Ministry for the Environment
Manatū Mō Te Taiao

New Zealand's second emissions reduction plan

Templated consultation questions

Submission by

NZTech

to

Ministry for the Environment

on

New Zealand's Second Emissions Reduction Plan

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Submitter details

	Question (all required)	Response
1	**Submitter name** *Individual or organisation name*	NZTech
2	**What is your contact email address?** *You will receive an acknowledgement email when you submit your response*	Daniel.Riordan@nztech.org.nz
3	**Are you submitting as an individual or on behalf of an organisation?**	• ☐Individual • ✓Organisation: Name: NZTech
4	**Which region are you in?**	Please choose one: • ☐Outside of New Zealand • ✓Not applicable – national organisation • ☐Northland / Te Tai Tokerau • ☐Auckland / Tāmaki Makaurau • ☐Waikato • ☐Bay of Plenty / Te Moana-a-Toi • ☐Gisborne / Te Tairāwhiti • ☐Hawke's Bay / Te Matau-a-Māui • ☐Taranaki • ☐Manawatū-Whanganui • ☐Wellington / Te Whanganui-a-Tara • ☐Tasman / Te Tai-o-Aorere • ☐Nelson / Whakatū • ☐Marlborough / Te Tauihu-o-te-waka • ☐West Coast / Te Tai Poutini • ☐Canterbury / Waitaha • ☐Otago / Ōtākou • ☐Southland / Murihiku
5	**Please choose any you are associated with**	• ☐Iwi/Hapū • ☐Local/regional government • ☐Energy industry/Sector body/Business • ☐Transport industry/Sector body/Business • ☐Agriculture industry/Sector body/Business • ☐Forestry industry/Sector body/Business • ☐Non-Forestry industry/Sector body/Business • ☐Waste industry/Sector body/Business • ✓Other industry/Sector body/Business • ☐ETS market participant • ☐Environmental NGO • ☐Other kind of NGO or charity • ☐Other: please specify:

General consultation questions

The following consultation questions relate to the Government's general approach to emissions reductions. Some information is provided along with these questions to support you to answer them without extensive reading of the discussion document.

Share your views	
0.1	What do you think is working well in New Zealand to reduce our emissions and achieve the 2050 net zero target?
	a) The direction for industry to invest in low emissions where it can add value is positive. b) The Government's focus on removing regulatory barriers and encouraging private investment is positive.
.0.2	The Government is taking a 'net-based approach' that uses both emissions reductions and removals to reduce overall emissions in the atmosphere (rather than an approach that focuses only on reducing emissions at the source). A net-based approach is helpful for managing emissions in a cost-effective way that helps grow the economy and increase productivity in New Zealand. a. What do you see as the key advantages of taking a net-based approach? b. What do you see as the key challenges to taking a net-based approach?
	Click or tap here to enter text.
0.3	The current proposed policies in the ERP2 discussion document cover the following sectors and areas: • strengthening the New Zealand Emissions Trading Scheme • private investment in climate change • energy sector • transport sector • agriculture sector • forestry and wood-processing sector • non-forestry removals • waste sector. What, if any, other sectors or areas do you think have significant opportunities for cost-effective emissions reduction?
	Technology-led Opportunities a) Despite referring to being "technologically-led", the Emissions Plan significantly understates the role technology can play in delivering more cost-effective emissions reduction. b) Throughout this submission we refer to the Framework for a Climate Technology Roadmap report (April 2024) (https://nztech.org.nz/reports/technology-for-emissions-reduction/) c) This report and the supporting research shows that technology is pivotal in addressing the pressing global challenge of climate change. Analysis highlighted in the Report stated that up to 42 percent of New Zealand's 2030 emissions budget targets could be met by actions enabled by digital technology. Yet the Emissions Reduction Plan excludes many of these opportunities, which we detail in this submission.

Share your views	
0.1	What do you think is working well in New Zealand to reduce our emissions and achieve the 2050 net zero target?
	d) As Minister Collins says in the Framework report, "Developing robust policies to better facilitate technology investment in New Zealand is a major focus for the Government. We need to make sure our policy settings and regulations are fit for purpose to make the most of these opportunities." These policy and regulations enhancements can be more strongly and specifically reflected in the ERP, as we outline in this submission. e) Minister Watts says in the report: "The Climate Technology Roadmap outlines a clear path for harnessing technology to meet our emissions reduction targets. It emphasizes the role of digital solutions in monitoring and reducing emissions, the development of clean energy technologies, and the importance of innovation in sustainable agriculture and transportation." The ERP currently does not include a number of the solutions and technologies referred to in the Framework report. Some of these are outlined below.
0.4	What Māori- and iwi-led action to reduce emissions could benefit from government support? There are additional questions about Māori- and iwi-led action to reduce emissions and impacts of proposed ERP2 policies on Māori and iwi in chapters 1 and 12.
	a) Recent data-driven Māori-led research into the Māori tech ecosystem identified several technology and data elements that could inform and influence New Zealand's emissions reduction response. The Framework for a Climate Technology Roadmap report outlines a path and contacts to develop this.

Chapter 1: Our approach to New Zealand's climate change response | Tā mātou e whai nei e pā ana ki tā Aotearoa urupare ki te panoni āhuarangi

Summary

This chapter outlines the Government's long-term approach to deliver and sustain net zero emissions by 2050 at least cost. We will implement it over time, through successive emissions reduction plans. Key actions taken over the next five years through the second emissions reduction plan (ERP2) will set in motion a least-cost, low-emissions transition.

The Government proposes taking a strong, net-based approach to reduce emissions at least cost. This strategy is based on five pillars.

1 Infrastructure is resilient and communities are well prepared.

2 Credible markets support the climate transition.

3 Clean energy is abundant and affordable.

4 World-leading climate innovation is boosting the economy.

5 Nature-based solutions address climate change.

Chapter 1	
1.1	What opportunities do the proposed initiatives and policies across the sectors offer for Māori- and iwi-led action to reduce emissions?

a) As discussed in the Framework for a Climate Technology Roadmap report, this should be addressed via a "By Maori For Māori" approach.

b) If designed well, emissions reduction policies should present opportunities to enable the acceleration of Māori climate tech innovation and solutions.

1.2	What additional opportunities do you think the Government should consider?

a) **Expand the ERP's technology focus**: In practice the ERP2 does not yet describe a technology-led approach. A more diverse range of technologies are available and should be included such as digital technologies, artificial intelligence (AI) systems or biotechnology solutions in agriculture and waste management.

b) **Reconsider lowest-cost approach in place of highest ROI:** We believe there is a risk that the focus on lowest cost within the ERP could undermine incentives to invest in technology.

I. Technology solutions are likely to deliver higher value over the medium-long term. They can also deliver spillover benefits into the economy through productivity improvements. The Framework for a Climate Technology Roadmap report highlights how investing in green growth has resulted in higher than otherwise economic growth.

II. Given the climate transition is a 20-50 year process, it would be useful to consider return on investment over the entire time frame.

c) **Establish expert technology leadership**: Establishing an expert reference group on climate technology could aid progress.

I. A small group with climate technology expertise (across industry/academia/government) could input to MfE and MBIE on available viable technologies, what needs investment/what could be accelerated, and how this can strengthen sector-based plans.

d) **Invest locally now in preference to internationally:** Closing the gap New Zealand has to achieve its Paris target is not directly addressed in the ERP. New Zealand will need to spend several billions of dollars purchasing offshore carbon credits to address this. To reduce this very large cost, we suggest the Government investigate investing a much smaller portion of that funding now into some of the local climate technology innovation outlined in

the Framework for a Climate Technology Roadmap, and referred to in this submission.

e) **Promote further multi/bipartisan agreement**: New Zealand's legislative emissions reduction framework was established with multi-party agreement. The greater the future level of cross political support for the policy and planning framework associated with implementing the framework, the more likely businesses will be to invest. We would encourage the Government to look for opportunities to build this with climate technology opportunities where there is typically less partisan interest.

Chapter 2: Tracking our progress towards meeting emissions budgets | Te aroturuki i tō tātou koke i te ara whakatutuki i ngā tahua tukunga

Summary

The Government is committed to meeting our climate targets. Our strategy outlines how we will approach the challenges and opportunities in meeting them.

We are building off the momentum that our first emissions budget started. For example, higher rates of forestry have occurred in the last few years, positioning New Zealand well for the future as those trees grow.

Reflecting the Government's change in approach, we have stopped work on some actions that were included in the first emissions reduction plan (ERP1). This is not expected to materially affect our ability to meet the first emissions budget: our current assessment is that ERP1 remains sufficient to meet it.

To maintain an up-to-date ERP1 and reflect decisions that have already been taken, we are now consulting on formally amending ERP1 using the statutory process set out in section 5ZI(3) of the Climate Change Response Act 2022 (CCRA).

The second emissions reduction plan (ERP2) lays the way for us to achieve future budgets, particularly the second emissions budget. The information we have today suggests that ERP2 can be sufficient to achieve the second emissions budget.

The Government will proactively respond to challenges and opportunities to stay within the budgets. We will continue to rely on the most up-to-date modelling as we finalise ERP2, which will allow us to ensure the sufficiency of the final plan.

Chapter 2	
	Current modelling suggests that with a changed approach, the first emissions reduction plan is still sufficient to meet the first emissions budget.
2.1	What, if any, other impacts or consequences of the Government's approach to meeting the first emissions budget should the Government be aware of?

	Click or tap here to enter text.
2.2	What, if any, are the long-term impacts from the changes to the first emissions reduction plan on meeting future emissions budgets that should be considered through the development of the second emissions reduction plan?
	Leading emissions reduction response countries have shown that better integrating technology with the industry sector responses delivers a more effective emissions reduction result.

Chapter 3: Strengthening the New Zealand Emissions Trading Scheme | Te whakakaha i te Kaupapa Hokohoko Tukunga o Aotearoa

Summary

This chapter explains how the Government will support the New Zealand Emissions Trading Scheme (NZ ETS) to help meet the second emissions budget and net zero target. A key focus is the credibility of the NZ ETS and aligning it with the second emissions budget.

Share your views

We are seeking feedback on:

- the Government's proposed actions to strengthen the NZ ETS
- using the NZ ETS as the primary mode for meeting the second emissions budget.

Chapter 3	
3.1	What else can the Government do to support NZ ETS market credibility and ensure the NZ ETS continues to help us to meet our targets and stay within budgets?
	The emissions trading scheme needs incentives to encourage cleaner practices, particularly in the agricultural sector, and this could include a regulatory mandate.
3.2	What are the potential risks of using the NZ ETS as a key tool to reduce emissions?
	Click or tap here to enter text.
3.3	How can the Government manage these risks of using the NZ ETS as the key lever to reduce emissions?
	Click or tap here to enter text.
3.4	Do you support or not support the Government's approach of looking at other ways to create incentives for carbon dioxide removals from forestry, in addition to using the NZ ETS?
	Please choose one of the following: • ☐Yes, I support • ☐No, I don't support

	• ☐Unsure
3.5	Apart from the NZ ETS, what three other main incentives could the Government use to encourage removals through forestry?
	Click or tap here to enter text.
3.6	Please provide any additional feedback on the Government's thinking about how to use the NZ ETS to reduce emissions.
	Click or tap here to enter text.

Chapter 4: Scaling private investment in climate mitigation | Te whakakorahi tā te rāngai

Summary

This chapter outlines how the Government proposes to better support private investment in reducing emissions. Work is underway across government to understand the barriers to green investment in New Zealand, and to identify options to address them. Through the second emissions reduction plan (ERP2), we will signal our approach to scaling private investment.

Chapter 4	
4.1	Do current measures work well to unlock private investment in climate mitigation?
	• ☐Yes • ☐Partially • ✓No • ☐Unsure
4.2	What are the three main barriers to enabling more private investment in climate mitigation?
	a) Absence of effective coordination I. In New Zealand, innovators of different sizes and even larger technology companies can find it hard to pair up with large customers who are willing or able to invest in trials and proof of concept projects without a clear business case and return on investment outlined from the outset. II. As a result, emerging or new technology solutions with potentially high value across different sectors are not explored or developed. III. As an example, part of the UK's climate technology roadmap is The Smart Meter System based Internet of Things Applications Programme - which aims to support innovation to determine the feasibility of, and to trial, a Smart Meter System based IoT sensor devices. Without such a programme it is unlikely that this kind of innovation will occur in New Zealand. IV. The Government could play a coordination role here to bring together innovators, academics, and different sector

representatives, to solve challenges in specific sectors where emissions opportunities are greatest.

b) Lack of effective technology investment taxonomy

I. New Zealand climate technology opportunities can struggle to articulate appropriate risk/return objectives because of a lack of a taxonomy to quantifying proof of impact in New Zealand.

II. Limited return on investment and impact reporting is also a barrier.
Example: The BlackRock Inc NZ$2 billion (US$1.22 billion) climate infrastructure fund is a promising development. However, the terms for accessing these funds are still unclear.

III. Positive steps include increasing support for the Government's New Zealand Growth Capital Partners (NZGCP) Elevate fund, enhancing investor skills, and offering incentives for investing in startups as outlined in the Framework for a Climate Technology Roadmap.

c) Immature technology incentives, and linkages

I. In New Zealand's small advanced economy peers, greater R&D and pre-seed funding incentives are used to drive technology uptake and innovation. The absence of a broader incentives ecosystem in New Zealand is a barrier to quicker progress in the climate technology sector and increasing its impact on our emissions reduction goals.
Example: The UK's incentivising of innovation and technology in their IoT trials showed investment insight rather than corporate welfare.

II. New Zealand also needs better links between its innovators and investors, both locally and globally, because we are falling behind other similar-sized advanced economies in gaining access to climate technology funding.

4.3	What are the three main actions the Government can do to enable more private investment in climate mitigation for the next 18 months?

a) Policy and regulatory settings

I. Use of policy/regulations and appropriate mandates to provide direction for investment: Boost returns by focusing resources on technology investments (including governance and management attention) on the technology most likely to unfold.

II. Review business case process: Survey participants reported frustration and many barriers with business cases frequently disregarded.
Example: transport participants reported a greater tendency to utilise or adapt existing large technology applications, in preference to supporting New Zealand solutions.

III. Consider more streamlined approval processes for climate technologies

IV. Develop a "Climate Tech Sandbox" approach allowing limited release of promising innovations.

V. Evaluate emissions reduction targets being factored into climate priority government procurement/government project funding.

b) Industry partnership and support

I. Partnerships - facilitate and support strong partnerships across various sectors, aligning Climate Tech interests and ensuring stakeholders support the goals of the roadmap. This can stimulate new innovations, attract investment, provide better links between innovators and investments, and provide necessary expertise.

c) Financial incentives

I. Blended finance - more blended finance structures across the public (e.g. NZGIF) and private sectors (e.g. fund managers, corporates and green Venture Capital firms) decreases risk for a single investor and provides a facility to share expertise to accelerate ESG and impact investment learnings and decision-making.

II. NZ climate taxonomy (currently being driven by the Centre for Sustainable Finance). Support the development of, and mandate the use of, a NZ-based climate taxonomy that uses data and metrics that are easy to report against and to quantify impact, so that we can start measuring the impact of current projects, thus providing a decision-making tool to give greater assurance of returns and impact to reticent investors or confirm which of the 40-ish global taxonomies, e.g. EU taxonomy, we should use.

III. Support for climate tech - the Government could provide support through incentives e.g. easier access to carbon credits for priority innovation, tax rebates for R&D and uptake of new climate technologies, particularly in agriculture, transportation, energy efficiency and waste management.

4.4	What are the three main things the Government can do to enable more private investment in climate mitigation in the longer term (beyond the next 18 months)?

a) Refocus from lowest cost to highest ROI: to stimulate investment into climate technology (versus directing investment to cheaper forestry offsets)

b) Explore Targeted longer-term refinancing operations (TLTROs) as a mechanism to boost investment in climate and carbon-reduction technologies.

	c) Explore lending/capital growth products that allow for more diverse emission reductions/impacts and consider the role banks play in regulating emissions reduction, as occurs in overseas markets.
4.5	Please provide any additional feedback on the Government's thinking about how to enable more private investment in climate mitigation for the next 18 months.
	Click or tap here to enter text.

Chapter 5: Energy | Te pūngao

Energy sector at a glance

Annual emissions	• 2022: 15 Mt CO_2-e • 2030 (projected): 12–15 Mt CO_2-e • 2050 (projected): 6–13 Mt CO_2-e
Pillars of the strategy	• Clean energy is abundant and affordable. • Credible markets support the climate transition.
Why this sector is important	• New Zealand has abundant renewable energy potential. Harnessing this will help meet our emissions budgets, reduce our dependency on imported fuels and support the reliability and affordability of the energy system.
What we're doing now	• Enabling an acceleration in renewable generation and electricity networks by removing red tape.
What's coming	• Renewable energy will double by 2050. • A smarter electricity system which gives consumers the ability to change how and when they use power.

What this means for New Zealanders

- Over the longer-term households heat their homes more affordably, with renewable energy.
- People charge their electric vehicles easily across the country.
- Renewable energy providers have confidence to invest, enabling them to grow their operations and meet increasing demand.
- Businesses have opportunities to choose cost-effective, low-emissions technologies.

Chapter 5	
5.1	What three main barriers/challenges that are not addressed in this chapter do businesses face related to investing in renewable electricity supply (generation and network infrastructure)?
	• Please write your first barrier here • Please write your second barrier here • Please write your third barrier here
5.2	How much will the Government's approach to driving investment in renewable energy support businesses to switch their energy use during 2026–30 (the second emissions budget period)?
	Please choose one of the following answers • ☐A lot – it will make a large difference • ✓A moderate amount - there will still be other barriers • ☐Little to none – it will make no meaningful difference • ☐ Unsure
5.3	What three main barriers/challenges do businesses and households face related to electrifying or improving energy efficiency, in addition to those already covered in the discussion document?
	• Please write your first barrier here • Please write your second barrier here • Please write your third barrier here
5.4	How much will existing policies support private investment in low-emissions fuels and carbon-capture technologies?
	Please choose one of the following answers • ☐A lot – it will make a large difference • ✓A moderate amount - there will still be other barriers • ☐Little to none – it will make no meaningful difference • ☐ Unsure
5.5	What three main additional actions could the Government do to enable businesses to take up low-emissions fuels and carbon-capture technology?
	• Please write your first action here • Please write your second action here • Please write your third action here
5.6	If you are an electricity generator, please explain and/or provide evidence of how Electrify NZ could affect projects already planned or underway.
	Click or tap here to enter text.

Chapter 5	
5.7	If you are an electricity generator, please explain and/or provide evidence of how Electrify NZ could increase the likelihood that new projects will be investigated.
	Click or tap here to enter text.
5.8	Please provide any additional feedback on the Government's proposals to reduce emissions in the energy sector and the industrial processes and product use sector.

a) **Overview:** The perspective from the energy sector is that a better pathway would be unlocking demand-side response and capacity that we currently do not have the market or regulatory settings to unlock. Current policies would require investment in infrastructure required to support the proposed targets.

b) **Regulatory Settings and Market Mechanisms**

I. Distributed energy resource (DER), flexibility and smart tech innovation could enable significant electricity capacity, estimated at multi 100's of MW's, and associated services, to come to market, to:
   A. reduce electricity spot and futures pricing,
   B. respond to generation demand/supply constraints (e.g. low residual events),
   C. support grid constraints, both transmission and distribution; and
   D. optimise existing energy infrastructure, by unlocking capacity and deferring capital investment;

II. In a cost-effective, secure and sustainable way, reducing the overall energy operating envelope for New Zealand electricity customers and supporting emissions targets. There are key barriers to enablement of these types of innovation in the existing electricity regulatory settings and market mechanisms.

III. A number of technology and innovation pilots and trials have proven the value of enabling technology and innovation based solutions in the sector, however the current regulatory settings and market mechanisms were developed for a traditional electricity model and large sector participants.

IV. We recognise that the electricity sector, and specifically the regulators, are working to reduce the regulatory and market barriers for innovation to participate in the sector, however this could be strongly supported with policy settings and quantifiable targets that reinforce the value and importance of unlocking these barriers, to enhancing the affordability, sustainability and security of electricity in New Zealand.

c) **Participation Incentives and Value Stacking**

In addition to market and regulatory settings, focus is also needed on participation incentives and value stacking across electricity sector participants, as existing pricing signals and tariff structures are

again aligned to the traditional, large participant electricity market. These are inadequate and often diluted to a level that offer consumers little, or no, incentive to participate and by default reinforce a traditional infrastructure-only model and limit technology and innovation-based DER, flexibility and optimisation choices coming to market.

d) **Data Access and Privacy**

Cost effective and timely access to data, specifically smart meter data, is also stymying technology that unlocks network visibility, that enables optimisation of existing and future distribution network infrastructure, and is also stymying innovators in retail, flexibility and aggregation, who offer technology based products and services to consumers that can shape, shift and reduce their peak electricity demand and overall consumption. Policy and regulation that addresses timely and cost effective access to data and clarifies data privacy in the sector, would help accelerate smart technology uptake to support climate goals.

e) **Further energy emissions reductions options** to be investigated are outlined in the Quicker Opportunities section of the Framework for a Climate Technology Roadmap.

Chapter 6: Transport | Te tūnuku

Transport sector at a glance

Annual emissions

- 2022: 13.6 Mt CO_2-e
- 2030 (projected): 11–16 Mt CO_2-e
- 2050 (projected): 3–11 Mt CO_2-e

Pillars of the strategy

- Clean energy is abundant and affordable.
- Credible markets support the climate transition.

Why this sector is important	• The transport system is critical to economic growth and productivity. New Zealand is in a strong position to decarbonise transport through electrification. • Making clean energy accessible and enabling electric vehicle (EV) uptake via improved charging infrastructure will remove some non-market barriers to uptake.
What we're doing now	• We are reviewing the Clean Car Importer Standard to ensure it is effective and achievable. • We are working with businesses through Sustainable Aviation Aotearoa to understand the barriers to decarbonising aviation.
What's coming	• We will enable a network of 10,000 public EV charging points by 2030 and facilitate private investment in EV charging infrastructure. • We will review regulatory barriers to decarbonising heavy vehicles. • We will work with other countries on sustainable aviation fuels and low- and zero-carbon shipping on key trade routes by 2035. • We will support public transport in our main cities.
What this means for New Zealanders	• People can charge their EVs easily across the country.

Chapter 6	
6.1	Do you support the proposed actions to enable EV charging infrastructure?
	• ✓Yes I support • ☐No I don't support • ☐Unsure
6.2	What are the three main actions the Government can do to reduce barriers to and enable the development of a more extensive public EV charging infrastructure in New Zealand (without adding too much cost for households and businesses)?
	• Please write your first action here • Please write your second action here • Please write your third action here
6.3	Do you support the Government's proposals to reduce emissions from heavy vehicles?
	• ☐Yes I support • ☐No I don't support • ☐Unsure
6.4	What are the three main actions the Government can do to make it easier to switch to low- and zero-emissions heavy vehicles (without adding too much cost for households and businesses)?
	• Please write your first action here

Chapter 6	
	• Please write your second action here • Please write your third action here
6.5	Do you support the Government proposals to reduce emissions from aviation and shipping?
	• ☐Yes I support • ☐No I don't support • ☐Unsure
6.6	What opportunities might there be from rolling out new technologies to reduce emissions from aviation and shipping?
	Click or tap here to enter text.
6.7	What are the three main actions the Government can do to make it easier to reduce emissions from aviation and maritime fuels (without adding too much cost for households and businesses)?
	• Please write your first action here • Please write your second action here • Please write your third action here
6.8	Please provide any additional feedback on the Government's thinking about how to reduce emissions in the transport sector.
	a) A transport technology focus is needed I. Transport technology is not a focus for the ERP, other than EV chargers. This is a missed opportunity for the transport sector's contribution to emissions reductions. I. Transport is a significant source of emissions and technology opportunities, deployed in some of New Zealand's Small Advanced Economy competitors. In New Zealand digital technologies have the potential to enable an estimated 2.9 Mt of emissions reduction through existing and new applications. II. Opportunities that have been identified in the UK include smart systems to reduce the cost of electricity storage, advanced innovative demand response technologies and the development of new ways of balancing the grid to prepare for the impact of electric vehicles (EVs). III. Digitisation is a key enabler as passenger transport moves towards smart, easy-to-use transport that is based on the sharing and services practice called MaaS (Mobility as a Service). IV. Incentives are being used to encourage technology use to deliver a more service-based transport system. This includes developing and promoting alternative forms of transport and replacing more carbon-intensive modes. V. Our survey respondents also highlighted several opportunities including digitalisation of freight management, the electrification of transport fleets, and expanding mobility-as-a-service (MaaS).

Chapter 6

b) **Opportunities to more quickly reduce transport emissions** – to be further investigated – are outlined in the Framework for a Climate Technology Roadmap:

I. Prioritise increase in EV infrastructure in urban centres to address EV uptake constraints (*underway*).

II. Encourage and support the use of sustainable fuels for long-distance transportation.

III. Start a work programme to update legacy system traffic signals with new transport technology. Existing market technology can be deployed.

IV. Fast-track the deployment of small commercial vehicle technology and initiate pilots to demonstrate support/opportunity.

V. Progress Mobility-as-a-Service (MaaS) service technology pilots using incentives and policy tools, similar to Finland, to encourage tech use to deliver a more service-based transport system.

VI. Fast-track smart systems to reduce the cost of electricity storage, advance innovative demand response technologies, and develop new ways of balancing the grid to prepare for the impact of EVs.

VII. Start a work programme to promote greater public transport and other service information and payment system interfaces, and develop compatibility for alternative forms of transport.

VIII. Study insights from the UK's Centre for Connected and Autonomous Vehicles for a collaborative funding model with industry.

IX. Study insights from Finland's Circular Economy Roadmap, where digitisation has been identified as an essential enabler in the transport and logistics transition.

X. Evaluate the urban mobility data system improvement opportunities identified by the Australia New Zealand Smart Cities Council in their Mobility Now report.

Chapter 7: Agriculture | Te ahuwhenua

Agriculture sector at a glance

Annual emissions	• 2022: 41.3 Mt CO_2-e • 2030 (projected): 36–40 Mt CO_2-e • 2050 (projected): 30–44 Mt CO_2-e
Pillar of the strategy	• World-leading climate innovation is boosting the economy.
Why this sector is important	• Agriculture makes up about half of New Zealand's total emissions. It is essential that domestic efforts to reduce emissions support our farmers to produce emissions-efficient products and do not cause production to shift to other parts of the world where it is more emissions intensive.
What we're doing now	• We are reviewing methane science and targets. • We are accelerating the development of mitigation tools and technologies to reduce on-farm emissions. • We are developing measurement of on-farm emissions for use by 2025.
What's coming	• We will implement a fair and sustainable pricing system for on-farm emissions by 2030.
What this means for New Zealanders	• The agriculture sector maintains production of low-emissions goods to access high-value markets. • The sector uses technologies to lower emissions while lifting productivity and the value of exports.

Chapter 7	
7.1	What are the three main barriers or challenges to farmer uptake of emissions-reduction technology?
	a) Understanding the value of the investment b) The costs of adopting technology solutions c) Obtaining satisfactory proof of return

7.2	How can the Government better support farm- and/or industry-led action to reduce emissions?
7.3	How should Government prioritise support for the development of different mitigation tools and technologies across different parts of the agriculture sector?
7.4	What are three possible ways of encouraging farmer uptake of emissions-reduction tools?
7.5	What are the key factors to consider when developing a fair and equitable pricing system?
	Click or tap here to enter text.
7.6	Please provide any additional feedback on the Government's thinking about how to reduce emissions in the agriculture sector.

a) **Leadership**: The sector can be seen as a leader in this space. This is a natural public/private partnership area, with AgriTech New Zealand a strong contributor in this space.

b) **Alliance building**: Climate and sustainability models can be developed with the government assisting with alliances so that industry can execute via verticals.

c) **On-farm emissions reductions opportunities**:

Digital technology can support farmers by providing information to help understand the drivers of on-farm emissions and support them to make decisions to address them. It can also enable measurement and reporting to support incentives to adopt new technologies or make practice changes to reduce emissions. Key ways digital technology can enable agricultural emissions reductions include:

I. Enabling precision agriculture: using data to inform decisions and improve farm system efficiency
II. Enabling data collection and monitoring of multiple factors: soil, water, weather, animals, on-farm equipment etc.
III. Automating systems and actions for precise use of farm inputs, guiding quantity, location, and timing of actions
IV. Informing decisions to improve farm efficiency, optimising use of fertiliser, bought-in feed, energy, water, pasture rotation, stock levels, planting etc.

d) **Opportunities to more quickly reduce agriculture emissions** using technology – to be further investigated – are outlined in the Framework for a Climate Technology Roadmap:

I. Align the Agritech Industry Transformation Plan with emission reduction plan priorities to enhance work currently underway to grow New Zealand agritech exports.

II. Boost uptake support for the technologies already being deployed in top three on-farm areas: existing animal management (and milking), crop protection and fertiliser/ nutrient management.

III. Take steps to address cost of technology implementation and proof of return on investment to increase uptake and deliver efficiency benefits.

IV. Strongly promote existing New Zealand agritech solutions.

V. Prioritise anaerobic digestion opportunities as a way to manage organic residues.

VI. Prioritise the development of biochar production and use cases in agriculture and industry.

VII. Prioritise GMO technologies tailored for the farming business model and conditions which can help reduce methane emissions from animals.

VIII. Utilise crop vision and sensing systems to reduce nitrogen use and nitrous oxide emissions.

IX. Deploy animal sensors and management systems to increase efficiency and reduce impacts of animal farming.

X. Implement methane inhibitors, vaccines, and changes to cows' rumen biome flora and microbiome to reduce methane emissions from dairy farms.

XI. Encourage and support use of big data/AI tools on-farm.

XII. Support the tailoring for NZ on-farm use of priority internationally available technology which can be deployed locally.

XIII. Develop a low-methane livestock supply chain that consists of both sets of technologies but also systems of operating models between technologies that can be exported as a New Zealand model.

XIV. Support development of a New Zealand agricultural digitalisation value chain.

Chapter 8: Forestry and wood processing | Te ahumahi ngāherehere me te tukatuka rākau

Forestry and wood-processing sector at a glance

Annual removals	• 2022: –4.6 Mt CO_2-e • 2030 (projected): –15 to –16 Mt CO_2-e • 2050 (projected): –15 to –27 Mt CO_2-e
Pillars of the strategy	• Credible markets support the climate transition. • Nature-based solutions address climate change.
Why this sector is important	• Forestry and wood processing remove carbon from the atmosphere to reduce our net emissions and produce high-value products that can replace emissions-intensive ones.
What we're doing now	• We are restoring confidence in the NZ ETS to give certainty to the forestry and wood-processing sector.
What's coming	• We propose to limit whole-farm conversions to forestry on high-quality land to protect highly productive farmland. • We will boost wood processing by improving the consenting framework, supporting commercial investments and getting the system settings right to be building with wood.
What this means for New Zealanders	• We reduce net emissions, while protecting our most valuable and productive farmland.

Chapter 8	
8.1	How could partnerships be structured between the Government and the private sector to plant trees on Crown land (land owned and managed by the Government)?
	Click or tap here to enter text.
8.2	What are the three main actions the Government could do to streamline consents for wood processing?
	• Please write your first action here • Please write your second action here • Please write your third action here
8.3	How large should the role of wood in the built environment play in New Zealand's climate response?
	• ☐Less than currently • ☐About the same as currently • ☐More than currently • ☐Unsure
8.4	What other opportunities are there to reduce net emissions from the forestry and wood-processing sector?
	Click or tap here to enter text.
8.5	Please provide any additional feedback on the Government's thinking about how to reduce emissions in the forestry and wood-processing sector.
	Click or tap here to enter text.

Chapter 9: Non-forestry removals | Ngā tangohanga ngāherehere-kore

Chapter 9	
9.1	What are the three main opportunities for non-forestry removals to support emissions reduction?
	• Please write your first opportunity here • Please write your second opportunity here • Please write your third opportunity here
9.2	What are three main barriers to developing more non-forestry removals?
	• Please write your first barrier here • Please write your second barrier here • Please write your third barrier here
9.3	It is important to balance landowners ability to use their land flexibly with the recognition of the role of non-forestry removals. How can this balance be achieved?
	Click or tap here to enter text.
9.4	What three main benefits beyond emissions reductions could be created by developing more non-forestry removals?
	• Please write your first benefit here

	• Please write your second benefit here • Please write your third benefit here
9.5	What risks and trade-offs from incentivising land-use and management change to reduce net emissions need to be considered?
	Click or tap here to enter text.
9.6	Please provide any additional feedback on the Government's thinking about how to reduce emissions through non-forestry removals.
	Click or tap here to enter text.

Chapter 10: Waste | Te para

Waste sector at a glance

Annual emissions

- 2022: 3.5 Mt CO_2-e
- 2030 (projected): 3.3 Mt CO_2-e
- 2050 (projected): 3.0 Mt CO_2-e

Pillars of the strategy

- Infrastructure is resilient and communities are well prepared.
- Credible markets support the climate transition.

Why this sector is important

- Waste is an important issue to New Zealanders.[1] Enabling better waste diversion will help households and businesses to reduce their waste and the associated emissions. Local and central government and the waste management, resource recovery and recycling sector all have key roles in this system.

What we're doing now

- The New Zealand Emissions Trading Scheme (NZ ETS) incentivises efficient landfill gas capture.
- A portion of the waste disposal levy is invested in New Zealand's waste infrastructure.

1 Waste-related issues have continuously featured in the top 10 concerns of New Zealanders in the Colmar Brunton/Kantar better futures survey, including the 2023 survey.

What's coming	• We will have further targeted investment in New Zealand's resource recovery infrastructure and systems (including for construction and demolition waste). • We will investigate improving organic waste disposal and landfill gas capture.
What this means for New Zealanders	• Waste-related biogenic methane emissions are further reduced. • More reusable and recyclable resources are available for use in the New Zealand economy.

Chapter 10	
10.1	Do you agree or disagree that the Government should further investigate improvements to organic waste disposal and landfill gas capture?
	• ☐Agree • ☐Disagree • ☐Unsure
10.2	What is the main barrier to reducing emissions from waste (in households and businesses or across the waste sector)?
	Click or tap here to enter text.
10.3	What is the main action the Government could take to support emissions reductions from waste (in households and businesses or across the waste sector)?
	Click or tap here to enter text.
10.4	Please provide any additional feedback on the Government's thinking about how to reduce emissions in the waste sector.
	Click or tap here to enter text.

Chapter 11: Helping sectors adapt to climate change impacts | Te āwhina i ngā rāngai ki te

Summary

The Climate Change Response Act 2022 (CCRA) requires emissions reduction plans to include a multi-sector strategy to meet emissions budgets and improve the ability of those sectors to adapt to the effects of climate change. This chapter outlines how we propose to adapt to the effects of climate change through the second emissions reduction plan (ERP2).

As we work to reduce emissions, we also need to manage climate change impacts. How we approach this could affect the ability of sectors to adapt either positively (ie, adaptation co-benefits) or negatively (ie, maladaptation).

Chapter 11	
11.1	What are the three main barriers to managing climate risks through emissions reduction policies in this discussion document?
	• Please write your first barrier here • Please write your second barrier here • Please write your third barrier here
11.2	What are the three main benefits of managing climate risks that can come from the emissions reductions policies in this discussion document?
	• Please write your first benefit here • Please write your second benefit here • Please write your third benefit here
11.3	What are some examples of how businesses and industries are already managing climate risks?
	Click or tap here to enter text.
11.4	How can these kinds of activities be further supported?
	Click or tap here to enter text.
11.5	Please provide any additional feedback on the pathway the Government has set out for managing climate risks from emissions reduction activities.
	Click or tap here to enter text.

Chapter 12: Addressing distributional impacts of climate mitigation policy | Te whakatutuki i ngā pāpānga tohatoha o te kaupapahere whakamauru panoni āhuarangi

Summary

Alongside our efforts to reduce emissions, we need to address the distributional impacts from climate mitigation policy in the second emissions reduction plan (ERP2). Reducing emissions and increasing removals can be disruptive and impose costs on different groups of New Zealanders.

Each emissions reduction plan is required, under the Climate Change Response Act 2022 (CCRA), to include a strategy to mitigate the impacts of reducing emissions and increasing removals on employees and employers, regions, iwi and Māori, and wider communities, including the funding for any mitigation action.

This chapter sets out an initial analysis of the distributional impacts of some policies in this discussion document. It also outlines how we will more thoroughly assess and address those impacts in the published ERP2.

Chapter 12	
12.1	What are the main impacts of reducing emissions on employees, employers, regions, iwi and Māori, and/or wider communities that you believe should be addressed through Government support?
	Click or tap here to enter text.

Chapter 12	
12.2	The Government can use a lot of existing tools to support people affected by reducing emissions (welfare and income support systems, employment and training services). Do you think additional climate-specific services, supports or programmes should be considered by the Government over the coming years? Please describe what additional climate-specific services, supports or programmes could be useful.
	Please choose one of the following answers: • ☐Yes • ☐No • ☐Unsure

Privacy statement and consent to release submissions

Who will see your submission

The Privacy Act 2020 applies certain principles about the collection, use and disclosure of information about individuals by various agencies, including the Ministry for the Environment. It governs access by individuals to information about themselves held by agencies. Any personal information you provide as part of a submission will be managed in accordance with the Privacy Act.

All submissions will be accessible to Government agencies and Crown Entities that are responsible for developing or implementing parts of the second emission reduction plan. This includes, but is not limited to, the following:

- Ministry of Transport
- Ministry for Primary Industries
- Ministry of Business, Innovation and Employment
- Ministry for the Environment
- Waka Kotahi / New Zealand Transport Agency
- Energy Efficiency and Conservation Authority
- Civil Aviation Authority
- Maritime New Zealand
- KiwiRail
- The Treasury
- Land Information New Zealand.

How submissions will be used

The Ministry for the Environment will publish a summary of submissions which will not identify any individual submitters.

After receiving submissions, we will analyse them to help inform final decisions on the second emissions reduction plan which will be published by the end of 2024.

Publishing of your submission

The Ministry for the Environment may publish on its website the content of submissions (including names of submitters) as they are often of high interest to the public or share them in response to an Official Information Request (under the Official Information Act 1982).

The Ministry for the Environment will also retain your/your organisation's name and email address as part of a stakeholder list for future communication about ERP2 or related climate issues.

By providing a submission, the Ministry for the Environment will consider that you consent to the release and retention of your details.

If you do NOT wish your personal details to be released or retained please indicate that below.

If you think any part of your submissions should be withheld for publication or release under the Official Information Act please indicate what and why below.

We will consider your preference when responding to any requests for information. You have the right to request access to or to correct any personal information you supply to the Ministry.

Privacy statement and consent to release submissions	
A.	Have you read and understood our privacy statement on who will see your information and how it will be used?
	✓Yes, I have understood the statement (required)
B	Do you consent to your submission being published on the Ministry for the Environment's website?
	Please choose one of the following answers: • ✓Yes • ☐ Yes, but without publication of Submitter name • ☐No
C	If yes to the above, clearly state if there are parts of your submission that you do not want published.
	Click or tap here to enter text.
D	Do you consent to your details being kept as part of a stakeholder list for future communication about ERP2 or related climate issues?
	Please choose one of the following options: • ✓Yes • ☐No

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