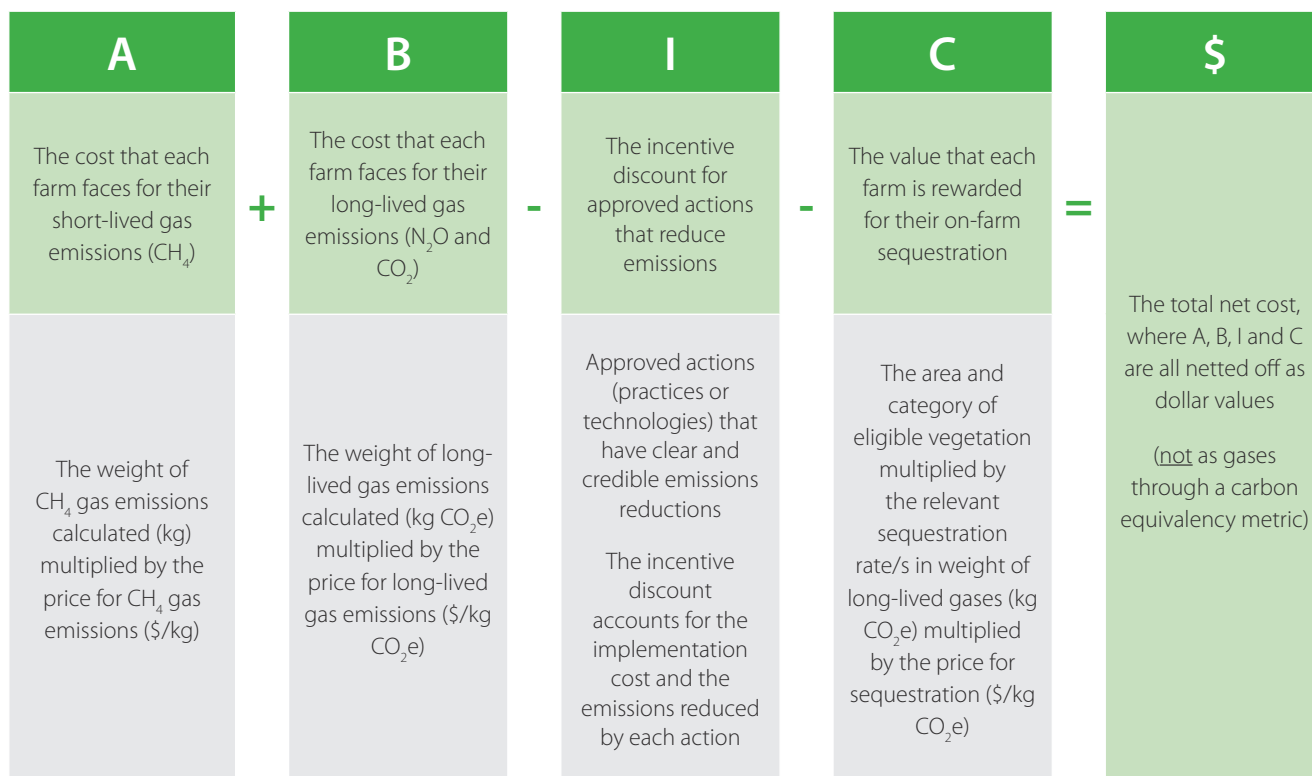
Summary of recommendations

This is a summary of the key recommendations. The additional technical recommendations are included in the relevant sections. These recommendations are intended to be considered and adopted as a package of recommendations as the Partnership has taken a systems approach to design and development¹⁰.

Section 1: Farm-level split-gas levy

The farm-level split-gas levy for agricultural emissions is calculated and paid at farm level so farmers and growers understand and are responsible for the impacts of decisions they make on their farm. The levy has different rates for short- and long-lived gas emissions to recognise their different physical impacts on atmospheric warming.

- 1.1 Establish a farm-level split-gas levy by 2025.
- 1.2 One levy rate for short-lived gas emissions (methane from livestock) and one levy rate for long-lived gas emissions (nitrous oxide from livestock and synthetic fertiliser and carbon dioxide from urea) to reflect their different warming impacts and emissions reduction targets.
- 1.3 The farm-level split-gas levy uses the calculation $A + B - I - C = \$$.



¹⁰ The numbering of the recommendations aligns with the relevant section, because this summary only contains the key recommendations there are some gaps in the numbering.

Section 2: Getting started in 2025

A simplified version of a farm-level levy starts in 2025, transitioning to a full farm-level levy in 2027.

- 2.1 Start with a transitional farm-level levy from 2025 and transition to the full farm-level levy in 2027.
- 2.2 The key features of the transitional farm-level levy are:
- Mandatory reporting of 2024/25 emissions and pricing of 2025/26 emissions.
 - ‘Stage 1’ centralised calculator using the ‘simple method’.
 - Incentive discounts for approved actions on-farm.
 - Simplified sequestration (as much sequestration recognised as possible with a minimum of vegetation that is part of existing programmes).
 - Other sequestration backdated once full sequestration measurement and recognition is in place from 2027.
- A commitment from primary sector bodies, processors, and government to support participation and registration by farmers to be ready to participate in the pricing system from 2025. This would include key milestones.
 - Support from rural professionals including on-farm advisors, bankers and accountants, meat, milk, and fertiliser processors.
 - Registration system could be standalone or through another existing system e.g., IRD.

Section 3: Inclusive system oversight

The collaborative governance approach to system oversight will involve a System Oversight Board with expertise and representation from the primary sector, working closely with an Independent Māori Board to recommend levy rates, prices, and incentive discounts, and set the strategy for use of levy revenue.

- 3.2 A System Oversight Board will have a collaborative governance role in the system.
- 3.3 The System Oversight Board has three key roles and responsibilities:
- To set the strategy and direct investment of any revenue from the farm-level split-gas levy.
 - A governing role in relation to the Implementation Agency (further work is required to determine specific roles and responsibilities).
 - To work closely with the Independent Māori Board and sector bodies to:
 - Recommend to Ministers appropriate levy rates, the price of sequestration, and the value of incentive discounts used to incentivise the adoption of mitigation technologies based on technical input from the Implementation Agency and other stakeholders.
- Seek advice from the science and implementation panel that will be used to support the process for updates to the emissions calculation method and inclusion of new mitigations or sequestration opportunities.
- 3.4 He Waka Eke Noa Partners will work jointly with the Ministers for Climate Change and Agriculture to nominate members of the System Oversight Board.
- 3.5 A dedicated fund to support opportunities for Māori landowners will be governed by an Independent Māori Board.

Section 4: Who is responsible for reporting and paying for emissions?

The business owners of every eligible farm business will be responsible for reporting emissions and paying the levy, with the option of forming a collective to work together to report and pay for emissions.

- 4.1 All farm businesses that are GST registered and have over 550 stock units (inclusive of sheep, cattle, deer, and goats; calculated on a weighted annual average basis); or 50 dairy cattle; or 700 swine (farrow to finish); or 50,000 poultry (calculated on an annual average basis); or apply over 40 tonnes of nitrogen through synthetic nitrogen fertiliser are liable.
 - 4.2 The person(s) responsible for the overall operation of the business (business owner) will be responsible for reporting and paying for the emissions from it.
 - 4.3 Any business owner (including those that do not meet the farm definition) can opt-in to a collective. For example, a collective could be made up of participants all supplying the same processor, a Māori agribusiness enterprise, hapū/whānau collective, a catchment community, a farm enterprise, or some other grouping.
- Eligible sequestration can also be included but only with landowner permission.

Section 5: How are emissions calculated?

The single centralised emissions calculator will enable a consistent calculation across all farms, and will be designed to integrate data from existing calculators and other farm data sources.

- 5.1 Emissions will be calculated using a single centralised calculator (or through existing tools and software that are linked to the centralised calculator).
- 5.2 Methane will be calculated by weight of gas and nitrous oxide and carbon dioxide emissions will be calculated in carbon dioxide equivalents (CO₂e).
- 5.3 The calculator will have two methods – simple and detailed.
- 5.4 Emissions and sequestration will be reported and paid for annually with a flexible year-end date that aligns with a farm's annual tax accounts.
- 5.5 Establishment of a process for updates to the centralised calculator including incorporation of new mitigations or sequestration opportunities.
- 5.6 Prior to implementation of the pricing system, further work is required on the emissions reporting methodology for the minor livestock sectors including, deer, dairy goats, pork, poultry, and sheep milking.

Section 6: How are emissions priced?

Levies should be as low as possible to drive emissions reductions, while maintaining a profitable primary sector.

- 6.1 Separate levy rates are set for short-lived gas emissions (CH₄) and long-lived gas emissions (N₂O and CO₂) and a separate price for sequestration.
- 6.2 The following factors must be balanced in setting levy rates:
 - Trajectory of emissions reductions towards emissions targets
 - Availability and cost of (current and future) on-farm mitigations
 - Social, cultural, and economic impacts on farmers, regional communities, and Māori agribusiness
- 6.3 A unique levy rate is set for CH₄.
- 6.4 The levy rate for long-lived gas emissions will initially be set at the level required to:
 - Fund the total amount of sequestration recognised in the system
 - Fund incentive discounts for approved actions for nitrous oxide reduction
- Best available scientific, mātauranga Māori and economic information
- Emissions leakage from production moving offshore, and impact on food security.

- Fund research and development for nitrous oxide reduction
 - Cover a share of administration costs.
- 6.5 In 2028, the intent of the Partnership is that the price for long-lived gas emissions will be set based on the cost of reductions and offsetting required to achieve any sector strategy on reducing long-lived gas emissions.
- 6.6 The initial price for sequestration will be linked to the NZ ETS carbon price but be discounted to reflect that only some He Waka Eke Noa sequestration counts towards national targets and requires a lower burden of proof than the NZ ETS. An indicative range for the price of sequestration could be around 75–90% of the NZ ETS carbon price.
- 6.7 In 2028, there will be a review of sequestration and its pricing method, in conjunction with the development of the sector strategy for reducing long-lived gas emissions, the review of long-lived gas emissions pricing method (see Recommendation 6.5), and progress on expanding and improving the NZ ETS (see Recommendation 8.5).
- 6.8 In 2028, there will be a review of the He Waka Eke Noa system by the System Oversight Board to test the effectiveness of the system in meeting system objectives. This will include a review of the principles for setting the prices of long-lived gases and sequestration and take in to account any sector strategy for reducing long-lived gas emissions and the contribution to the economy-wide net zero 2050 target. This review will also consider the progress on expanding and improving the NZ ETS and include a review of the effectiveness of the incentive discount approach.
- 6.9 Establishment of a price ceiling where the levy rate for each gas is no more than if agriculture entered the NZ ETS with 95% free allocation phasing down by 1 percentage point per annum and the maximum price for methane is no greater than \$0.11/kg for the first three years of pricing (till 2028).
- 6.10 The price for sequestration will be initially updated annually to maintain alignment with the NZ ETS carbon price.
- 6.11 The levy rate for short- and long-lived gas emissions, discount on the price for sequestration, and the value of incentive discounts for approved actions will be reviewed/updated every three years.

Section 7: Incentives for actions (practices and technologies) to reduce emissions

Farmers will receive an incentive discount for approved actions (eligible practices and technologies) that deliver measurable emissions reductions.

- 7.1 Farmers will receive an incentive discount for undertaking approved actions (specific practices or technologies) that reduce emissions.
- 7.2 The approved actions will be incorporated through the process for updates to the centralised calculator (see Recommendation 5.5).
- 7.3 The incentive discount will be related to the cost of implementing the approved action and the emissions reductions associated with it.
- 7.4 The incentive discount will be netted off against the levy cost.
- 7.5 The incentive discount approach will be monitored regularly, and reviewed by the System Oversight Board in 2028 alongside other He Waka Eke Noa price settings. Reviews should consider effectiveness of approach in meeting system objectives and design principles.
- 7.6 Partners commit to providing levy relief on a case-by-case basis, as a transition measure finishing in 2030, with strict eligibility criteria that includes:
- access to sequestration (both NZ ETS and He Waka Eke Noa) is severely restricted by national and local body regulation and
 - no access to effective mitigation technologies and
 - where emissions pricing has had a severe impact on financial viability.
- This will be regularly reviewed as mitigations are developed. The levy relief mechanism will be formally reviewed in 2028. This review will consider the need for a future levy relief mechanism.

Section 8: Recognising carbon sequestration on-farm

Farmers will get recognition for existing and new eligible vegetation that encourages ‘the right tree in the right place’ as part of an integrated farming landscape.

Categories of vegetation

- 8.1 Permanent categories include regenerating/planted indigenous vegetation and riparian vegetation.
- 8.2 Cyclical categories include fruit trees, nut trees and vines, shelter belts, scattered trees, and woodlots.
- 8.3 NZ ETS-eligible cyclical (exotic) vegetation is excluded.
- 8.4 The new sequestration categories and improved estimates will be incorporated through the process for updates to the centralised calculator (see Recommendation 5.5).
- 8.5 The Partners recommend that the NZ ETS be improved and updated to allow more vegetation categories to be included and the registration and reporting processes to be simplified.

How sequestration from permanent and cyclical categories will be calculated

- 8.9 **For permanent vegetation:**
 - Regenerating/planted indigenous vegetation established before 1 January 2008 (incl. pre-1990): will receive the additional annual carbon gained by the management action of stock exclusion.
 - Regenerating/planted indigenous vegetation established on or after 1 January 2008 (unless there is evidence of establishment between 1990 and 2008, and provided land not planted in vegetation in 1990): will receive total carbon stock.
 - Riparian vegetation established on or after 1 January 2008 (unless there is evidence of establishment between 1990 and 2008): will receive national annual average total carbon stock.
- 8.10 The minimum standard for regenerating/planted indigenous vegetation established **before** 1 January 2008 is stock exclusion. Alternatively, Active Ecological Management (determined by a suitably qualified sequestration expert) recognises equivalent, or enhanced actions to determine appropriate value of sequestration.

8.11 For cyclical vegetation:

- Cyclical vegetation established on or after 1 January 2008 (unless there is evidence of establishment between 1990 and 2008, provided land not planted in vegetation in 1990 and does not meet NZ ETS eligibility): will receive up to the long-term average carbon stock (regardless of current age or harvest rotation).
- 8.12 A declaration will be needed to ensure land that was in woody vegetation prior to 1 January 1990 is not then registered in He Waka Eke Noa to receive total carbon stocks.
 - 8.13 Recognition of sequestration in the system is optional - participants can nominate categories and areas (full optionality).

Where sequestration is greater than emissions

- 8.15 For the small number of farms where sequestration may be greater than emissions, the system will provide a payment or credit.

Liabilities

- 8.16 Vegetation areas are registered as an interest against the certificate of title of the land.
- 8.17 For permanent categories, farms will face financial liabilities if the vegetation areas registered are cleared.
- 8.18 For cyclical categories, farms will face financial liabilities if vegetation is cleared and not replaced within five years, or there is a land-use change, and no replanting occurs.
- 8.19 The liability faced is for the amount of sequestration claimed up to that point and is valued at the price of sequestration on the day the liability is faced plus a liability fee.
- 8.20 There are specific provisions for adverse events.

Nature-based Solutions

- 8.24 The Partners recommend that government prioritise work on Nature-based Solutions and biodiversity credits and report to the System Oversight Board on how this can be integrated into the system.

Section 9: How will the revenue from the system be used?

The revenue from the levy will be invested back into the primary sector for research and development to support further emissions reductions and support lower-emissions food and fibre production. Revenue will also contribute to the administration costs of the system.

- 9.1 The revenue from the levy will be invested back into the primary sector. The System Oversight Board will set the strategy for use of levy revenue.
- 9.2 A dedicated fund will be established to support opportunities and meet the needs of Māori landowners. This fund will reflect the levies paid by Māori agribusiness and be governed by an Independent Māori Board that will work alongside the System Oversight Board.
- 9.3 A priority area for investment is research and development into, and support for adoption of, mitigation technologies e.g., vaccine, inhibitors etc.
- 9.4 The following principles be used to guide decisions on the use of recycled revenue.
- Justifiable and effective
 - Transparent and accountable
 - Equitable
 - Integrated and adding value to existing funding
 - Enabling and user-friendly
 - Credible.
- 9.5 The Partners recommend that government prioritise work to streamline the regulatory system and path to market for emissions-reducing technologies and practices.
-

Section 10: Impacts and insights

This section informs recommendations in other sections.

Section 11: Administration costs

- 11.1 The development of the He Waka Eke Noa reporting system must strongly consider opportunities for regulatory system integration and data interoperability, and action these where appropriate.
- 11.2 The following principles will be used to guide future administration cost share decisions:
- Equitable – Not recover costs from one group and use these to benefit another
 - Efficient – Achieve value for money and be regularly reviewed
 - Justified – Reasonably relate to, and be appropriate for, the service provided
 - Transparent – Decisions must be understandable and accessible to all stakeholders.

Recognising Māori rights and interests

Te Aukaha, Federation of Māori Authorities

**E muramura ahi kā ki uta
E muramura ahi kā ki tai
Kia korakorakia muramura o ahi kā
Tihei Mauriora!**

The Federation of Māori Authorities (FOMA) membership represents Māori landowners, land managers and land users across Aotearoa, including whānau and hapū landowners. FOMA exists to help its members prosper and grow. FOMA membership includes whānau and hapū landowners who dominate the Māori Agribusiness sector.

Te Aukaha is FOMA's climate-change adaptation group, comprising technical experts from the Māori Agribusiness and economic sectors.

About Whenua Māori

In less than eight generations since the signing of Te Tiriti o Waitangi, Māori have lost 95% of the land that makes up Aotearoa. Only 1.4 million hectares of land remains as Whenua Māori. Of this residual estate, 67% is Land Use Class (LUC) 6, 7, and 8 and located in areas where there is recognised social deprivation and predominantly but not exclusively Māori rural communities.

Māori retain ownership of just 340,000 hectares of the most desirable, productive, and versatile lands in Aotearoa being LUC 1 to 5. These 340,000 hectares include land that while Māori retains ownership, governments have, and continue to, impose punitive lease arrangements effectively allowing lessees to use the land without restrictions or consideration to Māori owners.

Whenua Māori has its own legislation, Te Ture Whenua Māori Act 1993. This sets out competing objectives of retaining land ownership while promoting land development. There are 27,137 land titles held by 2.3 million interests. Almost 500 large Māori Agribusinesses own most of the Whenua Māori. Many of these are highly successful in their sectors and are recognised as some of the leading primary sector entities in Aotearoa.

For Māori, land use decision-making is complex. Māori apply tikanga. Tikanga is an operating framework that imposes guidelines for land managers, land users and landowners in both their strategic and tactical decision making. Implicit in this framework is the higher-order duty of care to balance the needs of current generations with those that are yet to be born. A failure to recognise the needs of future generations is an existential threat to Māori. For this reason, Māori are willing to continue to contribute to the well-being of the taiao and therefore our communities.

However, Māori expect to be recognised for their contributions to carbon sequestration to date with 33% of Whenua Māori in indigenous biodiversity compared to just 9% of general title land if the Department of Conservation (DoC) Estate is excluded. Even with the DoC estate included, the area in indigenous vegetation covers 26%.

Māori have operated within their values-based systems, even when economic incentives existed to drive different behaviours. And they continue to do so.

Time for a reset

Māori view issues of climate change as being symptomatic of the well-being of the taiao. It is connected to the loss of biodiversity, the poor state of our wetlands and waterways both fresh and marine, and the well-being of our communities. For this reason, Māori have expressed a strong view that we need to transition from our land

use operating models that place a higher value on near-term production with partially costed inputs towards a system, that when inputs are properly and fully costed, provides positive outcomes for business, te taiao and our communities.

Te Aukaha imperatives

We must transition from the 'volume and value' production system to a values-based tikanga system.

1. Volume is the quantity of output, partially costed
2. Value is the market price
3. Values is a tikanga-based framework ensuring we balance environmental externalities, the needs of future generations along with our own.

This is likely to be the only way we can all live in a self-sustaining economy. Our current industrial-type practices where production efficiency and profit margin do not fully cost environmental externalities cannot be self-sustaining

The transition

Primary sector reforms of the 1980s saw the removal of production incentives and the primary sector became fully exposed to global market prices. As history shows, the primary sector was able to adapt quickly to the new operating model and has become one of the most productive and innovative primary sectors in a global context.

We must be profitable to enable us to provide for current and future generations. However, profitability must include the costs of environmental externalities and especially those externalities that are depleting. Until these inputs, such as water are costed, the behaviours to limit the depletion of these resources and therefore preserve te taiao are unlikely.

Te Aukaha, FOMA is convinced that we in Aotearoa can provide the global leadership needed by deploying the capabilities of the primary sector to show how a circular economy can work on a national scale.

Reducing greenhouse gas emissions is a small step toward more sustainable land-management practices.

Te Aukaha support:

- Farm-level pricing (in absence of a more holistic, Māori pricing model).
- The ability to offset emissions with He Waka Eke Noa eligible sequestration.
- He Waka Eke Noa eligible sequestration from Whenua Māori should be made available to others in the primary sector under mutually agreed arrangements between the parties.
- The use of sequestration on Whenua Māori, which is subject to lease arrangements, is possible only by a formal, prior agreement with the Whenua Māori owners.

- Revenue recycling where all levy revenue from Whenua Māori is to be ringfenced for Whenua Māori.

Whenua Māori is owned collectively, with individuals having interests in several and potentially non-contiguous blocks. For this reason Whenua Māori needs to be able to act collectively in managing their climate-change obligation.

Me Uru Kahikatea.



Section 1: Farm-level split-gas levy

The farm-level split-gas levy for agricultural emissions is calculated and paid at farm level so farmers and growers understand and are responsible for the impacts of decisions they make on their farm. The levy has different rates for short- and long-lived gas emissions to recognise their different physical impacts on atmospheric warming.

This section outlines the core recommendation to establish a farm-level split-gas levy by 2025, and discusses the key features, benefits and trade-offs, and other options considered.

The Partners consider the farm-level split-gas levy to be the most effective system at delivering change over the short and long term.

A core principle of the split-gas approach is recognising the different characteristics of the different gases. A split-gas levy has one levy rate for short-lived gas emissions (biogenic methane from livestock), and one levy rate for long-lived gas emissions (nitrous oxide from livestock and synthetic fertiliser and carbon dioxide from urea). This reflects their different warming impacts, and emissions reduction targets under the Climate Change Response Act 2002.

Of the options consulted on, the majority of farmers preferred a farm-level pricing system. Farmers stated that this gave them control to manage their farm business and emissions profile, and recognition for their actions on farm.

Farmers acknowledged the size of the challenge to get a farm-level system established and operational by 2025. During consultation, around a third of farmers preferred a transition from a processor-level system to a farm-level system to ensure farmers had the time and support for farm-level pricing. Nearly half of respondents supported a farm-level system being implemented in 2025 as they had concerns about the duplication of effort, loss of momentum, inequity between farming systems and wasted investment in setting up two systems.

Key features

The key features of the recommended farm-level split-gas levy are:

- Farms calculate their short- and long-lived gas emissions through a single centralised calculator (or through existing tools and software that are linked to the centralised calculator).
- Calculated on-farm emissions determine the cost rather than the use of national averages.
- Recognition of reduced emissions from on-farm efficiencies and mitigations as they become available.
- Incentives are provided for uptake of actions (practices and technologies) to reduce emissions.
- A split-gas approach applies different levy rates to short- and long-lived gas emissions.
- On-farm sequestration is recognised, which could offset the cost of the levy.
- Levy revenue is invested in research, development, and extension (providing technical advice and information) including a dedicated fund for Māori landowners.
- A System Oversight Board with expertise and representation from the primary sector will work closely with an Independent Māori Board to provide recommendations on levy rates and prices, and set the strategy for use of levy revenue.

The following figure shows how the total net cost to the farm would be calculated under the farm-level split-gas levy.

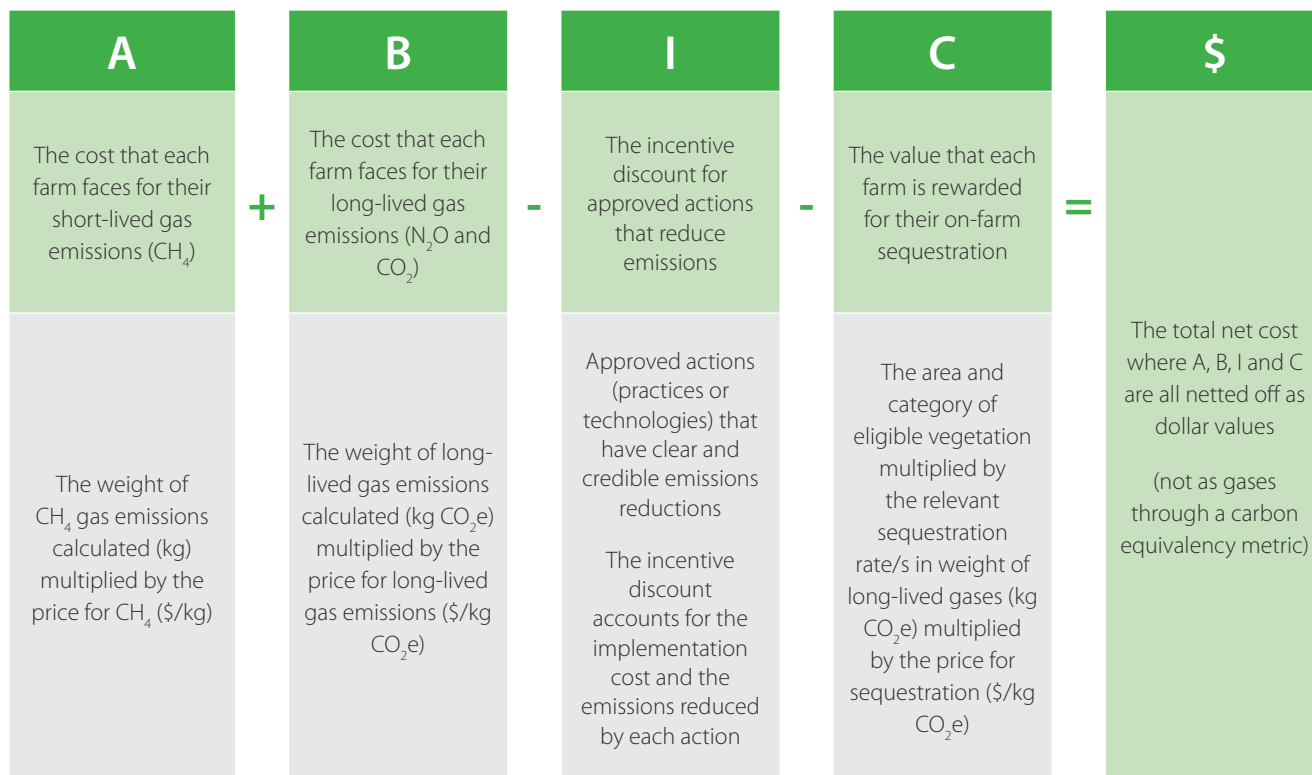


Figure 1: Farm-level split-gas levy (A+B-I-C=\$)

Main benefits and trade-offs of a farm-level split-gas levy

A farm-level system is able to recognise the range of efficiencies and mitigations that could be adopted on-farm, now and in the future, in a way that is fair for all participants in the system. It ensures that farms have the ability to influence the cost as the lower their emissions are, the lower the levy will be and also recognises the actions of early adopters.

Provided mitigations are available, a farm-level system is more effective at encouraging on-farm change as it provides a direct link to farm operations and allows for the diversity of farm systems and land use.

The farm-level system encourages emissions reductions through the reporting and pricing of emissions at farm level and the incentives for uptake of actions to reduce emissions.

The split-gas approach recognises the different characteristics of the different gases, and that methane is not required to reduce to net zero under the Climate

Change Response Act 2002 (CCRA). It allows for a deviation between prices on short- and long-lived gases which is not possible in an all-gases market-based approach, such as the NZ ETS. The benefit of a split-gas approach is likely to be more consequential if the 2030 methane target is met and there is continued upward price pressure on the NZ ETS carbon price to meet the 2050 net zero target for long-lived gases. A split-gas approach ensures that prices for short-lived gases are only as high as needed to drive the expected emissions reductions to meet targets.

A levy-based system provides greater control over the rates for short- and long-lived gas emissions, relative to tradable allowance-based systems. Rates can be kept as low as possible and adjusted as needed, depending on progress toward objectives of the system (e.g., trajectory toward emissions targets, impact on primary sector viability and competitiveness, need to avoid emissions leakage etc).

A levy-based system can also be accompanied by a 'system oversight' mechanism to provide the primary sector with influence over the setting of levy rates and the strategy for recycling revenue. This is covered in [Section 3: Inclusive system oversight](#).

The key trade-offs with a farm-level levy are that there is less certainty over emissions reductions outcomes given there is no cap on emissions allowed as under a cap-and-trade system, and a farm-level system is more expensive to establish and administer given the much larger number of participants (i.e., over 20,000 farmers and growers). [Section 11: Administration costs](#) covers this in more detail.

Starting with a simplified version of the farm-level levy in 2025 and transitioning to the full farm-level levy in 2027 (see [Section 2: Getting started in 2025](#)), reduces short-term operating costs and spreads establishment costs over a longer time frame, without measurable impact on the emissions reductions achieved. This results in a positive cost-benefit score for the farm-level levy.

Further detail on the analysis supporting the decision on a preferred option, including the detailed analysis against the criteria, is contained in Technical Appendix 1.

Main alternative option considered – Processor-level hybrid levy

Farmers and growers were consulted on two options – a farm-level levy, and a processor-level hybrid levy.

The key features of a processor-level hybrid levy are:

- Emissions are calculated at the meat, milk, and fertiliser processor level, based on the quantity of product received from farms or, in the case of fertiliser, sold to farms.
- Processors would likely pass on the cost to farms based on the quantity of product processed, or fertiliser sold.
- A split-gas approach would apply different levy rates to short- and long-lived gas emissions.
- Revenue would be invested back into the primary sector to support research and development, adoption of mitigations or pay for/provide credit for additional emissions reductions through Emission Management Contracts (EMC) and/or on-farm sequestration through Sequestration Management Contracts (SMC).
- Farms and collectives could choose to enter into an EMC to get a payment for reducing emissions and/or an SMC to get payment for sequestration on-farm.

The key advantage a processor-level hybrid levy had over a farm-level levy was that it was accompanied by lower administration costs. However, the more farmers participating in the EMCs and SMCs, the higher the administration costs. EMCs that rewarded individual farm action for reducing emissions meant this option produced broadly equivalent emission reductions to a farm-level levy system. The lower costs and the equivalent effectiveness in reducing emissions translated into a higher overall cost-benefit score.

The key disadvantages of this approach were:

- A processor-level price signal is blunt and applies only to fertiliser sales and farms that sell directly to processors.
- It does not recognise individual farms for the actions they take to reduce emissions.
- On-farm emissions efficiencies through practice change would be rewarded only if EMCs used a benchmark, which would disadvantage those who have taken early action to reduce or already have low emissions.
- Farmers noted that the SMCs and EMCs were complex, and it was unclear how they would be effectively and efficiently implemented and managed. Farmers preferred one system to measure their emissions, actions, and sequestration.

A processor-level hybrid levy was also considered as a potential option that could transition to a farm-level system in recognition that a farm-level system might require additional time and development to be a cost-effective option.

Analysis of issues or risks involved in transitioning from a processor-level hybrid system to a farm-level system highlighted that there were a number of key components that were consistent to both options e.g., method development, system oversight. There were also some sunk costs, stranded assets and issues that would need to be carefully managed.

For example, analysis highlighted that the process for rewarding sequestration and the uptake of approved actions or technology under a contract-based processor-level hybrid system versus netting off emissions under a farm-level system would need careful consideration and management through any transition. The process for rewarding sequestration had important implications for the point of responsibility e.g., under a processor-level hybrid system the SMC would be held by the landowner and registered against the land title. Under the farm-level system, sequestration could be accounted for by a business-owner (with landowner permission).

Farmer feedback highlighted concerns about confusion and disruption for farmers and growers in learning to participate in two systems over a short period of time.

The disadvantages and transition considerations outlined above, alongside the strong feedback from farmers that a farm-level system gave them more control to manage their farm business and emissions profile, were the key factors in not progressing a processor-level hybrid system.

Other options considered

The Partnership considered a range of other pricing options. These, and the key considerations and reasons for not progressing them, are captured in the table below.

Table 2: Other pricing system options considered by the Partnership

System option	Description	Key considerations/reasons for not progressing
Baseline and credit levy	<p>Participants would face a penalty or incentive, based on a performance baseline.</p> <p>Farms that didn't meet the baseline would incur a penalty while farms that exceeded it would receive a credit.</p> <p>The baselines would be regularly revised to recognise changes in emissions performance levels.</p>	<p>The main disadvantage is determining a baseline that is considered equitable and implementing that across a diverse range of farming systems.</p> <p>If the performance baseline is determined by outputs (milk/meat) efficiency, then it would be challenging to apply to farms that did not have a final output such as breeding operations and store farms.</p> <p>Some farms that were less emissions efficient would be penalised.</p>
Single-market cap and trade scheme	<p>Farms would participate in a separate agricultural trading scheme to the NZ ETS.</p> <p>A single cap for emissions would be set with all gases converted to CO₂e using GWP₁₀₀.</p> <p>Farms would surrender units for the agricultural greenhouse gases they emit within a given period.</p> <p>It would be up to the emitter to decide whether to reduce their emissions or purchase units.</p> <p>The price the emitter pays for units would be set by supply and demand within the market.</p>	<p>The main disadvantage is cost and complexity for farms.</p> <p>Farms would be required to engage with and learn an unfamiliar system.</p> <p>A requirement to trade units would add cost, complexity, and risk for farms.</p>

<p>Split-market cap and trade scheme</p>	<p>Farms would participate in a separate agricultural trading scheme to the NZ ETS.</p> <p>Two caps would be set: one for long-lived gases, and one for short-lived gases.</p> <p>Farms would surrender separate units for CH₄ and N₂O emitted within a given period.</p> <p>It would be up to the emitter to decide whether to reduce their emissions or purchase units.</p> <p>The price the emitter pays would be set by supply and demand within the market.</p>	<p>While this option allows for a split-gas approach it still poses cost and complexity challenges.</p> <p>In addition to the challenges associated with a single-market cap and trade, farms would trade two different types of units, with two prices driven by the two different caps.</p> <p>This would create additional administrative cost and complexity.</p> <p>This option could create inequity across the primary sector as it could result in sectors outbidding each other.</p>
<p>Good Management Practice (GMP) based levy</p>	<p>Farms could opt to adopt good management practices or technologies or incur a cost relative to the emissions reduction that would have occurred if this action had been adopted.</p> <p>If a mitigation existed that had the potential to reduce on-farm emissions by a large amount, the farm would face a correspondingly large levy cost.</p> <p>However, if no mitigations were available to the farm, there would be no cost.</p>	<p>A core disadvantage of this approach is in defining 'good management practice' and implementing this in practice.</p> <p>The principle of recognising GMP could be achieved when farms adopt mitigations/apply GMPs to reduce emissions and it would be reflected in the emissions calculation for methane and long-lived gases (i.e., lower emissions), and good practice through increasing sequestration would be recognised.</p> <p>GMP would also be supported through inclusion of greenhouse gases in farm planning.</p>

Key recommendations:

- 1.1 Establish a farm-level split-gas levy by 2025.
- 1.2 One levy rate for short-lived gas emissions (methane from livestock) and one levy rate for long-lived gas emissions (nitrous oxide from livestock and synthetic fertiliser and carbon dioxide from urea) to reflect their different warming impacts and emissions reduction targets.
- 1.3 The farm-level split-gas levy uses the calculation $A + B - I - C = \$$.
 - A = the weight of CH₄ gas emissions calculated (kg) multiplied by the price for CH₄ gas emissions (\$/kg)
 - B = the weight of long-lived gas emissions calculated (kg CO₂e) multiplied by the price for long-lived gas emissions (\$/kg CO₂e)
 - I = the incentive discount for approved actions that reduce emissions
 - C = the area and category of eligible vegetation multiplied by the relevant sequestration rate in weight of long-lived gases (kg CO₂e) multiplied by the price for sequestration (\$/kg CO₂e)
 - \$ = the total net cost where A, B, I, C are all netted off as dollar values.

Section 2: Getting started in 2025

A simplified version of a farm-level levy starts in 2025, transitioning to a full farm-level levy in 2027.

There are challenges in starting a full farm-level system in 2025.

- **IT system cost** – A farm-level levy is a more expensive system to establish and administer relative to a processor-level system due to the larger number of participants.
- **Regulatory and IT system build time** – This is the time needed to build a complex IT system and for associated regulatory development and approval processes (this includes the development of legislation, and regulations).
- **Registration overload** – The ability to onboard, and provide support for, around 23,000 farmers and growers in a year without the system being overloaded.
- **Farmer readiness and compliance risks** – Identifying who is in the system, plus dealing with non-reporting given the wide range of readiness among farmers and growers.

The Partnership has looked closely at these challenges and worked through how they might be overcome. The Partners are proposing a simplified version of a farm-level levy starting in 2025, transitioning to a full farm-level levy in 2027.

A farm-level levy could be established by 2025 but this would require shorter timeframes for the development of legislation, regulations and the IT system build. To reduce the risks associated with process shortcuts, the Partners are proposing getting started in 2025 with mandatory reporting of 2024/25 emissions, and pricing of 2025/26 emissions supported by a simplified version of a farm-level levy.

The timeline below outlines the key deliverables to support getting started in 2025 and transitioning to a full farm-level levy in 2027.

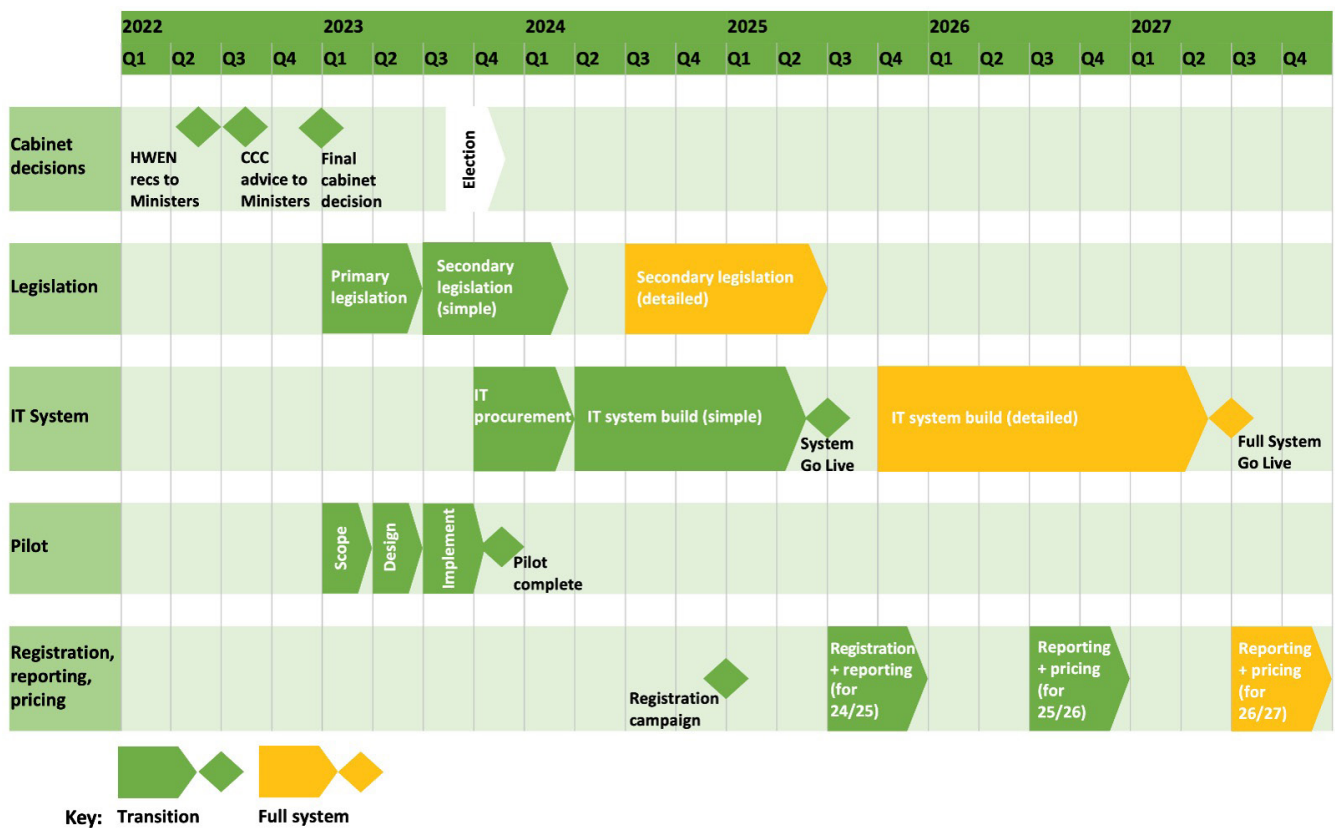


Figure 2: Timeline to getting started in 2025

The key features of the transitional farm-level levy would be:

- **'Stage 1' centralised calculator:** a 'Stage 1' farm-level centralised calculator would use the 'simple method'. This is significantly more accurate than an 'output x national emission factor' calculation that would be used in a processor-level system i.e., it could capture some on farm efficiencies. The 'detailed method' would be available from 2027 (i.e., 2026/27 emissions).
- **Incentive discounts for approved actions on-farm:** the available technology in 2025/26 is likely to be sheep genetics, coated urea, and feed additives e.g., 3NOP.
- **Simplified sequestration:** as much sequestration recognised as possible with a minimum of vegetation that is part of existing programmes – e.g., QEII, Ngā Whenua Rauhi, Māori Reservation land (qualifying vegetation), and relevant Regional Council-funded indigenous vegetation on farmland. The main benefit of leveraging existing programmes would be a simpler/easier audit and verification pathway. Other sequestration would be backdated once full sequestration measurement and recognition is in place from 2027.
- **A commitment from primary sector bodies, processors, and government to support participation and registration by farmers to be ready to participate in a pricing system from 2025.** This would include key milestones that build on current He Waka Eke Noa milestones for emissions reporting and farm planning. This would help to reduce key compliance risks that relate to registration (the work involved with identifying who should register and whether they have) and reporting (the work involved with verifying the right data has been submitted).
- **Support from rural professionals,** including on-farm advisors, bankers and accountants, meat, milk, and fertiliser processors.
- **Registration system** could be standalone or through another existing system, e.g., IRD payment system

Modelling projects that a simplified farm-level pricing system would still support greater emission reductions than a processor-level system (depending on the coverage, uptake, and approach of a voluntary incentives mechanism in a processor-level system).

The proposal to introduce a simplified farm-level levy with mandatory reporting of 2024/25 emissions, pricing of 2025/26 emissions and a full farm-level system from 2027 does not result in a measurable difference in the level of emissions reductions when compared to a full farm-level system with pricing starting on 2025/26 emissions. In addition to these modelled reductions, farmers are likely to start to take actions that reduce emissions in preparation for (i.e., in advance of) emissions pricing.

Other options considered

An alternative option of starting with processor-level pricing for two years from 2025 was considered. A transitional processor-level pricing system could involve:

- Split-gas levy at the processor level
- Emissions calculated by 'product x national emissions factor'
- No sequestration recognition or **simplified sequestration:** Only sequestration recognised through existing programmes.
- Voluntary opt-in to incentives for emissions reductions. This could include a farm-level calculation/centralised calculator and could provide an opportunity to test and trial aspects of the farm-level pricing system.

This transition option is different to the processor-level hybrid levy described in Section 1 as it does not involve Emissions or Sequestration Management Contracts. The cost and complexity of setting up the contract approach was not considered worthwhile for a short-term system.

The key advantage to a processor-level transition pricing approach is it gives more time to develop a full farm-level system, ensuring the IT system to support it is well tested and fit for purpose from day one. The additional time would also likely reduce risks associated with farmer readiness and compliance as it would provide more lead-in time for farmers to become familiar with the system requirements.

The key disadvantages are that the development of a temporary system could detract from the development of the long-term farm-level system and alienate the majority of farmers who gave overwhelming feedback in opposition to such an approach. This could lead to increased overall costs and a delay in moving to farm-level pricing. Processor-

level pricing without farm-level incentives (e.g., EMC/SMC) is also largely ineffective in reducing emissions so the chances of meeting emissions reduction targets would be reduced. Officials have indicated that they would prefer a transition from processor-level pricing to farm-level pricing to be guided by milestones and criteria, including cost effectiveness, rather than a set time period of, for example, two years.

This option is not preferred by primary sector Partners because of the risk of a processor-level system remaining in

place for longer than the two years needed to support the development of a full farm-level system. Partners consider a simplified farm-level system is better than a processor-level system transition to a farm-level system. This is because a farm-level system will start all farmers and growers on a journey and provide greater long-term benefits and opportunities such as capturing emissions efficiencies and recognising additional sequestration on-farm.

Key recommendations:

- 2.1 Start with a transitional farm-level levy from 2025 and transition to the full farm-level levy in 2027.
- 2.2 The key features of the transitional farm-level levy are:
 - Mandatory reporting of 2024/25 emissions and pricing of 2025/26 emissions.
 - 'Stage 1' centralised calculator using the 'simple method'
 - Incentive discounts for approved actions on-farm
 - Simplified sequestration (as much sequestration recognised as possible with a minimum of vegetation that is part of existing programmes)
 - Other sequestration backdated once full sequestration measurement and recognition is in place from 2027
 - A commitment from primary sector bodies, processors, and government to support participation and registration by farmers to be ready to participate in the pricing system from 2025. This would include key milestones.
 - Support from rural professionals including on-farm advisors, bankers and accountants, meat, milk, and fertiliser processors.
 - Registration system could be standalone or through another existing system e.g., IRD.

Section 3: Inclusive system oversight

The collaborative governance approach to system oversight will involve a System Oversight Board with expertise and representation from the primary sector, working closely with an Independent Māori Board to recommend levy rates, prices and incentive discounts, and set the strategy for use of levy revenue.

Within the He Waka Eke Noa system, decisions will need to be made about:

- The levy rates, the price for sequestration, the value of incentive discounts, and the extent to which these may change over time.
- How revenue from the system will be managed and invested.
- How the core elements of the system are implemented, administered, and assessed on an ongoing basis e.g., how emissions will be calculated, audited, and verified including method updates; the process for adding new methods, mitigations, and sequestration opportunities to the system; how sequestration rates will be calculated; the criteria for, and verification of, eligible on-farm sequestration; and the eligibility for additional incentives to reduce emissions.

Feedback from farmers highlighted the importance of the primary sector maintaining as much control and influence as possible over price setting and revenue recycling in particular. Farmers wanted to see the primary sector with seats at the table when setting levy rates and transparency on the criteria used to set levies and prices. Partners were also seeking a system that avoided unnecessary bureaucracy, duplication, and administration costs and was as simple as possible to support key roles and responsibilities.

The preferred partnership approach will involve four entities with key roles and responsibilities. The figure below illustrates the entities, and the table highlights their roles and responsibilities.

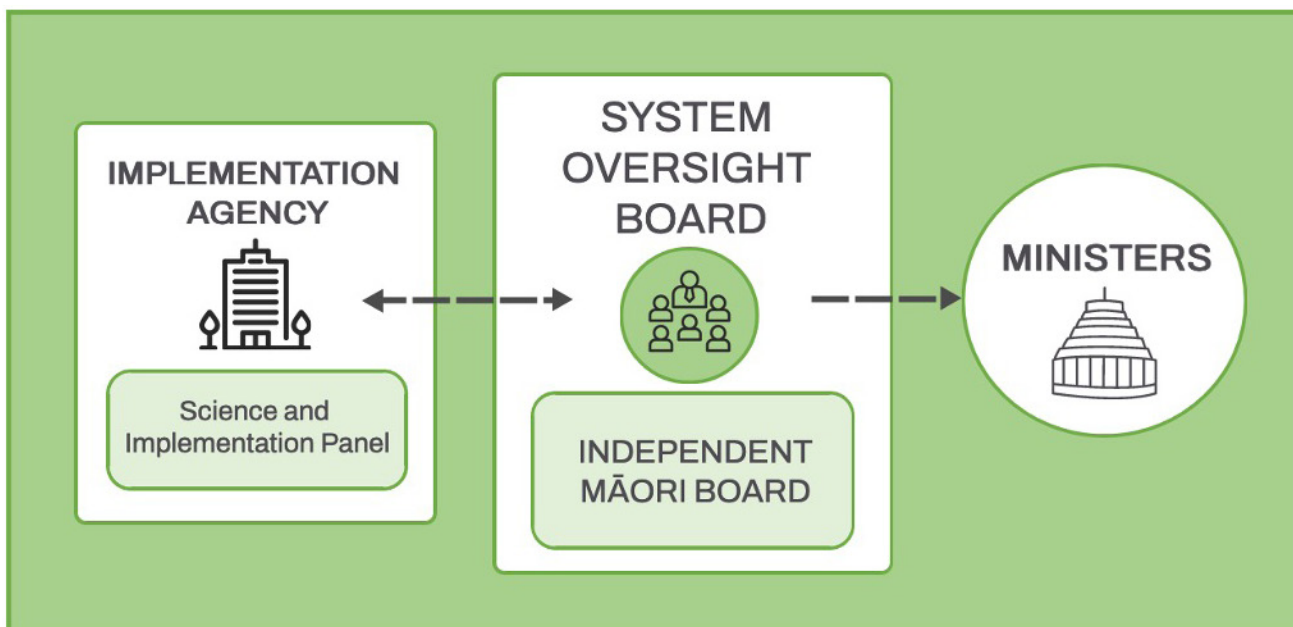


Figure 3: Entities in collaborative governance approach to system oversight

Table 3: Roles and responsibilities

Responsible entity	Roles and responsibilities
Ministers	<ul style="list-style-type: none"> • Make final decision on levy rates and prices and give statutory approval to the strategy for use of levy revenue based on recommendations from the System Oversight Board and the Independent Māori Board. This may include seeking advice from the Climate Change Commission. • Ministers must provide an explanation when the advice or recommendations of the System Oversight Board are not followed.
Independent Māori Board	<ul style="list-style-type: none"> • Ensures Māori landowners’ interests are reflected in the strategy for use of system revenue • Directs funds paid by Māori agribusiness to priority areas.
System Oversight Board	<ul style="list-style-type: none"> • Sets the strategy and directs investment of any revenue from the farm-level split-gas levy. • A governing role in relation to the Implementation Agency*. • Works closely with the Independent Māori Board and sector bodies to: <ul style="list-style-type: none"> • recommend to Ministers – appropriate levy rates, the price of sequestration, and the value of incentive discounts used to incentivise the adoption of mitigation technologies based on technical input from Implementation Agency and other stakeholders. • seek advice from the science and implementation panel that will be used to support the process for updates to the emissions calculation method and inclusion of new mitigations or sequestration opportunities.
Implementation Agency	<ul style="list-style-type: none"> • Responsible to the System Oversight Board for agreed roles and responsibilities*. • Implements the pricing system including the day-to-day management of registration, reporting, payment verification, and auditing. • Implements the process for updating the centralised calculator methods, inclusion of new mitigations or sequestration opportunities and approved actions for incentives. • Seeks and compiles advice to help inform decisions relating to levy rates and prices. • Implements strategy for use of system revenue. • Leads measurement and evaluation of system e.g., effectiveness of price settings, incentives, and methods.

* Further work will be done to flesh out the roles and responsibilities, and the appropriate legal structure of the System Oversight Board and any role it could have in governing the Implementation Agency. All Partners are committed to ongoing design work of the pricing system governance, some Partners intend to reconsider their role in the context of continuing system oversight once design is completed.

Ministers

Legislation must be passed for government to introduce a new levy. The detail on setting levy rates, including who makes final decisions on levy rates, and the role of the System Oversight Board and the Independent Māori Board needs to be included in legislation and/or regulations.

If accepted by Ministers, the farm-level split-gas levy is likely to be included in the Climate Change Response Act (CCRA 2002), which also covers New Zealand’s 2030 and 2050 targets and sets the framework for the NZ ETS.

The Minister of Climate Change is responsible for the CCRA 2002 and is already the nominated decision maker under this legislation. There are existing provisions in the CCRA

2002 that provide for joint action between the Minister of Climate Change and the Minister of Agriculture in regard to agricultural emissions.

The Climate Change Commission has also been established to provide independent advice to government on climate change matters. Existing provisions in the CCRA 2002 would allow the Minister of Climate Change to call on the Commission to provide advice on levy rate setting and revenue recycling.

To reflect the implications of the levy for the primary sector, it is recommended that the Minister of Climate Change shares responsibility with the Minister of Agriculture to

give effect to the partnership approach that underpins He Waka Eke Noa. Ministers will be required actively to consider advice from the System Oversight Board before any decisions are made and clearly explain why recommendations from the System Oversight Board are not followed.

The He Waka Eke Noa partnership approach includes requirements to:

- Make final decisions on levy rates and prices and

give statutory approval to the strategy for use of levy revenue based on recommendations from the System Oversight Board and the Independent Māori Board.

- Provide an explanation when the advice or recommendations of the System Oversight Board are not followed.
- Consider the recommended 'factors to consider in setting and updating levy rates' prior to making decisions (see [Section 6: How are emissions priced?](#)).

Independent Māori Board

It is recommended that a dedicated fund be established to support opportunities and meet the needs of Māori landowners. This fund would reflect levies paid by Māori agribusiness.

The dedicated fund would be governed by an Independent Māori Board that would work alongside the System Oversight Board. Members of the Independent Māori Board would sit on the System Oversight Board.

The Independent Māori Board would be funded from levies paid by Māori agribusiness and have two key roles:

1. To ensure Māori landowner interests are appropriately

reflected in the strategy that will be developed for use of system revenue; and

2. To direct the investment of funds to priority areas that best support Māori landowners to transition to planning and management frameworks that integrate a whole-of-whenua approach to managing on-farm emissions.

Further work is required between Te Aukaha, government, and primary sector Partners on the specific shape of the Independent Māori Board e.g., number of members, expertise required, nomination process etc.

System Oversight Board

To give effect to the partnership approach that underpins He Waka Eke Noa, a System Oversight Board will work closely with the Independent Māori Board and sector bodies to recommend to Ministers appropriate levy rates, the price of sequestration, and the value of incentive discounts used to reward and enhance emissions reductions. It will also set the strategy for use of system revenue.

The recommendation is a System Oversight Board be established and have three key roles and responsibilities:

1. **Strategy and direction for investment of system revenue:**

A critical role of the System Oversight Board will be to set the strategy for use of system revenue and have an ongoing role in directing these investments. The strategy for the use of revenue will be informed by the national research and development plan (the R&D plan) for prioritising and accelerating development of mitigation options for reducing agricultural

greenhouse gases (see [Section 9: How will the revenue from the system be used?](#)), and primary sector groups on the opportunities for R&D, support for adoption, and creating pathways to market for new products. The implementation of the strategy and management of system revenue could be the role of the Implementation Agency. The Implementation Agency will report on a regular basis e.g., six-monthly, to the System Oversight Board on progress on implementing the agreed strategy, any issues of note/concern and opportunities to refresh the strategic direction for investment of farmer and grower funds.

2. **A governing role in relation to the Implementation Agency:**

Provide the Implementation Agency with governance and direction for specific roles and responsibilities. Further work will be done to flesh out the roles and responsibilities, and the appropriate legal structure of the System Oversight Board and any role they could have in governing the Implementation Agency.

3. Collaborative governance of setting levy rates and prices:

Provide recommendations to Ministers in setting and updating levy rates, the price of sequestration, and the value of incentive discounts used to incentivise the adoption of mitigation technologies.

This role will include consideration of the advice from the science and implementation panel that will be used to support the process for updates to the emissions calculation method, inclusion of new mitigations or sequestration opportunities and approved actions for incentives.

This will ensure the system benefits from the use of primary sector and Māori expertise and knowledge; that decisions are made on the basis of good quality evidence and science; and that the benefits, costs, and potential primary sector equity issues, in regard to new mitigation or sequestration opportunities, are appropriately considered.

The nomination process for the System Oversight Board could follow the nomination process created for the He Waka Eke Noa Steering Group. He Waka Eke Noa Partners

will work jointly with the Ministers for Climate Change and Agriculture to nominate members of the System Oversight Board. If the System Oversight Board has statutory responsibilities, the appointment process will likely be governed by a parliamentary process.

Note, it may be appropriate to revisit the membership of the He Waka Eke Noa Partnership before this process is underway to ensure the Partnership effectively represents those paying the emissions levies.

Specific experience and expertise that will be required on the System Oversight Board will include:

- Primary sector/farmer representation
- Farms systems and farm management (dairy, horticulture, arable, deer, sheep, and beef)
- Independent Māori Board representation (iwi, hapū and whānau perspectives and Māori agribusiness)
- Agricultural economics
- Knowledge of agricultural science, research and development and adoption needs.

Implementation Agency

The He Waka Eke Noa system will have an Implementation Agency. This agency may sit within an existing agency or be a new entity. It will be responsible for the day-to-day administration of the system, including registration, payment management, compliance, auditing, and implementing the process for updating the centralised calculator methods and the inclusion of new mitigations or sequestration opportunities (see [Section 5: How are emissions calculated?](#)).

The Implementation Agency will also likely undertake some technical analysis to support advice and decisions on setting and updating levy rates and prices and will support implementation of the strategy for use of system revenue. The recommendation is that the Implementation Agency be responsible to the System Oversight Board for specific roles and responsibilities.

Key recommendations:

- 3.1 The Minister of Climate Change will share responsibility with the Minister of Agriculture to give effect to the partnership approach that underpins He Waka Eke Noa. Ministers will be required to:
 - Make final decision on levy rates and prices and give statutory approval to the strategy for use of levy revenue based on recommendations from the System Oversight Board and the Independent Māori Board.
 - Provide an explanation when the advice or recommendations of the System Oversight Board are not followed.
 - Consider the recommended 'factors to consider in setting and updating levy rates' prior to making decisions.
- 3.2 A System Oversight Board will have a collaborative governance role in the system. Specific detail on the experience and expertise that will be required on the System Oversight Board will include:
 - Sector/farmer representation
 - Farm systems and farm management (dairy, horticulture, arable, deer, sheep, and beef and drystock)
 - Independent Māori Board representation (iwi, hapū and whānau perspectives and Māori agribusiness)
 - Agricultural economics
 - Knowledge of agricultural science, research and development and adoption needs.
- 3.3 The System Oversight Board has three key roles and responsibilities:
 - To set the strategy and direct investment of any revenue from the farm-level split-gas levy.
 - A governing role in relation to the Implementation Agency (further work is required to determine specific roles and responsibilities).
 - To work closely with the Independent Māori Board and sector bodies to:
 - Recommend to Ministers appropriate levy rates, the price of sequestration, and the value of incentive discounts used to incentivise the adoption of mitigation technologies based on technical input from the Implementation Agency and other stakeholders.
 - Seek advice from the science and implementation panel that will be used to support the process for updates to the emissions calculation method and inclusion of new mitigations or sequestration opportunities.
- 3.4 He Waka Eke Noa Partners will work jointly with the Ministers for Climate Change and Agriculture to nominate members of the System Oversight Board.
- 3.5 A dedicated fund to support opportunities for Māori landowners will be governed by an Independent Māori Board. The Independent Māori Board will have two key roles:
 - To ensure Māori landowner interests are appropriately reflected in the strategy that will be developed for use of system revenue
 - To direct the investment of funds paid by Māori agribusiness towards priority areas that best support Māori landowners to transition to planning and management frameworks that integrate a whole-of-whenua approach to managing on-farm emissions.
- 3.6 Further work is required between Te Aukaha, government, and primary sector Partners on the specific shape of the Independent Māori Board e.g., number of members, expertise required, nomination process etc.

Section 4: Who is responsible for reporting and paying for emissions?

The business owners of every eligible farm business will be responsible for reporting emissions and paying the levy, with the option of forming a collective to work together to report and pay for emissions.

Who is included in the system?

It is recommended that farm-level pricing applies to all farm businesses that are GST registered and have an annual average of over:

- 550 stock units (sheep, cattle, deer, and goats); or
- 50 dairy cattle; or
- 700 swine (farrow to finish); or
- 50,000 poultry; or
- 40 tonnes of nitrogen through synthetic nitrogen fertiliser application.

This definition captures all farms that emit over approximately 200 tonnes CO₂e per year, which is 96% of all agricultural greenhouse gas emissions (around 23,000 farms). The remaining 4% of emissions (not captured by the definition) are from small lifestyle blocks, orchards, vineyards, and equine.

While this definition also covers swine and poultry, before these sectors are included in any pricing system government will need to work with them to identify how the farm-level pricing system can be adapted to ensure it is fit for purpose.

Other options considered

It was considered whether the farm definition should be based on an area threshold for a given farm. Thresholds of 80 hectares (given that this size included most commercial livestock production systems) and 20 hectares (to align with the freshwater farm planning definition of a farm) were considered.

An area-based threshold was considered unfair since it meant that some farms with very low stocking rates and low emissions would be included, and some farms with high stocking rates and high emissions would be excluded. A 20-hectare area-based threshold, while having the benefit of being aligned with the freshwater farm plan regulations, would result in approximately 11,000 more farms being included in the system. The increase in administration costs to include those farmers (most being non-commercial) in the system outweighed the benefits in terms of emissions coverage or effectiveness.

Emissions from synthetic nitrogen fertiliser

It is recommended that nitrous oxide (N₂O) and carbon dioxide (CO₂) emissions from the application of synthetic nitrogen fertiliser are included in the farm-level pricing system. Carbon dioxide from urea is in scope to ensure the cost accurately reflects the emissions associated with that product.

Synthetic N-fertiliser use is strongly correlated with increased feed production and the quality of that feed. Farm-level pricing for synthetic N-fertiliser means farms will better understand their total agricultural greenhouse gas emissions profile, and the changes they can make to their use of synthetic N-fertiliser to reduce emissions.

It also means the financial liability of synthetic N-fertiliser emissions can be offset at the farm-level with on-

farm sequestration. Or, when there are new mitigation technologies or farm-level practices that could reduce emissions from synthetic N-fertiliser, these can be directly recognised on-farm.

Other options considered

Pricing emissions from synthetic N-fertiliser at the manufacturer and importer level was also considered. This would have lower administration costs, particularly for growers who wouldn't otherwise need to complete a farm-level emissions calculation. However, the benefits of pricing at farm-level (described above) outweighed this advantage.

Organic N-fertiliser and carbon dioxide from lime have not previously been in scope for emissions pricing but could be considered in the future.

Who is responsible for reporting and paying for emissions?

The point of responsibility refers to who is ultimately responsible for the emissions liability and/or who receives the value of sequestration.

It is recommended that the person(s) responsible for the overall operation of the farming business (business owner) will be responsible for reporting and paying for the emissions from it, however, sequestration could only be accounted for with landowner permission.

There are some unique land ownership structures that will require a transitional or alternative approach, due to lease renewals occurring after the pricing system is in place. This includes:

- Crown leased land (e.g., grazing rights on DoC or Council land)
- Land administered by Te Tumu Paeroa
- Māori Reserved Land
- Accretion land
- Crown Pastoral Lease

Further work is required to ensure there are appropriate transitional considerations for long-term lease arrangements.

The business owner is recommended because of the reduced complexity for emissions reporting on leased land. The approach also has greater potential for alignment with the point of responsibility for Freshwater Farm Plans and provides an opportunity to leverage off the IRD business identification system.

One of the risks is that 50:50 sharemilkers are potentially disadvantaged when re-negotiating their agreements with landowners; there is a risk the full emissions burden could be transferred to them. Further work is required to ensure there is appropriate education and advice for sharemilkers when re-negotiating agreements.

The requirement for landowner approval for sequestration avoids the risk of a future liability on land without permission being first granted by the landowner for this to occur. However, the landowner would still need to detail the arrangement clearly in an agreement. This would include who receives the benefits and who is responsible if liabilities are created.

Other options considered

The key alternative considered was the point of responsibility sitting with the landowner with the ability to delegate responsibility to the business owner.

The key risks of this approach were the challenges associated with landowners obtaining farm data from leases (where delegation was not accepted) and long-term lease land (Crown and Māori). Again, if the lessee refused the delegation, a landowner would be left to pay for emissions with no recompense until the lease expired or was reviewed.

Livestock owner was also considered but not progressed due to implementation challenges.

A collective approach

As an alternative to reporting and paying for emissions at the farm business level, it is recommended that any business owner (including those who do not meet the farm definition) can opt-in to a collective. A collective is a group that chooses to work together to report and pay for their emissions and potentially reduce or offset them. A collective could be made up of participants all supplying the same processor, a catchment community, a farming enterprise, or some other grouping. This is a key consideration for Māori land that is often owned by whānau, hapū, iwi groupings, trusts and incorporations,

that may choose to respond as collectives. Further work is required to understand the risk of non-farming entities being able to join a collective.

A collective could work alongside a pricing system in several ways. It would allow farm enterprises to link their farms and submit a single return, or for individual processors to report on behalf of their suppliers. This could involve internal trading within the collective. Reporting emissions would be done at the collective level rather than by individual farms.

A collective would:

- Register farms that are in the collective in the pricing system, and update these annually.
- Have a contractual emissions and sequestration sharing agreement to ensure any liabilities would be paid (if appropriate).
- Include operating rules such as data reporting expectations, payment expectations, audit requirements, dispute resolution process, and consequences for individual farm businesses in breach of the sharing agreement.

Delegation

The system would allow for the business owner to delegate to a person or entity e.g., a farm advisor or chartered accountant. This would work in a similar way to the IRD system where someone can be nominated as an agent to act on your behalf. Obligations or responsibilities would

remain with the farm business, but a nominated person would be able to act as an agent, making enquiries, completing forms, receiving statements, and arranging payments on behalf of the farm business.

Key recommendations:

- 4.1 All farm businesses that are GST registered and have over 550 stock units (inclusive of sheep, cattle, deer, and goats; calculated on a weighted annual average basis); or 50 dairy cattle; or 700 swine (farrow to finish); or 50,000 poultry (calculated on an annual average basis); or apply over 40 tonnes of nitrogen through synthetic nitrogen fertiliser are liable.
- 4.2 The person(s) responsible for the overall operation of the business (business owner) will be responsible for reporting and paying for the emissions from it. Eligible sequestration can also be included but only with landowner permission.
- 4.3 Any business owner (including those that do not meet the farm definition) can opt-in to a collective. For example, a collective could be made up of participants all supplying the same processor, a Māori agribusiness enterprise, hapū/whānau collective, a catchment community, a farm enterprise, or some other grouping.

Additional technical recommendations:

- 4.4 Work on transitional arrangements and other measures to support long-term lease arrangements and other complex ownership structures must be completed prior to implementation of the levy.
- 4.5 A farm business can nominate someone as an agent to act on-behalf, however, the obligations and responsibilities will remain with the farm business.

Section 5: How are emissions calculated?

The single centralised emissions calculator will enable a consistent calculation across all farms, and will be designed to integrate data from existing calculators and other farm data sources.

To be able to measure the impact of decisions and actions at a farm level, there has to be a method for calculating emissions at the farm level.

Feedback from farmers has highlighted the importance of an approach that balances the data inputs required, avoids duplication of data entry, and recognises the full range of mitigation options available now and in the future.

Method for calculating farm emissions

The pricing system will use a single centralised calculator to enable a transparent, credible, and consistent approach to calculating emissions.

To support a split-gas pricing approach, methane will be calculated by weight of gas, and nitrous oxide and carbon dioxide emissions will be calculated in carbon dioxide equivalents (CO₂e).

The centralised calculator will have two methods – simple and detailed. The two methods allow farmers to make the decision on what information they need to record and input to calculate their emissions.

- The simple method recognises farms for a range of improvements in farm management that result in emissions reductions. It includes four key farm inputs: farm area, annualised stock reconciliation, production, and synthetic N-fertiliser type and amount. Slope class and fertiliser application method could also be

included but are not essential. This option would be easy to complete but less accurate than the detailed method and may overestimate emissions as a result.

- The detailed method captures the emissions reductions options recognised through the simple method and, in addition, it recognises a wider range of mitigations from improved animal genetics, forage types, and farm-specific management and timing of operations. This option would take more time to complete but be more accurate and reflect a greater number of on-farm efficiencies and mitigation practices.

The detailed method in the centralised calculator will take longer than the simple method to develop the regulations and IT to support its implementation. As set out in [Section 2: Getting started in 2025](#), only the simple method will be available for mandatory reporting of 2024/25 emissions and pricing of 2025/26 emissions. The option for the detailed method will be available for 2026/27 emissions onwards.

Data inputs and mitigations recognised

The farm data inputs and mitigations recognised in the simple and detailed methods are shown in the tables below.

Table 4: Farm data inputs for calculation methods

Farm data inputs for calculation methods	Simple	Detailed
Farm area	√	√
Annual stock reconciliation by livestock breed and class (animal numbers and time on farm)	√	√
Milk, meat, wool and velvet production per animal type and class	√	√
Area of farm in different slope classes	√ (Optional)	√
Synthetic N-fertiliser by type	Annual	Monthly
Synthetic N-fertiliser application method (incorporation)	√ (Optional)	√
Monthly or quarterly animal numbers by livestock breed, class, and age		√
Quarterly or key farm operation animal number by body weight		√
Time and animal numbers on off-paddock facilities		√
Date of start and end of grazing of different feed types		√
Imported feed		√
Planned start of mating		√
Weaning/post-weaning percentages		√
Effluent/manure application method		√

Table 5: Mitigations recognised in the calculation methods

	Mitigation	Simple	Detailed
Improve production	Reduce synthetic N-fertiliser use	√	√
	Use urease inhibitor	√	√
	Incorporate synthetic N-fertiliser (cropping)		√
Reduce total feed eaten	Convert pastoral land to arable/horticultural crops	√	√
	Convert land to indigenous or exotic forest	√	√
	Reduce brought-in supplementary feed and synthetic N-fertiliser use	Partial	√
	Cull less productive stock early	√	√
	Adjust stocking policy (numbers, breeds, and/ or class ratios)	Partial	√
	Increase animal performance		√
	Use low protein or methane forages		√
Effluent management	Capture methane from effluent ponds (flaring/biogas/treatment)		√
	Capture methane from manure stores (flaring/biogas)		√
New and future mitigations¹¹	Use low-emissions genetics – sheep	Partial	√
	Use low-emission genetics – cattle	Partial	√
	Use feed additives	Partial	√
	Use methane vaccines	Partial	√
	Apply nitrification inhibitors	Partial	√
	Use polymer-coated and other enhanced fertiliser products	Partial	√

¹¹ The list of new and future mitigations is not definitive, and they will be recognised as they are included in the system.

The above calculation methods have not specifically considered the data inputs and mitigations associated with the deer, dairy goats, pork and poultry sectors or emerging industries such as sheep dairy. Before including these sectors in a farm-level pricing system, government will need to work alongside them to identify appropriate methods for calculating emissions that also enable emissions reductions to be recognised.

Other options considered

The Partnership considered the use of multiple tools or calculators. He Waka Eke Noa reviewed 11 tools that calculate agricultural greenhouse gas emissions, and they produced a wide range of outputs due to the different methods, equations and emissions factors used. Allowing the use of multiple tools has benefits from an end user

perspective (i.e., farmers can continue to use the calculator they are familiar with), however, the credibility risks associated with inconsistent calculation, and challenges with update consistency and transparency outweighed the benefits. There is an opportunity for existing tools to link directly to the centralised calculator.

The Partnership also considered a three-method approach that included a further simplified 'simple option' (using annual average animal numbers by species and annual fertiliser application). This would have created a slight reduction in farmer time required to enter data and administrator time to verify and audit inputs, however, the accuracy of this method is similar to a processor-level calculation, making it less effective at incentivising emission reductions than the recommended simple method.

Data interoperability

Data interoperability - the exchange of data between different systems - is a key design consideration for the development of the centralised calculator. Enabling two-way data integration is essential. This will involve existing (and new) greenhouse gas calculation tools and other farm data sources automatically populating input data within

the calculator, and the calculator providing data outputs back into the tools. This will reduce farm data collation and input costs, allow for emissions reduction scenario analysis, and potentially reduce data verification costs, depending on the data source.

Frequency of reporting

Emissions reporting will be done annually. There will be a farm-specific year-end date to help farms to align reporting with their year-end accounts or production year.

Most farms make changes to their stock numbers and class, synthetic N-fertiliser use, area of crop grown, and supplementary feed on an annual basis. It's easiest for farms if their annual balance date aligns with their emissions reporting date, as a farms' annual accounts contain much of the data needed for calculating emissions.

Sequestration will also be reported annually. Sequestration can be calculated for a five-year period, then annualised to align with reporting timeframes in an emissions report. The annual sequestration calculation also includes areas of vegetation that have been removed (i.e., cleared and not replanted, or removed from the system). Liabilities are associated with the removal of any areas of vegetation that have been used to offset emissions financially through He Waka Eke Noa (see [Section 8: Recognising carbon sequestration on-farm](#)).

Annual emissions and sequestration reporting will include:

- The total annual livestock and synthetic fertiliser emissions from each farm, using either the simple or detailed method, as calculated through the centralised calculator.
- The total annual sequestration from each farm, using the agreed accounting method for each category (see [Section 8: Recognising carbon sequestration on-farm](#)).
- The total annual sequestration liability from each farm where areas of vegetation have been permanently removed (see [Section 8: Recognising carbon sequestration on-farm](#)).

The first year of mandatory emissions reporting will be in 2025, reporting on 2024/25 emissions. The first year of emissions pricing will be in 2026, pricing on 2025/26 emissions.

Further work is required on spreading levy costs to manage the implications of adverse events/unforeseen circumstances.

Audit and verification

Each farm's annual emissions reporting will be subject to audit. The system will use a desktop-based audit and it is envisaged that around 10% of farms will be audited annually at the discretion of the Implementation Agency. The reporting system will include document upload functionality to enable an efficient desktop audit process.

While desktop audit is the primary audit approach, there will still be a need for farm audits, particularly for farms where:

- No supporting evidence has been uploaded.
- Emissions are outside the typical range.
- Inputs or mitigations are challenging to audit remotely.
- Random audits are needed.
- Irregularities are found, or non-payment occurs.

Farm audits will be aligned with other existing or proposed farm audit systems as far as possible (e.g., Industry Assurance Programmes or Freshwater Farm Plan audits). Aligning the emissions audit with other farm audit systems will reduce cost for both the farmer and the administrator.

Further work is required to identify and confirm opportunities for regulatory system alignment (market and government) prior to the implementation of the pricing system, noting that the actual requirements for some systems (Freshwater Farm Plans) are yet to be finalised.

Process for updates to methodologies, and new mitigations

It is important that the pricing system is dynamic and can quickly reflect improvements in farm-level emissions calculations and incorporate scientifically credible mitigation technologies and sequestration opportunities. However, updates should only be made annually as this will provide farmers and growers with certainty, allowing them to plan with confidence for the upcoming season.

It is recommended that a process for updating the centralised calculator methods and the inclusion of new mitigations or sequestration opportunities is established. This process will also be used to identify approved actions (practices and technologies) for incentive discounts.

The process will include:

- proactive identification of updates, new mitigations, and sequestration opportunities
- an independent assessment of updates and new mitigations or sequestration opportunities by the science and implementation panel.

The process will be implemented by the Implementation Agency. The System Oversight Board will consider, and provide recommendations on, advice of the science and implementation panel. The process for changes and additions is further detailed in Technical Appendix 2.

Key recommendations:

- 5.1 Emissions will be calculated using a single centralised calculator (or through existing tools and software that are linked to the centralised calculator).
- 5.2 Methane will be calculated by weight of gas and nitrous oxide and carbon dioxide emissions will be calculated in carbon dioxide equivalents (CO₂e).
- 5.3 The calculator will have two methods – simple and detailed.
- 5.4 Emissions and sequestration will be reported and paid for annually with a flexible year end date that aligns with a farm's annual tax accounts.
- 5.5 Establishment of a process for updates to the centralised calculator including incorporation of new mitigations or sequestration opportunities. The process will include:
 - proactive identification of updates, new mitigations, and sequestration opportunities
 - an independent assessment of updates and new mitigations or sequestration opportunities by the science and implementation panel.
- 5.6 Prior to implementation of the pricing system, further work is required on the emissions reporting methodology for the minor livestock sectors including, deer, dairy goats, pork, poultry, and sheep milking.

Additional technical recommendations:

- 5.7 Two-way data integration will be enabled where possible and practical. Key data integrations (e.g., greenhouse gas calculators and farm data recording systems) will be identified and prioritised and the number of these expanded over time.
- 5.8 Further work is required on spreading levy costs to manage implications of adverse events/unforeseen circumstances.
- 5.9 Audit and verification of emissions and sequestration reporting must align to the extent possible with other farm systems including Industry Assurance Programmes, freshwater farm plans, and existing vegetation programmes (e.g., QEII, or Regional Council programmes). Further work is required to identify and confirm these alignment opportunities prior to implementation of the pricing system.
- 5.10 Best available science on the emissions from beef and dairy cattle, sheep, and synthetic nitrogen fertiliser, should be incorporated into the final reporting methodologies.

Section 6: How are emissions priced?

Levies should be as low as possible to drive emissions reductions, while maintaining a profitable primary sector.

This section sets out key principles and factors to inform the levy rates for methane, long-lived gases, and sequestration.

Levy rates need to be as low as possible while achieving the objectives of the pricing system to reduce emissions, increase integrated sequestration and maintain a viable productive primary sector.

It is recommended that a collaborative governance approach is taken to levy rate and price setting which

involves a System Oversight Board with expertise and representation from the primary sector and Māori agribusiness (see [Section 3: Inclusive system oversight](#)).

Farmers and growers are keen to understand how much the system will cost them, so these recommendations include indicative levy rates or ranges based on the modelling and analysis the Partnership has undertaken.

Factors to consider in setting or updating levy rates

Setting levy rates at appropriate levels will require the balancing of a range of important factors. These factors have underpinned the work of the He Waka Eke Noa Partnership and are reflected in the Partnership's agreed objectives and criteria that have supported its policy work.

The Partners recommend that legislation require the following factors to be balanced in setting and updating levy rates and prices:

- **Trajectory of emissions towards emissions targets:** This factor encompasses whether emissions are reducing towards New Zealand's emissions targets and budgets and supporting global emissions reductions. This factor will include consideration of the levy rate necessary to incentivise practice change while also recognising time is needed for the transition. This may include drawing on practice change observed and the impacts of past levy rates.
- **Availability and cost of mitigations:** This factor includes whether cost-effective mitigations are available, who they are applicable to, when they might be available, the anticipated cost of mitigations in the future, and the time it will take for adoption.
- **Social, cultural, and economic impact on farmers, regional communities, and Māori agribusiness:** This factor is about the impact that the levy rate will have as an additional cost on businesses, and any flow-on impacts for communities and Māori. This includes businesses exiting the primary sector or changing land use to a lower emissions system.
- **Currently available scientific, mātauranga Māori and economic information:** This factor is about setting a credible levy rate that considers all current and available information and will be credible for the duration of that levy rate period.
- **Emissions leakage from production moving offshore and impacts on food security:** This factor specifically considers the impact the levy rate could have on food production and the possibility of some production shifting overseas, resulting in higher global emissions. It also addresses the potential impacts on food security in accordance with Article 2 of the Paris Climate Change Accord.

Price of methane (A)

In addition to the above factors, the following principles have been developed to help guide setting the price of methane (A):

1. The price of methane should be a unique rate, and not be connected to the price for long-lived gases, sequestration, or the NZ ETS carbon price. A unique price reflects the different characteristics of CH₄ as a short-lived gas and recognises that CH₄ reductions do not need to get to zero. The price can be tailored to specific CH₄ reductions required and the available technologies.
2. The price of methane should be the same price per kg regardless of source and not be related to emissions per hectare or emissions per unit of product.
3. The price of methane should be as low as possible to support practice change and emission reductions towards New Zealand's emissions targets and budgets while also supporting global emissions reductions. This includes the cost of incentive discounts for approved actions relating to methane, research and development related to methane, and a contribution to administration costs.

A key concern from farmers during consultation was uncertainty about the price of methane and the potential impact on farm profitability. New Zealand will be the first country to introduce a pricing framework for biological emissions. This adds uncertainty to how a pricing system will play out over time, and concerns for unintended consequences. This is a case for starting with a price on methane that is set at a level that balances this risk with the need to get started.

Farmer feedback during the consultation provided a proposal to price methane differently based on different price bands related to the level of emissions per hectare for most sheep, beef, deer, and organic/system 1 dairy farms, and based on emissions per kg of product for some finishing farms and feedlots and most dairy farms. The proposal would have similar implications to the land-based and output-based rebates outlined further below.

The proposal was seeking to address several issues – a desire to recognise that some farms have not contributed to increased warming over the last 15 or so years; that the same price on all methane per kg means some farming systems pay more than others relative to their Economic Farm Surplus (EFS)¹²; and that there are limited mitigations options available to some farm systems to reduce their levy cost.

The Partners are recommending that the same rate should be applied to every kg of methane and not priced relative to EFS, emissions per hectare, or emissions per kg of product. While a minority of Partners supported either a land-based or output-based rebate, there was not a consensus amongst the Partnership to progress these further. There were concerns related to implementation complexities and the risk of shifting the cost burden to a subset of farms depending on the approach adopted.

A graduated pricing system would also not be economically efficient because, if pricing is different between sources, each would have a different incentive to reduce emissions. Some farms have lower cost options to reduce than others and under a graduated pricing system may not be incentivised to take those up. The Partners' recommendations seek to address concerns that there are limited actions available to avoid the impact of a levy cost by recognising a range of vegetation categories that can be used to offset the financial liability, and through rewarding additional actions that reduce emissions through the incentive discounts. The case studies in [Section 10: Impacts and insights](#), highlight the impact of emissions pricing, payments for eligible sequestration, and incentive discounts on a range of farming systems.

The Partnership recognises there are specific farming systems and farm locations that do not have options to reduce their levy cost through sequestration (due to national and local body restrictions) or approved actions to reduce emissions. An option for levy relief is recommended in [Section 7: Incentives for actions \(practices and technologies\) to reduce emissions](#).

The Partners are not recommending that the prices used in the modelling to estimate potential emission reductions at a given price determine the actual levy rates or prices used within the farm-level levy. Rather, the System Oversight Board will recommend the levy rates in line with the agreed factors outlined in ['Factors to consider in setting or updating levy rates'](#).

To provide farmers and growers with greater certainty on pricing the Partners are recommending that a maximum price for methane is no greater than \$0.11/kg for the first three years of pricing (till 2028). This is discussed in more detail under 'Price Ceilings' below.

¹² Economic Farm Surplus (EFS) is earnings before interest, tax and rent – it includes wages, management wage and also depreciation.

Prices have yet to be set but current scenario modelling projects that a methane price of around \$0.11/kg in 2025 that rises to around \$0.17/kg to \$0.35/kg by 2030, would result in methane emission reductions in agriculture of at least 4%. This includes the use of incentive discounts to farmers and growers for approved actions and assumptions that some key mitigations technologies are available and are being adopted before 2030.

This reduction and the methane emission reductions that will occur as business as usual and via the waste sector

would achieve methane emission reductions in line with the legislated target of a 10% reduction in methane from 2017 level by 2030.

The modelling does not incorporate all of the important factors to consider in setting or updating levy rates and so is not intended to be determinative on the actual levy rates that will be needed to meet system objectives. The modelling approach and impacts of these levy rates are discussed in [Section 10: Impacts and insights](#).

Price of long-lived gases (B)

The Partnership carefully considered the key principles and factors that should help inform setting the levy rates for long-lived gas emissions.

There are two main options:

1. Linking the price of long-lived gases to the NZ ETS carbon price and discounting.
2. Setting a unique price of long-lived gases.

Option 1: Price of long-lived gases are linked to the NZ ETS carbon price but discounted

Agricultural long-lived gas emissions (nitrous oxide from livestock and synthetic fertiliser and carbon dioxide from urea) are included in New Zealand's legislated emission reduction target of net zero long-lived gas emissions by 2050. This means there is no specific target for the individual long-lived gases i.e., no expectation that agricultural long-lived gases would be net zero by 2050. Instead, the target is set at an economy-wide level to assist with achieving emission reduction targets at least cost.

Aligning the price of long-lived gas emissions to the NZ ETS treats long-lived gas emissions consistently with the NZ ETS carbon price in the broader economy, and better enables offsetting to achieve a net zero target for long-lived gas emissions.

However, it is important the long-lived gas price is discounted and phased in over time to manage economic and social impacts of the levy cost on farmers and rural communities and avoid emissions and production moving offshore. This is consistent with the approach taken in the NZ ETS where Emissions Intensive and Trade Exposed Industries (EITE) receive some free allocation of New Zealand Units (NZUs) to reduce the risk of emissions leakage.

This discount could start at 95% of the NZ ETS carbon price and be phased out consistent with settings that would have accompanied the NZ ETS backstop. The resulting starting price would be around \$4.25/tonne CO₂e in 2025.

Two key concerns that Partners have raised with this option are:

- In linking the price for long-lived gas emissions in a farm-level levy system to the NZ ETS carbon price, the trajectory would be driven by the rate at which other sectors in the economy reduce their long-lived gas emissions. There is a risk that the price determined by demand for NZUs from other sectors in the economy, as well as carbon speculators, could drive the NZ ETS carbon price higher than anticipated or required to drive the necessary change for nitrous oxide emissions.
- If the NZ ETS carbon price rose faster than forecast, the primary sector might need to argue for static or larger discounts to manage economic and social impacts of the levy cost on farmers and rural communities and avoid emissions and production moving offshore.

Option 2: Unique price of long-lived gases

This would involve setting a unique price for agricultural long-lived gases to achieve specific objectives for those agricultural long-lived gas emission reductions.

There is currently no separate target or strategy for agricultural long-lived gas emissions but the initial unique price could be set to cover incentive discounts to reduce nitrous oxide emissions, research and development related to nitrous oxide, the cost of recognising sequestration within the system, and a contribution toward administration costs.

This option is based on an assumption that current and future eligible sequestration under He Waka Eke Noa, plus uptake of available technologies to reduce nitrous oxide, represents a credible plan for primary sector long-lived gas emissions till 2028.

Two key principles relating to sequestration have been established to guide this approach:

- Revenue from pricing agricultural long-lived gases pays for He Waka Eke Noa eligible sequestration at the sector level. Note, this does not constrain the amount received for He Waka Eke Noa eligible sequestration being greater than the cost of long-lived gases at the farm level.
- All sequestration should over time ideally be recognised in the NZ ETS rather than in He Waka Eke Noa. Note, this reflects Recommendation 8.5, that the NZ ETS be improved and updated to allow more vegetation categories to be included and the registration and reporting processes to be simplified.

Sector Partners acknowledged that a primary sector strategy would be needed to determine a pathway for agricultural long-lived gas emissions in the longer term. The strategy would need to consider the options and costs to reduce long-lived gas emissions, how He Waka Eke Noa eligible sequestration would be counted in the context of a primary sector net target for long-lived gases, and progress on expanding and improving the NZ ETS.¹³ Once a strategy is in place, the intent is that the price for long-lived gas emissions will be set based on the cost of reductions and offsetting required to achieve any sector strategy to reduce long-lived gas emissions.

Sector Partners carefully considered the risks associated with this option. The key risk is that not linking the price for long-lived gases to the NZ ETS carbon price is not considered credible by government and those outside the primary sector.

Ultimately Sector Partners felt that this option was more aligned with the principle of pricing emissions only to the extent needed to drive the practice change wanted, rather than risk charging more than needed to achieve system objectives.

There was recognition that the absence of data and analysis on the nitrous oxide mitigation cost curve meant it was difficult to establish whether this approach would ultimately lead to a price on agricultural long-lived gas emissions that was lower or higher than a price that was derived from referencing the NZ ETS carbon price. It was agreed this work be taken forward as part of any primary sector strategy on reducing nitrous oxide emissions and the pricing method and price for agricultural long-lived gases would transition based on this work. To provide focus for this important work this strategy should be completed by 2028.

Modelling suggests that indicative prices to cover the cost of incentive discounts to reduce nitrous oxide emissions, research and development related to nitrous oxide, the cost of recognising sequestration within the system, and a contribution toward administration costs, start at around \$4.25/t in 2025 and rise to around \$13.80/t in 2030. Note, these indicative prices are comparable with the price settings that would have accompanied the NZ ETS backstop.

The recommendations are that:

- The price of agricultural long-lived gas emissions will initially be set at the level required to:
 - Fund the total amount of sequestration recognised in the system
 - Fund incentive discounts for approved actions for nitrous oxide reduction
 - Fund research and development for nitrous oxide reduction
 - Cover a share of administration costs.
- In 2028, the intent of the Partnership is that the price for long-lived gas emissions will be set based on the cost of reductions and offsetting required to achieve any sector strategy on reducing long-lived gas emissions.

¹³ If all current estimated eligible vegetation was entered into the He Waka Eke Noa system, the estimated amount of sequestration available to offset agricultural long-lived gas emissions would be around 1.7 million tonnes CO₂e. This represents around 21% of agriculture's long-lived gases. But even assuming 100% of He Waka Eke Noa sequestration was able to be counted toward domestic or international emission reduction targets, and 100% of this eligible vegetation was registered in the system, an additional 990,028 ha of indigenous planting would be required to completely offset agricultural long-lived gas emission via He Waka Eke Noa eligible sequestration in 2050.

Price of sequestration (C)

The following principles and considerations have been developed to help guide setting the price of He Waka Eke Noa sequestration:

1. The value of He Waka Eke Noa sequestration should be set at a price that balances the recognition of genuine sequestration while maintaining the financial viability of the system.
2. All He Waka Eke Noa eligible sequestration is genuine sequestration. However, not all of the sequestration proposed to be recognised by He Waka Eke Noa is considered within the New Zealand Greenhouse Gas Inventory or able to be counted towards international targets. Ongoing technology developments may make it possible to robustly estimate emissions from these areas and ultimately count it toward targets in the future.
3. Integrated sequestration in farming systems, particularly that from indigenous vegetation, has broad co-benefits. The lower the reward for He Waka Eke Noa sequestration relative to the NZ ETS carbon price, the greater the incentive for farmers to plant exotics over indigenous and enter this in the NZ ETS.
4. Rewarding sequestration better reflects a farm's 'net position' and provides options to offset the financial liability of the levy cost for some farm systems where there are currently limited mitigation opportunities.
5. The accounting, measurement and verification of sequestration associated with He Waka Eke Noa sequestration proposals have balanced administrative cost and complexity with accuracy.

There can be significant costs related to sequestration (e.g., planting, stock exclusion, pest and weed management etc), and registering sequestration in the He Waka Eke Noa system will come with a significant land-use change that has a cost in terms of future options for that land. Partnership analysis indicates there is a very wide range of costs related to planting, fencing, pest and weed control, and where the costs sit in these ranges for the different vegetation categories depend on whether stock exclusion/fencing and/or new or additional planting is required.

Many farmers are already planting in the absence of any recognition or support but planting and maintenance related costs will be a barrier for many landowners. Lowering these costs (i.e., by increasing the financial benefit), to landowners will incentivise this activity in line with system objectives.

Partnership modelling indicates that the price of sequestration would need to be around \$70t CO₂e before farmers establish new indigenous vegetation or register existing post-2007 indigenous vegetation. The price would need to be around \$170t CO₂e to cover the assumed costs of fencing and weed and pest control for pre-2008 vegetation (assuming a sequestration rate of 1.83t/ha). In practice, there will be some pre-2008 vegetation that is incentivised to enter into the system at rates below \$170t CO₂e and some post-2007 will not be incentivised to enter at \$70t CO₂e, because of higher costs than assumed in modelling.

An implication of rewarding sequestration within the farm-level levy is that it generally benefits those farming systems where a levy cost with a uniform price on methane per kg is a larger proportion of their EFS and where there are fewer mitigation technologies available. The greater the price of sequestration, the greater the benefit to those farming systems.

The Partnership has considered two main options for setting the price for sequestration:

1. Linking the price of sequestration to the NZ ETS carbon price and discounting as needed to meet the principle that the value of He Waka Eke Noa sequestration should be set at a price that balances the recognition of genuine sequestration while maintaining the financial viability of the system.
2. Not linking the price of sequestration to the NZ ETS carbon price and determining a unique price for sequestration that balances the recognition of sequestration while maintaining the financial viability of the system.

The key benefit of linking the price of sequestration to the NZ ETS carbon price (and discounting as needed) is that it provides a clear and explainable starting point for this balancing process and values He Waka Eke Noa eligible sequestration in line with the value of NZ ETS-eligible sequestration. The NZ ETS carbon price is the only known value of sequestration in the rest of the economy.

The key concern with this approach is that it potentially creates pricing and revenue risks for the system, particularly post-2030 assuming the methane target is met and assuming the NZ ETS carbon price continues to increase to support the 2050 net zero target. The concern is that a sequestration link to the NZ ETS carbon price in this situation may keep the price of long-lived gases higher than necessary in order to fund a high price for sequestration.

Furthermore, in developing the recommendations for He Waka Eke Noa eligible sequestration there have been trade-offs made between administrative cost and complexity associated with measuring and accounting for sequestration and accuracy. There are several reasons He Waka Eke Noa eligible sequestration could be considered lower value than sequestration eligible for NZUs in the NZ ETS. These reasons include:

- Not all the sequestration proposed to be recognised by He Waka Eke Noa is considered within the New Zealand Greenhouse Gas Inventory or able to be counted towards international targets. It is estimated that around 25% of He Waka Eke Noa eligible sequestration would currently count toward international targets.
- There will be uncertainty and limited research on sequestration rates for some categories of eligible sequestration. Sequestration rates will need to be determined by experts in sequestration to ensure they are scientifically credible, and that they can be applied in a workable way. There is likely to be additional research required to improve the accuracy of information informing sequestration rates.
- The burden of proof for confirming if land was not in vegetation in 1990 is less than for the NZ ETS
- In the NZ ETS, any forests above 100ha involve a detailed measurement approach, whereas He Waka Eke Noa is proposing a look-up table approach for all sequestration.

The key benefit of not linking the price of sequestration to the NZ ETS carbon price and determining a unique price for sequestration is that it removes the pricing and revenue risks created by the link to the NZ ETS.

However, genuine recognition of sequestration on farms was a founding principle of He Waka Eke Noa, and in the absence of a link to the NZ ETS there is no clear and explainable starting point for pricing. To determine the starting price it would require judgements on the payment needed to appropriately recognise genuine sequestration. There will always need to be a consideration of the NZ ETS carbon price as the relative incentives between the systems

matter, particularly if an objective is to support farmers to choose indigenous over exotic planting.

Regardless of the logic for the starting point for the price of sequestration, it will be necessary to continue to balance on an ongoing basis the objectives and tensions set out above.

Either approach will need to be supported by a process that involves consideration of a range of factors (e.g., contribution to targets; how much sequestration is being registered in the system; revenue needs and affordability considerations; success in reducing emissions; viability of the primary sector; discount rate on long-lived gas emissions; and relativity with any incentive discounts), and that ultimately the need to balance the high-level objectives will be a critical ongoing aspect of the system. This will be an important component of the price setting and updating process in which the System Oversight Board will have an important role.

The recommendation is that:

- The initial price for sequestration be linked to the NZ ETS carbon price but be discounted to reflect that only some He Waka Eke Noa sequestration counts towards national targets and requires a lower burden of proof than the NZ ETS. An indicative range for the price of sequestration could be around 75–90% of the NZ ETS carbon price i.e., a discount of around 10-25% could be applied to the NZ ETS carbon price to determine the price of sequestration.
- In 2028, there will be a review of sequestration and its pricing method, in conjunction with the development of the sector strategy for reducing long-lived gas emissions, the review of long-lived gas emissions pricing method (see Recommendation 6.5), and progress on expanding and improving the NZ ETS (see Recommendation 8.5).

Review of price settings

To ensure the system is meeting system objectives as intended, Partners recommend that in 2028 there is a review of the He Waka Eke Noa system by the System Oversight Board. This will include a review of the principles for setting the prices of long-lived gases and sequestration and take in to account any sector strategy for reducing

long-lived gas emissions and the contribution to the economy-wide net zero 2050 target. This review will also consider the progress on expanding and improving the NZ ETS and include a review of the effectiveness of the incentive discount approach.

Price ceiling

There is significant uncertainty about the future effects of emissions pricing, including the emissions reductions that will be achieved and the impacts on farm profits. This uncertainty stems from factors that include the simplifying assumptions used in the models, uncertainty over other factors affecting farm finances (costs of inputs, interest rates, commodity prices), and the uncertainty over the costs, availability, and effectiveness of mitigation technologies.

Given this uncertainty, it is recommended that, in addition to the factors for setting levy rates and the role of the System Oversight Board, that a price ceiling be introduced and that this ceiling be at a level where the levy rate for each gas is no more than if agriculture entered the NZ ETS with legislated 95% free allocation in 2025 phasing down by 1 percentage point per annum and the maximum price for methane is no greater than \$0.11/kg for the first three years of pricing (till 2028).

The Partnership has carefully weighed up the pros and cons of incorporating a price ceiling into the system to provide farmers and growers with greater certainty on future price levels and to increase farmer buy-in to an emissions pricing system.

The critical trade-off in setting a price ceiling is providing greater certainty for farmers and growers that prices will not exceed a certain level, versus potentially constraining the ability of the system to achieve the emissions reduction objective.

A price ceiling would remove one of the benefits of a levy system, that it can be dialled up to achieve system objectives or to take account of new information, such as the wider international adoption of agricultural emissions pricing.

A price ceiling (and a price floor) has been used in the NZ ETS, but this is in the context of market price uncertainty and in the form of a “soft ceiling” in which additional NZUs are sold by auction when a trigger price is exceeded; this reduces the probability of price spikes but does not prevent them.

Primary sector Partners see a number of benefits to a greater level of price certainty provided by a price ceiling:

- Building trust at this point in the process.
- Providing Partners with reassurance that they are not signing up to a system that would cost more than the NZ ETS.
- Avoiding price hikes in the system as farmers come to terms with reporting, auditing, incentive discounts etc. Price hikes could erode goodwill in the system and increase non-compliance and auditing costs.
- Without a price ceiling there is more pressure on the appropriateness of the ‘factors’ to consider in price setting, and on the governance and decision-making infrastructure and process that will support price setting.

Partnership modelling indicates credible emissions reductions, in line with the legislated targets, could be achieved with prices that are consistent with future expected average costs faced by emissions-intensive trade-exposed NZ ETS participants i.e., projected NZ ETS carbon prices combined with the current understandings of the phase-out of free allocation.

On this basis, Partners think that a price ceiling that is based on the future NZ ETS carbon price is unlikely to constrain the system from meeting objectives and that the benefits of this approach outweigh any risks, particularly as the system is established and trust is built with farmers and growers.

Frequency of levy rate updates

In setting and updating levy rates there is a balancing act between two important factors – a need to provide as much certainty as possible to support longer term investment planning, and a need to provide for flexibility and agility in the context of uncertainty about the real-world impact of proposed prices and settings.

As noted above, a key principle is that the levy rates for short- and long-lived gas emissions, the price for sequestration and the value of incentive discounts are critical levers in balancing the objectives the system is seeking to secure.

Partnership analysis has therefore focussed on settings that provide as much certainty as possible to support longer term investment planning; have the ability to adjust key levers to meet system objectives i.e., ensure the system is responsive to new information and data when available; and minimise administration costs.

It is recommended that the price for sequestration will be initially updated annually to maintain alignment with the NZ ETS carbon price. The levy rate for short- and long-lived gas emissions, discount on the price for sequestration, and the value of incentive discounts for approved actions will be reviewed/updated every three years.

It was felt that a five-year period that could align with emissions budgets would not support the system to meet objectives e.g., if the prices are set in 2025 for 5 years and this is not sufficient (e.g., to meet targets), then the system may not meet one of its key objectives.

An annual period would not support price stability and certainty and updated data on the impact of price settings and updates would unlikely be available within a year.

Other options considered

A rebate option could maintain the incentive to reduce emissions while protecting farms from the full cost of emissions. It does this by providing a financial assistance payment/rebate to farms that is netted off against the costs faced under a farm-level split-gas levy.

Two main rebate options were considered for the farm-level system: Land-based efficiency (emissions per hectare measured against similar land classes); and output-based efficiency (emissions efficiency per unit of product). There was not a consensus amongst the Partnership to progress these further. There were concerns related to implementation complexities and the risk of shifting the cost burden to a subset of farms depending on the approach adopted.

A minority of partners support the output-based rebate as a potential option as it could be an effective means of delivering an incentive for uptake of a full range of emissions mitigations while minimising impacts on profitability and production. A minority of partners support the land-based rebate as it recognises more extensive farming systems that are operating within the carrying capacity of the land and therefore have fewer options to further reduce their emissions. Further detail on output and land-based rebates is available on the He Waka Eke Noa website.

Key recommendations:

- 6.1 Separate levy rates are set for short- (CH_4) and long-lived gas emissions (N_2O and CO_2) and a separate price for sequestration.
- 6.2 The following factors must be balanced in setting levy rates:
 - Trajectory of emissions reductions towards emissions targets
 - Availability and cost of (current and future) on-farm mitigations
 - Social, cultural, and economic impacts on farmers, regional communities, and Māori agribusiness
 - Best available scientific, mātauranga Māori and economic information
 - Emissions leakage from production moving offshore, and impact on food security.
- 6.3 A unique levy rate is set for CH_4 . A unique rate reflects the different characteristics of CH_4 as a short-lived gas and recognises that CH_4 reductions do not need to get to zero under the Climate Change Response Act 2002. The rate will be tailored to specific CH_4 reductions required and the available technologies.
- 6.4 The levy rate for long-lived gas emissions will initially be set at the level required to:
 - Fund the total amount of sequestration recognised in the system
 - Fund incentive discounts for approved actions for nitrous oxide reduction
 - Fund research and development for nitrous oxide reduction
 - Cover a share of administration costs.
- 6.5 In 2028, the intent of the Partnership is that the price for long-lived gas emissions will be set based on the cost of reductions and offsetting required to achieve any sector strategy on reducing long-lived gas emissions.
- 6.6 The initial price for sequestration will be linked to the NZ ETS carbon price but be discounted to reflect that only some He Waka Eke Noa sequestration counts towards national targets and requires a lower burden of proof than the NZ ETS. An indicative range for the price of sequestration could be around 75–90% of the NZ ETS carbon price.
- 6.7 In 2028, there will be a review of sequestration and its pricing method, in conjunction with the development of the sector strategy for reducing long-lived gas emissions, the review of long-lived gas emissions pricing method (see Recommendation 6.5), and progress on expanding and improving the NZ ETS (see Recommendation 8.5).
- 6.8 In 2028, there will be a review of the He Waka Eke Noa system by the System Oversight Board to test the effectiveness of the system in meeting system objectives. This will include a review of the principles for setting the prices of long-lived gases and sequestration and take in to account any sector strategy for reducing long-lived gas emissions and the contribution to the economy-wide net zero 2050 target. This review will also consider the progress on expanding and improving the NZ ETS and include a review of the effectiveness of the incentive discount approach.
- 6.9 Establishment of a price ceiling where the levy rate for each gas is no more than if agriculture entered the NZ ETS with 95% free allocation phasing down by 1 percentage point per annum and the maximum price for methane is no greater than \$0.11/kg for the first three years of pricing (till 2028).
- 6.10 The price for sequestration will be initially updated annually to maintain alignment with the NZ ETS carbon price.
- 6.11 The levy rate for short- and long-lived gas emissions, discount on the price for sequestration, and the value of incentive discounts for approved actions will be reviewed/updated every three years.

Additional technical recommendations:

- 6.12 Further work be undertaken by government on other price constraints to provide greater certainty around future levy costs.

Section 7: Incentives for actions (practices and technologies) to reduce emissions

Farmers will receive an incentive discount for approved actions (eligible practices and technologies) that deliver measurable emissions reductions.

For the farm-level system to deliver credible emissions reductions, while keeping methane and long-lived gas levy rates as low as possible, there needs to be a mechanism that creates a clear financial incentive for farmers and growers to take up actions (practices and technologies) to reduce emissions. The farm-level system encourages emissions reductions through the reporting and pricing of emissions at farm-level and incentives for the uptake of actions to reduce emissions.

Feedback from the consultation process and Partnership modelling highlighted that financial incentives would encourage farms to innovate and embrace technology or practice changes. However, some farmers and growers

were concerned that a greater range of incentives than is currently proposed would be required to achieve the desired emissions reductions and some had limited confidence that the technologies will become available to farmers in the coming years. Others were concerned that the cost of the levy would threaten the viability of their farm business as they had limited options to reduce the levy cost.

The incentive mechanism needs to create an initial incentive that, is related to the cost of implementing that action. Over time, as an action becomes commonplace, the incentive may reduce, be phased out or removed.

Examples of how an incentive discount works

Trials indicate the use of a feed additive fed twice a day in the dairy shed could provide a 12% reduction in methane emissions. For a 375-cow North Island system 3 dairy herd this represents a \$580 saving on the cost faced at a methane price of \$0.11/kg. The saving would not likely be sufficient to cover the cost of the feed additive. By lowering the overall levy paid, the incentive discount would effectively reduce the cost per head and help increase the uptake of this mitigation.

A sheep-breeding farm may choose to select/purchase low methane genetics rams to reduce their emissions; over three breeding generations this could achieve between a 5% and 10% methane reduction depending on the breeding strategy and the other genetic traits being selected for. For a 525-hectare North Island Hill Country farm with 50% sheep by livestock units, there would negligible initial savings, and from year three an estimated baseline of ~0.6% year on year saving, or \$18 per annum based on a \$0.11/kg methane price.

The short-term savings would likely be insufficient to encourage farmer uptake unless an incentive was applied that reflected the emissions reduction that could be achieved over 10 to 20 years. For the widespread adoption of low-methane sheep genetics the market failure for ram breeders would also need to be overcome (the investment by ram breeders is unlikely to be recovered through increased ram prices); a direct incentive to ram breeders could be provided to overcome this.

Using urea coated with a urease inhibitor reduces nitrous oxide emissions by just over 4% per tonne of nitrogen fertiliser applied. On a farm that applies 16 tonnes of nitrogen via urea annually this represents a \$14 saving on the cost faced based on a nitrous oxide price of \$4/T CO₂e. These savings may not be sufficient to incentivise increased uptake of coated urea given the current \$23 per tonne of nitrogen applied price differential between urea and coated urea products; other factors such as production and nitrogen leaching benefits would also be considered.



The incentive received would be netted off against the total levy cost but could not exceed it i.e., the system would not pay out an incentive that exceeds the levy cost.

As more farmers use mitigations that reduce their methane, everyone in the system benefits. The total amount of methane should reduce, and the sector will move closer to the targets set in legislation. As the sector gets closer to the targets, the levy rate for methane will reduce for all farmers who emit methane.

It is important that the incentive discounts are kept as low as needed to drive uptake so that levy rates are not any higher than necessary to achieve the system objectives for emissions reductions. It is also important that the incentive mechanism does not create any perverse incentives to increase emissions. The design principles below, alongside regular review of the incentive mechanism, seek to address these points.

The Partnership recognises that there are specific farming systems and farm locations that do not have options to reduce their levy cost through sequestration (due to council prohibitions, climate, or soil type) or approved actions to reduce emissions. Emissions pricing could severely impact the financial viability of those businesses. It is important there is a pathway for these farms to be assessed and appropriate relief provided, until such time as effective mitigations are available.

The Partnership is committed to undertaking further work to develop and refine the detail around the incentive mechanism. The following sections set out the recommended high-level approach and key principles, alongside the alternatives considered.

Design principles

The principles to inform the design of the incentive mechanism are:

- Clear and transparent, so it can be easily understood.
 - Simple and practical for end-users and the administrator.
 - The incentive is necessary to overcome barriers to adoption including access to finance, technology, knowledge, or skills.
 - Whether there are commercial drivers that are already providing the incentive.
 - Supports collaboration between the sector and the Implementation Agency to align incentives to market opportunities.
 - The discount received would be related to the cost of implementing the action, but it would also consider the emissions reductions being achieved and other financial benefits that accrue to the farmer from the application of that technology.
- The level of incentives takes into account the overall financial viability of the system and implications for the levy rates.
 - Aligns data input and verification with the farm-level reporting processes.
 - Provides confidence that the incentive will result in emissions reductions at the farm and wider sector level.
 - Avoids the use of baselines or benchmarks due to concerns around grandfathering, risk of gaming and potential impacts upon early adopters.
 - Does not provide direct incentives for land-use change to exotic forestry.
 - Does not solely provide incentives for meeting other regulatory requirements.
 - Avoids manufacturers and suppliers of new technologies profiteering from incentives.
 - Considers equity across farming systems and industries.

Preferred approach

It is recommended that farms receive an incentive discount for undertaking actions (practices or technologies) from an approved list.

The approved list would be derived through the process for updates that would set the methodology to be used (see [Section 5: How are emissions calculated?](#)).

The discount received will be related to the cost of implementing the action, but it will also consider the emissions reductions being achieved. This will ensure that the system balances the cost-benefit of the incentive discount; not over-rewarding actions that have a low implementation cost or minimal impact on emissions reductions. All actions that can be rewarded under this system must have a clear and quantifiable link with emissions reductions.

The value for the discount will be set with input from the System Oversight Board (see [Section 3: Inclusive system oversight](#)).

When setting the value of the incentive it will be important to avoid suppliers of new mitigation technologies profiteering from the incentive discount. Methods to avoid this include international cost benchmarking and justification of New Zealand market price settings prior to the application of the incentive.

The incentive mechanism will be integrated within the centralised calculator. This is a more cost-effective process to administer than a separate contract system and will allow the emissions reduction calculation to be based on the relevant farm specific data for that action. The incentive

discount and the action to which it relates need to be clearly visible on the invoice for this to incentivise practice change.

For new actions or technologies (those not available prior to the first year of reporting), all emissions reductions will be additional. For existing actions, such as coated urea and the use of low protein or methane forage crops, all existing and additional emissions reductions will be rewarded. This avoids the additional complexities associated with setting a historic baseline and recognises early adopters.

The application of a baseline year, from which farm total emissions must have reduced to be eligible for an incentive, was also considered. This would manage the risk of a farm receiving an incentive for a specific action but increasing total on-farm emissions. When the likelihood of this occurring was assessed against the challenges associated with setting a baseline, the cyclical nature of many farm systems, increased system complexity, and the potential for gaming; it was decided the risk was better managed through careful monitoring and future updates to the incentive mechanism.

The Partners recommend that there is regular monitoring of the effectiveness of the incentive discount approach, and it is reviewed by the System Oversight Board in 2028 alongside other He Waka Eke Noa price settings. Reviews should consider effectiveness of approach in meeting system objectives and design principles.

The following table sets out example 'approved actions (practices and technologies)' and the likely data required for calculation.

Table 6: Approved actions (practices and technologies)

Approved actions	Data required for calculation
Coated urea	the previous use of N-fertilisers (type and amount)
Incorporation of N-fertiliser	the previous use of N-fertilisers (type and amount)
Low protein or methane forages	the area and percentage cover across the farm, or the proportion of the farm area and yield for a specific block
Effluent methane capture	the amount of effluent generated and the existing treatment system in relation to the type of mitigation technology used
Low emissions animal genetics	the number of stock to which it impacts, stocking policy, and adoption strategy (replacements or terminal)
Feed additives	the number of stock to which it is fed, and level of intake in relation to the effects of the additive
Vaccines	the stock class and number of stock vaccinated

Further work is required around the range of actions to which an incentive could be applied. There is potential to explore incentives relating to calculations (metrics) such as 'purchased N-surplus' or 'total feed eaten', but these would likely require a baseline to be set.

The actions approach was seen as the most practical, credible, and equitable way to create an enhanced incentive to reduce emissions. However, the effectiveness of this approach is initially limited due to the narrow range of actions that have a quantifiable link between the action and associated emissions reductions.

However, modelling illustrates the actions approach can achieve emissions reductions in line with emissions reduction targets in 2030. This relies on mitigation technologies including a methane inhibitor (feed additive) being available from 2025 and the adoption of low-methane sheep genetics starting at a 2% adoption rate in 2025. The effectiveness of the actions approach is expected to increase significantly after 2030 as new greenhouse-gas specific mitigations are anticipated to come on-stream.

If the identification and commercialisation of new technologies is delayed, work will need to be undertaken to consider how incentive discounts can be applied to a broader set of management actions to reduce emissions. This is essential to ensure the farm-level system can achieve credible emissions reductions prior to 2030.

Partner organisations have worked with MPI within the Fit for a Better World initiative, to develop a research and development plan for science and mātauranga to reduce biological emissions from agriculture (the R&D plan) to accelerate our progress in this area. There is a very real opportunity to drive the innovation pipeline faster with more infrastructure, capability and enhanced regulatory systems (see [Section 9: How will the revenue from the system be used?](#)). The R&D plan will be published in mid-2022.

It is critical that farmers can be confident that any actions they take to reduce emissions now are not disadvantaged in the detailed design of the incentive mechanism. Perverse outcomes, such as farms increasing emissions prior to emissions pricing starting in 2025 so they can gain incentive discounts, must be avoided.

Additional support

The Partnership recognises there are specific farming systems and farm locations that do not have options to reduce their levy cost through sequestration (due to national and local body regulations) or approved actions to reduce emissions. Partners are committed to supporting investment in mitigation technologies where there are currently limited or no effective mitigations. As a transition measure finishing in 2030, they recommend levy relief is provided on a case-by-case basis, with strict eligibility criteria that includes:

- access to sequestration (both NZ ETS and He Waka Eke Noa) is severely restricted by national and local body regulation **and**
- no access to effective mitigation technologies **and**
- where emissions pricing has had a severe impact on financial viability.

This will be regularly reviewed as mitigations are developed. The levy relief mechanism will be formally reviewed in 2028. This review will consider the need for a future levy relief mechanism.

Other options considered

Other approaches considered included a benchmark (whole farm emissions calculation) and an on-farm activities approach.

Under a benchmark approach applicants would receive an incentive for farm emissions reductions based on a whole farm emissions calculation that is related to a benchmark (total emissions reductions). The benchmark could be the first year of reporting, or for rotational systems a multi-year benchmark would also need to be provided for. The incentive received would be related to the total emissions reductions made.

This would create a strong incentive to reduce emissions using the full suite of mitigations available and is likely to be the most effective at reducing emissions. However, it would generally advantage those farmers who have a higher emissions benchmark as they would have greater opportunities to reduce emissions. It would disadvantage low emitters and could have a disproportionate effect on Māori landowners/collectives, particularly where they do not operate intensively due to insufficient resources or have been precluded from exercising their decision-making functions as a result of historic arrangements.

There is also a trade-off between practicality (simplicity of using the first year of reporting as the benchmark versus additional costs of calculating the benchmark based on a historic date) and credibility (the risk of gaming – increasing emissions for the first year of reporting).

Under an approved on-farm activities approach, applicants receive an incentive for undertaking activities from an approved list. The activities would be tailored to each primary sector but would not be limited to actions that have a clear and quantifiable link with emissions reductions as required by the approved actions approach. It could include a variety of good management practices that are likely to reduce emissions, but those reductions are unable to be quantified or verified.

Farm plans could be used as a mechanism for applying the approved list to each farm and for providing an

implementation timeline for activities that are long term in nature.

The incentive received could be a set percentage or fixed price and related to the number of activities being undertaken rather than the emissions reductions being achieved.

While this would be effective from a farmer practice change point of view and could integrate well with Farm Planning milestones and wider Farm Planning initiatives, the effectiveness of the approach to reduce emissions is limited as it isn't clear if the approach will lead to actual emissions reductions.

There are some elements of this approach that can be reflected in the final design of any incentive mechanism, particularly in the early years of the pricing system.

Key recommendations:

- 7.1 Farmers will receive an incentive discount for undertaking approved actions (specific practices or technologies) that reduce emissions.
- 7.2 The approved actions will be incorporated through the process for updates to the centralised calculator (see Recommendation 5.5).
- 7.3 The incentive discount will be related to the cost of implementing the approved action and the emissions reductions associated with it.
- 7.4 The incentive discount will be netted off against the levy cost.
- 7.5 The incentive discount approach will be monitored regularly, and reviewed by the System Oversight Board in 2028 alongside other He Waka Eke Noa price settings. Reviews should consider effectiveness of approach in meeting system objectives and design principles.
- 7.6 Partners commit to providing levy relief on a case-by-case basis, as a transition measure finishing in 2030, with strict eligibility criteria that includes:
 - access to sequestration (both NZ ETS and He Waka Eke Noa) is severely restricted by national and local body regulation and
 - no access to effective mitigation technologies and
 - where emissions pricing has had a severe impact on financial viability.

This will be regularly reviewed as mitigations are developed. The levy relief mechanism will be formally reviewed in 2028. This review will consider the need for a future levy relief mechanism.

Additional technical recommendations:

- 7.7 The design principles for the development of the incentive mechanism should be adopted by government to inform any future work around the incentive mechanism.
- 7.8 The Partners recommend an initial set of approved actions (see Table 6) that meet the design principles.
- 7.9 If the pipeline of approved actions (specific practices or technologies) is delayed, then further work must be undertaken by the Implementation Agency to consider how the incentive approach is modified to incentivise emissions reductions. The design principles should be used to guide this.

Section 8: Recognising carbon sequestration on-farm

Farmers will get recognition for existing and new eligible vegetation that encourages ‘the right tree in the right place’ as part of an integrated farming landscape.

The intent is to recognise as much on-farm sequestration as possible, while ensuring the system is scientifically robust, not overly complicated, nor administratively burdensome.

The Partnership recognises how important integrated on-farm vegetation is to farmers. There are a number of on-farm vegetation categories that do not meet the requirements for the NZ ETS and therefore are not able to receive financial recognition for their carbon sequestration. The Partnership has followed the principle that if all emissions face a price, then carbon sequestration should also be recognised (where it is possible and feasible to do so). This was a key priority raised by farmers during consultation. The Partnership has looked at how to recognise and reward genuine sequestration, regardless of whether it currently counts towards our domestic and international climate change targets.

There is an important principle called ‘additionality’ that underpins every credible sequestration accounting system in the world. Additionality refers to sequestration that is ‘new’ or additional to what would have happened under business-as-usual practices (e.g., above what would have occurred without any policy intervention). This approach ensures environmental integrity when using carbon removals or offsets to meet climate targets. He Waka Eke Noa has chosen to uphold the additionality principle so that the on-farm sequestration recognised in the system is credible.

There are a number of considerations that have guided this work:

- The faster trees grow, the faster carbon is accumulated. Typically, exotic trees grow faster than indigenous trees. However, unharvested forests (e.g., indigenous forests) store more carbon than clear-fell plantations over the long term.

- For a given type of vegetation at a particular location, two broad factors impact sequestration: the stage of growth, and the way it is managed.
- The amount of carbon that different vegetation types sequester is finite.
- When vegetation is removed, it can become a source of emissions. All vegetation types that are recognised would need to be maintained in vegetation or face a liability if they are cleared (permanent categories) or cleared and not replanted (cyclical categories).
- Retrospective sequestration is not rewarded but, where possible, early action to plant, retain and protect vegetation, particularly indigenous vegetation should be recognised (i.e., early adopters).

In building a system to recognise sequestration there are a range of issues to take account of, including:

- The effectiveness of the approach proposed.
- The practicality for both farmer participants and the regulator, and the potential for alignment with existing systems to minimise or avoid duplication.
- The integrity or credibility of the approach.
- The extent to which the core principle of supporting vegetation to be integrated into farming systems (e.g., as compared to blanket afforestation) is recognised, and ensuring co-benefits are considered.
- The outcomes are equitable for participants, and where relevant, in relation to NZ ETS participants.

Government partners have raised some concerns about the level of complexity in recognising sequestration and the added administrative cost associated with this. The Partners consider these proposals strike a balance between providing appropriate recognition and administrative complexity.

Categories of vegetation

It is recommended that the categories of vegetation outlined below are eligible in the system. These categories were assessed as having sufficient scientific evidence to support their inclusion and have a basis for which a methodology can be applied. These vegetation types fall into two broad categories: permanent and cyclical.

Permanent vegetation includes planted or regenerated indigenous vegetation that would not be harvested and is generally self-sustaining through self-seeding. Land must remain in permanent vegetation and not be cleared. Categories include:

- a) Indigenous vegetation established before 1 January 2008: At least 0.25ha of land wholly or predominantly in indigenous woody vegetation¹⁴ either planted, regenerated, or a combination. Stock must be excluded from the area. Stock exclusion can include fencing, geographic boundaries and/or dense vegetation that stock can't access. For regenerating, a seed source needs to exist within 100m of the regenerating vegetation area.
- b) Indigenous vegetation established on or after 1 January 2008 (unless there is evidence of establishment between 1990 and 2008): At least 0.25ha of land wholly or predominantly in indigenous woody vegetation either planted, regenerated, or a combination, that was in pasture prior to 1 January 2008 (unless there is evidence of establishment between 1990 and 2008). For regenerating, a seed source needs to exist within 100m of the regenerating vegetation area. A declaration will be required stating that the land was not in vegetation prior to 1 January 1990.
- c) Riparian vegetation established on or after 1 January 2008 (unless there is evidence of establishment between 1990 and 2008): Plantings suited to margins and banks of waterways including wetlands, minimum of 1m wide from the edge of the bank of the waterway/wetland. Predominantly¹⁵ woody vegetation including indigenous and/or a mix of non-indigenous plants used for environmental benefit. Non-woody vegetation such as flaxes and toetoe are included but must not be the predominant species.

Where there is a minimum area requirement of 0.25ha, this can be aggregated from smaller areas, although a single tree is not sufficient. Farmers will also be able to identify

which areas are entered into the system (if any) (i.e., part of a riparian area could be included, not necessarily all riparian on a farm that meets the definition).

NZ ETS-eligible indigenous forest would be eligible to be entered into the system. Further work will be required to ensure eligible vegetation is not entered into both systems. Farmers with NZ ETS eligible indigenous forest will be encouraged to enter their vegetation in the NZ ETS to reduce financial risk to the He Waka Eke Noa system. The Partners recommend that the NZ ETS be expanded and improved to allow more vegetation categories to be included (e.g., recognition of management of pre-1990 indigenous vegetation) and the registration and reporting processes to be simplified. As the NZ ETS is expanded and improved, the vegetation types eligible under He Waka Eke Noa could be transitioned into the NZ ETS. Partners consider that all sequestration ideally should be recognised over time in the NZ ETS, not via He Waka Eke Noa.

Cyclical vegetation is defined as vegetation that is planted and may be felled and re-established. This kind of forest is not self-sustaining and needs to be replanted to ensure its continuation. To be eligible for the system, all cyclical categories must have been planted on or after 1 January 2008 (unless evidence is provided to show it was established between 1990 and 2008).

Categories include:

- a) Perennial cropland: An orchard and/or vineyard greater than 0.25ha in size.
- b) Scattered forest: Minimum of 0.25ha for any area counted with minimum stocking rate of 15 stems per hectare. Scattered forest is not eligible if it is >1ha, and >30% canopy cover at maturity, and >30m wide (i.e., once it meets the NZ ETS criteria).
- c) Shelterbelts: A linear vegetation feature consisting of one or more rows of trees and/or shrubs planted on or after 1 January 2008 with a minimum linear canopy cover of 90%. The shelterbelt is not eligible if it is >1ha, and >30% canopy cover at maturity, and >30m wide (i.e., once it meets the NZ ETS criteria).
- d) Woodlots/tree-lots: Up to 1ha and at least 0.25ha of tree species that have greater than 30% canopy cover.

¹⁴ Indigenous woody vegetation includes gorse/broom (as a nursery crop for indigenous species if seed source is present), manuka and/or kanuka, matagouri, mixed broadleaf/scrub such as swamp maire, five finger, coprosma, wineberry, lemonwood, cabbage trees, totara/kahikatea, old growth cut-over, and beech.

¹⁵ Predominantly means greater than 50%.

Where there is a minimum area requirement of 0.25ha, this can be aggregated from smaller areas, although a single tree is not sufficient. Farmers will also be able to identify which areas are entered into the system (if any) (i.e., some space planted poplars (scattered forest), but not necessarily all of them on a farm that meet the definition).

NZ ETS-eligible *exotic forest* (based on the April 2021 NZ ETS eligibility criteria) would not be eligible for the system, as it can already be recognised through the NZ ETS. Nor would it automatically become eligible for He Waka Eke Noa if it ceases to be eligible for the NZ ETS. The Partnership aims to incentivise the integration of vegetation into a farming landscape and to encourage indigenous vegetation enhancement and establishment.

Sequestration rates will need to be determined by experts in sequestration to ensure they are scientifically credible, and that they can be applied in a workable way. There is likely to be additional research required to improve the accuracy of information informing sequestration rates and to support the overall objectives of the system. The experts will have a role in identifying the research needs.

Other options considered

The Partnership considered excluding NZ ETS-eligible indigenous vegetation given there is already a system to

reward it. Estimates suggest this would be around 25% of existing sequestration eligible for He Waka Eke Noa. A key rationale for including NZ ETS-eligible indigenous vegetation is to make it as easy as possible for farmers to receive recognition for indigenous vegetation.

Feedback from farmers indicated that many had issues registering indigenous vegetation in the NZ ETS given the quality of aerial imagery available from 1990. It would also be administratively challenging for farmers to determine (without expert input) if their indigenous vegetation is eligible for He Waka Eke Noa as they would need to understand the eligibility criteria for the NZ ETS. This would diminish the incentive for farmers to increase integrated sequestration from indigenous vegetation on-farm.

The Partnership also considered the inclusion of other sources of sequestration including wool, tussock grasslands, wetlands, and soil carbon¹⁶. Current scientific knowledge is not advanced or robust enough to include these categories at this point. A process for recognising new and additional sources of sequestration, once the science has advanced sufficiently, is being recommended using the science and implementation panel (see [Section 5: How are emissions calculated?](#)).

Table 7: Other sources of sequestration that were considered

Wool	While wool is known to hold carbon, the amount held in wool fibre is relatively small. This is why carbon stored in wool is not included in our national emissions reporting. Wool is considered a temporary store for carbon since it is often used in products with a short life relative to the long-term consequences of carbon emissions. While some wool products, such as carpet, have a life that can be decades long, it is difficult to track both its storage and breakdown. These challenges mean that the system will not recognise the carbon stored in wool at this time.
Tussock grasslands	Reduced grazing of tussock grasslands can result in the accumulation of carbon in the tussocks. However, there is limited information available on this. Carbon sequestration in tussock grasslands will be further investigated and could be included at a later date if evidence supports this and there is a practical way of validating this.
Wetlands	Wetlands can be a source of emissions as well as storage areas for emissions. The complex biological dynamics of wetlands mean that there is not always a straightforward way of knowing whether an existing, or proposed wetland, will remove significant amounts of carbon from the atmosphere. Further work is occurring in this space and wetlands could be included in the future once this information is available.
Soil carbon	Soil scientists have concluded that it should be possible to include changes in soil carbon in a pricing system in the future if adequate investment is made into research and development, but current scientific knowledge is not sufficient. For more detail, please see report on soil carbon. ¹⁷
Grass	While grass takes up carbon dioxide from the atmosphere as it grows, it doesn't accumulate carbon like trees. Carbon in grass is released when harvested or eaten, so from year to year there is little or no increase in pasture carbon.

¹⁶ Manaaki Whenua – Landcare Research, 2021, Challenges and opportunities for soil carbon in a farm-level pricing system

Key recommendations:

- 8.1 Permanent categories include regenerating/planted indigenous vegetation and riparian vegetation.
- 8.2 Cyclical categories include fruit trees, nut trees and vines, shelter belts, scattered trees, and woodlots.
- 8.3 NZ ETS-eligible cyclical (exotic) vegetation is excluded. There is no upper area limit for permanent (indigenous) categories. There is a minimum area requirement of 0.25ha (which can be aggregated from smaller areas) or at least a metre wide for riparian.
- 8.4 The new sequestration categories and improved estimates will be incorporated through the process for updates to the centralised calculator (see Recommendation 5.5).
- 8.5 The Partners recommend that the NZ ETS be improved and updated to allow more vegetation categories to be included and the registration and reporting processes to be simplified.

Additional technical recommendations:

- 8.6 Prioritise research on improving estimates for the carbon sequestration potential in eligible categories and potential future categories (e.g., farm practices to improve soil carbon).

Baseline to meet additionality

The Partnership has applied the additionality approach in two ways:

- By setting a baseline year, so any sequestration in vegetation established on or after the baseline year is considered additional.
- By setting a baseline of 'business-as-usual management', so that any sequestration associated with active management is considered additional. The use of this baseline allows recognition of vegetation established prior to the baseline year.

The Partnership considered the following options:

- No baseline year, so all vegetation is treated the same and requires active management.
- 1990, to align with the NZ ETS and international commitments.
- 2008, when satellite mapping became readily available, making it easier for farmers to prove when their vegetation was planted.
- A one-off payment for those with historical vegetation, similar to when the NZ ETS was introduced.

The Partnership considered the trade-offs between different baseline years. Having no baseline requires an averaged and conservative sequestration rate, which means farmers eligible for full carbon stocks are not able to realise this. An earlier baseline could allow for additional

vegetation to be recognised at a higher rate but requires proof and verification, which can be difficult to access. The 2008 baseline is easier to prove and verify, and still allows farms to be recognised for on-farm sequestration. The evidence required would utilise nationally available satellite imagery. During consultation, many farmers viewed the 2008 baseline as unfair and penalising early adopters. Some farmers indicated their preference for keeping the 2008 baseline but providing recognition for farmers who have evidence of earlier planting of vegetation.

To recognise that some farmers did establish vegetation between 1990 and 2008, it is recommended that this be rewarded if adequate evidence is provided to demonstrate this. The evidence required would include aerial imagery, photographs, and records.

A one-off payment was not considered a viable option for recognition of early adopters as it does not uphold the key principles of additionality and not rewarding retrospective carbon. The current recognition of pre-1990 indigenous vegetation balances these key principles and recognises early adopters. Additionally, the owners of pre-1990 exotic forest land are mandatory participants in the NZ ETS, whereas there is no compulsion for farmers to include any of their vegetation in He Waka Eke Noa, and therefore no constraints to removing it (although there are constraints imposed in many regions and districts to removing indigenous vegetation).

Additional technical recommendations:

- 8.7 The baseline year for recognising additional sequestration is 2008. Where there is evidence that vegetation was established between 1990 and 2008, this can also be rewarded.
- 8.8 The baseline for recognising indigenous vegetation that doesn't meet the baseline year is active management.

How sequestration from permanent categories will be calculated

The vegetation types are broken into two categories so that two different accounting methodologies can be applied to recognise the different characteristics of these vegetation types in a way that is scientifically robust, is not overly complicated, or administratively burdensome.

Indigenous vegetation established before 1 January 2008 will be rewarded with an annual rate based on additional sequestration from management action. Farmers will need to provide proof of active management.

Active management refers to targeted management of pre-2008 indigenous vegetation that recognises specific ecological needs of a planted or regenerating area of indigenous vegetation. The minimum standard to meet this is stock exclusion. Ecological outcomes are linked to sequestration outcomes (i.e., improving the ecology of indigenous vegetation leads to improved carbon sequestration). Excluding stock from indigenous vegetation is known to improve ecological outcomes and is relatively straightforward to prove.

The Partners received feedback from farmers about the stock exclusion requirements being too onerous. Following the consultation period the stock exclusion requirement was reviewed and clarified, recognising that current science is that stock exclusion has a significant impact on sequestration. 'Stock exclusion' should recognise vegetation as a boundary where the density is sufficient to present stock access. For farmers, this means that stock exclusion is via fencing, geographic boundaries, or dense vegetation (this generally occurs where there is a large area (>10ha) of established indigenous vegetation that has been well looked after).

Additional management actions such as targeted, active pest and weed control, and enrichment planting or management that achieves a similar outcome to stock exclusion in specific circumstances (e.g., high country, rare ecosystems) can also be recognised. These management actions would need to be verified by a suitably qualified expert who could determine if the management is

equivalent, less than or greater than 'business-as-usual' sequestration. This is referred to as 'active ecological management'.

Indigenous vegetation established on or after 1 January 2008 (or where there is evidence it was established between 1990 and 2008) will be rewarded with an annual sequestration rate based on yearly accumulation of carbon. A declaration will be needed to ensure that land that was in woody vegetation prior to 1 January 1990 is not then registered in He Waka Eke Noa to receive total carbon stocks.

Riparian vegetation established on or after 1 January 2008 (or where there is evidence it was established between 1990 and 2008) that is predominantly woody, wider than a metre from stream bank, and not predominantly weeds will be rewarded with a national average sequestration rate based on yearly accumulation of carbon.

There will be no area limit for how much permanent vegetation can be recognised, as long as it meets the definition. Rewarding full carbon stocks for indigenous vegetation established after 2008 was considered appropriate as it met the definition of additionality in a consistent way with how it is treated in the NZ ETS.

Other options considered

Consideration was given to making 'active management' include active pest and weed management in addition to stock exclusion. However, this would be administratively complex and difficult to verify and apply consistently to all participants as a minimum standard.

Consideration was also given to using stocking rate limits alongside active management for high-country farms, where stock exclusion by fencing is measurably more difficult than for most farmers. However, this would also be administratively complex and costly to apply, particularly in these environments.

How sequestration from cyclical categories will be calculated

Cyclical vegetation established on or after 1 January 2008 (or where there is evidence it was established between 1990 and 2008) will be rewarded by recognising the long-term average carbon stock. This is the average carbon after considering losses from harvesting and gains from replanting. There will be different sequestration rates and long-term averages for different vegetation types. Any cyclical vegetation eligible for the NZ ETS would not be eligible for this system.

The long-term average carbon stock will be applied regardless of whether vegetation is past average age or is in second or subsequent rotations. Farmers will still only receive the reward for the number of years vegetation takes to reach the long-term average carbon stock (e.g., 16 years for pines). After this, there will be no further reward, and there will be no penalty for harvest, as long as the vegetation was replanted (i.e., it needs to remain in vegetation or face the liability).

This option provides flexibility to landowners, recognises sequestration that aligns with farmer expectations, avoids perverse outcomes (e.g., vegetation clearance prior to system implementation) and recognises early adopters. While this will reward retrospective sequestration for second rotation forests, it is not likely to be on a significant scale and provides the ability to recognise the co-benefits

of vegetation, and not penalise those who have planted trees early (as long as they are after the 2008 baseline or evidence provided of establishment between 1990 and 2008). Compared to other options, administrative complexity is relatively low as there is no need to know the age of the vegetation (if a simplified approach is used), or which rotation it is in. The approach is not aligned with New Zealand's reporting on progress towards its international targets. However, it is applicable only to vegetation that does not meet the definition of a forest, so it does not contribute to international targets regardless of the accounting methodology used.

Other options considered

The Partnership also considered sawtooth accounting and averaging accounting¹⁷. The other options increased administrative complexity as more data and information is required to be able to use, prove and verify these methodologies. Sawtooth accounting has been used by the NZ ETS since inception but is being replaced by the simpler, averaging approach for this reason. The new averaging approach (due to come into effect in 2023) is what the proposed He Waka Eke Noa approach uses but has been modified in two ways. Firstly, that farmers will receive a reward even if their vegetation has passed the long-term average age, and secondly that the reward can be applied to second (or subsequent) rotations.

Table 8: Summary of accounting approach for vegetation categories

Categories of vegetation and baseline	Accounting approach	Evidence requirements
Permanent categories		
Indigenous vegetation established before 1 January 2008	Either an annual rate based on additional sequestration from management action OR Annual rate based on sequestration from Active Ecological Management	Evidence required to prove stock exclusion to be determined. Suitably qualified expert will need to determine if vegetation meets Active Ecological Management and the suitable sequestration value
Indigenous vegetation established on or after 1 January 2008 (or where there is evidence it was established between 1990 and 2008)	Annual sequestration rate based on yearly accumulation of carbon	Requires declaration that land was pasture on 31 December 1989 Satellite imagery to prove post-2008, aerial imagery to prove 1990 – 2008
Riparian vegetation established on or after 1 January 2008 (or where there is evidence it was established between 1990 and 2008)	National average sequestration rate based on yearly accumulation of carbon	As above

¹⁷ For more information on how sawtooth accounting and averaging accounting works visit: <https://www.mpi.govt.nz/forestry/forestry-in-the-emissions-trading-scheme/averaging-accounting/>

Categories of vegetation and baseline	Accounting approach	Evidence requirements
Cyclical categories		
Cyclical vegetation established on or after 1 January 2008 (or where there is evidence it was established between 1990 and 2008)	Average carbon stock regardless of whether vegetation is past average age or is in second or subsequent rotations	As above

Key recommendations:

8.9 For permanent vegetation:

- Regenerating/planted indigenous vegetation established before 1 January 2008 (incl. pre-1990): will receive the additional annual carbon gained by the management action of stock exclusion.
- Regenerating/planted indigenous vegetation established on or after 1 January 2008 (unless there is evidence of establishment between 1990 and 2008, and provided land not planted in vegetation in 1990): will receive total carbon stock approach.
- Riparian vegetation established on or after 1 January 2008 (unless there is evidence of establishment between 1990 and 2008): will receive national annual average total carbon stock.

8.10 The minimum standard for regenerating/planted indigenous vegetation established before 1 January 2008 is stock exclusion. Alternatively, Active Ecological Management (determined by a suitably qualified sequestration expert) recognises equivalent, or enhanced actions to determine appropriate value of sequestration.

8.11 For cyclical vegetation:

- Cyclical vegetation established on or after 1 January 2008 (unless there is evidence of establishment between 1990 and 2008, provided land not planted in vegetation in 1990 and does not meet NZ ETS eligibility): will receive up to the long-term average carbon stock (regardless of current age or harvest rotation).

8.12 A declaration will be needed to ensure land that was in woody vegetation prior to 1 January 1990 is not then registered in He Waka Eke Noa to receive total carbon stocks.

8.13 Recognition of sequestration in the system is optional - participants can nominate categories and areas (full optionality).

Additional technical recommendations:

8.14 The system will use sequestration experts to derive scientifically credible sequestration estimates that can be applied in a workable system utilising existing knowledge, identifying additional research requirements, and considering the overall objectives of the system.

Where sequestration is greater than emissions

For most farms or collectives, the financial reward from eligible sequestration is unlikely to be greater than emissions but in some cases it will be. A key challenge is to consider the balance between rewarding genuine sequestration, while ensuring that this does not present financial risk to the system.

The Partnership analysed a range of scenarios with ambitious uptake rates and price settings for sequestration and found no impact on the overall affordability of the system. The ability to be rewarded for sequestration that is greater than emissions will recognise those who have looked after substantial areas of indigenous vegetation and early adopters. It will also maintain the incentive to reduce emissions even once sequestration is equal to emissions. This is because the payment would increase in value as emissions were reduced, whereas constraining sequestration to the value of the emissions would provide no further incentive to reduce emissions. A significantly greater proportion of indigenous forest is on Whenua Māori; a failure to recognise the sequestration value of this would further exacerbate existing inequities as they have not had the ability to intensify land use (due to regulated constraints).

Further work is required to determine whether this is paid as a credit for sequestration against future liabilities

or a payment. There was recognition that a credit system would require further infrastructure and related costs, but potentially could be useful as an offset against future liabilities or a way of spreading payments and managing loss of sequestration in an adverse event.

Other options considered

The Partnership also considered:

- Sequestration cannot be greater than emissions (i.e., farmers would only be able to claim the value of sequestration to the equivalent value of their emissions such that at best, $A + B - C = \$0$)
- Sequestration can be greater than emissions for farmers, but only within a collective (i.e., farmers with $C > A+B$ could enter into a collective to allow those farmers who face a liability to utilise some or all of that C. The collective could not get a reward if at the collective level, C was greater than A + B).

While these options reduce the price risk to the system, they also reduce or remove the incentive to reduce emissions, which is a critical criterion for the system. It also fails to recognise early adopters, or landowners who have maintained indigenous vegetation on their land by choice, or by existing regulatory constraint (i.e., Whenua Māori).

Key recommendations:

- 8.15 For the small number of farms where sequestration may be greater than emissions, the system will provide a payment or credit.

Liabilities – removing vegetation, deforestation, and adverse events

When vegetation is removed, it can become a source of emissions. Liabilities need to be faced where reward is gained to ensure the environmental integrity of the system. This means accounting for the losses and the gains associated with sequestration. Liabilities need to be set to provide a strong disincentive to avoid carbon losses and encourage increased on-farm sequestration. They also need to be set in such a way that they are fair and equitable and retain flexibility of land use where possible. Tracking the liability against the certificate of title provides a transparent process that is relatively easy to administer and aligns with the NZ ETS approach.

The Partners recommend that vegetation recognised for sequestration in the system face liabilities and compliance penalties if this vegetation is cleared. Cyclical vegetation will face liabilities and compliance penalties only if the vegetation is not re-planted within five-years.

There are specific provisions for adverse events. The Partners recommend that if an area of vegetation is significantly damaged or destroyed by an adverse event, the farm will not face any liability provided that their vegetation is re-established within five years. The farm will not receive recognition for the sequestration in that area until it reaches the same state it was in prior to the adverse event.

However, if land is lost, or it becomes physically impossible to reinstate vegetation, then there is no liability. If vegetation is fire damaged, and the area can be replanted, then farms will need to do so. Evidence of fire being accidental will be sought.

It is recommended that the liability faced is based on the value of sequestration on the day. This approach is consistent with the NZ ETS, it is administratively the most simple, reflects the actual value of the sequestration at the time, although may transfer a greater liability to future generations who have not received the direct benefit.

An additional liability fee is recommended to ensure the disincentive for removing vegetation is retained, even if the value of sequestration goes down (which may occur for other reasons, such as affordability of the system). A liability fee will be set at the same time levy rates and discounts are reviewed.

Penalties should apply for misleading or false actions, and further work is required to develop a specific penalty

regime. The Partners are not recommending provisions to enable offset planting (ability to avoid a liability by planting new vegetation elsewhere), but consideration could be given to allowing for this in the future to provide flexibility to land managers. This option was considered but deemed too complicated to include in the initial stages of the He Waka Eke Noa system based on experience from the NZ ETS.

Further consideration will be needed to ensure there is provision for removal of vegetation for customary purposes, recognising that this does create real emissions, and the option to include this vegetation in the system is available to those landowners.

Other options considered

The Partnership considered additional options for the liability cost, including:

- Liability attached to what has been received from sequestration up to that point.
- The price of sequestration on the day, or the value of what has been received to date, whichever is greater.

There is a trade-off between simplicity of the system, risk of cyclical deforestation and afforestation driven by the price rather than long-term objectives of emission reductions and integrated vegetation, and potential fairness and intergenerational equity issues that may occur due to changes in the value of sequestration.

Attaching the liability to what has been received to date fails to recognise sequestration as an asset and does not reflect the actual value of the emissions at that time. It is likely to be more administratively complex, particularly where land has changed hands. The option of whichever is greater was considered but dismissed as it was more stringent than NZ ETS requirements and therefore failed to meet equity considerations.

The risk of double counting between He Waka Eke Noa and NZ ETS markets was considered for all options. Any registered He Waka Eke Noa vegetation will be registered as an interest against the certificate of title, as occurs within the NZ ETS. There will be a check between the two systems for post-1990 indigenous registered vegetation, to ensure it is not accounted for in both systems. Voluntary markets are also expected to ensure that vegetation they account for is not accounted for elsewhere and face significant brand-risk if not adhering to this. Therefore, the risk of double counting is not considered an issue.

Key recommendations:

- 8.16 Vegetation areas are registered as an interest against the certificate of title of the land.
- 8.17 For permanent categories, farms will face financial liabilities if the vegetation areas registered are cleared.
- 8.18 For cyclical categories, farms will face financial liabilities if vegetation is cleared and not replaced within five years, or there is a land-use change, and no replanting occurs.
- 8.19 The liability faced is for the amount of sequestration claimed up to that point and is valued at the price of sequestration on the day the liability is faced plus a liability fee.

Additional technical recommendations:

- 8.20 If an area of vegetation is significantly damaged or destroyed by an adverse event, the farm will not face any penalty, but will no longer receive recognition for the sequestration in that area until vegetation reaches the same state it was before the adverse event.
- 8.21 If vegetation is fire damaged, and the area can be replanted, then farms will need to do so. Evidence of fire being accidental will be sought.
- 8.22 Detailed design will consider how liabilities can be avoided for the removal of vegetation for customary purposes.
- 8.23 Penalties will apply for misleading or false actions, and further work is required to develop a specific penalty regime.

Te Ao Māori and Nature-based Solutions

The Partnership recognises the interests and values of Te Ao Māori and the values associated with indigenous biodiversity via Nature-based Solutions (NbS)¹⁸.

This approach supports the key principle of recognising sequestration in an integrated way in a farming landscape and recognising the co-benefits of vegetation beyond sequestration.

A range of approaches are suggested which provide for this recognition including:

- To help support farmers into indigenous vegetation, converting exotic species to indigenous species (which meet the definitions) will face no liability if they choose to keep the vegetation in the system (note. there is generally a significant drop in sequestration rates between exotic and indigenous). The new indigenous vegetation will remain registered and change category.
- Consideration will be needed as to if or when credit is earned on it.
- To recognise the value of wetlands, although the wetlands themselves are not currently included in sequestration, the vegetation planted or regenerated around wetlands can be included in the riparian category.
- To recognise that when an indigenous forest reaches steady state, at maturity, it is potentially losing carbon, or not likely gaining carbon anymore. However, if this vegetation is maintained, there will be no liabilities attached to the losses (if this is occurring), nor will there be any rewards continue to be paid. Further work will be required to support the identification of 'steady-state' vegetation and how to include 'rare ecosystems' within this definition.
- To prioritise the work underway in government on Nature-based Solutions and biodiversity credits and consider how this can be integrated into the system.

¹⁸ Definition of Nature-based Solutions: actions to protect, manage and restore natural and modified ecosystems in ways that address societal challenges to provide both human well-being and biodiversity benefits.

Key recommendations:

8.24 The Partners recommend that government prioritise work on Nature-based Solutions and biodiversity credits and report to the System Oversight Board on how this can be integrated into the system.

Additional technical recommendations:

8.25 There will be no liability if the area is replanted with indigenous forest, even where this leads to a reduction in carbon sequestered. This recognises the broader ecological value of indigenous forest.

8.26 To recognise the value of wetlands (although the wetlands themselves are not currently recognised) the vegetation planted or regenerated around wetlands can be included in the riparian category.

8.27 If indigenous vegetation is maintained, there will be no liabilities attached to the losses (if this is occurring), nor will there be any rewards continue to be paid. This recognises that when an indigenous forest reaches steady state, at maturity, it is potentially losing carbon, or not likely gaining carbon anymore.

Section 9: How will the revenue from the system be used?

The revenue from the levy will be invested back into the primary sector for research and development to support further emissions reductions and support lower emissions food and fibre production. Revenue will also contribute to the administration costs of the system.

Revenue in a farm-level system

Revenue in a farm-level levy system is the residual amount once the incentive discounts and payment for eligible registered sequestration are netted off.

When individual farmers and growers reduce their emissions there will be less revenue in the system as the levy is based on the level of emissions. When individual farmers use approved actions or technologies there will

be a further reduction in revenue from the levy due to the incentive discounts.

Feedback from farmers and growers strongly supported the proposed reinvestment of revenue back into research and development. They expressed a need for transparency over where the money is going, and proof of an effective plan to deliver technology to farmers.

Importance of research and development, and support for adoption

A farm-level levy system is most effective when farmers and growers have a wide range of mitigation options available to them. This means that a priority area for the use of residual or net revenue is investment in research and development into, and support for the adoption of mitigation technologies e.g., vaccines, inhibitors etc. This includes supporting a pathway to market for new products and technologies to be used in New Zealand, and capability building and practical extension support, to aid effective uptake and adoption of future mitigations (where this support is not already funded by existing programmes).

The primary sector and government are actively developing and evaluating mitigation technologies, both from New Zealand and offshore, and striving to deliver these options to farmers as quickly as possible. This is a challenging science space and there are currently limited technological mitigation options available to farmers and growers, even though the primary sector and government have been investing in technologies to reduce emissions since 2003. Through the Pastoral Greenhouse Gas Research Consortium (PGGRC), a total of ~\$90m has been invested with an annual amount from the primary sector via levy bodies of > \$50m over that time. This investment has delivered genetic selection for methane in sheep, identified several low GHG feeds and advanced feed additive and

vaccines to reduce GHG's from livestock, and enhanced knowledge of methane and nitrous oxide from Aotearoa New Zealand's primary sector.

The research and development plan (the R&D plan) was initiated to prioritise and accelerate development of mitigation options for reducing agricultural greenhouse gases. It is being developed in partnership with the primary sector, Māori, the science sector, and government. It is one of eight priority areas for science and mātauranga accelerator plans under the Fit for a Better World roadmap. The R&D plan seeks to address both the urgent necessity to reduce biological greenhouse gas emissions and develop a longer-term pathway to low emissions, and sustainable, thriving, and resilient land-based food systems that embrace both science and mātauranga (Te Taiao). The plan is expected to be published in mid-2022. This work will be central in helping guide the investment of He Waka Eke Noa revenue.

In addition, the R&D plan has identified the need to streamline the path to market for new mitigations. Potential actions to address these could include increasing regulatory capacity and building pathways to incorporate new mitigations in the National Greenhouse Gas Inventory.

It has also identified the opportunity for a project to map and identify potential areas for harmonisation or increased cooperation on regulatory issues, both domestic and international. The Partners welcome the Government's commitment in the Emissions Reduction Plan to investing in helping farmers get new tools and technology to reduce on-farm emissions more quickly. They look forward to continuing to work in partnership with government to get the right tools, technology, and support in place.

As set out in [Section 3: Inclusive system oversight](#), a critical role of the System Oversight Board (made up of expertise from the primary sector and Māori), is to set the strategy and direct the investment of levy revenue. The strategy for the use of revenue will be informed by the R&D plan and primary sector groups on the opportunities for research and development, support for adoption, and creating pathways to market for new products.

It is important that all farmers and growers who pay levies benefit equitably from the investment of that levy. In setting the strategy for research and development

funding, the System Oversight Board should consider how that investment can benefit all of the primary sector and take into account where there are currently limited or no options that could be considered as part of the 'approved actions for incentives' (see [Section 7: Incentives for actions \(practices and technologies\) to reduce emissions](#)) and where industries do not benefit from He Waka Eke Noa eligible sequestration. This could include investment in the development of emissions factors for the range of existing N-fertiliser available in New Zealand, alongside new N-fertilisers, related products, and application methods that reduce nitrous oxide emissions. It could also include research to support the resilience of inherently lower emissions food production systems.

A set of core principles (captured in Table 9 below) are recommended to guide the development of this strategy and form the core recommendation for revenue recycling.

Table 9: Core principles for revenue recycling

Principle	Explanation
Justifiable and effective	Funding is directed toward system objectives i.e., reducing emissions and supporting/encouraging low-emissions farming while retaining the primary sector's viability and competitiveness.
Transparency and accountability	There is a transparency over the allocation of any revenue and that there is a clear and robust rationale for the funding.
Equity	Revenue is used for initiatives that benefit, or have the potential to benefit, as many participants who have paid into the system as possible i.e., initiatives will need to cover all who have paid into the system.
Integrated and adding value to existing funding	Funding is targeted at areas/constraints where there is either a gap in, or limited, existing funding i.e., to avoid duplication or crowding out of existing funding.
Enabling and user-friendly	Funding is flexible and adaptable. Application system and process is low cost and user-friendly.
Credible	The funding must be based on robust science and mātauranga Māori.

Dedicated fund for Māori landowners

There is currently a gap in research, knowledge, understanding, and extension skills required to assist Māori farmers and growers in improving their whole-of-whenua (kotahitanga) and environmental sustainability (kaitiakitanga).

A key recommendation is that a dedicated fund be established to support opportunities and meet the needs of Māori landowners. This fund will reflect the levies paid by Māori agribusiness.

Te Aukaha believe that current oversight and the distribution of existing levies does not adequately address the needs and aspirations of Māori landowners due to a lack of understanding of the unique characteristics of

Māori land. Feedback that Te Aukaha received through the consultation process highlighted the need for specific and distinct Māori agribusiness programmes, guidelines, and tools to support opportunities and uptake of knowledge and technologies among Māori landowners. This will be an important component of supporting Māori landowners to transition to farm planning and management frameworks that integrate a whole-of-whenua approach to managing on-farm emissions. The fund will avoid duplication of investment in existing activities including those under Fit for a Better World.

The dedicated fund will be governed by an Independent Māori Board that will work alongside the System Oversight Board.

Administration costs

Revenue raised through the levy will also need to contribute to the administration costs of the system. [Section 11: Administration costs](#), explores this in more detail, including principles relating to the cost share between the primary sector and government.

Other options considered

The Partnership considered other options for the use of revenue from the levy. These included:

- Broader extension support for farmers and growers and/or collectives (that was not directly relating to adoption of mitigation technologies).
- Rewarding or incentivising Nature-based Solutions i.e., activities that have a multitude of co-benefits e.g., removing barriers to planting indigenous trees.

Partners agree the focus needs to be on keeping levy rates as low as possible to achieve objectives. To that end, while extension support for farmers and growers is a critical component of supporting farmers and growers through change, this is already a core component of existing industry commitments and the role of levy bodies.

There are also a range of existing capability building and extension support programmes e.g., MPI's Primary Industry Advisory Services (PIAS), and primary sector-led initiatives. The recommendation, therefore, limits investment to capability building, and practical extension support where this support is not already funded by existing programmes.

The use of revenue for rewarding or incentivising Nature-based Solutions was considered outside the core objectives of the system and should be funded via programmes outside He Waka Eke Noa.

Key recommendations:

- 9.1 The revenue from the levy will be invested back into the primary sector. The System Oversight Board will set the strategy for use of levy revenue.
- 9.2 A dedicated fund will be established to support opportunities and meet the needs of Māori landowners. This fund will reflect the levies paid by Māori agribusiness and be governed by an Independent Māori Board that will work alongside the System Oversight Board.
- 9.3 A priority area for investment is research and development into, and support for adoption of, mitigation technologies e.g., vaccine, inhibitors etc.
- 9.4 The following principles be used to guide decisions on the use of recycled revenue.
 - Justifiable and effective
 - Transparent and accountable
 - Equitable
 - Integrated and adding value to existing funding
 - Enabling and user-friendly
 - Credible.
- 9.5 The Partners recommend that government prioritise work to streamline the regulatory system and path to market for emissions-reducing technologies and practices.

Additional technical recommendations:

- 9.6 The use and outcomes from levy revenue will be regularly and transparently reported.

Section 10: Impacts and insights

Modelling is a tool to help guide decision-making. The insights developed from modelling are one input into a decision-making process that will need to consider a range of important factors (see [‘Factors to consider in setting or updating levy rates’](#)).

The Partnership has modelled a range of price settings, for biogenic methane (CH₄), long-lived gases (N₂O and CO₂), sequestration, and the value of incentive discounts, to understand the impacts of the farm-level levy on farm costs and emission reductions. The modelling does not incorporate all of the important factors to consider in setting or updating levy rates and so is not intended to be

determinative on the actual levy rates that will be needed to meet system objectives.

The System Oversight Board will have a key role in setting the levy rates, price for sequestration, and the value of incentive discounts (see [Section 6: How are emissions priced?](#) and [Section 3: Inclusive system oversight](#) for more information).

This section uses the indicative levy rates and prices that are outlined in [Section 6: How emissions are priced?](#) These indicative rates and prices are based on the modelling and analysis the Partnership has undertaken.

Primary sector modelling – Emissions reductions and impact on average profit

He Waka Eke Noa partners wanted to better understand what ‘price’ would be needed to incentivise enough emissions reductions to meet the 2030 emissions reductions target in the Climate Change Response Act. This was important in being able to recommend a credible system to government. A key assumption at the start of the modelling was that a given price on emissions would be key driver of emissions reductions.

The Sectoral impacts and cost-benefit analysis report shows the impacts of the three different pricing systems alongside a range of different price settings on the primary sector, and the dairy, red meat, and horticultural industries.

The Partnership has confidence in the approach taken to the modelling. All modelling, however, is a simplification of reality and so requires assumptions to be made. This is why all modelling output should be interpreted as indicative only and the prices modelled are not being recommended to achieve the Government’s targets.

The key assumptions and caveats are:

- New Zealand is the first country to develop an agricultural emissions pricing system. This means there is uncertainty about the real-world impacts of a pricing system. This creates limitations with modelling.
- There is significant variation across farm and farming systems even within main industries like sheep and beef and dairy. This means that using averages to highlight estimated impacts will mask this variation. It is clear that even at prices of \$0.11/kg for methane and \$4.25/tonne CO₂e for long-lived gases, there could be significant profit impacts for some farmers, particularly those without sequestration or ability to use new mitigation technologies.
- The cost, availability, and effectiveness of future mitigation technologies to reduce emissions has a significant impact on emission reductions and resulting impacts on profit and production. Assumptions on cost, availability and effectiveness of mitigation technologies have been estimated from work undertaken by the NZ Agricultural Greenhouse Gas Research Centre (NZAGRC).
- Two mitigation technology scenarios have been modelled: a medium-technology scenario and a high-technology scenario. The high-technology scenario assumes greater availability of technology options, including higher uptake rates and lower costs. Adoption curves were used which included the gradual uptake of technologies but at a rate that increased with the levy cost.

- If the availability and effectiveness of mitigation technologies are greater, or the estimated cost of mitigation technologies is lower, then greater emission reductions will be achievable at lower cost.
- To illustrate the role that incentive discounts could play in supporting emission reductions the modelling uses a broad 'multiplier' of the levy rate times the emissions reduction achieved by the mitigation to calculate the incentive discount. This does not take into account the actual cost of the mitigation i.e., everyone receives the same reward for emission reductions regardless of actual cost. The implication of this is that some farms and technologies will receive more money than needed to incentivise the use of the mitigation, and therefore the modelling overestimates the levy rates needed.
- The Partners are recommending a more targeted approach to incentives. This involves setting specific incentives for specific mitigations (see [Section 7: Incentives for actions \(practices and technologies\) to reduce emissions](#)). This would lower the cost of incentives and enable lower levy rates to achieve emissions reduction objectives.
- The dairy model has assumed some potential for zero or negative cost emission reductions associated with efficiency gains. The sheep and beef model does not include emission reductions associated with efficiency gains on sheep and beef farms, although some are likely to result in slightly higher emission reductions than shown. More in-depth B+LNZ analysis indicates there could be more farms that would exit sheep and beef production as a result of a greater reduction in economic farm surplus than estimated in the Sectoral impacts modelling. This could result in higher methane reductions as a result of land-use change.
- The modelling focuses on pricing as the sole driver of practice change. In reality a price is one part of a broader framework to support practice change to reduce emissions. This broader framework includes other regulatory and market drivers and the critical importance of extension support (providing technical advice and information). This is another reason why lower prices than modelled are likely to achieve the same level of emission reductions as in the model results.
- Significant recently introduced market incentives such as premiums for zero carbon meat and dairy products and bank borrowing discounts associated with environmental performance are other drivers that will change farmer practice but are not accounted for in these models.

- **The conclusion from this is that modelling at higher prices is likely to underestimate the reductions in emissions that will occur, and this supports a precautionary approach to pricing at the commencement of the system.**

For more detail (including impacts on production and emissions per unit of product), a Sectoral impacts report can be found on the He Waka Eke Noa website.

The key result of the Partnership's modelling is that a farm-level levy can achieve emissions reductions that are consistent with legislated emissions reductions targets, and greater than if agriculture entered the NZ ETS.

This requires the use of incentive discounts for approved actions, and assumptions that some key mitigations technologies are available and being adopted before 2030 (see further detail below).

Table 10 below shows an example of price settings that achieve credible emission reductions and the impact on average profit by farm type in 2030.

The key points are:

- Under a medium technology scenario, a methane price of around \$0.11/kg in 2025 that increases to around \$0.35/kg by 2030, and a long-lived gas price of around \$4.25/tonne CO₂e in 2025 that increases to around \$13.80/tonne CO₂e by 2030, results in methane emission reductions of around 4% and long-lived gas emission reductions of around 3% by 2030 from 2017 levels.
- Under a high technology scenario, a methane price of around \$0.11/kg in 2025 that increases to around \$0.17/kg by 2030, and a long-lived gas price of around \$4.25/tonne CO₂e in 2025 that increases to around \$13.80/tonne CO₂e by 2030, results in methane emission reductions of around 5.5% and long-lived gas emission reductions of around 3% by 2030.

The modelled 4-5.5% reduction in methane emissions, alongside the reductions that will occur as part of business as usual and via the waste sector, would achieve methane emission reductions in line with the 10% reduction target in legislation. As outlined in the caveats above, it is likely that greater emissions reductions could be achieved at these modelled prices. Independent analysis by B+LNZ of actual farms in its Sheep and Beef Farm Survey found that at prices of \$0.35/kg for methane and \$13.80/tonne CO₂e, the profit impacts would lead to more reduction in meat production from land-use change and therefore would lead to higher emissions reductions than modelled.

Table 10: Emission reductions and impact on average farm profit and production

Technology Assumptions	Price of methane (A)	Price of long-lived gases (B)	Price of sequestration (C)	Modelled emission reductions excluding baseline reductions from 2017 %		Impacts on average farm profit from 2017 %			Impacts on production from 2017 %	
				CH ₄	N ₂ O	Dairy	Sheep + Beef	Hort/Arable	Dairy (milk)	Sheep + Beef (meat)
Medium Tech	\$0.35/kg	\$13.80/tonne CO ₂ e	\$104/tonne CO ₂ e (75% of NZ ETS carbon price)	-4.0	-2.9	-5.6	-7.2	0 to -0.5	-1.4	-0.1 ¹⁹
High Tech	\$0.17/kg	\$13.80/tonne CO ₂ e	\$104/tonne CO ₂ e (75% of NZ ETS carbon price)	-5.5	-3.2	-3.0	-1.2	0 to -0.5	-0.7	0.0 ²⁰

Table 11: Dairy model technology assumptions

Medium tech						High tech ²⁰	
Mitigation	Available (year)	Annual cost per animal	Starting adoption rate	Emission reduction (fed cont.)	Emissions reduction (fed twice)	Emission reduction (fed cont.)	Emissions reduction (fed twice)
CH ₄ Inhibitor – 3NOP	2025	\$5.25 ²¹	10%	30%	12%	60%	24%

Table 12: Sheep and beef model technology assumptions

Medium tech						High tech ²²	
Mitigation		Available (year)	Emissions reduction	Cost per animal	Starting adoption rate	Cost per animal	Starting adoption rate
CH ₄ Vaccine	Sheep	2031	30%	\$5.00	8%	\$2.50	16%
CH ₄ Vaccine	Cattle	2031	30%	\$10.00	8%	\$5.00	16%
CH ₄ Inhibitor	Sheep	NA	30%	\$6.00	3%	\$3.00	6%
CH ₄ Inhibitor	Cattle	2031	30%	\$12.00	3%	\$6.00	6%
N ₂ O Inhibitor	Sheep	2030	50%	\$1.00	2%	\$0.50	4%
N ₂ O Inhibitor	Cattle	2030	50%	\$8.00	2%	\$4.00	4%
Genetics	Sheep	2025	10%	\$0.75	2%	\$0.75	4%
Genetics	Cattle	2026/2031 ²³	10%	\$2.00	2%	\$2.00	4%

¹⁹ Emission reductions modelled in the sheep and beef sector result almost exclusively from the uptake of mitigation technologies. These affect the emissions intensity of output but do not have any impact on meat production. These figures exclude reductions in production from the base case (i.e. as a result of existing policy).

²⁰ The high technology scenario assumes 3NOP doubles in efficacy.

²¹ This estimate is not based on any commercial claims of efficacy or cost. The Partnership has undertaken sensitivity analysis on this cost for both the modelling and the case study analysis below.

²² The high technology scenario doubles the starting adoption rate and halves the cost of the mitigation.

²³ Depending on farm class/type.

Farm case studies

Separate case study analysis has been completed on 20 different farm systems to provide a broad estimate of the potential cost and financial impact of a range of price settings at the farm level.

As each sector is made-up of different farm businesses and farm systems, the same price or price settings can have very different impacts across a given sector. The farm case studies were selected to reflect a diverse range of farm systems and locations. A range of price settings for methane, long-lived gas emissions, and sequestration were assessed.

The Farm case studies report can be found on the He Waka Eke Noa website.

The key points, assumptions, and differences with the Sectoral impacts modelling are:

- Simplifying assumptions have been applied for the incentive discounts for approved actions. The results should be read as illustrative only.
- For consistency with the Sectoral impacts modelling, the incentive discounts for approved actions have been calculated by using a broad 'multiplier' of the levy rate times the emissions reduction achieved by the mitigation. This does not take into account the actual cost of the mitigation i.e., everyone receives the same reward for emission reductions regardless of actual cost, and this cost is not reflected in a farm's EFS.
- Each sheep, beef, deer farm case study is assumed to have a 50/50 ratio²⁴ of sheep to other livestock, and the impact of low methane sheep is a blanket 10% reduction in emissions from sheep.
- For dairy it is assumed that a feed additive is applied twice daily in the shed and this leads to a 12% methane reduction from dairy cows. It was assumed each farm already had an in-shed feeding system in place.
- As noted above, the Partners are recommending a more targeted approach to incentives. This involves setting the incentive discounts at the minimum

level required to incentivise uptake of the relevant mitigation (see [Section 7: Incentives for actions \(practices and technologies\) to reduce emissions](#)).

The cost of the mitigation would be reflected in a farm's EFS and the role of the incentive discount is to reduce the cost of the mitigation to the point where it is economically rational for the farm to adopt the technology.

- The EFS of a case study dairy farm is larger than the EFS of a red meat farm. This means the impact of emissions pricing on EFS is much smaller for dairy farms relative to red meat farms. The case study analysis does not, however, consider debt. This varies widely across sectors and is larger on average in the dairy sector.
- In terms of sequestration, there is a wide range of vegetation that could be eligible for He Waka Eke Noa, but there is limited data on how much actual vegetation there is. The case studies use a broad estimate of sequestration that could be rewarded. Farmers may enter their eligible vegetation over time due to challenges or costs such as fencing.
- The following reward for sequestration recognised under He Waka Eke Noa has been used in the case studies. This is based on indicative sequestration rates for each vegetation types, and assuming a payment of 75% of the predicted NZ ETS carbon price for this:
 - Indigenous vegetation established before 1 January 2008, being actively managed: \$117 per hectare in 2025
 - Indigenous vegetation established on or after 1 January 2008: \$414 per hectare in 2025
 - Riparian vegetation: \$223 per hectare in 2025

Tables 14 and 15 below summarise the potential impact of emissions pricing, sequestration offsets, and incentive discounts for approved actions for a range of case study farms. Prices have yet to be set for emissions pricing within He Waka Eke Noa. The scenarios capture the price combinations and medium technology assumptions described above.

²⁴ Note this is for illustrative purposes only. The actual national ratio of sheep to cattle numbers was 70/30 as at 30 June 2020, according to New Zealand's official statistics published by Statistics New Zealand from the Agricultural Production Statistics (APS). In general, the ratio varies from north to south and by farm type with a greater amount of cattle in the North Island compared to the South Island.

The following sequestration rates are indicative and used for modelling purposes only.

Table 13: Sequestration rates

Vegetation type	Sequestration rate (t CO ₂ e/ha pa)
Indigenous vegetation established before 1 January 2008	1.83
Indigenous vegetation established on or after 1 January 2008	6.5
Riparian vegetation established on or after 1 January 2008	3.5
Perennial crops	1.3

The key points to highlight from the tables below are:

- There is a wide spread of cost impact from the levy cost (A+B) across the farm systems and locations in the case studies.
- Sequestration assists mainly extensive farm types to offset some of the levy cost.
- Incentive discounts vary according to the effectiveness of the mitigation and provide a greater offset for dairy farms at this point, given the potential impact of the CH₄ inhibitor.
- The levy cost has a greater impact on extensive farming systems as a proportion of Economic Farm Surplus (EFS).
- In aggregate, sequestration payments and incentive discounts can reduce the impact on profit across different farm types, while supporting emissions reductions.

Table 14: Indicative impacts on case studies farms in 2025

Farm Type	Key farm information (kgMS, total stock units, kgN/ha) ²⁵	Prices: A= \$0.11/kg; B=\$4.25/t; C=\$64/t (75% of NZ ETS carbon price) ²⁶				
		Levy cost (A+B)	Action-based incentive	Sequestration reward	Total levy cost less incentive discount and sequestration reward	EFS % impact
North Island hill country	4,841 (su)	\$7,254	\$2,061	\$2,945	\$2,248	-1.1%
North Island intensive	2,745 (su)	\$5,066	\$1,438	\$1,940	\$1,688	-1.2%
South Island hill country	9,751 (su)	\$11,320	\$3,217	\$3,920	\$4,183	-2.2%
South Island deer	7,037 (su)	\$11,048	\$3,137	\$3,920	\$3,991	-1.7%
South Island mixed cropping	2,850 (su), 215 (kgN/ha)	\$4,301	\$1,322	\$754	\$2,225	-0.7%
Māori agribusiness sheep and beef range ²⁷	3,733 – 7,843 (su)	\$12,917 to \$22,693	\$3,673 to \$6,502	\$6,300 to \$46,793	-\$30,602 to \$2,944	-1.0% to 4.2%
Canterbury dairy	349,135 (kgMS)	\$13,147	\$8,464	\$866	\$3,817	-0.4%
Taranaki dairy	118,296 (kgMS)	\$4,948	\$3,163	\$696	\$1,089	-0.3%
Waikato/Bay of Plenty dairy	134,925 (kgMS)	\$6,280	\$4,059	\$451	\$1,770	-0.5%
Māori agribusiness dairy range	132,403 – 223,264 (kgMS)	\$6,426 to \$9,346	\$4,087 to \$6,103	\$0 to \$28,912	-\$25,669 to \$2,339	-2.3% to 5.1%
Pipfruit ^{28,29}	43 (kgN/ha)	\$30	0	0	\$30	0%
Kiwifruit	115 (kgN/ha)	\$100	0	0	\$100	0%
Vegetables (Pukekohe and Canterbury)	125 - 183 (kgN/ha)	\$300 to \$440	0	0	\$300 to \$440	-0.03% to -0.05%

²⁵ For full detail on farm characteristics including actual stocking rates and sequestration, see Farm case studies report.

²⁶ Note that the Partners are not recommending the use of these rates, prices, and incentive discounts, rather, the price settings will be determined with input from a System Oversight Board and based on a range of factors.

²⁷ Māori agribusiness sheep and beef case study farms carry more stock units than the other sheep and beef case study farms. See Farm case studies report for more details.

²⁸ The modelled orchard size is 30ha and the vegetable farm is 100ha. These modelled systems have emissions below the 200 tonne CO₂e threshold, however the modelled emissions price per hectare is representative of the costs for larger operations, with emissions above the threshold.

²⁹ Horticulture economic impacts are expressed as % of cash operating surplus. While orchard trees and vine sequester carbon, there has been minimal expansion in hectares in pipfruit and kiwifruit since 2008.

Table 15: Indicative impacts on case studies farms in 2030

Farm Type	Key farm information (kgMS, total stock units, kgN/ha) ³⁰	Prices: A=\$0.17/kg; B=\$13.80/t; C=\$104/t (75% of NZ ETS carbon price) ³¹				
		Levy cost (A+B)	Action-based incentive	Sequestration reward	Total levy cost less incentive discount and sequestration reward	EFS % impact
North Island hill country	4,841 (su)	\$14,045	\$3,363	\$4,782	\$5,900	-2.9%
North Island intensive	2,745 (su)	\$9,814	\$2,347	\$3,150	\$4,317	-3.0%
South Island hill country	9,751 (su)	\$21,914	\$5,250	\$6,365	\$10,299	-5.5%
South Island deer	7,037 (su)	\$21,395	\$5,120	\$6,365	\$9,910	-4.3%
South Island mixed cropping	2,850 (su), 215 (kgN/ha)	\$7,864	\$2,158	\$1,224	\$4,482	-1.4%
Māori agribusiness sheep and beef range ³²	3,733 – 7,843 (su)	\$24,993 to \$43,685	\$5,994 to \$10,612	\$10,228 to \$75,970	-\$42,897 to \$8,771	-2.6% to 5.9%
Canterbury dairy	349,135 (kgMS)	\$26,414	\$13,815	\$1,406	\$11,193	-1.1%
Taranaki dairy	118,296 (kgMS)	\$9,985	\$5,162	\$1,130	\$3,693	-1.1%
Waikato/Bay of Plenty dairy	134,925 (kgMS)	\$12,587	\$6,625	\$733	\$5,229	-1.4%
Māori agribusiness dairy range	132,403 – 223,264 (kgMS)	\$13,008 to \$19,233	\$6,670 to \$9,961	\$0 to \$46,939	-\$37,667 to \$6,338	-6.1% to 7.5%
Pipfruit ³³	43 (kgN/ha)	\$100	0	0	\$100	0%
Kiwifruit	115 (kgN/ha)	\$329	0	0	\$329	-0.01%
Vegetables (Pukekohe and Canterbury)	125 - 183 (kgN/ha)	\$974 to \$1,426	0	0	\$974 to \$1,426	-0.01% to -0.16%

³⁰ For full detail on farm characteristics including actual stocking rates and sequestration, see Farm case studies report.

³¹ Note that the Partners are not recommending the use of these rates, prices, and incentive discounts, rather, the price settings will be determined with input from a System Oversight Board and based on a range of factors.

³² Māori agribusiness sheep and beef case study farms carry more stock units than the other sheep and beef case study farms. See Farm case studies report for more details.

³³ Horticulture economic impacts are expressed as % of cash operating surplus. While orchard trees and vine sequester carbon, there has been minimal expansion in hectares in pipfruit and kiwifruit since 2008.

Table 16: Indicative impacts on case studies farms in 2030

Farm Type	Key farm information (kgMS, total stock units, kgN/ha) ³⁴	Prices: A= \$0.35/kg; B=\$13.80/t; C=\$104/t (75% of NZ ETS carbon price) ³⁵				
		Levy cost (A+B)	Action-based incentive	Sequestration reward	Total levy cost less incentive discount and sequestration reward	EFS % impact
North Island hill country	4,841 (su)	\$23,600	\$6,707	\$4,782	\$12,111	-6.0%
North Island intensive	2,745 (su)	\$16,481	\$4,681	\$3,150	\$8,650	-6.0%
South Island hill country	9,751 (su)	\$36,829	\$10,470	\$6,365	\$19,994	-10.7%
South Island deer	7,037 (su)	\$35,941	\$10,211	\$6,365	\$19,365	-8.5%
South Island mixed cropping	2,850 (su), 215 (kgN/ha)	\$13,994	\$4,304	\$1,224	\$8,466	-2.7%
Māori agribusiness sheep and beef range ³⁶	3,733 – 7,843 (su)	\$52,628 to \$73,829	\$11,954 to \$21,162	\$10,228 to \$75,970	-\$23,303 to \$30,446	-5.2% to 3.2%
Canterbury dairy	349,135 (kgMS)	\$42,765	\$27,550	\$1,406	\$13,809	-1.4%
Taranaki dairy	118,296 (kgMS)	\$16,095	\$10,295	\$1,130	\$4,670	-1.3%
Waikato/Bay of Plenty dairy	134,925 (kgMS)	\$20,428	\$13,211	\$733	\$6,484	-1.7%
Māori agribusiness dairy range	132,403 – 223,264 (kgMS)	\$20,903 to \$30,404	\$13,302 to \$19,864	\$0 to \$46,939	-\$36,399 to \$7,601	-7.3% to 7.1%
Pipfruit ³⁷	43 (kgN/ha)	\$100	0	0	\$100	0%
Kiwifruit	115 (kgN/ha)	\$329	0	0	\$329	-0.01%
Vegetables (Pukekohe and Canterbury)	125 - 183 (kgN/ha)	\$974 to \$1,426	0	0	\$974 to \$1,426	-0.01% to -0.16%

³⁴ For full detail on farm characteristics including actual stocking rates and sequestration, see Farm case studies report.

³⁵ Note that the Partners are not recommending the use of these rates, prices, and incentive discounts, rather, the price settings will be determined with input from a System Oversight Board and based on a range of factors.

³⁶ Māori agribusiness sheep and beef case study farms carry more stock units than the other sheep and beef case study farms. See Farm case studies report for more details.

³⁷ Horticulture economic impacts are expressed as % of cash operating surplus. While orchard trees and vine sequester carbon, there has been minimal expansion in hectares in pipfruit and kiwifruit since 2008.

Section 11: Administration costs

Administration costs of a farm-level levy

The costs in the table below include the establishment cost of the system and the on-going operating cost of the system. The operating cost is further split into the cost to the administrator and additional farmer time. These are estimates based on the current high-level understanding of the system.

Table 17: Administration costs for a farm-level levy

Establishment cost ³⁸		Operating cost ³⁹	
Transitional Farm-level Levy (2025 - 2027)	\$114m to \$144m	Administrator	\$32m to \$36m
		Additional farmer time	\$19m
		Total (2025-2027)	\$51m to \$55m
Farm-level Levy (2027 -ongoing)	\$114m to \$144m	Administrator	\$43m to \$47m
		Additional farmer time	\$27m to \$37m
		Total (2027-2030)	\$70m to \$84m
Incentive discounts for approved actions	\$6m to \$7m	Administrator	\$1.5m
		Additional farmer time	\$0.5m
		Total	\$2m

For the Farm-level Levy, the total establishment cost is estimated at \$114 million to \$144 million. This includes the total development cost of the system alongside the first two years of operations.

The total annual average operating cost for the Transitional Farm-level Levy system (Stage 1: 2025-2027) is estimated at \$51 million to \$55 million per annum. The operating costs are made up of \$32 million to \$36 million cost to the administrator and \$19 million cost in additional time spent by farmers collating data and reporting. The total annual average operating cost for the Farm-level Levy (Stage 2: 2027-2030) is \$70 million to \$84 million, made up of \$43 million to \$47 million cost to the administrator and \$27 million to \$37 million cost in additional time spent

by farmers collating data and reporting. The farmer cost equates to an average transitional cost of \$750, and full system cost of \$1,200 to \$1,600 in additional time per farm based on an assumed salary of \$120,000 per year.

The estimated costs for the incentive discounts for approved actions have been updated based on recent decisions; the incentive system is based on approved actions and integrated within the calculator. The additional costs are estimated at \$6 million to \$7 million in establishment costs and \$2 million in annual average operating costs. The operating costs are made up of a \$1.5 million cost to the administrator and a \$0.5 million cost in additional time spent by farmers collating data and reporting.

³⁸ Establishment cost includes the total development cost of the system alongside the first two years of operations.

³⁹ Annual average operating costs are estimated for the period 2025 – 2030 and include interest and capital payments for the IT system.

Explanation of administration costs

The Implementation Agency will incur capital costs for the scope and build of the pricing system from mid-2023. Post-2025 the focus will move to operation including registration, reporting, levy payment, audit, compliance, and enforcement costs.

The pricing system is both novel and complex in nature and will therefore have a relatively high IT build cost. There will be further work to determine the minimum viable product. The pricing system will likely need to include all or some of the following:

- A geospatial farm registration system (client relationship management system with web-based interface)
- A geospatial sequestration recording system
- A data input and storage system, including document capture capability
- A centralised calculator that includes:
 - emissions liabilities to be calculated through both a simple and detailed method
 - sequestration rewards to be calculated
 - incentive discounts to be calculated through both a simple and detailed method
 - the total cost faced to be calculated
- A payment system
- A compliance tracking system (including verification/audit and penalty assessment capabilities)
- Data input integration capability with third-party tools.

Two levels of contingency (20% and 60%) have been used in the cost estimate range to reflect the current uncertainty around the IT system costs.

The key points for the Transitional Farm-level Levy system are:

- The Transitional Farm-level Levy system (Stage 1) only has a simple calculator and limited sequestration which results in lower operating costs (\$51m to \$55m) for this two-year period.
- The IT system build costs occur over a four-year period instead of a two-year period.

The administration costs to farmers will start from 2025 and are a result of the time and effort required to measure and report emissions and sequestration data, alongside verification and audit time.

For the simple method, measuring and recording data is estimated to take an average of five hours for all farm types. For the detailed method, recording data is estimated to initially take five hours for a cropping farm, 10 hours for a dairy farm and 25 to 75 hours for a sheep, beef, or deer farm. There is potential for this to decline over time as familiarity with the system increases, and there is greater interoperability between data systems.

This data was based on the findings of an AgResearch report and discussions with primary sector representatives including farmers. In estimating the farmer cost, the Partnership has considered the time already spent recording data, including information collected for He Waka Eke Noa milestones to 'Know your number', and 'Have a plan', existing processor assurance programmes, and NAIT. Freshwater Farm Plan requirements have not been considered as they are currently unknown.

A detailed breakdown of all the assumptions used in the farm-level administration costs can be found in the He Waka Eke Noa Administration costs report.

Opportunities for system integration and data interoperability

While the assumptions used in the administration cost analysis are conservative, they may still be light in some areas. These include supporting farmers and growers with registering and reporting, extension activities (around emissions reductions), and the cost of achieving full data interoperability.

Despite this, there are opportunities for system integration that need to be explored as they will likely result in reduced system administration costs, particularly operating costs. Options to be explored include:

- Alignment of the registration system with the Department for Internal Affairs Digital Identity Services Trust Framework alongside the proposed Integrated National Farm Data Platform and its associated initiatives.
- Integration with existing government reporting and data systems such as the NZ ETS (the sequestration component equates to approximately 50% of the capital cost), NAIT, Certified Freshwater Farm Plans or the IRD reporting and payment system.

- The use of Industry Assurance Programmes (where appropriate) to provide registration and reporting support and, potentially, data verification.
- Enabling full data interoperability between existing farm management systems including rural financial software, fertiliser companies, GHG emissions calculation tools and the centralised calculator.
- Providing open or shared source code so the calculation can be easily integrated into existing farmer-facing tools and services to enable farm scenario planning.
- Establishing an auditing approach based on periodic checks of base data sources that are held for a specified period; using a penalty system to ensure compliance.
- The use of rural professionals, including farm

consultants or chartered accountants, to provide registration and reporting support and, potentially, data verification.

- Ensuring farmers retain control of their data and can control its release, including review and submission approval.

The New Zealand Agritech sector has signalled a strong willingness to be part of the solution to a cost-effective farm-level pricing system. It is recommended that in the detailed development phase of the farm-level pricing system, opportunities to deliver integrated solutions including method development, reporting and the audit process should be explored in partnership with the Agritech sector.

Principles for administration cost share

Some of these administration costs will be paid for by the Government, some will be paid for by participants (farmers and growers).

Four principles have been developed to help guide the future distribution of administration costs; these are based on the principles contained in the Auditor General (2021) and Treasury (2017) guidelines for setting fees and charges:

- Equitable – A programme should not seek to recover costs from one group and use these to benefit another.

- Efficient – The services being charged for should achieve value for money (be effective) and be regularly reviewed to ensure any unnecessary costs are removed.
- Justified – Cost decisions must reasonably relate to, and be appropriate for, the service being provided.
- Transparent – The mechanism through which cost decisions are made must be understandable and accessible to all stakeholders.

Key recommendations:

11.1 The development of the He Waka Eke Noa reporting system must strongly consider opportunities for regulatory system integration and data interoperability, and action these where appropriate.

11.2 The following principles will be used to guide future administration cost share decisions:

- Equitable – Not recover costs from one group and use these to benefit another
- Efficient – Achieve value for money and be regularly reviewed
- Justified – Reasonably relate to, and be appropriate for, the service provided
- Transparent – Decisions must be understandable and accessible to all stakeholders

Additional technical recommendations:

11.3 In the detailed development phase of the farm-level pricing system, opportunities to deliver integrated solutions including method development, reporting and the audit process, should be explored in partnership with the Agritech sector.

References

<p>Supporting information and reports</p>	<ul style="list-style-type: none"> • Pricing agricultural GHG emissions: sectoral impacts and cost benefit analysis • Farm case studies report • Pricing system administration costs • Pricing agricultural GHG emissions: impacts on emissions leakage • Pricing GHG emissions from agriculture (macroeconomic) • Pricing regimes impact on the Horticultural sector • Challenges and opportunities for soil carbon in a farm-level pricing system • Insights into farmer behaviour responses to emissions pricing • Farmer inputs and verification options for He Waka Eke Noa emissions reporting • Input specifications for He Waka Eke Noa reporting methods • FLRC paper – Methodologies for GHG reporting and implications for farmer input requirements • He Waka Eke Noa Feedback summary report
<p>Technical appendices</p>	<ul style="list-style-type: none"> • Technical Appendix 1: Decision on a preferred option • Technical Appendix 2: Process for updates to calculation method, mitigations, sequestration and determining incentives



He Waka Eke Noa

Primary Sector Climate Action Partnership