Ministry for the Environment
Manatū Mō Te Taiao

PROACTIVE RELEASE COVERSHEET

Minister	Simmonds	**Portfolio**	Environment (Waste)
Title of briefing paper	BRF-5059: Proactive release of advice for waste actions in the second emissions reduction plan	**Date to be published**	22 August 2024

List of documents that have been proactively released		
Date	***Title***	***Author***
19 December 2023	Briefing note – Climate Change Commission's waste sector recommendations (BRF-4039)	Ministry for the Environment
19 December 2023	Briefing note Appendix (A) - Table of waste and F-gas actions in the first emissions reduction plan (BRF-4039)	Ministry for the Environment
19 December 2023	Briefing note Appendix (B) - Key opportunities and policy interventions proposed by Climate Change Commission for consideration (BRF-4039)	Ministry for the Environment
21 March 2024	Briefing note – ERP2 Waste sector policy options for public consultation (BRF-4319)	Ministry for the Environment
21 March 2024	Briefing note Appendix (2) - ERP2 Waste sector summary (BRF-4319)	Ministry for the Environment
21 June 2024	Briefing note – Emissions reduction plans 1 & 2 – waste sector update (BRF-4918)	Ministry for the Environment
21 June 2024	Briefing note Appendix (1) - Draft waste sector chapter from the second emissions reduction plan discussion document (proposed for upcoming consultation) (BRF-4918)	Ministry for the Environment
21 June 2024	Briefing note Appendix (2) - Interim status update on emissions reduction plan one actions – for waste and fluorinated gases (BRF-4918)	Ministry for the Environment
21 June 2024	Briefing note Appendix (3) - Initial responses to waste-related Climate Change Commission recommendations (BRF-4918)	Ministry for the Environment
21 December 2023	Briefing note – Landfill gas regulatory settings (NZ ETS) (BRF-3986)	Ministry for the Environment
21 December 2023	Briefing note Appendix (A) - WRIF letter to Ministers Simmonds, Bishop, Watts (BRF-3986)	Ministry for the Environment

21 December 2023	Briefing note Appendix (B) - Landfill gas capture system (BRF-3986)	Ministry for the Environment
29 February 2024	Briefing note – Slide deck briefing for waste emissions reduction work programme (BRF-4325)	Ministry for the Environment
29 February 2024	Briefing note Attachment - Agenda for meeting between Minister Watts & Minister Simmonds [7 March 2024] (BRF-4325)	
29 February 2024	Briefing note Appendix (1) - Slide deck for waste emissions reduction work programme (BRF-4325)	

Information redacted **YES**

Any information redacted in this document is redacted in accordance with the Ministry for the Environment's policy on proactive release and is labelled with the reason for redaction. This may include information that would be redacted if this information was requested under Official Information Act 1982. Where this is the case, the reasons for withholding information are listed below. Where information has been withheld, no public interest has been identified that would outweigh the reasons for withholding it.

Summary of reasons for redaction

Some information is withheld under Section 9(2)(f)(iv) as it is under active consideration, such as dates for release of Government plans and decisions on waste work programme.

Some information is withheld under Section 9(2)(j), with the potential to prejudice active commercial and industrial negotiations in the product stewardship space.

Some information is withheld under Section 9(2)(b)(ii), as it contains commercially sensitive information on the scale of specific resource recovery operations.

One attachment is withheld under Section 18(D), as this information will be included elsewhere in the ERP2 proactive release package and thus will be publicly available at the time of the release of these documents.

Ministry for the Environment
Manatū Mō Te Taiao

Briefing: Climate Change Commission's waste sector recommendations

Date submitted: 19 December 2023
Tracking number: BRF-4039
Security level: Policy and Privacy – In confidence
MfE priority: Routine

Actions sought from Ministers		
Name and position	***Action sought***	***Response by***
To Hon Penny SIMMONDS **Minister for the Environment**	Note the advice from the Climate change commission includes recommendations for waste & fluorinated gases (F-gases) and note you will receive detailed analysis from officials in early 2024.	At your convenience
CC Hon Simon WATTS **Minister of Climate Change**	No action	

Actions for Minister's office staff
Return the signed briefing to the Ministry for the Environment (ministerials@mfe.govt.nz).

Appendices and attachments
Appendix A: Table of waste and F-gas actions in the first emissions reduction plan Appendix B: Key opportunities and policy interventions proposed by the Climate Change Commission for consideration. Attachment 1: BRF-3987 - The Climate Change Chief Executives Board: Progressing the second emissions reduction plan

Key contacts at Ministry for the Environment			
Position	***Name***	***Cell phone***	***First contact***
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Responsible Manager	Miranda Cross	027 258 9672	
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Minister's comments

Climate Change Commission's waste sector recommendations

Key messages

1. On 12 December 2023, the Climate Change Commission (the Commission) delivered its final iteration of advice for the second emissions reduction plan, for the period 2026 – 2030.

2. The latest advice is aligned with the waste work programme in place under the first emissions reduction plan.

3. Potential policy priorities for emissions reduction from waste, as informed by the Commission's advice, can be broadly grouped into three key areas:

    i reducing waste generation, and the flow of organic materials to landfill

    ii reducing emissions from the organic materials that are still disposed of to landfill

    iii improving availability and transparency of waste data and evidence, including for landfill gas capture.

4. The purpose of this briefing is to provide an overview of the current advice for the waste and fluorinated gases (F-gases) sector and highlight how this relates to work that is already underway.

5. Officials will provide more detailed analysis, and policy proposals, for your consideration in early 2024.

Recommendations

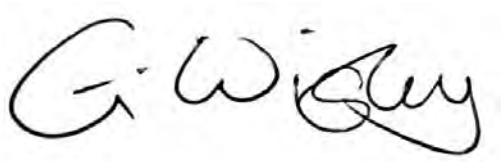
We recommend that you:

a. **note** that the Government has received advice from the Climate Change Commission to inform the second emissions reduction plan, which is due to be published by the end of 2024.

b. **note** that the advice includes recommendations and overarching advice on policy initiatives to reduce emissions from waste and fluorinated gases.

c. **note** that officials will brief you on analysis of the Climate Change Commission's advice for emissions reductions from the waste sector in early 2024.

Signatures



Glenn Wigley
General Manager
Waste & HSNO Policy
19 December 2023

Hon Penny SIMMONDS
Minister for the Environment

Date

Climate Change Commission's waste sector recommendations

Purpose

6. The purpose of this briefing is to provide an overview of the current Climate Change Commission ("the Commission") advice for the waste and fluorinated gases (F-gases) sector and highlight how this relates to work that is already underway.

7. The Climate Change Commission delivered advice to the government on 12 December 2023, intended to inform the direction of policy for the emissions reduction plan (2026 – 2030).[1] The Government is required to respond[2] through the publication of the second emissions reduction plan by the end of 2024.

8. Officials will provide analysis, and initial waste and F-gas policy proposals, for your consideration in early 2024 in line with overall timelines for the second emissions reduction plan [refer BRF-3987 'The Climate Change Chief Executives Board: Progressing the second emissions reduction plan'].

Background

9. The Climate Change Response (Zero Carbon) Amendment Act 2019 requires the Minister of Climate Change to set and meet emissions budgets, and create associated emissions reductions plans to achieve these budgets. The Commission is required to provide independent advice to inform the direction of policy for those plans, which the Government must consider.

10. The first set of advice (*Ināia tonu nei: a low emissions future for Aotearoa,* May 2021) and subsequent emissions reduction plan (May 2022) set the foundation for reducing emissions from waste.

11. The resulting emissions reduction plan actions for the waste and F-gas sectors (2022-2025) are outlined in appendix A. This includes actions for which the Ministry for the Environment is the supporting, rather than lead, agency. The Climate Emergency Response Fund and waste disposal levy are currently used to deliver actions for the first emissions reduction plan.

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[1] https://www.climatecommission.govt.nz/public/Advice-to-govt-docs/ERP2/final-erp2/ERP2-Final-Advice-for-web.pdf

[2] Section 5ZI of the Climate Change Response (Zero Carbon) Amendment Act 2019 states the Minister must prepare and make an emissions reduction plan publicly available. The clauses under this section provide the full detail of requirements for the public release. https://www.legislation.govt.nz/act/public/2019/0061/latest/LMS183848.html#LMS183824

12. Fluorinated gases (F-gases) are a class of synthetic substance used in many applications. They are known to be potent greenhouse gases which has made them subject to various efforts (both domestic and international) to phase down their use. In New Zealand, F-gases are mostly hydrofluorocarbons (HFCs) which are primarily used as refrigerant gases in air-conditioning and refrigeration equipment. They fall within your portfolio because of their relation to multilateral environmental agreements and the refrigerant product stewardship programme.

13. On 12 December 2023, the Commission delivered its next set of advice for the second emissions reduction plan, outlined in this briefing, for the period 2026 – 2030.

Analysis and advice

14. This briefing note presents the Commission's advice and explains relevant links to existing work. Detailed analysis of recommendations is yet to be completed. Officials will provide more detailed analysis, and initial policy proposals, for your consideration in early 2024 in line with overall timelines for the second emissions reduction plan [refer BRF-3987 *'The Climate Change Chief Executives Board: Progressing the second emissions reduction plan*'].

Advice for the waste sector

15. Chapter 16 of the advice, *Ngā Tukupara: Waste and fluorinated gases,* outlines key recommendations and potential policy considerations for these sectors.

16. The Commission has informed officials that the full content within chapters should be taken as its advice, with formal recommendations making up one part of this.

17. Solid waste is responsible for 9.1 per cent of New Zealand's overall methane emissions, with the remainder from the agricultural sector. The waste sector is considered to have readily available solutions, already widely adopted globally, that could be deployed in the short to medium-term to reduce methane emissions. This contrasts with agriculture, for which short term solutions are more challenging.

18. The chapter acknowledges that "reducing waste emissions is a key area for Government action"[3] to achieve the 2030 biogenic methane target.

19. The Climate Change Response (Zero Carbon) Amendment Act 2019 sets out targets for emissions reductions, requiring –

[3] https://www.climatecommission.govt.nz/public/Advice-to-govt-docs/ERP2/final-erp2/ERP2-Final-Advice-for-web.pdf Page 326

i net accounting emissions of greenhouse gases (other than methane) to be zero by the end of 2050.

ii emissions of biogenic methane to be 10 per cent less than 2017 emissions by 2030, and 24 – 47 per cent less than 2017 emissions by 2050.

20. The overarching position of the advice is the need to reduce emissions by avoiding and reducing waste produced. This builds on the recognition of the importance of "shaping plans in line with the waste hierarchy" in the Commission's 2021 advice.

21. The waste hierarchy is depicted in figure 1 below, as developed for *Te rautaki para–Aotearoa New Zealand Waste Strategy*.[4] Actions that address the top of the waste hierarchy are considered the best practice options, which improve the way we create and use resources for maximum efficiency.

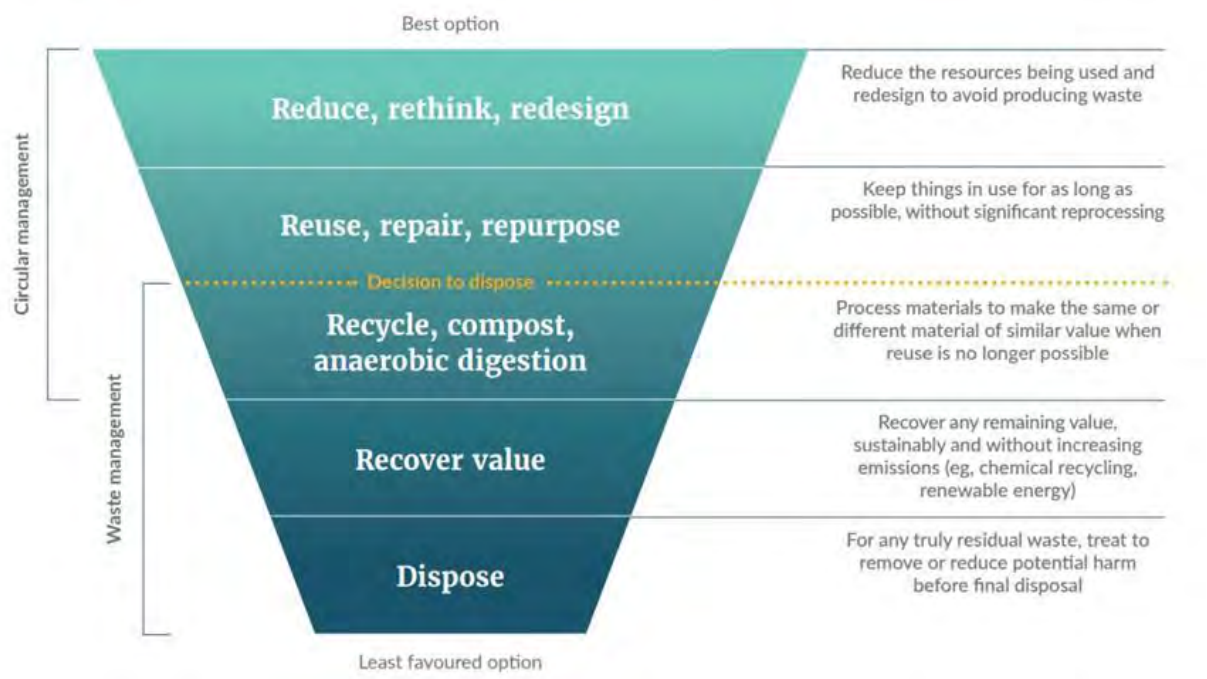

Figure 1: Waste hierarchy diagram, pg. 15, Te rautaki para–Aotearoa New Zealand Waste Strategy.

22. The Commission's 2023 advice highlights that a "policy and infrastructural framework" is needed to accelerate action across five key objectives:

i reducing the production of waste

ii phasing out the landfilling of organic waste

iii reducing the embodied emissions from waste

iv avoiding and preventing fossil-fuel waste generation [*plastics*]

[4] https://environment.govt.nz/assets/publications/Te-rautaki-para-Waste-strategy.pdf

v ensuring highly efficient gas capture at landfills that accept organic waste.

23. There are two formal recommendations for the Government in Chapter 16 of the Commission's advice:

    i Recommendation 26: Ensure the use of landfill gas capture systems and technologies is widespread and efficient.

    ii Recommendation 27: Improve the accuracy and transparency of landfill gas capture data.

24. Minister Watts has requested advice on landfill gas regulatory settings, the New Zealand Emissions Trading Scheme and related emissions reduction plan work. You are copied in on BRF-3986 on this topic.

25. Officials are in the process of analysing data received through a request to operators of landfills with gas capture systems. This will improve our understanding of how sites are calculating efficiency recovery rates. Combined with additional research into best practice international and domestic regulatory settings for landfill gas capture, this will help inform further advice and policy options for the development of the second emissions reduction plan.

26. In addition to formal recommendations, the Commission has identified a set of broader policy intervention initiatives, for the Government's consideration. These interventions, and a high-level assessment of their relevance to the Government's work programme, are listed in appendix B.[5]

27. A key area to highlight at this stage is the advice that "thermal waste-to-energy facilities have the potential to undermine future goals for waste reduction and recycling and could displace the use and advancement of renewable electricity generation options". The advice states that a precautionary approach to waste-to-energy policy and investments will be necessary. Modelling work is currently underway at the Ministry to determine the real impacts of potential thermal waste-to-energy proposals. This will be a key part of the advice you will receive in early 2024.

Advice for the F-gas sector

28. No new formal recommendations are made in the Commission's 2023 advice for the F-gas sector. Some key opportunities are identified for the Government's consideration, including:

[5] Broader policy initiatives proposed include long-term waste infrastructure planning to create a fit-for purpose resource recovery network; a focus on reducing commercial and manufacturing waste; establishing waste operator licensing; addressing inequities for Māori in waste minimisation funding; opportunities for reducing wastewater emissions; mechanisms for reducing (fossil derived) plastic in packaging; and a strategic approach to resourcing the food rescue sector.

i enabling robust F-gas regulation as it relates to the product stewardship scheme for refrigerants

ii uptake of low global warming potential (GWP) alternatives and frameworks to support the transition away from high GWP gases

iii import restrictions on pre-charged equipment with high-GWP F-gases.

29. F-gas import restrictions are an action in the first emissions reduction plan (Action 16.2), with the proviso that restrictions would only be put in place once suitable alternative gases were available.

30. The Ministry consulted on a suite of proposed prohibitions for F-gases, including import restrictions, in late 2022. Consultation feedback indicated that the suite of prohibitions that could be implemented was limited. Further, the modelled emissions reductions associated with the prohibitions were not significant. As a result, the previous Minister for the Environment decided not to continue with the prohibitions at that time, but to revisit these in the future.

Advice relating to waste from other chapters of the Commission's advice

31. Advice relating to the waste sector is woven throughout much of the Commission's broader advice for other sectors, including transport, energy, built environment, infrastructure and circular and bioeconomy. Analysis and potential waste actions in response to this broader advice will also be provided in early 2024. A summary follows.

32. *Chapter 11, Te hanga a te tangata – Built Environment* contains advice to adopt initiatives that would accelerate comprehensive retrofits and support other mechanisms to promote energy efficiency in buildings. F-gases are commonly used as refrigerants and can be seen as an alternative to fossil-fuel heat generation. It is important that we take a holistic approach to developing policy in response to this advice, to ensure there are no perverse outcomes that would increase emissions of F-gases.

33. There are recommendations in *Chapter 12, Ōhanga taketake me te ōhanga toiora: Circular economy and bioeconomy* which fall under the statutory responsibilities of the Ministry for the Environment through the Waste Minimisation Act 2008. These are:

i Recommendation 16: Strengthen product stewardship and expand coverage across products and packaging to help avoid emissions associated with waste.

ii Recommendation 17: Declare construction material wood waste as a priority product to help reduce emissions from construction and demolition waste.

34. Product stewardship in this context refers to producers, brand owners, importers, retailers and/or consumers participating in a scheme designed to reduce the harm caused by products at the end-of-life and support the recovery of raw

materials that are normally lost when these products become waste.[6] Implementation of these recommendations, if adopted, would occur under Part 2 – Product Stewardship of the Waste Minimisation Act 2008.

35. Chapter 12 also indicates the role of right to repair legislation in emissions reduction. This could involve establishing a legislative right for a consumer to repair their products, often achieved through access to repair information, the provision of diagnostic tools, and the supply of appropriate parts.

Te Tiriti analysis

36. While this topic is of interest to Māori, there are no Tiriti issues associated with this briefing note. Analysis on Māori rights and interests will take place as part of the policy development process under the second emissions reduction plan.

Other considerations

Consultation and engagement

37. The Commission undertook significant public consultation, including with the waste sector, in the development of its final advice on the second emissions reduction plan.

38. The Ministry for the Environment has not yet consulted on the advice of the Commission or our response. Public consultation on proposals for the second emissions reduction plan is anticipated to take place by mid-2024.

Risks and mitigations

39. No risks are associated with the content in this briefing.

Legal issues

40. No legal issues are associated with the content in this briefing.

Financial, regulatory and legislative implications

41. No financial, regulatory or legislative implications are associated with the content in this briefing.

[6] https://environment.govt.nz/what-government-is-doing/areas-of-work/waste/product-stewardship/about-product-stewardship-in-new-zealand/

Next steps

42. Officials will complete full analysis of the Commission's advice and provide advice to you in early 2024 to inform policy development for the second emissions reduction plan.

43. The second emissions reduction plan is due to be published by the end of 2024, and officials will continue to advise you as the timeline for this development is clarified and confirmed.

Appendix A: Table of waste and F-gas actions in the first emissions reduction plan

The below table contains the intended outputs of our emissions reduction plan actions. More information on work completed to date on the emissions reduction plan across initiatives, anticipated milestones and how these will connect with any proposed new actions for the second emissions reduction plan, will be delivered in early 2024.

Action in first emissions reduction plan	Intended outputs
Waste	
15.1.1 Encourage behaviour to prevent waste at home	National scale programmes to support consumers to prevent and reduce food and garden waste at home.
15.1.2 Enable businesses to reduce food waste	Programmes to support business sectors to reduce food waste. Voluntary agreements by businesses to reduce food waste
15.1.3 Support participation in improved kerbside collections	Resources and support to increase participation in and correct use of kerbside organic waste collections.
15.2.1 Improve household kerbside collection for food and garden waste	Improvements to kerbside collections to increase the diversion of food and (where appropriate) garden waste. These may include a mix of voluntary and regulatory measures such as funding, standardised collection, separation, condition and handling of recyclable materials and food waste, and reporting against diversion targets.
15.2.2 Invest in organic waste processing and resource recovery infrastructure	A targeted resource recovery infrastructure fund, providing investment in infrastructure such as compost facilities, to process household (and business) food and garden waste. Increased investment in resource recovery infrastructure such as transfer stations upgrades to improve recovery and diversion of key organic waste.
15.2.3 Require the separation of organic waste	Proposals for source separation of business food waste from rubbish. Regulations to establish obligations for households, businesses, collectors, disposal facilities and others to separate out specified organic materials including food waste.
15.3.1 Support building and construction sector to minimise waste through research and improved capability	Research, training and technological initiatives that minimise construction and demolition waste, including research into alternatives, techniques and processes for hard-to recycle construction materials (like treated timber).
15.3.2 Invest in sorting and processing infrastructure for construction and demolition waste	A targeted resource recovery infrastructure fund. Increased investment in sorting and processing plant, as well as resource recovery network infrastructure to improve the separation of construction and demolition waste materials, targeting wood waste.
15.3.3 Enable the separation of construction and demolition materials	Future regulations to establish obligations for households, businesses, collectors, disposal facilities and others to separate out specified organic

	materials, including construction and demolition waste, targeting wood.
15.4 Investigate banning organic waste from landfills by 2030	Proposed limits or bans of organic waste to landfill will be considered based on evidence of the combined impact (reduction of organic wastes to landfill) of waste policy implementation and infrastructure investment. To ban materials there must a reasonably practicable alternative to disposal available.
15.5.1 Regulations will require landfill gas capture at municipal landfills	Regulations introduced to require landfill gas capture at all municipal (Class 1) landfills that receive organic material by 31 December 2026.
15.5.2 Feasibility studies will determine the need for additional landfill gas capture requirements	Investigation into the composition of waste received at a range of landfill types that receive organic waste. Research to determine landfill gas capture feasibility at Class 2–5 landfills.
15.6.1 Develop a national waste licensing scheme	New legislation and regulations to support a national waste licensing scheme for more effective regulation, administration, and data collection from a range of parties.
15.6.2 Improve information on greenhouse gas emissions from waste disposal	A new national data collection and reporting programme on emissions reductions from waste, including: a landfill waste material composition survey programme, kerbside collection reporting and feasibility studies for landfill gas capture improvements.
F-gases	
16.1 Develop training and accreditation for handling alternative gases.	*(WorkSafe action, supported by MfE officials as required)* Training and accreditation schemes for workers installing, servicing, and disposing of equipment that uses natural or other alternative refrigerant gases.
16.2 Prohibit imports of pre-charged equipment	Regulatory proposals for prohibiting the import of products containing high global warming potential (GWP) F-gases. Currently on hold.
16.3 Investigate prohibiting F-gases with high GWP.	Decision on regulatory proposals to prohibit the sale and use of high-GWP F-gases, where alternatives are available and provisions for ensuring worker safety have been made. Currently on hold.
16.4 Introduce a mandatory product stewardship scheme for refrigerants.	Implement regulated product stewardship via an accredited scheme for refrigerants.

Appendix B: Key opportunities and policy interventions proposed by Climate Change Commission for consideration.

Policy intervention initiative for consideration	**Current or planned work in this space**
Broadening emissions reduction plan efforts to reduce commercial, industrial, and manufacturing waste	Supporting MBIE Circular Economy, Bioeconomy, and Advanced Manufacturing research on impacts and barriers to enabling a circular economy.
Establishing a proportion of contestable Waste Minimisation Funds for initiatives led by iwi/Māori to address current inequities	Changes made for the 2022 round introduced more up-front support in the development of applications, aimed at increasing success for smaller/lower resourced organisations.
Improving the level and accuracy of available emissions data for farm-based waste disposal sites, potentially through farm waste management planning processes and through regional council regulatory processes.	Procurement to identify current initiatives via survey of regional councils currently on hold. Some desktop research completed, including consideration of possible technologies to assist in identifying farm dumps.
Accelerating action necessary to establish national waste operator licensing, leveraging territorial authority progress already established within this area.	Proposals for a national waste licensing scheme were presented to the former Cabinet through changes to waste legislation in 2022/2023.
Identifying opportunities to reduce emissions from wastewater discharge.	Department of Internal Affairs hold responsibility for wastewater infrastructure and relevant policy tools. Key opportunities are likely to be through council consenting processes, with consideration now required of the effects of climate change under Section 7(i) of the Resource Management Act 1991.
Applying appropriate policy mechanisms to promote the reduction of fossil fuel waste, including initiatives to reduce the use of virgin plastic used in packaging	New Zealand is currently involved in negotiations for a Global Plastic Treaty[1]. This is jointly led by MfE and MFAT.

[1] https://environment.govt.nz/what-government-is-doing/international-action/towards-a-global-treaty-to-combat-plastic-pollution/

	From 1 July 2023, the phase out of certain hard-to-recycle plastics and single-use items also commenced[2].
Leveraging territorial authority waste-related procurement processes to promote equity – while considering the effect of cost weighting on the competitiveness of community groups and NGOs with the commercial sector	No current work programme.
Establishing a more strategic approach to resourcing for the food rescue sector, as well as funding and research, including quantifying the emissions impacts of food waste and food rescue at the national level.	Food loss and waste definition for Aotearoa New Zealand published in October 2023[3]. This definition will support efforts to quantify the emissions impacts of food waste.
Long-term planning for waste infrastructure and creation of a fit-for-purpose resource recovery network[4]	Development of a draft 5-year waste action and investment plan commenced in 2023. A regional waste and resource recovery infrastructure planning pilot is underway in Hawke's Bay and Tairāwhiti due for completion mid-2024.

[2] https://environment.govt.nz/what-government-is-doing/areas-of-work/waste/plastic-phase-out/
[3] https://environment.govt.nz/publications/food-loss-and-waste-definition-for-aotearoa-new-zealand/
[4] Note this is drawn from the *Key opportunities to reduce emissions from waste in 2026-2030* in the Commission's advice page 330.

Ministry for the Environment
Manatū Mō Te Taiao

Briefing: Second emissions reduction plan - waste sector policy options

Date submitted: 21 March 2024
Security level: In confidence
MfE priority: Urgent

Actions sought from Ministers		
Name and position	***Action sought***	***Response by***
To Hon Penny SIMMONDS **Minister for the Environment**	Indicate preferred policy options for the waste sector in ERP2.	28 March 2024
CC Hon Simon WATTS **Minister of Climate Change**	Note waste sector policy options for ERP2, ahead of joint-sector advice on ERP2 consultation.	28 March 2024

Actions for Minister's office staff
Forward this briefing to: Hon Simon Watts, Minister of Climate Change **Return** the signed briefing to the Ministry for the Environment (ministerials@mfe.govt.nz).

Appendices and attachments
1. Waste minimisation initiatives with abatement potential for ERP2 2. ERP2 waste sector summary - provided to the Minister for Climate Change

Key contacts at Ministry for the Environment			
Position	***Name***	***Cell phone***	***First contact***
Principal Author	Roderick Boys		
Responsible Manager	Miranda Cross	027 258 9672	
General Manager	Glenn Wigley	027 491 7806	✓

Minister's comments

Emissions reduction plan 2: waste sector policy options for public consultation

Key messages

1. This briefing seeks your direction on waste sector policy options to further develop as part of the second emissions reduction plan (ERP2) that will be the subject of public consultation in June 2024.

2. The waste policy options presented here could be prioritised for:

    a. inclusion within the draft ERP2 consultation materials (due for Ministerial consultation on 5 April) to be considered by Cabinet in May, for public consultation in June 2024

    b. the broader waste minimisation policy/investment work programme, with emission reduction co-benefits i.e. within, or complimentary to, ERP2.

3. Waste sector emissions have been declining and relative to 2017 the sector is projected to achieve an 11 per cent reduction by 2030[1]. This excludes further implementation of policies which are also subject to consideration for ERP2, including kerbside organic collections and improvements to regulations that could optimise landfill gas capture efficacy.

4. The waste and agriculture sectors produce all biogenic methane emissions in New Zealand. Agriculture is not in the NZ ETS, and a subset of disposal to land activities are included. Progress towards the biogenic methane targets[2] set in the Climate Change Response Act 2002 (CCRA) is reliant on abatement from these sectors.

5. Five options toward waste sector abatement are discussed, including those that respond to the Climate Change Commission's waste related recommendations (see Appendix 1). Following initial feedback, three of these options may be appropriate for ERP2, they include:

    a. Waste Minimisation Fund investment towards resource recovery systems and infrastructure, including for construction and demolition waste (BRF-4090 refers);

    b. kerbside organics collections, consideration of your preferred approach would ideally precede consideration of whether to include the policy in ERP2 (BRF-4189 refers); and

    c. improvements to the landfill gas regulatory framework that could see changes to which landfill sites accept which types of biodegradable materials, how landfill gas efficiency is reported and the scope of landfills that require landfill gas capture systems..

6. Waste minimisation investments and landfill gas capture efficiency improvements have relatively high abatement potential and provisional analysis suggests, at lower cost.

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[1] Waste sector emissions projections contain inherent uncertainties

[2] 24 – 47% reduction by 2050, and a minimum 10% reduction by 2030 (from 2017 baseline)

Kerbside organics collections for households provide opportunities for businesses and key sectors to leverage the same processing infrastructure, while also providing recycling services. You have options to manage the cost impacts of these policy options, including for households and local government. If all these policy areas were advanced, up to 1.3 Mt CO2e of methane abatement by 2030 could be achieved, noting waste minimisation investments could deliver further abatement still.

7. Since reopening in 2022, waste minimisation investments has a forecast emissions abatement cost on average ~$39/T CO2e[3]. Sixty-nine million dollars of co-investment potential is currently in the portfolio/pipeline with a forecast abatement of more than 98kt CO2e per annum (~0.58Mt of CO2e in 2030). While the abatement potential from targeting organic waste may tail off in coming years and pending your priorities, waste minimisation investments may provide up to 250kt of CO2e in biogenic methane abatement per annum, ongoing, over the short term.

8. Of the five waste policy areas discussed, the remaining two include waste reduction policies (six projects already underway) and product stewardship (six priority products have been declared). Officials do not recommend further reduction policy for ERP2, noting this may be investment led and considered as opportunities arise. Further advice on product stewardship will be provided[4].

9. The upcoming Climate Priority Ministerial Group (CPMG) meeting on 25 March agenda includes domestic and international targets and potential policies. It is unclear if this discussion will cover sector specific policies. The Minister for Climate Change has been provided a one-page summary from the key ERP2 sectors, including waste. Given you have yet to consider the options and preferred approach, the waste update was noted as having been prepared by officials and subject to Ministerial consideration. The text of the waste sector one page summary is attached in Appendix 2 for your reference.

[3] Based on WMF contribution, taken across the life of the assets

[4] The Climate Change Commission made specific recommendations relating to product stewardship, including a scheme for wood waste from construction and demolition. This option will need to be investigated before further advice can be provided.

Recommendations

We recommend that you:

a. **note** your feedback on this briefing will inform the approach for waste policy in the draft ERP2 consultation document and agencies are required to submit draft content by 5 April

b. **note** decisions on the preferred approach to kerbside organics collections have been presented separately (BRF-4189 refers) and would ideally be taken before consideration of whether to include the policy in ERP2

c. **agree** for officials to include the following policy options in the Draft ERP2 consultation proposals, for Cabinet's consideration in May:

   i. Waste Minimisation Fund investment towards resource recovery systems and infrastructure, guided by your investment priorities (BRF-4090 refers) — Yes | No

   ii. The preferred approach to kerbside organics collections (BRF-4189 refers) — Yes | No

   iii. Improvements to the landfill gas regulatory framework, which could include changes to which landfill sites accept which types of biodegradable materials, how landfill gas efficiency is reported, and the scope of landfills that require landfill gas capture systems — Yes | No

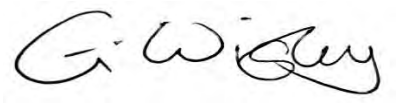
d. **note** any waste policy option not included in ERP2 may be further developed as part of the broader waste minimisation work programme**.**

e. **note** you will receive further advice on the option of a product stewardship, including the option of a scheme for wood waste

f. **agree** to exclude the option of a product stewardship scheme for wood waste from the ERP2 consultation, noting that you could advance this proposal in the future, pending further advice and your consideration of the option — Yes | No

g. **note** we have included an agenda item to discuss the content of this briefing with officials at your weekly MfE policy meeting on 27 March

Signatures



Glenn Wigley
General Manager – Waste and HSNO Policy
Climate Change Mitigation and Resource Efficiency
21 March 2024

Hon Penny SIMMONDS
Minister for the Environment

Date

Emissions reduction plan 2: waste sector policy options for public consultation

Purpose

1. This briefing seeks your direction on waste sector policy options to further develop as part of the second emissions reduction plan (ERP2) that will be the subject of public consultation in June 2024.

Background

2. The Government must publish ERP2 (which covers the period 2026 – 2030) by the end of 2024, as required by the Climate Change Response Act, 2002 (CCRA).

3. Public consultation on ERP2 is scheduled for June 2024. Consultation will be led by the Ministry's Climate Change officials, and further advice on the process itself will be provided to the Climate Priorities Ministerial Group (CPMG) and affected Ministers in the lead up to Cabinet decision making.

4. The Climate Change Commission (the Commission) delivered its final advice to Government on ERP2 in December 2023. This included specific recommendations for waste sector [BRF-4039 refers].

5. In your 7 March meeting with Minister Watts [BRF-4325 refers] officials received initial feedback on the emerging direction for ERP2.

6. This briefing seeks further direction on waste minimisation and resource recovery policy and investment options that could contribute to the abatement of biogenic methane emissions and be included within ERP2.

7. In addition to the ERP2 policy decisions sought by this briefing, the upcoming CPMG meeting on Monday 25 March includes an agenda item on "*Domestic and international targets, goals and obligations for climate mitigation and adaptation including options for meeting and tracking to targets"*. It is unclear whether sector specific policies will be discussed at the March meeting. A waste sector summary has been submitted to the Minister for Climate Change, along with summaries from key sectors (Energy and Industry, Transport, Agriculture, and Forestry). The waste sector summary is attached for your information in Appendix 2.

Analysis and advice

Biogenic methane emissions come from waste and agriculture

8. Methane made up 43 per cent of Aotearoa New Zealand's total emissions in 2021. Abatement of methane is critical, as it has warming effects 84 times greater than carbon dioxide over a 20-year timeframe (28 times greater over 100 years). Table 1 below illustrates waste and agricultural sector emissions to 2021.

Table 1: New Zealand waste and agriculture sector emissions (to 2021)[5]			
Proportion of NZ's gross:	***Waste***	***Agriculture***	***Total***
Greenhouse gas emissions	4.2%	49.2%	53.4%
Methane emissions	9.1%	90.9%	100%

9. Most waste emissions (80.2 per cent in 2021) are methane from solid waste disposal (from the decomposition of biodegradable organic materials like food, garden, wood and paper waste, in the absence of oxygen). Unless heavily contaminated, these materials are typically recyclable and able to be managed in ways that reduce emissions.

Waste policy and investment can reduce methane by 2030

10. Higher ambition for waste sector abatement has to date been prioritised to help offset the expected slower pace in the agricultural sector (eg in line with the Commission's advice), as these two sectors contribute towards the CCRA 2030 biogenic methane target.

11. The emissions budgets and target for the waste sector in the first emissions reduction plan (ERP1) equate to a 40 per cent reduction in biogenic methane by 2035. The New Zealand waste strategy interim target, agreed by the previous Government, is 30 per cent reduction in biogenic methane from waste by 2030.

12. There has already been abatement in waste emissions, and the sector is projected[6] to achieve an 11 percent reduction by 2030, and a 19 per cent reduction by 2030 if ERP1 policies continue to be implemented[7]. Further abatement is achievable using technologies and applications such as: composting, anaerobic digestion, biofuels, and landfill gas capture systems. These technologies are widely adopted internationally. Policies and investment towards recycling of most target waste streams will often have co-benefits, reducing emissions for businesses and for key sectors, such as construction, agriculture and potentially, aviation (as sustainable aviation fuel feedstock).

13. Abatement options for agriculture in ERP2 are not yet clear and the sector is outside of the NZ ETS. Given the likely range of options for agricultural abatement, and the degree of uncertainty and short-term efficacy[8] of those options, you may choose to propose ERP2 waste policy options to support attainment of biogenic methane targets and the NDC1 targets (to 2030), noting that these may also be progressed in any case.

A waste hierarchy approach

14. In 2020, New Zealand was estimated to have a national resource recovery infrastructure deficit of $2.1-$2.6 billion and other enabling service funding needs of approximately

[5] Ministry for the Environment. 2023. *New Zealand's Greenhouse Gas Inventory 1990–2021*. Wellington: Ministry for the Environment. See https://environment.govt.nz/assets/publications/climate-change/New-Zealands-Greenhouse-Gas-Inventory-1990-2021-Chapters-1-15.pdf
[6] Projections for waste, like all sectors, contain inherent uncertainty and may be adjusted as data and reporting improves.
[7] ERP1 policies include kerbside organic waste collections and landfill gas capture improvements.
[8] To 2030.

$0.9 billion. An average of 700 kilograms of waste per person was sent to landfill in 2021, one of the highest in the OECD[9].

15. The waste hierarchy underpins the New Zealand Waste Strategy and provides an internationally evidenced framework for considering waste policy options (i.e. reduce, reuse, recycle, recover, dispose). Emission reduction benefits may also be considered through this framework, noting that as New Zealand has a relatively high per capita proportion of waste to landfill, there are significant abatement opportunities in the recycle and disposal tiers of the waste hierarchy that other countries have targeted.

Reducing waste – investment led

16. Reducing waste is an important waste minimisation, resource efficiency and emission reduction policy approach. New Zealand household's food waste is worth an estimated $3.2 billion in 2023[10]. If households reduced their avoidable food waste by just 3-4 per cent, this would provide the equivalent in financial savings to the cost of a new kerbside organics collection service in most urban population settings.

17. The National Food Waste Reduction programme, enabled through $6.82 million from the Climate Emergency Response Fund, provides funding to six partner organisations (two with announcements pending) to deliver behaviour change initiatives aimed at achieving food waste reductions of 10 per cent across a range of key stakeholder types (businesses such as restaurants and rest homes, households and māori settings). The programme is being delivered over 3 years, to June 2026. Further funding and other programmes may be considered as need arises (for example, towards the construction and demolition sector) and following evaluation of initiatives already underway. No new specific waste reduction policy is proposed for ERP2.

Recycling more resources – investment led

18. The waste disposal levy is key towards addressing New Zealand's resource recovery infrastructure deficit. Strategic investment could better align onshore infrastructure and processing capacity to the domestic opportunities, embedding resource recovery in local industry and the economy as has occurred in other countries.

19. The prioritisation of Waste Minimisation Fund investment towards waste systems, separation, and recycling infrastructure could be included/signalled in ERP2.

20. Since reopening in 2022, with a focus on reducing landfill emissions from organic waste, waste minimisation investments with forecast emissions abatement co-benefits, cost on average ~$39/T CO2e (based on WMF contribution, taken across the life of the assets). Sixty-nine million of co-investment potential is currently in the application pipeline with a forecast abatement of more than 98kt CO2e per annum (~0.58Mt of CO2e in 2030).

21. If up to a third of forecast central government levy revenue available for waste minimisation funding was invested through to 2030 on resource recovery systems and infrastructure targeting organic waste streams, this may have the potential to create a

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[9] Te rautaki para – New Zealand Waste Strategy: A snapshot. https://environment.govt.nz/assets/publications/Te-rautaki-para-Waste-strategy-A-snapshot.pdf

[10] Robobank, Kiwiharvest and Kantar's 2023 food waste survey estimated the value of waste food in New Zealand at $3.2 billion- https://www.rabobank.co.nz/foodwaste/

portfolio of projects that provide up to 250kt of CO2e abatement per annum, ongoing. However, these benefits may only be realised in the short term, assuming some level of drop off in investment opportunities from managing organic waste streams is likely. The broader waste system policy settings and continued availability of suitable projects would also play role.

22. Pending your consideration, investments could be prioritised towards the construction and demolition sector, kerbside organics collections, product stewardship schemes, and where appropriate, energy recovery for hard to recycle materials e.g. biofuels. These opportunities are consistent with advice on potential investment priorities in BRF-4090 (Waste investment priorities, processes and controls) which also included plastics.

23. These potential priority areas provide high impact from a waste minimisation and emissions reduction perspective, for example high volume for diversion from landfill and high potential for harm (environmental or human) as well as addressing high public concern.

24. These waste minimisation priority areas could be progressed in the short term to provide the sector with the clarity it requires in order to invest in key infrastructure, whilst you consider whether to include the waste investments option in ERP2 (noting emissions reductions accrue from most waste minimisation investments in any case).

Kerbside food scraps collections - options and interdependencies

25. The options and your preferred approach to kerbside organic collections is sought through an accompanying briefing (refer to *BRF 4189 - Policy options for provision of household kerbside recycling and food scraps services)*

26. When considering the merits of the kerbside policy options with respect to emissions abatement, it is important to note the investment in systems and processing infrastructure enable more than just kerbside emissions reductions for households. New Zealand's first large scale anaerobic digestion plant for kerbside food waste, also receives and processes wastes from a wide range of business customers, including the dairy industry, in part made possible by the anchor contract for kerbside food scraps with Auckland Council[11].

27. Further, without processing infrastructure and collection systems, future potential policy options such as disposal bans that have been progressed internationally and provide for deeper levels of abatement, may be more difficult to progress.

Landfill gas capture – regulatory changes would be required

28. Despite longer-term growth in disposal tonnages in New Zealand, the waste sector has been reducing emissions since the requirements to implement landfill gas capture systems were brought in in 2004[12].

[11] COMMERICAL-IN-CONFIDENCE: Ecogas recently confirmed about half of their Reparoa processing capacity is supporting food scraps collections. As Auckland Council rolls out its service and due to broader customer demand, Ecogas are already considering expansion of the facility's capacity in order to meet demand from the commercial and industrial market.
[12] Resource Management (National Environmental Standards for Air Quality) Regulations 2004

29. As you are aware the industry has raised several technical matters relating to the LFG regulatory framework, including the NZ ETS regulations. The Climate Change Commission has also received feedback from the sector and prioritised LFG capture as a recommended focus for the Government's emission reduction approach for both ERP 1 and 2. The Commissions' recommendations for ERP 2 include:

    i Recommendation 26: Ensure the use of landfill gas capture systems and technologies is widespread and efficient

    ii Recommendation 27: Improve the accuracy and transparency of landfill gas capture data

30. Further, an independent UNFCCC review of the New Zealand greenhouse gas inventory has led to the Ministry seeking further evidence towards New Zealand's landfill gas capture efficiencies. This work includes reviewing modelling and regulatory settings. It is important to ensure New Zealand's waste sector is accurately recognised for progress to date, that the NZ ETS works as intended, and that any regulatory improvements are well considered, evidence based, and support emission reduction targets and budgets.

31. To this end, strengthening the landfill gas capture regulatory system could deliver up to 1.18Mt CO2e to 2030 (contributing to both NDC1 and biogenic methane abatement targets)

32. This level of abatement would require a range of regulatory changes in order to increase the average efficiency of LFG systems across New Zealand from 68% to 75%; expand LFG to a wider range of landfills (including smaller facilities), and/or, changes to where certain types biodegradable waste are allowed to be disposed. Analysis and research is currently underway, in part responding to the UNFCCC review, that will help inform any proposals relating to landfill gas capture and associated regulatory settings. Final reports are expected May/June 2024.

Product stewardship

33. The Climate Change Commission's advice for ERP2 includes:

    i Recommendation 16: Strengthen product stewardship and expand coverage across products and packaging to help avoid emissions associated with waste

    ii Recommendation 17: Declare construction material wood waste as a priority product to help reduce emissions from construction and demolition waste.

34. It is unclear if wood products are a suited for product stewardship and further consideration will be given to the option, we therefore don't recommend including it in ERP2 at this stage.

35. Officials agree with the intent of the Commission's advice, and that construction and demolition waste, including wood waste, is a priority area and you will receive further advice in late March relating to the management of construction and demolition waste.

36. The legislative powers for product stewardship reside in the Waste Minimisation Act 2008. Modernisation of these provisions to enable the more efficient development of schemes is recommended, including for those that relate to 'products and packaging'.

37. The Ministry has recently provided you with initial advice on product stewardship. Options for declaring further priority products, including waste wood will need to be investigated before providing further advice.

38. Although any future schemes will almost certainly reduce emissions (and for some products, such as refrigerants, emissions reductions are the main benefit), a new regulatory framework is recommended to enable the more efficient development and efficient operation of new schemes.

Waste policy sufficiency analysis: ERP 1 budgets and targets

39. Waste minimisation policies and investment can continue to play a role towards biogenic methane abatement for the ERP 2 budget period and contribute towards the CCRA 2030 biogenic methane targets.

40. The relative contribution of waste sector abatement will depend on the level of ambition and prioritisation given to the policy options and waste minimisation investment priorities outlined in this briefing and any further policies you may like to consider (i.e. pre or post consultation). It is also important to note that while these options could make further significant impacts, they are unlikely to meet the ERP 1 targets and budgets (to 2035).

Table 2: Emission reduction budgets (ERP1) and policies from ERP1 and ERP 2

Scenario	EB1 (2022-2025)	EB2 (2026-2030)	EB3 (2031-2035)
Abatement required to meet ERP1 budgets and 40% target (Mt CO2e)	0.32	2.1	3.88
ERP 2 Package excluding investments and product stewardship (Mt CO2e)	Up to an additional 0.69	0 - 1.34	0 - 1.71
ERP1 package which assumed extra measures would be considered (Mt CO2e)[13]	Up to an additional 0.91	0 - 1.94	0 - 3.85

41. Table 2 shows that, without additional waste investment impact, and assuming the high impact scenario, kerbside and landfill gas capture policy may contribute up to 1.3 Mt of abatement by 2030. A breakdown of policy specific impacts and other considerations can be found in Appendix 1.

42. If progressed, while kerbside and LFG policies combined may not meet ERP1 budgets and targets (to 2030 and to 2035), they are none-the less ambitious and waste investments may provide additional abatement to close the gap. The LFG proposal also responds to the Climate Change Commission's LFG Recommendations for ERP2.

43. Officials current understanding is the approach to ERP2 is unlikely to include subsector targets and budgets. In any case, waste policy may still play some role towards

[13] Extra measures included: business paper and cardboard diversion, wood waste diversion, limits on organic waste to municipal landfills by 2030, kerbside organic waste collections, kerbside business food waste separation and collections, and limits on organic waste to non-municipal landfills.

attainment of the biogenic methane targets, and pending the approach to agriculture, the level of ambition for waste policy abatement can be increased.

Te Tiriti analysis

44. No Tiriti issues are associated with the proposals in this briefing.

Other considerations

Consultation and engagement

45. Waste sector abatement policy options may be included in ERP2 consultation if appropriate/needed. Initial discussions at CPMG, 25 March may provide further clarity.

46. The waste sector, including industry and local government, have a strong interest in ERP policies.

47. Waste minimisation policy more generally, including those towards emissions abatement typically receive high levels of engagement and support via consultation feedback.

Risks and mitigations

Waste minimisation investment priorities

48. Many in the sector are seeking clarity on your preferred approach. Delays may impact investment decisions in resource recovery infrastructure and for Councils considering service levels, including kerbside collections, currently working through their Long-Term Plan budgets and consultation processes.

49. It may not be clear whether waste policies are needed for ERP2 until the wider approach to methane abatement is landed. In any case, you could consider advancing your initial/interim waste minimisation priorities in order to unlock additional investment across New Zealand towards biogenic methane abatement in 2024, noting the final ERP2 document will not be released until the end of 2024.

Sufficiency analysis

50. Initial sufficiency analysis of the proposed ERP2 waste sector policies against subsector emissions budgets set in ERP1, suggests there may be a deficit. This could potentially be bridged with waste investment and further policies if desired, noting our current understanding is that subsector budgets may not be a feature of ERP2 and therefore, this risk may not be material for ERP2.

Legal issues

51. No legal issues are associated with the proposals in this briefing.

Financial, regulatory and legislative implications

52. The CCRA requires the Government to publish a response to the Climate Change Commission's advice on the preparation of the second emissions reduction plan by December 2024. The policy areas that you agree to develop from this briefing will be presented to Cabinet to consider for inclusion in ERP2, initially through a discussion document for public consultation in June 2024.

53. If included in ERP2, waste sector policy proposals may require regulatory changes, pending how they are progressed. If a regulatory change towards increased biogenic methane abatement is desired, further processes would still need to be worked through and prioritised as a part of ERP2 implementation. This is where the detail of any regulatory proposals would be developed in full for further consideration by Cabinet.

Next steps

54. The Government has a statutory obligation to deliver ERP2 by 31 December 2024. Agencies are working to the following milestones to achieve this:

Milestone	***Date***
Draft discussion document chapters provided by agencies	5 Apr
Cabinet: approval to consult	May
Public consultation	June-July
Cabinet: approval of final policy package	Section 9(2)(f)(
Approval of final plan	Section 9(2)(f)(iv) - activ
Publish ERP2[14]	Section 9(2)(f)(iv) - active co

55. Pending your consideration and any further feedback from your colleagues, including the Minister for Climate Change, officials can include any preferred waste policy options in the draft discussion document which will be presented for Cabinet's consideration in May 2024.

56. In order to meet the relatively tight timeframes of the ERP2 process, agencies are required to submit draft content for the consultation document, including policies, by 5 April, and to facilitate ministerial consultation ahead of Cabinet in May.

57. Pending your consideration of the kerbside organics collection policy option (BRF-4189 refers) you may also like to include the preferred approach within the ERP 2 consultation document, noting the same 5 April timeframe applies.

58. The CPMG meeting on 25 March may provide further context for waste policy options in ERP2.

[14] The plan is not required to be published until December 2024. However, early publication of ERP2 (~4 November), would be prior to 2024 UN Climate Change Conference (UNFCCC COP 29).

Ministry for the Environment
Manatū Mō Te Taiao

Appendix 1: Waste minimisation initiatives with emissions abatement potential for ERP2

*The Climate Change Commission has made recommendations for ERP2 pertaining to policies denoted with an asterisk in the below table.

Options	Abatement potential	Waste minimisation potential	Costs and benefits	Certainty	Timeframe
Reducing waste – investment led	2030: up to 13kt CO2e; 2035: up to 14kt CO2e NDC1 (2024-2030): up to 61kt CO2e 2024-2050: up to 364kt CO2e	High, waste reduction is at the top of the waste hierarchy, however, it can be more difficult to achieve at scale.	Programmes have outreach costs, but also, households and businesses can achieve cost-savings if successful.	Dependent on uptake. It is well evidenced that when practices are adopted, households and businesses may reduce avoidable waste and achieve savings (pertinent when facing cost pressures).	Current programmes are funded 2023-2026
Recycling more waste resources – investment led	Forecast based on current portfolio/pipeline >98kt CO2e per annum (~0.58Mt of CO2e in 2030).	High, middle of the waste hierarchy, addressing New Zealand's resource recovery infrastructure deficit is key towards reducing waste to landfill.	Forecast ~$39/T CO2e[15] for current portfolio/pipeline. When targeting organic waste, further reductions are often achieved e.g. for construction and demolition recycling, the recovery of concrete and metals, in addition to wood waste.	Good, resource recovery infrastructure investments are helping to fill a gap in New Zealand's core infrastructure, consumers and businesses alike are seeking alternatives to landfill. Some regions are serviced better than others.	Ongoing, to 2030. Abatement of waste sector emissions via diversion locks in annual abatement.

[15] Based on WMF contribution, taken across the life of the assets

Kerbside food scraps collections and interdependencies - options	2030: up to 25kt CO2e 2035: up to 41kt CO2e NDC1 (2024-2030): up to 61kt CO2e 2024-2050: up to 898kt CO2e	High for households - households may divert as much of half (or more) of their residual waste by weight through kerbside food waste collections.	Enables further policy e.g. Business food waste: 2030: up to 17kt CO2e 2035: 0-25kt CO2e NDC1 (2024-2030): up to 42kt CO2e 2024-2050: up to 0.55Mt CO2e And for organic disposal limits: 2030: up to 55kt CO2e 2035: up to 161kt CO2e NDC1 (2024-2030): up to 72kt CO2e 2024-2050: 0-3.7Mt CO2e	Good – kerbside organic waste collections are a well understood approach internationally. As the service beds in, efficacy typically improves.	Approx 54% of households either have access to a service or are likely to in the near future. Further uptake is likely to depend on preferred approach (BRF 4189 refers)
*Landfill gas capture – regulatory changes would be required	2030: up to 309kt CO2e 2035: up to 267kt CO2e NDC1 (2024-2030): up to 1.2Mt CO2e 2024-2050: up to 6.1Mt CO2e (7% increase scenario, average efficiency of 75%, combined with LFG expansion)	Low, improvements to LFG capture may increase recovery, but do not typically reduce waste to landfill. Policy to restrict disposal of some materials to landfills with gas capture may see an increase in recovery	Initial analysis on the costs of LFG improvements suggest capex investment is relatively low cost per tonne of abatement. Both capex and opex costs are subject of further investigation.	Inherent uncertainty in current approach, regulatory changes would be needed in order to improve certainty.	If progressed, regulatory changes could developed for ERP 2 implementation, 2026 onwards.

*Product stewardship	Not quantified, a product stewardship scheme for wood waste is a new proposal that requires investigation.

Note: interactions affecting abatement potential may occur when more than one policy is implemented.

Appendix 2: Waste Sector Update for Climate Priorities Ministerial Group meeting, 25 March 2024

Note: This summary has been prepared by officials. ERP2 waste policy options are to be considered by the Minister for the Environment and subject to Ministerial feedback and direction.

Appendix 2: ERP2 waste sector summary

1. The waste sector produced 3.6MtCO2-eq[1] or 4.2 per cent of New Zealand's total emissions and 9.1 per cent of biogenic methane emissions in 2021.The waste and agriculture sectors produce all biogenic methane emissions in New Zealand (NZ), illustrated in table 1 below.

Table 1: New Zealand waste and agriculture sector emissions (to 2021)[2]			
Proportion of NZ's gross:	***Waste***	***Agriculture***	***Total***
Greenhouse gas emissions	4.2%	49.2%	53.4%
Methane emissions	9.1%	90.9%	100%

2. Progress towards the biogenic methane targets[3] in the Climate Change Response Act 2002 (CCRA), including a 10 per cent reduction by 2030, relies on abatement in the waste and agricultural sectors. Methane emissions from landfills come from the decomposition of potentially recyclable biodegradable wastes (e.g. wood products, garden waste, food scraps, paper and cardboard, etc.). Technologies to recycle and manage emissions from disposal include resource recovery infrastructure, composting, anaerobic digestion, biofuels and landfill gas capture systems.

3. Waste sector emissions have been declining and the sector is projected to achieve an 11 per cent reduction by 2030.[4] The Climate Change Commission's advice assumes the waste sector could do more in the short term to offset slower abatement in the agriculture sector, thus the 40 per cent subsector abatement target (by 2035) for waste sector emissions in the first emission reduction plan.

Main challenges and opportunities for decarbonising waste

4. New Zealand's resource recovery infrastructure deficit was estimated at $2.1-$2.6 billion, and other enabling service funding needs at approximately $0.9 billion[5] (in 2020). An average of 700 kilograms of waste per person was sent to landfill, one of the highest in the OECD (in 2021).[6]

5. Several waste policy options could be considered for ERP2. These include:

   a) Waste minimisation fund investment in resource recovery infrastructure, including for construction and demolition waste, enabling more efficient use of resources across key emitting sectors

   b) Kerbside food scrap collections (includes food and green waste collections where preferred)

   c) Strengthening the role of landfill gas capture (regulatory improvements required)

6. The landfill gas capture and kerbside options could deliver up to 1.3Mt CO2e for EB2 and NDC1 (to 2030). Based on the portfolio/pipeline and a forecast abatement >98kt CO2e per annum, waste investments could deliver ~0.58Mt of CO2e in 2030, with the potential to grow the pipeline further and deliver significant additional abatement to 2030, pending waste investment priorities.

7. If prioritised, waste policy and investment could deliver ~2Mt CO2e, of biogenic methane abatement, to 2030.

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[1] Data provided in AR5 format to be comparable to other emissions numbers provided in this page.
[2] Ministry for the Environment. 2023. *New Zealand's Greenhouse Gas Inventory 1990–2021*.
[3] 24 – 47% reduction by 2050, and a minimum 10% reduction by 2030 (from 2017 baseline)
[4] Waste sector emissions projections contain inherent uncertainties
[5] Grant Thornton, https://environment.govt.nz/assets/publications/waste-levy-investment-options.pdf
[6] Te rautaki para – New Zealand Waste Strategy: A snapshot.

Aide memoire: emissions reduction plans 1 & 2 – waste sector update

Date submitted: 21 June 2024
Tracking number: BRF-4918
Security level: In confidence

Actions sought from Ministers	
Name and position	***Action sought***
To Hon Penny SIMMONDS **Minister for the Environment**	For noting only – to support ministerial consultation on the second emissions reduction plan discussion document

Appendices
1. Draft waste sector chapter from the second emissions reduction plan discussion document 2. Interim status update on emissions reduction plan one actions - for waste and fluorinated gases 3. Initial responses to waste-related Climate Change Commission recommendations

Key contacts at Ministry for the Environment			
Position	***Name***	***Cell phone***	***First contact***
Principal Author	Alice Taylor		
Responsible Manager	Miranda Cross	027 258 9672	
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Minister's comments

Emissions reduction plans 1 & 2 – waste sector update

Purpose

1. This aide memoire provides an update and advice on:
   a. waste sector policy development for the second emissions reduction plan (ERP2) and how the waste sector can contribute to sufficient emissions reductions[1] through ERP2
   b. ongoing implementation of actions related to waste and F-gases from the first emissions reduction plan (ERP1)
   c. the initial response to the Climate Change Commission's waste-related ERP2 recommendations.
2. The above aspects are important for you to consider during the current ministerial consultation on the broader ERP2 draft discussion document (the discussion document) that is being developed for public consultation.

Background

3. The Climate Change Response Act 2002 (CCRA) requires the ERP2 to be published by the end of 2024. The CCRA also establishes a number of legal requirements for emission reduction plans. For ERP2, this will include setting out the Government's plan for meeting the second emissions budget (EB2, which is 2026-2030).
4. The CCRA also requires the Minister of Climate Change to consider the Climate Change Commission's (the Commission) independent advice and ensure adequate consultation on emissions reduction plans.
5. We have previously briefed you on:
   a. the Commission's advice for the waste and fluorinated gases sector [BRF-4039 refers]
   b. landfill gas regulatory settings [BRF-3986 refers]
   c. construction and demolition waste [BRF-4161 refers]
   d. waste policy to support biological methane abatement [BRF-4325]
   e. policy options for the waste sector in ERP2 for inclusion in public consultation [BRF-4319 refers].
6. ERP2 consultation is planned to take place mid-year, pending Cabinet agreement. The draft waste sector chapter of the discussion document for public consultation is attached (appendix 1). There is also a technical annex to the discussion document that is

[1] As required under the Climate Change Response Act 2002.

proposed to be included for the public consultation – this describes the emissions modelling that was used to generate initial emissions projections.

The ERP2 discussion document includes waste components

7. The waste sector approach for ERP2 consists of the following.

   a. A commitment by the Government [already made public through the Budget 24 process and announced to the sector at the recent WasteMINZ conference], to invest a portion of the forecast waste disposal levy revenue into New Zealand's resource recovery infrastructure and systems (via the Waste Minimisation Fund), stimulating private investment in affordable alternatives to landfill disposal for businesses and households.

      These are waste minimisation investments, some of which may have co-benefits for emissions reductions in the sector.

   b. A policy proposal to investigate improvements to organic waste disposal and landfill gas capture, to ensure emission reductions from unavoidable waste are recognised fairly and incentivised, and that there is a level playing field for disposal operators.[2]

8. While the commitment to waste minimisation investment (para 7a) has been decided [CAB-24-MIN-0138 refers], the public consultation will support further development of the policy proposal (para 7b) and overall approach for the waste sector in ERP2.

9. Interim modelling suggests that this approach could provide additional abatement of up to 2.4 Mt CO_2-e total over EB2. This relies on assumptions that are detailed further below.

10. A third policy, previously presented to you as an option for the waste sector in ERP2 [BRF – 4319 refers], was kerbside organics collections for households.[3] This was not included in the policy development for ERP2, emission abatement projections, or the discussion document, but is planned to be considered separately by Cabinet later this year.

Waste minimisation investment signals for infrastructure with emissions reductions co-benefits will support certainty

11. Investment in waste minimisation infrastructure (para 7a), modelling assumes up to $30 million Waste Minimisation Fund (WMF) investment per year into infrastructure to divert organic material, over a six-year period from 2024-2030 (with associated emissions reduction co-benefits).

12. Signalling investment priorities for the WMF that have emissions reduction co-benefits will support certainty in emissions projections for the final ERP2, as well as supporting certainty (and potential for private investment) in the waste sector. You will receive advice separately on implementation of waste investment priorities [BRF-4786].

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[2] BRF-3986 covered the status of landfill gas regulatory settings under the New Zealand Emissions Trading Scheme.

[3] BRF-4189 provided more detailed advice on options for kerbside organics collection policy.

Interim emissions projections can help to assess the sufficiency of the proposed ERP2 policy package

13. Under the CCRA, ERP2 must be sufficient to meet EB2. Interim emissions modelling and projections for ERP2 policies have been developed to help estimate this sufficiency, to support policy development for public consultation. Emissions projections change over time[4] and those presented here will continue to adjust as ERP2 policies are refined. Figures will be updated for the final ERP2.

14. As well as contributing to net emissions budgets, waste and agriculture sectors produce all methane emissions (which are shorter-lived but have a greater warming effect compared with other gases). This makes abatement in these sectors critical for achieving the methane targets[5] set out in the CCRA.

15. In addition to domestic sufficiency, New Zealand has agreed to its first Nationally Determined Contribution (NDC1) for 2021-2030 under the Paris Agreement.[6] Offshore mitigation would be required to meet any gap between net abatement that can be achieved domestically and what must be achieved overall to meet NDC1.

Waste emissions are projected to continue declining

16. The waste sector currently produces about 4.5 per cent of the nation's total gross annual greenhouse gas emissions[7] and 8.5% of all methane emissions.

17. Waste emissions have been declining over time, and are projected to continue declining[8] without any additional abatement measures (Table 1).

Table 1: Current and projected greenhouse gas emissions from the waste sector in New Zealand (with existing policy measures in place only)

Year	*Gross annual emissions (Mt CO_2-e)*
2022	3.5
2030 (projected)	3.3
2050 (projected)	3.0

[4] Eg, to reflect updated economic assumptions, methodological adjustments, or changes to policy/implementation.

[5] Targets in the CCRA are 24–47 per cent below 2017 levels by 2050, including to 10 per cent below 2017 levels by 2030. A review of the methane science and 2050 biogenic methane target for consistency with no additional warming has been initiated by Cabinet.

[6] The NDC1 headline target is a 50 per cent reduction in net emissions below New Zealand's gross 2005 level, by 2030. This is economy-wide and covers all greenhouse gases.

[7] In 2022, the waste sector produced 3.5 Mt CO_2-e emissions, out of New Zealand's total net emissions of 59.2 Mt.

[8] These projections are for individual points in time. However, this interim projection does represent a 1.3 Mt CO_2-e reduction in waste emissions through to the end of EB2, when compared with the average net emissions seen from the waste sector across the baseline period (2018-2022).

The ERP2 waste sector approach, set out in the discussion document, is projected to support further emissions reduction over the second emissions budget period and beyond

18. Interim modelling suggests that the waste sector approach presented in the discussion document could provide additional abatement of up to 2.4 Mt CO_2-e total over EB2 (Table 2).

Table 2: Interim modelling of the potential emissions abatement that could be achieved by implementing the waste sector approach in the ERP2 discussion document

Waste sector approach in discussion document	*Potential emissions abatement (CO_2-e)*		*Assumptions and limitations to modelling*
	During EB2 (2026 – 2030)	*Beyond EB2*	
a. Waste minimisation infrastructure investment	Up to 250 kt[9] per year (this is the maximum projected annual abatement, and will vary over time) Total: up to 1.3 Mt over EB2	Similar or greater abatement than EB2 would be anticipated during the third emission budget period (EB3), as infrastructure becomes operational.	• Assumes $30 million Waste Minimisation Fund investment per year into infrastructure to divert organic material, over a six year period from 2024-2030 (with abatement co-benefits). • Based on estimated cumulative emissions annually across multiple projects. • Infrastructure lifespan is assumed to be 15 years.
b. Investigation into organic waste disposal and landfill gas capture	Up to 309 kt per year (this is the maximum projected annual abatement, and will vary over time) Total: up to 1.1 Mt over EB2	Similar or greater abatement than EB2 anticipated during EB3 as policies are enacted; additional abatement anticipated longer term.[10]	This is based on a scenario of regulatory changes that result in: • a 7 per cent increase in the average landfill gas capture efficiency across New Zealand's disposal facilities with LFG capture systems in place; and • LFG capture expansion to all Class 1 (municipal) waste disposal facilities.

A sufficient overall ERP2 package is a key opportunity to meet future emissions budgets and targets

19. More broadly, the interim modelling for all ERP2 policies across all sectors (Table 3, below) indicates that proposed ERP2 policies will contribute 4.8 Mt CO_2-e of abatement in EB2 (approximately 1.5 per cent of EB2) and 21.3 Mt during EB3 (8.8 per cent of EB3), noting there is high uncertainty in these estimates and they will continue to be refined as the ERP2 package is finalised.

[9] Kt is kiloton (1000 Kt is equivalent to one Mt).

[10] Provisional modelling estimates that this could achieve up to 1.1 Mt CO2-e of emission abatement towards New Zealand's first Nationally Determined Contribution (NDC1) under the Paris Agreement, covering the period of 2024-2030 – longer than EB2) and up to 6.1 Mt from 2024-2050.

20. Meeting the first emissions budget (EB1) is projected to be achievable (with a projected surplus of 6 Mt (CO_2-e) of emissions) (Table 3).

21. With all of the proposed ERP2 policies (including across all sectors) that are laid out in the discussion document in place:

    a. meeting EB2 is projected to be tight (with a surplus of 2.6 Mt CO_2-e)

    b. New Zealand's emissions are not currently projected to be within the third emissions budget (with a deficit of 8.8 Mt) (Table 3).

Table 3: Snapshot of New Zealand's interim emissions projections as presented in the ERP2 discussion document (some figures are rounded to nearest whole number)

	Net emissions for all gases (Mt CO_2-e)			***Methane emissions -*** *reduction to 2030 (compared to 2017 baseline)* ***This column uses ENZ modelling as current at 20 June 2024***
	Emissions Budget 1 (2022-2025)	*Emissions Budget 2 (2026-2030)*	*Emissions Budget 3 (2031-2035)*	
Central projected scenario for New Zealand's emissions (showing uncertainty range) **With all proposed ERP2 policies** (in the discussion document) **included**	**284 (+/– 4)**	Includes 4.8 Mt estimated additional abatement from all new ERP2 policies **302.4 (+/– 18)**	Includes 21.3 Mt estimated additional abatement from all new ERP2 policies **248.8 (+/– 29)**	**10% (+/- 5-15%)**
Budget/Target	**290**	**305**	**240**	**10%**

22. Methane emissions are projected to just meet the 2030 target (Table 3). Uncertainty is very high for these interim projections, which to 2030 are largely reliant on continued reduction of stock numbers in the agricultural sector that are due, in part, to farm conversions to forestry.

23. Note also that the uncertainty range of centrally projected scenarios for EB2, EB3, and 2030 methane emissions overlaps into the respective budget/target thresholds.

24. Interim projections suggest that net zero could be achieved before 2050, although the central interim projection is above the target level, at close to 5 Mt CO_2-e, but this is within a very wide range. Uncertainty is also high for this longer timeframe.

25. Interim projections indicate that approximately 90 Mt CO_2-e of additional abatement, on top of current projections, will be required to meet NDC1.

Under a price-led abatement strategy, New Zealand Emissions Trading Scheme (NZ ETS) settings will also have a critical impact on broader ERP2 sufficiency

26. NZ ETS settings can support New Zealand's international obligations under the Paris Agreement, the 2050 target, and domestic emissions budgets.

27. Waste emissions are only partially covered by the NZ ETS, with municipal landfill disposal facilities included in the NZ ETS since 2013.

28. While NZ ETS settings must accord with emissions targets and budgets, the NZ ETS cannot guarantee a particular emissions outcome within a time period (in part because units may be banked for use at a later time, and liability costs may be passed through to consumers), which creates uncertainties and risks to sufficiency.

29. Annual ministerial decisions on NZ ETS settings will require ongoing management of NZ ETS risks. Cabinet is next anticipated to take decisions on NZ ETS unit supply and price control settings in August 2024, and these will inform the sufficiency of the final ERP2.

30. Other options for managing sufficiency risks include: monitoring progress, with a contingency plan for any EB2 shortfall; developing policies for abatement outside the NZ ETS; and developing complementary policy options for abatement.

Additional waste policy options have potential to support further abatement if required

31. If the Government decides further waste sector policies are required to complement the ERP2 package or support management of sufficiency risk (eg, following public consultation), there are options for additional waste sector policies and/or to strengthen existing and/or proposed policies (over and above waste policies in the draft discussion document). Progressing these could provide additional abatement during the EB2 period and beyond.[11] We can provide further advice on these options if this becomes a priority.

32. The public consultation process is also likely to present opportunities for you to hear from stakeholders about how they consider sufficiency could be managed during EB2 and beyond, and the potential role the waste sector can play.

Implementation of ERP1 actions will also affect sufficiency

33. The first emissions reduction plan (ERP1) is the mechanism to meet EB1 (2022-25).

34. Under the CCRA, the Minister of Climate change may amend an emissions reduction plan and supporting policies and strategies to maintain their currency. Any changes require the same process as preparing an emissions reduction plan (ie, including adequate consultation) unless they are minor or technical.

35. Accordingly, an appendix of the ERP2 draft discussion document states which ERP1 actions have been discontinued by Cabinet (under both the previous government and current coalition) and any associated abatement impacts. This is to make changes to ERP1 clear during the upcoming public consultation.

36. To date, no waste or fluorinated gases (F-gases) actions from ERP1 have been discontinued (but some are on hold or awaiting ongoing policy advice and ministerial decisions (detailed below).

[11] These options include diversion of paper waste and wood waste, expansion of kerbside food waste (residential and commercial) and garden waste (residential) collections, limiting organics at Class 1 landfills, and waste to energy.

37. For further ERP1 actions to be discontinued after the ERP2 consultation begins, the next opportunity to seek Cabinet agreement would likely be as part of Cabinet's consideration of the Government's response to the Climate Change Commission's annual monitoring report on ERP1 (which is due in October 2024).

Discontinued ERP1 actions (to date) are not expected to prevent EB1 being achieved

38. Modelling suggests discontinued actions from ERP1 to date will not have a material impact on whether EB1 is achieved. This is because some actions have already progressed sufficiently so that their abatement potential has already been realised and/or will continue regardless and others were enabling actions without direct emissions abatement.

39. Before removing any further policies that would impact emissions reductions during EB1, consideration would need to be given to the risk of decreasing the ERP1 sufficiency margin (see Table 3).

40. There have been some funding changes for ERP1 actions. As part of the Ministry for the Environment's Budget 24 savings, funding allocated from the Climate Emergency Response Fund for organic waste infrastructure (ERP1 actions 15.2.2 and 15.2.3) and food waste reduction partnership programmes (actions 15.1.1 and 15.1.2) was returned to the Crown. However, funding for these actions to progress from 2024/2025 onwards will be replaced by waste levy funds.

Implementation of ERP1 actions for waste and F-gases will impact whether projected emissions for the sector are realised

41. While no ERP1 actions for waste or F-gases have been discontinued to date, 10 out of 18 are currently RAG-rated 'amber' for delivery confidence, for example. because they are on hold or are awaiting ongoing policy advice and/or ministerial decisions (appendix 2). Any potential abatement these could provide, if implemented, is therefore not included in 'existing measures' modelled in the discussion document.

42. Two ERP1 actions related to F-gases (16.2 - prohibiting imports of pre-charged equipment; and 16.3 - investigating prohibiting F-gases with high global warming potential) were put on hold by ministerial decision in August 2023 after emissions modelling, submissions, and policy development indicated negligible benefits to abatement from the proposed F-gas prohibitions. It was agreed at that time that these actions would be revisited if new information relating to the prohibition of imports of pre-charged equipment and F-gases with high global warming potential becomes available.

43. Further delays to implementing ERP1 actions for waste and F-gases is likely to result in less or slower abatement in EB1 (and/or beyond) than that anticipated by models. For example, regulations to support the refrigerant product stewardship scheme have been delayed (initially scheduled to come into effect in mid-2024). This delay will reduce the expected likelihood of realising the abatements attributed to this action during EB1 (ERP1 action 16.4 – see appendix 2 for detail).

44. Consequently, for the purposes of assessing sufficiency in ERP2, the 10 amber-rated actions (shown in appendix 2) have been modelled as 'additional' measures (ie, not included as 'existing' measures).

Initial responses to the Climate Change Commission's ERP2 recommendations related to waste

45. The Climate Change Commission's (the Commission) final advice to Government on ERP2 (December 2023) included five specific recommendations relevant to the waste sector where the Ministry for the Environment is a lead or contributing agency [BRF-4039 refers]. The Commission provided no specific recommendations related to F-gases, having made a necessary assumption at the time that ERP 1 actions towards F-gases abatement would continue.

46. Of the five recommendations focused on waste (appendix 3):

    a. two on landfill gas capture settings (recs 26 and 27) have been fully considered and align with the waste sector approach outlined in the ERP2 discussion document

    b. two have been fully considered and are being investigated as part of the broader waste minimisation work programme, but are not included in ERP2 (recs 16 and 17 - on product stewardship and wood waste, respectively)

    c. aspects of recommendation 18 (advancing a circular bioeconomy) are relevant to the Ministry of Business, Innovation and Employment (MBIE), Ministry for Primary Industries and Ministry for the Environment. As this is not a Government priority area, consideration of this recommendation has not been progressed and is not included in ERP2. Targeted opportunities to consider this recommendation in relation to relevant biological resources policy may arise over time, for example, within the context of any future Sustainable Aviation Fuels mandate/regulations, and officials can support any work that MBIE progresses on this recommendation (appendix 3).

47. The final ERP2 is planned to provide the Government's response to the Commission's advice, so you will receive further advice on the Commission's recommendations above, as part of ERP2 advice, following the public consultation period.

Next steps

48. Pending Cabinet approval, public consultation on ERP2 is anticipated to take place in July-August 2024. This is planned to include an online webinar targeted to the waste sector (hosted by WasteMINZ). The waste sector, including industry and local government, have a strong interest in emissions reduction policies and we anticipate receiving high levels of engagement and feedback through the consultation.

49. Following consultation, officials will provide you with a summary of waste-related submissions and seek your direction on further ERP2 waste policy development.

50. You will receive separate advice, that is relevant to ERP2, on the overall waste work programme [to be agreed by Cabinet] and on implementation of waste investment priorities [BRF-4786]. Changes to this work program (eg, significantly slowing or stopping initiatives or introducing new initiatives) will need to account for corresponding emissions impacts (ie, either abatement or addition to waste sector emissions).

51. The Climate Priorities Ministerial Group is next scheduled to meet in September 2024. The indicative forward agenda for this meeting (which remains subject to change) currently includes:

    a. consideration of the post-consultation draft ERP2 package for Cabinet; and

    b. discussion and approval of the draft response to the Climate Change Commission's annual monitoring report on the adequacy of the emissions reduction plan and its implementation (ie, for ERP1).

52. The Government has a statutory obligation to deliver ERP2 by 31 December 2024.

Signatures

Glenn Wigley
General Manager – Waste & HSNO Policy
Climate Change Mitigation and Resource Efficiency
21 June 2024

Hon Penny SIMMONDS
Minister for the Environment

Date

Appendix 1: Draft waste sector chapter from the second emissions reduction plan discussion document (proposed for upcoming public consultation)

[Note that the waste sector features in other parts of the discussion document outside of the waste chapter as well].

10. Waste

Waste sector at a glance

Annual Emissions	• 2020: 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	• Resilient infrastructure and well-prepared communities. • Credible markets to 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 to play in this system.
What we're doing now	• The NZ ETS incentivises landfill gas capture system efficiency. • A portion of the waste disposal levy is invested into New Zealand's waste infrastructure.
What's coming	• Further targeted investment in New Zealand's resource recovery infrastructure and systems (including for construction and demolition waste). • An investigation into improvements to 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 to be used in the New Zealand economy.

[1] Waste related issues have continuously featured in the Colmar Brunton/Kantar better futures survey top ten concerns, including for 2023.

Introduction

Waste is an important issue to New Zealanders. By taking action to reduce waste, we can also reduce the associated emissions from waste.

The focus of emissions reduction for the waste sector is biogenic methane, the main greenhouse gas the sector produces. New Zealand has introduced some readily available and widely used technologies that help reduce waste emissions, such as landfill gas capture systems and there is potential for further improvements in this area, including within the EB2 period.

We are seeking feedback on whether you think our proposal focuses on the correct area, and other priority actions you think the waste sector should be taking to reduce emissions.

Emissions profile

In 2022 the waste sector produced 3.5 Mt CO_2-e of New Zealand's gross GHG emissions (around 4.5 per cent). Waste emissions were comprised of methane (CH_4) (93.3 per cent), nitrous oxide (N_2O) (4.3 per cent) and carbon dioxide (CO_2) (2.4 per cent).

Figure 10.1: Waste emissions as at December 2022 (AR5)

Proposed approach for reducing emissions from waste

A credible market for emissions pricing can support long-term reductions in emissions from unavoidable waste in landfills, at least cost.

Emissions from waste disposal activities in New Zealand are partially covered by the NZ ETS.[2] For larger landfills that receive higher proportions of organic waste, the NZ ETS cost is (to some extent) reflected in the price customers pay for waste disposal. Landfill operators are incentivised to reduce emissions by improving landfill gas capture system efficiency to minimise costs under the NZ ETS.

[2] As at April 2024, New Zealand has 30 landfills as registered NZ ETS participants (all Class 1 facilities) and there are currently 330 open disposal facilities across Classes 1-5; noting that Class 2s are for construction and demolition waste (eg, excludes household food waste), and Class 3-5 receive lesser organic waste.

Actions to enable the NZ ETS to play its role most effectively, and to mobilise private capital are:

- A commitment by the Government to invest in New Zealand's resource recovery infrastructure and systems (using the Waste Minimisation Fund), stimulating private investment in affordable alternatives to landfill disposal for businesses and households.
- A proposal to investigate improvements to organic waste disposal and landfill gas capture, to ensure emission reductions from unavoidable waste are recognised fairly and incentivised, and that there is a level playing field for disposal operators.

Investment in resource recovery infrastructure and systems

New Zealand has a waste disposal levy that is paid on each tonne of waste sent to most landfills in the country.[3] The levy revenue is reinvested through the Waste Minimisation Fund (WMF) and through an allocation to territorial authorities (councils) to invest in local and regional waste minimisation solutions. Since 2022, the WMF has supported infrastructure projects that divert organic materials from landfill, process organic waste, or otherwise improve resource recovery – particularly for organics.

New Zealand's domestic resource recovery systems are improving – in terms of infrastructure provision for our cities, districts, and regions from what has been a low base[4] relative to comparable countries like Australia. However, households and businesses still face challenges in recycling unwanted resources that will also help them to reduce waste-related emissions.[5]

The Government has committed to waste minimisation investment priorities (for the WMF) that will also support the reduction of emissions, including during EB2. A proportion of the WMF will target infrastructure projects and systems that reduce organic waste and emissions (and other waste streams) in New Zealand, including those that:

- divert and process organic waste, including from construction and demolition
- develop and implement schemes for businesses, manufacturers and consumers to take responsibility for the products they produce and buy (product stewardship schemes)
- upgrade resource recovery facilities (including transfer stations)
- develop renewable energy recovery infrastructure for hard-to-recycle materials (eg, wood waste).

These investments will enhance our domestic capability and capacity to reduce waste emissions, recover resources and use recycled materials (eg, in construction and manufacturing). They will also make it easier for businesses and consumers to reduce their waste.

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3 Excluding Class 5 industrial monofills and farm fills.

4 In 2020 New Zealand was estimated to have a $2.1-$2.6 billion waste management infrastructure deficit, with additional, enabling service funding needs of approximately $0.9 billion.

5 Waste-related emissions more broadly include both disposal emissions (biogenic methane from biodegradable wastes) and the embodied emissions in wasted products and resources across the economy, which may be relatively inert in a disposal facility (eg, metals, concrete and plastics have relatively high embodied emissions, but are relatively inert when disposed in landfills).

Understanding impacts of investment in resource recovery infrastructure and systems

Modelling suggests that, in line with the Government's priorities, investing (via the Waste Minimisation Fund) a portion of the central Government forecasted levy revenue (through to 2030) into resource recovery systems and infrastructure that processes organic waste, has potential to support an ongoing abatement of up to 250kt of CO_2-e per year.[6] This is based on the estimated cumulative emissions abatement annually, and across multiple projects.

Co-benefits may include:

- encouraging co-investment from the private sector (commercial projects are able to contest for WMF funding to cover up to 50 per cent of the total project costs)
- reducing pressure and cost on local government to develop infrastructure, alongside industry and community partners, to meet business and consumer expectations for accessible and affordable alternatives to landfill
- supporting a strategic approach to developing infrastructure across the nation.

Longer-term, policies and investments that support an efficient and effective resource recovery system to capture and process organic waste could have significant co-benefits for other sectors that could leverage the same infrastructure. This may further reduce the future costs of diverting organic material, as well as associated emissions abatement for those sectors. This could benefit sectors and industries that:

- produce waste that could be diverted into recycling systems (reducing waste emissions)
- use recycled resources to deliver production and services (helping to reduce production emissions); for example, in business and industries across the economy and in key sectors like manufacturing, farming, forestry, construction, and transport.

In addition to EB2 reductions, investment in infrastructure now will also support future options for diversion of organic material, resulting in reduced emissions into EB3 at lower relative cost.

Between now and 2030, additional waste investment priorities will be considered and advanced and WMF investment signals can be adjusted to meet New Zealand's changing context and needs.

Investigating improvements to organic waste disposal and landfill gas capture

In 2004, regulations were introduced requiring landfills that accept municipal waste with a capacity of over 1 million tonnes of waste to capture their greenhouse gas emissions (see the box below).[7] Large municipal landfills that meet this size threshold have landfill gas capture systems installed. This has enabled the waste sector to successfully reduce its emissions, despite increases to the amount of waste that New Zealand generates.

[6] Over a 6-year period (2024-2030).

[7] Resource Management (National Environmental Standards for Air Quality) Regulations 2004. See https://environment.govt.nz/acts-and-regulations/regulations/national-environmental-standards-for-air-quality/

Landfill gas capture

Landfill gas capture is a technological solution that captures the biogenic methane emissions from organic waste in landfills. A network of gas wells and/or pipes are installed into waste within a landfill. This network captures a portion of the gas that the waste produces as the biodegradable materials within it break down. Methane and other gases can be captured in this way and then be flared (ie, converted to carbon dioxide, which has less potent warming effects) and is sometimes used to generate energy.

There may be opportunities to further leverage the abatement potential of landfill gas (LFG) capture. This includes investigating: which landfills receive which types of organic materials, efficient and effective settings for any diversion of organic waste from landfills, and the requirements for LFG capture and reporting.

There is room to improve the data and reporting of landfill gas capture. The 2022 United Nations Framework Convention on Climate Change (UNFCCC) recommended that New Zealand improve the data and reporting of landfill gas capture, to improve the reliability of our reported efficiency [LINK to report https://unfccc.int/sites/default/files/resource/arr2022_NZL.pdf]. It is important that improvements are accurately assessed and accounted for (as far as is practical) within the NZ ETS so that the scheme works as intended.

Proposal

We propose engaging with industry on how we dispose of and manage organic waste streams in landfills. Further analysis and research would be needed to determine what policy and/or regulation changes would be most effective and efficient to reduce our landfill waste emissions. Accordingly, this proposal involves further investigation and engagement with industry on possible changes (as appropriate) to:

- incentivise or encourage diversion of organic materials from landfill
- determine which landfill types accept which types of organic waste
- review the scope of landfills that require LFG capture systems (including smaller facilities)
- improve settings to achieve an increase in the average LFG capture efficiency
- improve data and evidence to support landfill gas capture efficiency calculations and reporting, and to support accurate NZ ETS accounting.

The abatement potential from any regulatory changes would need to be further considered as part of the proposed investigation.

For example, initial modelling suggests that, a scenario of a 7 per cent increase in landfill gas capture efficiency across New Zealand's disposal facilities with LFG capture systems in place, combined with LFG capture expansion to all Class 1 facilities, may have an abatement potential of up to 309kt CO_2-e per year [during EB2/up to 2030] and further abatement during subsequent periods.[8] A robust evidence base showing emissions reduction potential is currently being developed to understand the most equitable way to progress any changes. This includes consideration of emissions reductions and the role of NZ ETS allocations. The same scenario would also deliver 1.1Mt CO_2-e towards NDC1.

[8] Provisional modelling estimates towards NDC1 (2024-2030) this could achieve up to 1.1Mt CO_2-e and from 2024-2050, up to 6.1Mt CO_2-e.

Impacts on iwi/ Māori

'Waste' materials or products are not traditionally a concept within te ao Māori. At a high level, waste minimisation and shifting away from a linear economy that disposes of waste to land, towards pare kore (zero waste) as seen in nature's cycles, is in line with concepts of kaitiakitanga and stewardship of the land.

Feedback from iwi/Māori during this consultation process will be considered as waste policies for ERP2 are further developed.

Chapter 10 consultation questions

Questions	
10.11	Do you agree/disagree that the Government should look further into improvements to organic waste disposal and landfill gas capture?
10.22	What is the main barrier to reducing emissions from waste (in households, business or across the waste sector)?
10.3	What is the main action the Government could do take support emission reductions from waste (in households, business or across the waste sector)?
10.4	Please provide any additional feedback on the Government's thinking about how to reduce emissions in the waste sector.
10.5	Please upload/link to any research or evidence you think is important for the Government to consider about reducing emissions in the waste sector.

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Appendix 2: Interim status update on emissions reduction plan one actions - for waste and fluorinated gases

This interim update has been provided by officials to support ministerial consultation on the ERP2 discussion document for public consultation, but has not yet been reported on via the Climate Change (interdepartmental) Chief Executives Board.

Waste actions	RAG status (delivery confidence)	Comments	High-level estimate of abatement potential for 'amber'-rated actions
15.1.1 Encourage behaviour to prevent waste at home	Green	Proceeding	
15.1.2 Enable businesses to reduce food waste	Green	Proceeding	
15.1.3 Support participation in improved kerbside collections	Green	Proceeding	
15.2.1 Improve household kerbside collection for food and garden waste	Amber	Awaiting Ministerial decisions. The abatement analysis in the discussion document only includes roll out of services that are already significantly underway.	*In addition to existing achievements* - Low abatement during the first emissions budget period (EB1), increasing to medium during second and third periods (EB2-EB3). Enabling for other actions (eg, would better enable organics diversion action 15.4; and drive investment action 15.2.2).
15.2.2 Invest in organic waste processing and resource recovery infrastructure	Green	Proceeding	
15.2.3 Require the separation of organic waste (businesses and other)	Amber	Requires amendments to the WMA, in addition to what is in the current reform package.	Low abatement during EB1, increasing to medium during EB2-EB3. Enabling for other actions.
15.3.1 Support the building and construction sector to minimise waste through research and improved capability	Amber	Progressing as part of the broader waste minimisation work programme.	High uncertainty; enabling action, estimated to be low abatement.

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15.3.2 Invest in sorting and processing infrastructure for construction and demolition waste	Green	Proceeding	
15.3.3 Enable the separation of construction and demolition materials	Amber	Requires amendments to the WMA, in addition to what is in the current reform package.	Enabling action.
15.4 Investigate banning organic waste from landfills by 2030	Amber	Awaiting ongoing policy advice and ministerial decisions – **relevant to ERP2 policy.**	Medium abatement in EB2 (depending on pace of implementation), higher in EB3 as decay of organics is prevented over time.
15.5.1 Regulations will require landfill gas capture at municipal landfills	Amber	Awaiting ongoing policy advice and ministerial decisions – **relevant to ERP2 policy.**	High abatement in EB2 and EB3 (assuming EB2 rollout).
15.5.2 Feasibility studies will determine the need for additional landfill gas capture requirements	Green	Proceeding	
15.6.1 Develop a national waste licensing scheme	Amber	To be considered in upcoming advice on amendments to the Waste Minimisation Act reform.	Enabling action (to improve data and reporting).
15.6.2 Improve information on greenhouse gas emissions from waste disposal	Green	Proceeding	
Fluorinated-gases actions	**RAG status (delivery confidence)**	**Comments**	**High-level estimate of abatement potential for 'amber'-rated actions**
16.1 Develop training and accreditation for handling alternative gases		This action now sits with the Ministry of Business, Innovation and Employment.	
16.2 Prohibit imports of pre-charged equipment	On hold	On hold; to be revisited if new information becomes available (would require Cabinet decision to discontinue).	Low reductions during EB1, EB2 and EB3 (<1 kt to <17.7 kt).
16.3 Investigate prohibiting F-gases with high global warming potential (GWP)	On hold	On hold; to be revisited if new information becomes available (would require Cabinet decision to discontinue).	Low level increase to emissions during EB1, then medium level reductions (~150-200 kt) during EB2 and EB3.
16.4 Introduce a mandatory product stewardship scheme for refrigerants	Amber	Voluntary scheme is operational. Section 9(2)(j), prejudicing commercial and industrial negotiation and Section 9(2)(f)(iv), under active consideration. Dec	Low reductions during EB1, then medium reductions during EB2 and EB3 (~372 – 527 kt).

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Appendix 3: Initial responses to waste-related* Climate Change Commission recommendations

Recommendation	Lead agency	Initial response to this recommendation [as at 21 June 2024]
16. Strengthen product stewardship and expand coverage across products and packaging to help avoid emissions associated with waste.	Ministry for the Environment (MfE)	• This recommendation has been fully considered and is being investigated as part of the broader waste minimisation work programme [you will receive separate advice on the work programme]. • It is not included in the policy for the second emissions reduction plan (ERP2).
17. Declare construction material wood waste as a priority product to help reduce emissions from construction and demolition waste.	MfE	• This recommendation has been fully considered and is being investigated as part of the broader waste minimisation work programme [BRF 4161 refers]. • It is not included in the policy for ERP2.
18. Provide overarching guidance and an enabling regulatory framework to advance a circular bioeconomy that reduces emissions and increases resilience to climate change, ensuring cross-sector coherence.	N/A Three agencies are covering aspects of this recommendation: • Ministry of Business, Innovation and Employment (MBIE) • Ministry for Primary Industries • MfE	• Analysis on this recommendation has not been progressed. • It is not included in the ERP2 discussion document. *MfE sees potential long-term merit in the circular/bioeconomy regulatory framework to support delivery of a bioeconomy strategy and will support MBIE on relevant issues as they arise.*
26. Ensure the use of landfill gas capture systems and technologies is widespread and efficient.	MfE	• These recommendations have been fully considered and are aligned with the waste sector approach outlined in the discussion document for ERP2 consultation. • Further advice on the response to these recommendations will follow the public consultation period in the coming months.
27. Improve the accuracy and transparency of landfill gas capture data.	MfE	

*There were no specific recommendations for F-gases in the Commission's 2023 advice on ERP2.

Ministry for the Environment
Manatū Mō Te Taiao

Briefing: Landfill gas regulatory settings (NZ ETS)

Date submitted: 21 December 2023
Security level: In-confidence
MfE priority: Not urgent

Actions sought from Ministers		
Name and position	***Action sought***	***Response by***
To Hon Simon WATTS **Minister of Climate Change**	Discuss landfill gas capture with Minister Simmonds for consideration as an emissions reduction plan waste policy matter.	At your convenience
CC Hon Chris BISHOP **Minister for Infrastructure**	For noting only.	
CC Hon Penny SIMMONDS **Minister for the Environment**	Note this briefing relates to emission reduction plan waste policy matters.	

Actions for Minister's office staff
Return the signed briefing to the Ministry for the Environment (ministerials@mfe.govt.nz).

Appendices and attachments
1. Appendix A: Letter from Waste and Recycling Industry Forum to Minister Simmonds
2. Appendix B: Landfill gas capture system

Key contacts at Ministry for the Environment			
Position	***Name***	***Cell phone***	***First contact***
Principal Author	Roderick Boys		
Responsible Manager	Miranda Cross	027 258 9672	
General Manager	Glenn Wigley	027 491 7806	✓

Minister's comments

Landfill gas regulatory settings (NZ ETS)

Key messages

1. At your request, this briefing provides information on a proposal by the Waste and Recycling Industry Forum (WRIF) to update the New Zealand Emission Trading Scheme (NZ ETS) regulations and remove the 90 per cent 'cap' (here on referred to as 'limit').

2. Most large landfills have obligations under the NZ ETS. Regulations allow for up to 90 per cent of landfills NZ ETS emission liability costs to be avoided through the capture and destruction of Landfill Gas (LFG; includes biogenic methane). The 90 per cent limit prevents over-estimation of the efficiency of a LFG capture system, as at the time of regulating (2010), this was considered the technical maximum that an operational landfill could achieve.

3. WRIF considers their members' sites achieve efficiencies higher than 90 per cent, and thus removing the limit would incentivise landfill operators to capture more LFG to reduce their NZ ETS liability and further reduce emissions.

4. However, calculating LFG efficiencies is not an exact science. Currently, calculation methods rely on a combination of direct measurement (of gases captured) and modelling (of total gases produced) to calculate a landfill's gas capture efficiency. This includes a number of assumptions, and for the overall gas generation rate expected from the landfill, the waste volume (tonnes) and waste composition (biodegradable or inert) are key.

5. Currently, landfill operators can, and all do, assume a 'default composition' for waste disposed at their landfills. Where there is more biodegradable waste disposed in a landfill than the default composition assumption provides for, this would have the effect of inflating the calculated efficiency for that site. This is sometimes referred to as organic loading. Ultimately, greater certainty is needed on the amount of biodegradable material going into landfills, and the methane being released, to ensure we have a robust framework.

6. Officials agree that the landfill gas capture regulatory settings and calculation methodology needs review, and that it is important to get these settings right to ensure LFG capture systems are efficient and effective. Both the 2021[1] and 2023[2] advice from the Climate Change Commission also emphasises the importance of LFG capture systems for reducing waste sector emissions.

7. The issues are broader than the 90 per cent limit. Industry, the Climate Change Commission and officials also recognise that it is likely that biodegradable waste

[1] Inaia tonu nei – A low emissions future for Aotearoa.

[2] Final report: 2023 Advice on the direction of policy for the Government's second emissions reduction plan.

is being disposed of to landfills with no gas capture systems in place at all, as some landfill facilities are not currently captured by LFG regulations.

8. Stemming from waste actions under the first emission reduction plan, and in order to support the development of options for the second emission reductions plan, work is under way to better understand the nature of these issues and provide further advice to Ministers. We have already engaged with landfill facility operators with gas capture systems in place regarding data and intend to engage again in the new year on LFG regulatory system calculation methods and possible improvements.

9. These discussions and policy options are important, noting waste is one of two key sectoral contributors to biogenic methane emissions in New Zealand – the other is agriculture.

Recommendations

We recommend that you:

a. **Note** officials are working with landfill operators to better understand landfill gas capture efficiency, which will help inform the development of options for the second emissions reduction plan.

b. **Note** this work may also have implications for updating the Greenhouse Gas Inventory.

c. **Meet** with officials to discuss.

Yes | No

d. **Meet** with Minister Simmonds to discuss.

Yes | No

Signatures

Glenn Wigley
General Manager
Waste & HSNO Policy
20 December 2023

Hon Simon WATTS
Minister of Climate Change

Date

Landfill gas regulatory settings (NZ ETS) and related emissions reduction plan work

Purpose

10. The purpose of this briefing is to provide information on the WRIF's proposal to "update [NZ ETS] regulations to reduce landfill emissions" and possible next steps.

Background

11. On 24 November 2023, the WRIF wrote to the Hon Penny Simmonds, cc: the Hon Chris Bishop and yourself, in your capacity as Minister of Climate Change, to provide their policy priorities for the incoming Government (appendix A). You have asked for initial advice on one of the proposals within the letter related to your Climate portfolio.

Organic material in landfills can generate landfill gases.

12. New Zealand has five classifications of landfill. The WRIF proposal centres on Class 1 or municipal landfills, which take waste from households, businesses, and industry.[3]

13. Municipal landfills receive a wide range of waste materials. Some types of waste (eg, biodegradable 'organics' such as food scraps, garden waste, timber, paper and cardboard, etc.) generate biogenic methane when they break down in landfills in anaerobic conditions.[4]

14. Site-specific waste composition and the total volume of biodegradable waste in a landfill are key factors that influence how much methane gas a site may generate. Variability in LFG generation can also arise from other factors, including local climate (rainfall and temperature), the conditions inside the landfill (fill type, oxygen levels, leachate management), and landfill conditions (such as fill depth and slope).

[3] Other landfills include Class 2 (construction and demolition landfills which are intended for materials from construction and demolition, such as rubble, concrete and building waste including biodegradable wood and fibre products); Class 3/4 (controlled/managed landfill sites, which take inert materials such as lightly contaminated soils, rubble and concrete); Class 5 (cleanfill landfills, which take virgin excavated natural materials); and industrial monofills, which take waste that could discharge contaminants or emissions and is generated from a single industrial process such as steel- or aluminium-making.

[4] Anaerobic refers to the decomposition of biodegradable matter in the absence of oxygen, resulting in: methanogenesis which produces methane, and sulphate reduction producing hydrogen sulphide (the strong odour from landfills).

Some landfill gas can be captured and managed

15. Gases generated by biodegradable materials breaking down can be collected through LFG capture systems. A brief explanation and figure depicting a LFG capture system is provided in appendix B. The LFG that is collected through a network of pipes and wells in the landfill is converted to less-harmful carbon dioxide through combustion. This process can happen through a flare (combustion and vent to atmosphere) and in some cases, combustion within an engine to generate energy.

16. While capturing gases can be an effective way of reducing emissions from landfills, even very efficient landfills still emit gases to atmosphere. Sustained 100 per cent capture over time is not technically possible in a landfill. A sealed vessel, such as an anaerobic digestion tank is needed to achieve close to 100 per cent efficiency.[5]

17. There are some regulatory requirements and incentives for installing and efficiently operating LFG capture systems, including the National Environmental Standards for Air Quality (NES-AQ) and obligations under the Emissions Trading Scheme for landfill operators. It is important to note, the LFG regulatory requirements do not apply to all landfills that receive biodegradable waste, this is a key related issue which is also focus of work underway.

18. As outlined in the following section, installation of efficient LFG capture systems can substantially reduce NZ ETS liabilities for landfill operators.

It is difficult to directly measure landfill gas efficiency

19. Estimates of the efficiency of LFG capture use direct measurements of LFG gas quantity, and a modelled estimate of the total amount of gas expected to be produced by the landfill. Modelling is inherently uncertain, and in this case, the uncertainty is increased by low data availability.

20. National estimates of emissions from landfills[6] currently assume an average of 68 per cent efficiency for landfills with a gas capture system in place, which would mean that landfills capture and destroy 68 per cent of all gas produced.

21. However, an expert review by the United Nations Framework Convention on Climate Change (UNFCCC) in 2022[7] recommended that unless higher quality data can be provided to justify New Zealand's assumed efficiency rates, the international default value of 20 per cent should be used instead.

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[5] A landfill with a 68 per cent gas capture efficiency (the current assumed national average in the New Zealand Greenhouse Gas Inventory) has an emissions factor of 0.206 t CO_2-e/tonne of waste; a sealed anaerobic digestion tank has a factor of 0.02 CO_2-e/tonne of waste.

[6] In the New Zealand Greenhouse Gas Inventory.

[7] UNFCCC. 2023. *Report on the individual review of the annual submission of New Zealand submitted in 2022.* Bonn: UNFCCC.

22. Estimated total emissions (including biogenic methane) from the New Zealand waste sector in the NZ Greenhouse Gas Inventory would significantly increase if the assumed efficiency of LFG capture was lowered to address this recommendation. This could also exacerbate existing gaps between emissions reported under the NZ ETS, and those reported by the NZ Greenhouse Gas Inventory, which informs measurement of progress towards Nationally Determined Contributions (NDC).

New Zealand's methane reduction targets and the role of waste

23. The Climate Change Response Act 2002 sets a target to reduce biogenic methane by 10 per cent below 2017 levels by 2030. The two key sectoral contributors to biogenic methane emissions are agriculture and waste.

24. The waste sector produced approximately 9 per cent of New Zealand's biogenic methane in 2021. The current emissions reduction plan sets a waste sector sub-target of reducing biogenic methane emissions from waste by 40 per cent by 2035 (from the 2017 baseline).

25. The waste sector is considered to have readily available and widely adopted solutions that could be deployed to reduce emissions, including LFG capture infrastructure and resource recovery opportunities. Conversely, agriculture is more challenging in the short term.

26. With existing measures,[8] the waste sector is tracking towards ~19 per cent abatement by 2030 (from the 2017 baseline). Further waste sector policies will be needed in the second emissions reduction plan if the sector is to continue to play a role towards reducing New Zealand's biogenic methane emissions to 2030 and beyond. Deploying and improving the efficiency of LFG capture infrastructure are key opportunities to further reduce biogenic methane emissions.

Landfill gases in the NZ ETS

Certain landfills are subject to the NZ ETS

27. Most municipal landfill operators are subject to the NZ ETS. The NZ ETS is a market-based policy instrument and only captures about one third of estimated total waste sector emissions (other waste emissions sources include other landfill types, farm fills, and other waste disposal methods such as on-farm burning[9]).

[8] Existing emissions reduction plan measures include waste policies from the first emissions reduction plan likely to be within Minister Simmonds' Environment portfolio.

[9] These are not currently covered by the NZ ETS for a range of reasons, including the difficulty in identifying and assessing the impacts of farm fills on emissions. Whether the NZ ETS is suitably covering the full range of waste emission sources is considered out of scope for this advice, which focuses on high efficiency LFG capture. Other sources of emissions are not required under the NES-AQ to install LFG capture mechanisms. Further advice could be sought from officials on this topic.

28. NZ ETS liabilities can be based on a default or unique emissions factor. Landfill NZ ETS participants can apply for a UEF based on specific calculation methods set out in regulations.

29. All UEF applicants currently use a UEF based on their LFG capture and destruction.[10] The UEF calculations and modelling of site-specific gas generation rates rely on a set of factors and assumptions, including a default composition for the waste assumed to be disposed in the landfill[11].

30. The estimated efficiency under the capture and destruction UEF is the calculation of a landfill's *expected* gas generation rate, based on a *default composition* assumption versus how much gas is *actually* captured (actuals, based on gas capture data).

The presumed efficiency of landfill gas capture systems has a large impact on NZ ETS liabilities

31. Landfills operators' NZ ETS liabilities are reduced if they have a LFG capture system in place.

32. UEFs gazetted for landfills operating in 2021 ranged from 0.096 tonnes CO_2e per tonne of waste (at 90 per cent reported capture efficiency) to 0.9912 tonnes CO_2e per tonne of waste (~17 per cent reported capture efficiency).

33. These calculated efficiency factors are used to determine site-specific NZ ETS liability costs. Assuming a $60 ETS unit price, these varying capture efficiencies lead to a range of between $576,000 and $5,947,200 per 100,000 tonnes of waste. This is considered a significant incentive for those sites covered by the ETS.

Analysis and advice

34. The NZ ETS limits estimated LFG capture efficiency at 90 per cent, which is challenged by the WRIF proposal. WRIF have proposed the removal of the 90 per cent limit. Their view is that this would incentivise landfill operators to capture more than 90 per cent of the LFG.

[10] Other possible methods include a UEF based on the landfill's specific waste composition, which no participants currently use but one or two have previously; and a combination of both methods (which no site has used to date). At present, all NZ ETS landfill participants use a unique factor, rather than 'default emissions factor' (which would be based on the national average of carbon dioxide equivalent (CO2-e) emissions per tonne of waste disposed).

[11] All active UEFs assume the landfills are receiving the same waste composition, which is unlikely to be the case in practice. Landfill audits confirm that waste composition received by landfill sites is likely to differ from the default values on a site-by-site basis and there are a wide range of regional climatic differences that impact rates of biodegradation.

35. The NZ ETS provides a price signal incentive for LFG capture efficiency (ie, the higher a site's reported LFG efficiency, the lower its ETS liability – currently up to the 90 per cent limit).

36. A 90 per cent limit for LFG capture efficiency is currently set in NZ ETS regulation, to avoid over-estimating efficiency. This means that irrespective of the calculated LFG capture efficiency rate, the facility operators' ability to avoid a surrender obligation is limited to a maximum of 90 per cent.

37. At the time it was set (in 2010), the 90 per cent limit was considered the technical maximum that an operational landfill could achieve. This was in line with the international literature and guidelines at the time and was supported by evidence from consultation with landfill operators in New Zealand.[12]

38. Thirteen years on, the effectiveness of LFG capture is being contested, with LFG collection efficiencies varying depending on practice and mechanism utilised. Historically low data availability has meant it is difficult to genuinely assess the effectiveness of LFG capture systems, and calculating LFG efficiencies is not an exact science.

39. Currently, the NZ ETS UEF calculation methods rely on a combination of direct measurement (of gases captured) and modelling (of total gases produced) to calculate a landfill's gas capture efficiency. This includes a number of assumptions, and for the overall gas generation rate expected from the landfill, the waste volume (tonnes) and waste composition (biodegradable or inert) are key.

40. Earlier this year, the Ministry sent a data request through to all operators with LFG systems deployed. Data of varying degrees of detail has been provided by all operators contacted. Provisional analysis shows a wide range of reported efficiencies. Analysis to date suggests there is a range of 14 per cent to 100 percent gas capture efficiency. At least four sites have calculated efficiencies between 100 – 160 per cent. As previously noted, consistent reporting of rates over 100 per cent are more likely to be an artefact of the modelling and the underlying assumptions (including default composition).

41. Removing the 90 per cent efficiency limit may allow some landfill sites to avoid ETS liabilities altogether (without corresponding confidence that actual emissions have been reduced). This is because of the difficulties identified with accurately measuring (and controlling) gas generation and capture.

42. Officials consider this may not have the incentivising effect anticipated by WRIF for two key reasons:

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[12] See Climate Change (Disposal Facilities) Regulations 2010 - 30 September 2010 - Regulatory Impact Statement - Ministry for the Environment (treasury.govt.nz)

- **It is unclear if sustained efficiencies of greater than 90 per cent are technically plausible**. Ministry officials are aware efficiencies of over 100 per cent have been calculated and promoted by landfill operators. As noted above, this was not considered technically possible at the time the regulations were developed. Further evidence is required to show how high efficiency rates are being informed, including underlying model assumptions. Officials consider that if a site has a reported efficiency of 100 per cent (or more), the models used by landfill operators are likely underestimating gas generation. This may also be caused by default waste compositions under-representing total organic/putrescible waste disposed. This would have the effect of increasing the apparent efficiency of an LFG system.

- **It is unlikely that sites can precisely manage their landfill gas capture efficiencies in response to the current regulatory limit.** The technology currently available does not provide the capability to 'stop' collecting gas as the NZ ETS limit of 90 per cent capture is reached. If sites are already achieving over 90 per cent, the removal of the limit will not then mean that their infrastructure has more capacity for LFG capture. Removing the limit would not necessarily result in any change to underlying emissions, just the NZ ETS liabilities paid by operators.

43. The letter notes no additional funding would be required from government to achieve emissions reductions from improving LFG capture efficiency. Although the proposal may be fiscally neutral for the government, as noted above, it is doubtful that there would be additional emission reductions from such regulatory change.

Next steps

44. Officials are in the process of analysing data received through a request to operators of sites with LFG capture systems using a UEF.

45. Additional research into best practice international and domestic regulatory settings for LFG capture is also underway to help inform further advice and policy options. This will include looking at waste composition data, whether organic loading in landfills has happened in the past (including through using green waste as daily cover[13]), whether the use of a default composition assumption is appropriate for a UEF, and what implications this may have for ETS liabilities and regulatory settings.

46. This work is being undertaken to inform development of options, including for regulatory system improvements, through the second emissions reduction plan

[13] Daily cover is a landfilling industry practice where cover material, such as shredded green waste, excavated virgin material from the local area, or contaminated soils, are used to cover over the recently deposited and compacted waste at the end of the working day. This is done to help prevent vectors (rodents and other scavengers) and odours, in line with consent conditions. Where a landfill receives a higher proportion of biodegradable material than the default composition assumption this is sometimes referred to within the industry as 'organic loading'.

process and for any NZ ETS updates. Initiatives aiming to improve LFG capture and associated regulations are aligned with the Climate Change Commissions advice on this [refer BRF-4039 *Climate Change Commission's waste sector recommendations*].

47. While the NZ ETS settings are within your portfolio responsibilities as Minister of Climate Change, waste policy options for the emissions reduction plan are likely to be the responsibility of Minister Simmonds. If required, officials could assist you in discussing this matter with Minister Simmonds.

Hon Penny Simmonds
Minister for the Environment
Parliament Buildings
Wellington 6140
Via email: penny.simmonds@parliament.govt.nz

24 November 2023

Tēnā koe Minister

Early policy action on waste and recycling

Congratulations on your appointment as Minister for the Environment. We hope that you and your Government continue to bring waste and recycling issues closer to the centre of the environmental policy programme, and we look forward to working together to make sure the sector delivers the best possible environmental, economic and social outcomes. In addition to introducing our organisation, this letter sets out the areas where we believe early policy action should focus.

The Waste & Recycling Industry Forum

The Waste & Recycling Industry Forum (WRIF) represents the key private-sector players in waste collection, recycling, and landfill management in New Zealand. Taken together, WRIF members handle close to 100% of New Zealand's household waste, and approximately 90% of municipal landfill waste. The group is chaired by the Auckland Business Chamber, and its membership includes:

- Enviro NZ
- Green Gorilla
- J.J. Richards
- Northland Waste
- Oji Fibre Solutions
- Smart Environmental
- Waste Management NZ
- WasteCo
- Visy

In contrast to the pan-sector perspective offered by WasteMINZ, where industry views are merged with those of territorial authorities, consultants, and the not-for-profit sector, the WRIF is the voice of industry. Our members are at the front line of the waste minimisation effort, and are uniquely placed to provide feedback on the practicalities of the policy programme that you and your team will advance over the coming term.

Policy priorities

While we have supported the general direction of travel of waste and recycling policy-making in recent years, we have consistently called for more to be done to embrace the role of the private sector, and for better understanding of the practical implications of policy decisions, including the impact on markets.

To that end, there are five particular initiatives that we believe must be at the front of the policy-making queue. In each case, there is a compelling need for change, an opportunity to make headway relatively swiftly, and the likelihood of strong support from within the sector.

i. Greater rigour around waste levy allocation

We were delighted to see the commitment in the National Party's 2023 manifesto to redefining waste levy distribution and accountability for sector investment. The expanded waste levy, and the infrastructure investment it will enable, represents a critical opportunity to transform our sector. But to realise that opportunity – and ensure that investment flows to projects that deliver meaningful waste minimisation outcomes and support sustainable markets – a stronger framework around the administration of the levy is needed. In our view, this must include the following elements:

- An end to auto-allocation of 50% of levy revenue to territorial authorities. Current nominal allocations could be maintained initially (to ensure existing commitments are met), but wound down over the next five to ten years. Alongside contestable funding, levy revenue could also be made available to territorial authorities for projects that have a direct environmental outcome for communities (such as remediating historic landfills)
- A requirement within the updated Act for all levy-funded investment to align with national and local waste minimisation strategies, have regard for market impacts, deliver value for money, and consider carbon impacts right across the value chain
- Transfer responsibility for delivery of large-scale infrastructure funded out of the levy to a dedicated delivery agency such as Crown Infrastructure Partners (or the National Infrastructure Agency proposed in the National Party manifesto)

ii. Streamline consenting for waste infrastructure

Likewise, we strongly support the call in National's manifesto for consenting processes for infrastructure projects to be fast-tracked, and we would urge you to include key waste and recycling infrastructure in the new approach and include it in the definition of 'essential' infrastructure. The same overly risk-averse and process-driven regulatory framework that is holding back delivery of transport, energy, water and housing infrastructure is also holding back delivery of waste disposal sites and recycling and recovery facilities. Our country will not meet the needs of a growing population, and deliver on circularity and emissions-reduction goals, if these barriers are not addressed.

Meanwhile, any upcoming changes to resource management legislation must include immediate steps to standardise consenting requirements, restrict the definition of 'effects' to include only those

relating to the natural and physical environment (and not social or economic impacts), and provide a mechanism for resolving conflicts between multiple objectives.

iii. Container Return Scheme: back to basics

WRIF members are open in principle to the introduction of a container return scheme (CRS), but are far from comfortable with the approach proposed by the previous government – in our view, it is a recipe for duplication of resources, excessive cost, and sub-standard environmental outcomes. If the CRS is brought back to the table, we would urge a comprehensive re-think of scheme design, with much greater input from industry than we have seen to date (potentially via an industry reference group). Any eventual scheme must:

- Leverage existing waste collection and recycling infrastructure rather than supplanting it, to maximise scheme efficiency and minimise overall cost
- Ensure that, if there are situations where duplication of existing infrastructure results in stranded assets, the cost to recyclers is offset by access to unredeemed container deposits
- Fully account for carbon impacts, right across the value chain
- Be future-proofed for transition to a digital CRS in the medium term. Jurisdictions such as the UK, Ireland and Belgium are actively exploring a digital solution, given the potential to reduce costs, reduce emissions, and improve the user experience. There seems little doubt that the future of the CRS is a digital one, and we would encourage your Government to make a start on research and practical trials as soon as possible, in partnership with industry

iv. Update regulations to reduce landfill emissions

As you are no doubt aware, many Class 1 municipal landfills are equipped with gas capture and destruction systems, to deal with GHG emissions generated by putrescible waste. Under current regulations, landfills can only avoid up to 90% of their ETS liability through the capture and destruction of methane. If a landfill captures more than the threshold 90% of modelled methane emissions, 10% of modelled emissions must still be surrendered as NZUs.

We believe we can achieve a methane capture rate above 90%. Removing the 90% maximum limit would incentivise us and other landfill operators to do so, and lead to a significant reduction in emissions, with no extra funding required from government. Analysis suggests that it could remove in the order of 230,000 tonnes of CO2e from the atmosphere each year, equivalent to taking well over 100,000 cars off the road.

v. Flexible waste collection models

The previous government has put in place steps to make council-funded provision of waste collection services mandatory. We strongly disagree with this, on the grounds that it strips territorial authorities of the ability to choose the service delivery model that best suits their needs, and those of their ratepayers.

Purely private solutions are often more cost-effective for councils, particularly those with relatively low per-capita waste generation and/or sparse population bases, and can improve the incentives for householders to minimise waste. For this reason, a number have opted for private models, and there is increasing interest from others in following suit. Scope for the private sector to provide

better, more cost-effective services will only increase as new technology comes on stream (such as wheelie bin weight measurement), and where a level playing field is provided.

Any concerns over access to services – and the quality of services – under a purely private model should be addressed through legislative or regulatory tools that set standards for service provision and require all private providers of kerbside collection to comply with them. Fully private solutions will not be the answer for all councils, but they will work best for some, and the option must be maintained.

Follow-up meeting

In order to explore these issues in more detail, we request the opportunity to meet, at your earliest convenience. Please arrange for your team to suggest some appropriate dates and times that would suit. We are happy to meet in person or on line – whichever is most convenient.

Yours sincerely,

Simon Bridges
Chair, Waste & Recycling Industry Forum

cc. Hon. Chris Bishop, Minister of Infrastructure
Hon. Simon Watts, Minister for Climate Change

Appendix B: Landfill gas capture system

A simplified landfill gas capture system is illustrated below. Gas recovery wells (verticals) and in some cases, lateral pipes, are installed within deposited waste, ready for connection to a wider network. Over time, the biodegradable materials break down into and gas, some of which is collected through the pipes and wells, where it is moved towards a flare and in some cases, an energy generation plant (usually under a slight vacuum). The biodegradation process also generates leachate, which also must be managed.

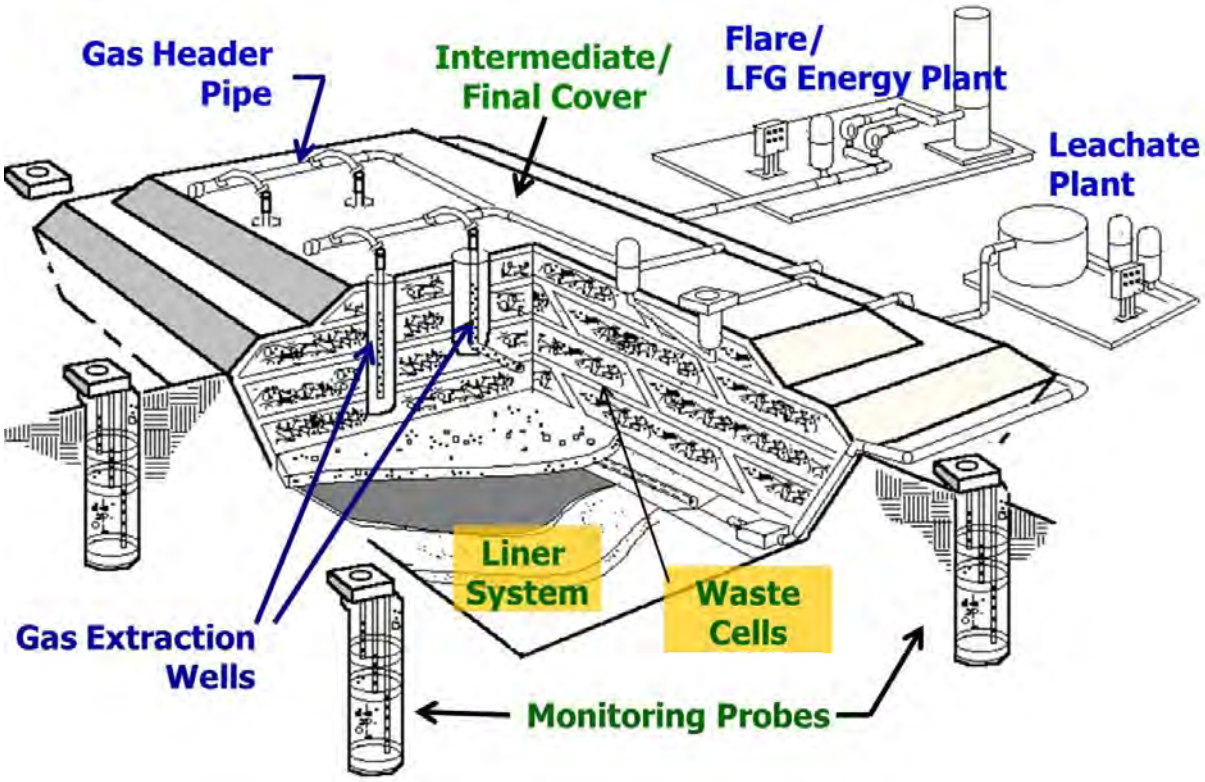

Image by US EPA – LMOP [Public domain], via Wikimedia Commons

Ministry for the Environment
Manatū Mō Te Taiao

Aide memoire: Slide deck briefing for waste emissions reduction work programme

Date submitted: 29 February 2024
Tracking number: BRF-4325
Security level: In-confidence

Actions sought from ministers	
Name and position	***Action sought***
To Hon Penny SIMMONDS **Minister for the Environment**	For noting only
CC Hon Simon WATTS **Minister of Climate Change**	For noting only

Appendices and attachments
1. Appendix 1: Slide deck for the Bilateral meeting between Ministers Watts and Simmonds with officials on 7 March 2024

Key contacts at Ministry for the Environment			
Position	***Name***	***Cell phone***	***First contact***
Principal Author	Anna Herbert		
Responsible Manager	Miranda Cross		
General Manager	Monique Esplin	027 332 7768	✓

Slide deck briefing for waste emissions reduction work programme

Purpose

1. This aide memoire provides a brief summary and some background context to the attached slide deck briefing which will be discussed at the bilateral meeting between Minister Watts and Minister Simmonds and Ministry officials on 7 March 2024.

Background

2. Following the Landfill gas regulatory settings briefing [BRF-3986 refers], Minister Watts requested a bilateral meeting with Minister Simmonds and Ministry officials to discuss the potential role of landfill gas capture and other waste policy options to support biogenic methane abatement.

3. The slide pack and meeting will cover:

    - Background and context for ERP 2
    - Methane in the New Zealand context
    - Waste policies and progress under the Emissions Reduction Plan (ERP) 1 which covers the period 2022-2025
    - Policy options for ERP 2 including;
        - resource recovery infrastructure,
        - landfill gas capture, including the NZ Emissions Trading scheme: the 90 per cent cap removal proposal (as discussed in BRF-3986) and the landfill unique emissions factor (UEF) calculation,
        - kerbside organics collections, and
        - product stewardship.

4. We seek direction on which policy options to include in the next briefing where officials will be seeking decisions on waste policy options for ERP2 public consultation.

Next steps

5. The slide deck attached in appendix 1 will be discussed at your meeting with Ministry officials on 7 March 2024.

6. Direction provided at this meeting will inform a briefing due on 14 March 2024 "ERP 2 Waste sector policy options for public consultation".

Monique Esplin
Acting General Manager – Waste and
HSNO Policy
Climate Change Mitigation and Resource Efficiency
29 February 2024

Hon Penny SIMMONDS
Minister for the Environment
Date

Hon Simon WATTS
Minister for Climate Change
Date 3/3/24.

Agenda for meeting between Minister Watts & Minister Simmonds

Date and time	Thursday 7 March 2024, 11-11.30am
Location	Minister Watt's Office, Parliament Buildings
Purpose of the meeting	To provide initial feedback on the waste emissions reduction work programme to support biogenic methane abatement in the second emissions reduction plan, including the role of landfill gas capture.
Attendees	**Minister Simon Watts – Minister of Climate Change** **Minister Penny Simmonds – Minister for the Environment** **Ministry for the Environment:** Sam Buckle, Deputy Secretary, Climate Change Mitigation and Resource Efficiency Glenn Wigley, General Manager, Waste and HSNO Policy Roderick Boys, Principal Advisor, Waste Systems Kate Whitwell, Manager, NZ ETS Policy
Agenda	**Waste policy options for ERP2:** **i. Approach to waste policy methane target ambition** Purpose: provide any key context to officials with respect to biogenic methane targets and the level of ambition for waste policy in ERP 2 (the ERP 1 sub sector budgets and target include a 40% reduction by 2035, 2017 baseline) **ii. Waste policy options** Purpose: provide feedback to officials on the key policy areas proposed for ERP2 and/or identify other options to consider **iii. Policies for ERP2 consultation** Purpose: discuss which policies you would like to see considered for inclusion in the ERP2 consultation discussion document

Key context: Minister Simmonds will soon receive advice on policy options for ERP2. Sufficiency analysis on the waste policy package will likely show further ERP2 waste policies are required if the waste subsector target and budgets for ERP1 are also to remain at the same level of ambition for ERP2.

Items		
i) Approach to waste policy methane target ambition	**Collateral** BRF-4325, Appendix 1	**Actions**
Discuss any relevant feedback on the Government's position toward biogenic methane abatement and targets overall, as key context for the waste policy approach for ERP2. Your feedback on the preferred level of ambition for waste sector abatement is needed for developing the ERP 2 policy approach, noting key policy options such as resource recovery systems and infrastructure investments have higher certainty towards methane abatement. Further advice on policy options for the waste sector will include their abatement potential and relative costs.	**Slide 3-4**	**Agree** the waste sector has an important role to play towards biogenic methane abatement in New Zealand **Agree** Minister Simmonds will lead development of the waste chapter components of the second emissions reduction plan.
ii) Initial waste policy options	**Collateral**	**Actions**
Option 1) Resource recovery New Zealand has a significant resource recovery infrastructure and enabling systems deficit. The waste disposal levy is key towards addressing this. Greater investment would align New Zealand's approach more closely with other jurisdictions and help to embed resource recovery in local industry and the economy.	**Slide 6**	**Agree** to prioritise Waste Minimisation Fund investment in systems, separation, and recycling infrastructure, with a focus on the proposed key ERP2 waste streams, including construction and demolition waste.

Option 2) Landfill gas capture For the second emissions reduction plan we propose a review of the LFG regulatory framework to ensure New Zealand's waste sector is accurately recognised for progress to date, that the NZ ETS works as intended, and that regulatory improvements are well considered, evidence based, and support emission reduction targets and budgets. Strengthening the landfill gas capture regulatory system may include changes towards: a) improved efficiency from investment in existing (and any new) systems and/or b) managing the waste types and/or facilities that are subject to LFG requirements (this could also include disposal bans of certain waste types) Noting the uncertainty about the efficiency of the existing landfill gas capture system in New Zealand, the Ministry recommends not changing the NZ ETS 90% UEF regulatory efficiency limit at this time.	**Slide 7**	**Agree** to review of New Zealand's landfill gas capture regulatory framework. **Agree** to defer consideration of changing the NZ ETS 90% UEF regulatory efficiency limit until a wider review is complete.
Option 3) Kerbside organics collections The current policy is to mandate collections in all urban areas (with a population over 1,000) affecting 28 Territorial Authorities by 2027 and all Territorial Authorities by 2030. This policy would lift current access to organics services from 54% of New Zealanders to 84%. Section 9(2)(f)(iv) - kerbside organics decisions are under active consideration by Cabinet	**Slides 8-9**	**Note** Minister Simmonds will receive further advice during March on the options relating to kerbside organics collections, including for non-regulatory approaches, such as investment.

iii) Policies for ERP2 consultation	Collateral	Actions
Which policies would you like to see considered for inclusion in the ERP2 consultation discussion document?		**Agree** the above policy options be considered for inclusion in the ERP2 discussion document. **Note** that a draft discussion document will be presented to Cabinet for consideration to consult on ERP2

Appendix 1: Overview of existing waste minimisation education work programme

- The National Food Waste Reduction programme is taking action at the top of the waste hierarchy.
- It provides funding to six partner organisations to deliver behaviour change initiatives aimed at achieving national food waste reductions of 10% across a range of settings.
- The programme is linked to ERP1 focus area 15.2: *Enable households and businesses to reduce organic waste.*
- $6.82 million total has been committed to support these projects.
- They will run over 3 years, to June 2026. All programmes include evaluation to determine if they are achieving desired outcomes.
- Food waste reduction is a key savings opportunity, with programmes widely adopted internationally.

Projects underway and announced.

- *Kai Commitment – New Zealand Food Waste Champions 12.3:* Voluntary national food waste reduction agreement for major food businesses. Signatories include Countdown, Fonterra, Foodstuffs, Goodman Fielder, Nestle and Silver Fern Farms, George Weston Foods and AS Wilcox. Signatories quantify food waste in their businesses and develop action plans to achieve reductions.
- *Love Food Hate Waste – Waste Management Institute of New Zealand (WasteMinz):* Supported by 52 local authorities, this project will create multi-media campaigns targeted at household waste reductions. This builds on previous successful Love Food Hate Waste campaigns.
- *Reducing Food Waste in the Aged Care Sector – University of Otago Consortium:* Consortium includes retirement village providers Arvida, Bupa and the Retirement Villages Association, and is undertaking a project to measure and pilot interventions to reduce the amount of food waste in commercial kitchens in the retirement sector.
- *Whāngaihia te Whānau - He Aha te moumou kai – Para Kore Marae Incorporated:* Māori-led initiative working with whānau to offer in person workshops on food reduction.

Funded and underway, not yet announced.

- *Restaurant Association New Zealand Consortium:* A project to understand the causes of food waste in the hospitality sector, and trial interventions to reduce this. Plans to work with 120 hospitality businesses in the Auckland, Waikato and Bay of Plenty regions.
- *Community Enterprise Network (NZ) Trust, trading as Zero Waste Network:* A collaboration with Envirohubs Aotearoa to develop a community-based programme that will help families reduce their food waste. This will be rolled out at 52 locations around New Zealand over the next three years.

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Reducing emissions and waste

Minister Simmonds and Minister Watts bilateral meeting on the potential role of landfill gas capture and other waste policy options to support biogenic methane abatement in the second emission reduction plan period (to 2030)

7 March 2024

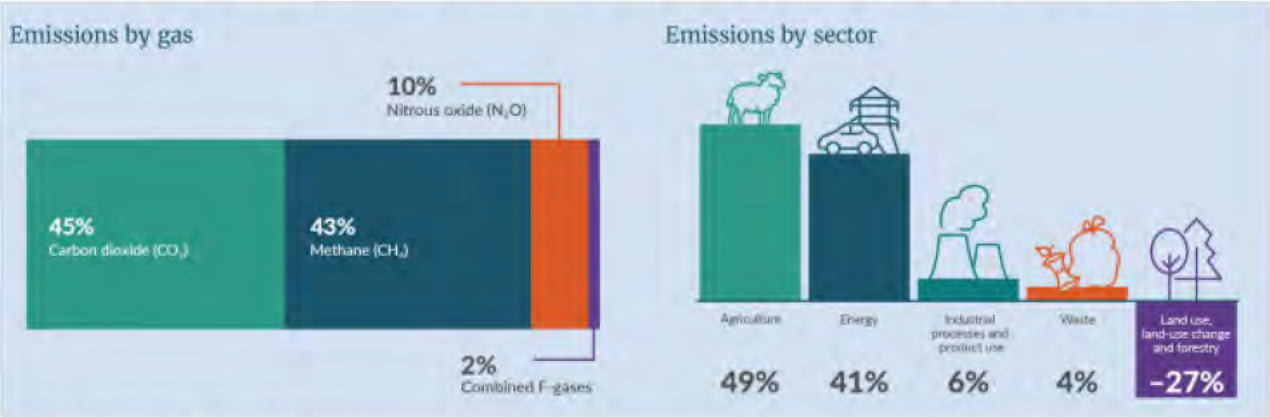
Development of the second emissions reduction plan

At this meeting, **initial Ministerial feedback is requested on the approach to the second emission reduction plan (ERP2; 2026 -2030) and options for waste sector abatement,** including the potential role of resource recovery infrastructure investment, landfill gas capture, kerbside organic waste collections and product stewardship.

For the approach to waste in ERP2:

- Your feedback will help shape policy option development
- The approach to agricultural sector abatement is key context for considering waste policy options that also target biogenic methane emission reductions
- Waste policy options could be fewer and more targeted, while also providing for a more flexible approach to implementation to 2030 and beyond
- Minister Simmonds will be provided a briefing on ERP2 (15 March 2024), that will include options and scenarios that may be considered for consultation
- Goals for waste are also proposed for inclusion in the Net Zero Strategy
- The waste sector, including industry and local government, have a strong interest in ERP policies.

Methane – New Zealand context



- Waste and agriculture make up 4.2% and 49.2% of total emissions, respectively.
- **However, waste and agriculture produce all New Zealand's biogenic methane emissions at 9.1% and 90.9%, respectively.**
- The target for biogenic methane reduction in the Climate Change Response Act (CCRA) 2002, is a reduction of 24% – 47% by 2050, and a 10% reduction by 2030 (2017 baseline).
- Our understanding is agriculture will remain outside of the New Zealand Emissions Trading Scheme (NZ ETS) during the ERP2 period.
- Technology adoption to enable agricultural sector abatement will help towards achievement of biogenic methane targets.
- While policies for agriculture are yet to be considered for ERP2, technology development and adoption have inherent uncertainties.
- **Abatement in biogenic methane emissions produced by waste in landfills has been achieved internationally using off the shelf alternatives and technology, with several co-benefits.**
- The emissions budgets and target set for the waste sector under the first ERP is aligned to a 40% reduction by 2035, with the New Zealand waste strategy (NZWS) target of a 30% reduction in biogenic methane by 2030 as an interim target.
- **Higher ambition for waste sector abatement aimed to help offset an expected slower pace of abatement in the agricultural sector.**

How are waste sector emissions tracking?

- **The ERP1 waste 'With Existing Measures' (WEM) projection indicated a ~19% reduction could be expected by 2030** (2023 policy approach using 2017 baseline; see Appendix 1).
- The ERP1 WEM scenario includes several policies, such as household kerbside organic waste collections and regulatory changes to expand the role of landfill gas capture systems which are subject to further consideration for ERP2.
- Waste emissions have been trending downwards and the Waste Minimisation Fund (WMF) investment pipeline is full of infrastructure and services projects that will deliver further abatement.
- **However, the sector is currently underachieving against the ERP1 emissions budgets and is unlikely to achieve either the 30% by 2030, or 40% by 2035 abatement targets without further significant policies and WMF investment in ERP 2.**
- The Climate Change Commissions advice for ERP2 assumes ERP1 policies for waste will continue to be implemented.

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ERP2 initial areas for discussion

- Resource Recovery infrastructure
- Landfill gas capture
- Kerbside organic collections
- Product stewardship

Policy options for ERP 2 – resource recovery

In 2020, New Zealand was estimated to have a resource recovery infrastructure deficit of $2.1-$2.6 billion and other enabling service funding needs of approximately $0.9 billion.

Investment in resource recovery infrastructure is one of the key differences between New Zealand and jurisdictions, such as South Australia, where per capita waste to landfill has been reduced, and recovery and reuse of resources has been embedded within industry and the local economy. Investment of the waste disposal levy is a key enabler.

For ERP2, to grow New Zealand's resource recovery capacity and capabilities and reduce associated emissions, we recommend:

- Prioritising WMF investment in systems, separation and recycling infrastructure regionally and nationally, including in support of kerbside organics collections, stewardship schemes, and, where aligned to waste minimisation objectives, renewable energy recovery.
- Focus a proportion of WMF investment on the proposed key ERP2 waste streams including: construction and demolition waste, fibre (paper and cardboard), food and green waste
- Investigate policy options to further enable sector-led abatement e.g. for the Construction and Demolition (C&D) sector, and strengthening product stewardship, including consideration of options for packaging and wood waste (see page 10)

Policy options for ERP 2 – LFG capture

The Climate Change Commission's advice for ERP2 includes:

- ***Recommendation 26:*** *Ensure the use of landfill gas capture systems and technologies is widespread and efficient*
- ***Recommendation 27:*** *Improve the accuracy and transparency of landfill gas capture data*

Landfill gas (LFG) capture has already played an important role in significantly reducing emissions from waste.

To ensure emission reductions from the waste sector to date are appropriately accounted for, that improvement opportunities are well considered, evidence-based, and support emission reduction targets and budgets:

- **a review of the LFG regulatory settings (including data provisions) is proposed for ERP 2**, initial work is underway, report due late April
- **advice to include the '90% cap' in the NZ ETS regulations** (BRF-3986 refers, see appendix 2 for further analysis)
- **which materials go where and what controls are they subject to** with respect to LFG capture management
- **any regulatory changes proposed are likely to be within the ERP 2 implementation work programme**

Review recommendations could lead to: improved efficiency from investment in existing (and any new) LFG capture systems and/or increasing the scope of materials disposed that are subject to LFG capture system requirements (National Environmental Standard for Air Quality regulations (NES AQ) 2004 settings and/or Waste Minimisation Act 2008 (WMA) regulations).

Current approach to kerbside organic collections

- The current proposal (announced but not implemented) mandates collections in all urban areas with population >1,000
- This policy would affect half of all territorial authorities (TAs) by 2027, and all by 2030, based on their proximity to an existing suitable processing facility; and lift access to an organics kerbside service from 54% of New Zealanders at present, to 84%. To date, the policy has been supported through aligned investment signals for the WMF.
- In New Zealand and assuming a regional approach to establishing processing infrastructure that is also utilised by businesses and key industries, diverting food and garden waste from landfill to composting or anaerobic digestion has a lower emissions footprint than landfill disposal, even with landfill gas capture in place and transport emissions factored in.
- There are also co-benefits from this approach to managing food and green waste, including the recycling of nutrients into our horticulture and agri-systems (offsetting synthetic fertilizer inputs) and the efficient generation of renewable biogas.

As a result:

- The WMF funding pipeline has received significant interest from councils and industry alike with many projects at various stages; noting councils are currently working through their Long-Term Planning processes.
- Nearly all major urban populations (>100,000) now either have a kerbside service or the council has committed to introducing one Section 9(2)(b)(ii) - commercially sensitive, funding decisions outstanding

Scale is a factor for processing infrastructure needs:

- If all major and large urban populations (>30,000) committed to a service, it is likely that every region's infrastructure needs would be largely met for processing capacity, reducing the infrastructure investment needed for smaller urban populations to provide a service in the future, if desired (excludes the West Coast region).

Policy options for ERP2 – kerbside organics

Policy options for kerbside organics collections will be presented in a separate briefing (due 15 March 2024).

A range of options that leverage WMA policy tools are to be included, alongside the option to withdraw the policy.

WMA tools for kerbside organic waste emission reduction objectives (all three were proposed via ERP1)

Section 9(2)(f)(iv) - kerbside organics decisions are under active consideration by Cabinet

Key variables that could be adjusted within options

- *Urban threshold for mandatory collections:* In the ERP1 action, all urban areas are included (affects 48 TAs, lifts access to 84% of population). If instead, only major urban areas were included it would affect 2 TAs and lift access to 60% of population, or only large and major urban areas (affects 14 TAs, lift access to 72% of population).
- *Timeline for implementation*: could be delayed to 2030 or 2035 for some or all sizes of urban areas.
- *Scale of investment prioritisation:* Current WMF support could be increased or decreased.

Policy options for ERP2 – product stewardship

The Climate Change Commission's advice for ERP2 includes:

- ***Recommendation 16: Strengthen product stewardship and expand coverage across products*** *and packaging to help avoid emissions associated with waste*
- ***Recommendation 17: Declare construction material wood waste as a priority product*** *to help reduce emissions from construction and demolition waste.*

While wood is a key waste stream, **it is currently unclear if wood products in New Zealand are suited to a product stewardship scheme,** noting resource and energy recovery opportunities are increasingly available, albeit, with risks around the management of treated wood products that increase costs and restrict end market opportunities.

Wood waste is a voluminous biodegradable material that produces methane in landfills – dependent on factors such as wood treatment and disposal site type.

Minister Simmonds will receive further advice in late March relating to the management of construction and demolition waste, including policy options and further response to the above recommendations.

Six existing priority products have been declared – plastic packaging (excludes beverage containers), tyres, e-waste, agrichemicals and their containers, refrigerants and other synthetic greenhouse gases, and farm plastics.
The legislative powers for product stewardship reside in the WMA (2008).
Modernisation of these provisions to enable the efficient development of schemes is needed.

Summary

Ambitious targets have been established for waste sector emissions and while progress has been made, impactful policies are needed for ERP2. Please provide your feedback on:

1. Investment in Resource Recovery infrastructure and systems
2. Consideration of tools to level the playing field, including landfill controls (LFG efficiency requirements and/or limitations on organics to different classes of landfill)
3. Kerbside organics collection – provisional options have been presented
4. Product stewardship – which is challenging within the existing legislative framework (WMA 2008)

Direction required

5. The approach to methane emissions overall is key context for the level of waste policy ambition, do you have any feedback on the approach to waste policy that targets biogenic methane for ERP2?
6. Should the Ministry continue to develop these waste policy options and/or others?
7. Which waste policies (if any) would you like to consider for the ERP2 consultation? And if so, do you have preferences for the level of optionality within the consultation?

Next steps

Near term briefings and papers with relevance to ERP2 and waste policy options:

- ERP2 waste policy options – Briefing to Minister Simmonds, 15 March 2024
- Kerbside organics collection options – Briefing to Minister Simmonds, 15 March 2024
- RPS – Initial meeting with Minister Simmonds, mid-March 2024
- Construction and Demolition Waste – late March 2024
- ERP2 Cabinet decisions on ERP2 consultation in May 2024
  (key submission date on policies for agencies, 28 March 2024)
- LFG – work underway, external report due late April 2024

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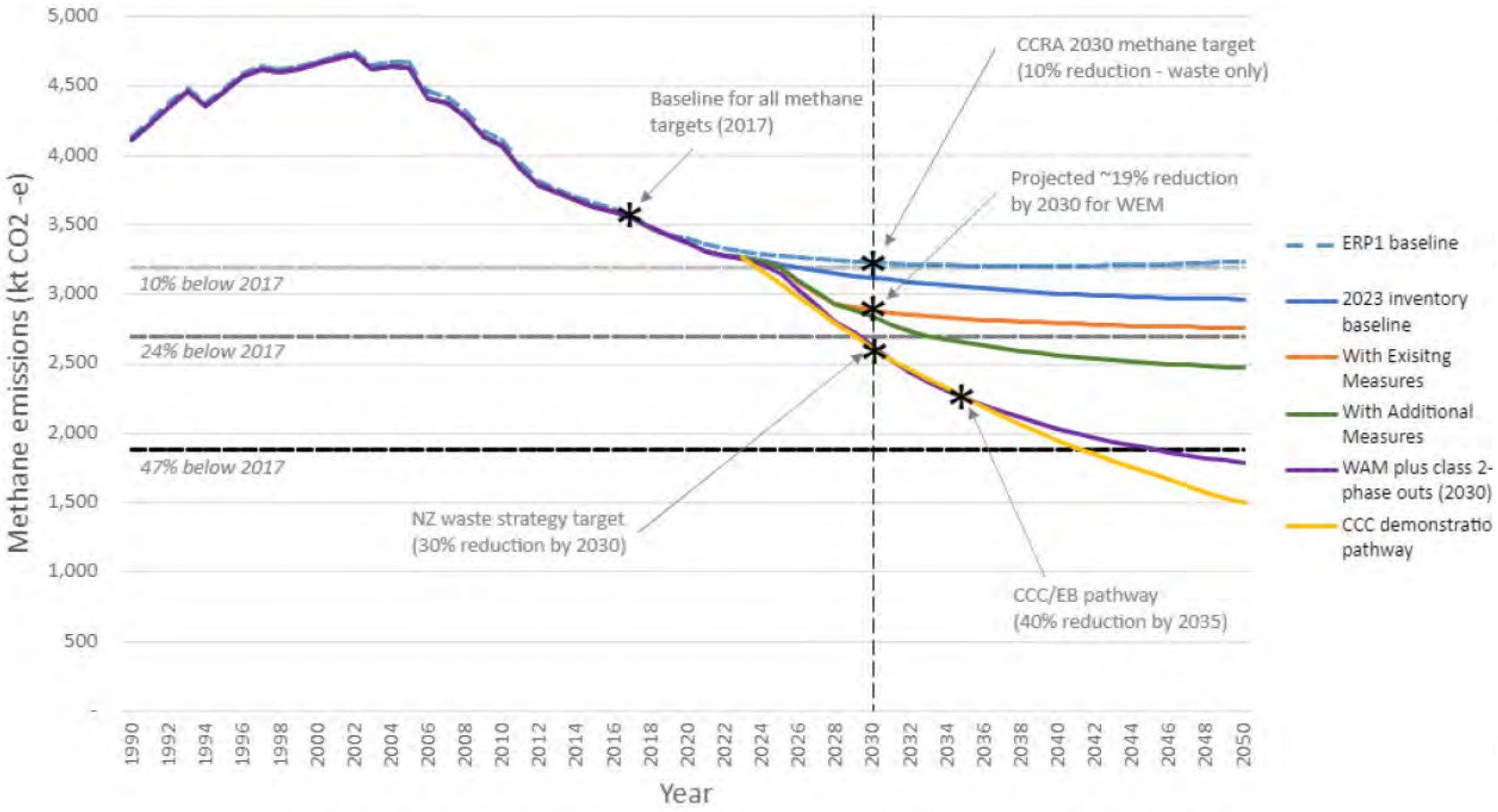
Appendices

Appendix 1: How is the waste sector tracking?



This chart shows:

- Waste sector methane emissions (historical and projected) under different scenarios and the CCRA biogenic methane abatement targets for waste-only as dashed horizontal lines (no agricultural methane is included).
- The waste ERP 1 With Existing Measures (WEM) projection (**orange line**) is tracking towards ~19% reductions by 2030 (2017 baseline). ERP 1 WEM includes a number of policies, which are subject to further consideration for ERP 2.
- While waste is trending downwards, the sector is currently underachieving against the more ambitious, 40% by 2035 target (**second asterisk on the yellow line**).
- The waste With Additional Measures (WAM) projection options include business food waste collections and phase out of biodegradable waste disposal to Class 1 landfills by 2030 (**green line**); and the same policy applied to class 2-5 landfills by 2030 (**purple line**).
- These policies have been included here to highlight the significant degree of change that would be needed to achieve such ambitious targets and may not reflect your priorities for ERP 2.

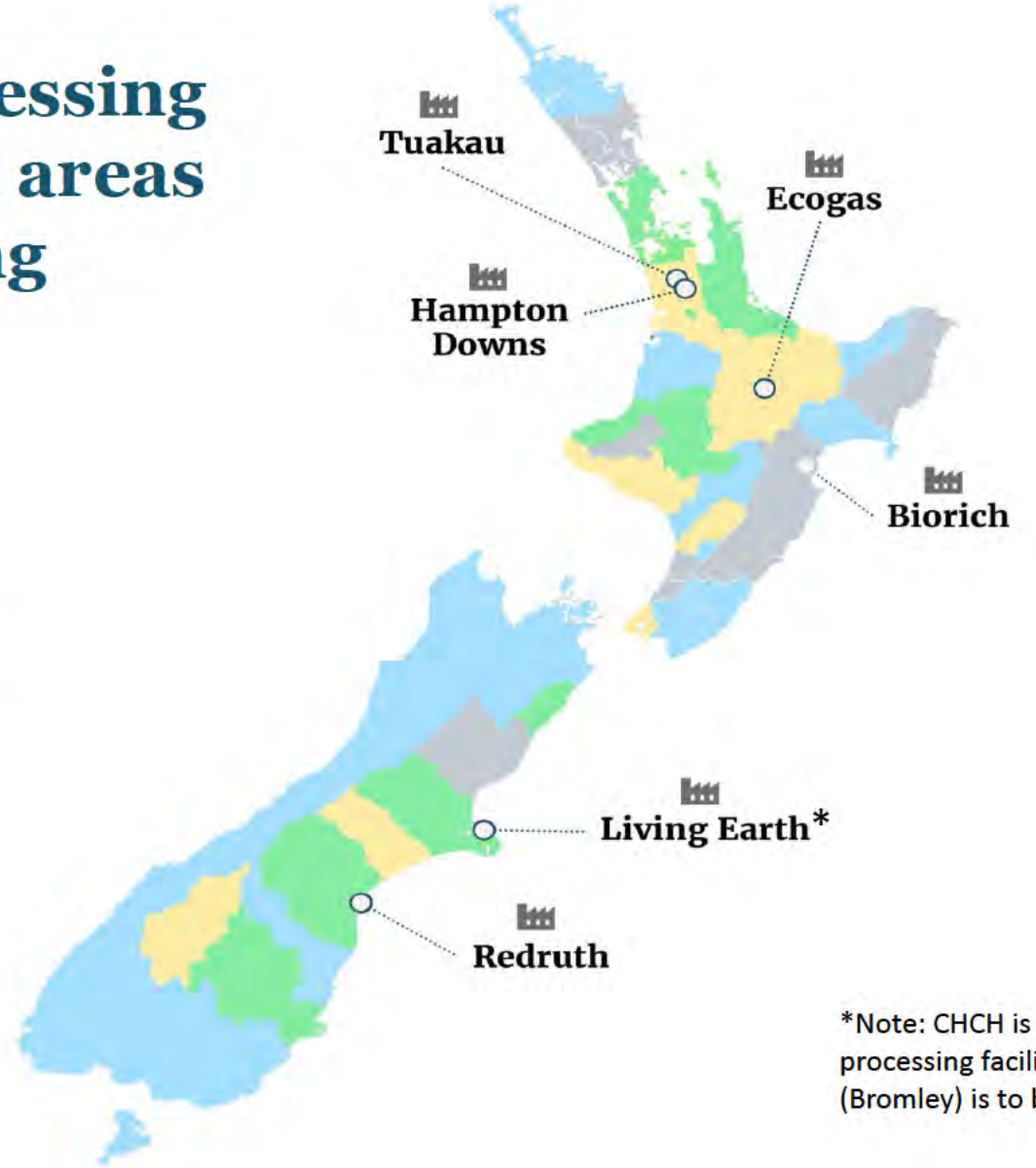
Appendix 2: Further analysis of NZ ETS landfill UEFs

Landfill operators recently supplied the data used to evidence their NZ ETS landfill Unique Emissions Factors (UEF) for 2022 at the request of the Ministry

- Self-reported LFG capture efficiencies for 2022 were able to be calculated for 12 of 18 landfills
  - Results ranged from 35% to 160%, with an average of 90%
  - In 2022, the average (median) waste to class 1 placement was ~120,000t. If we assume a $60 NZ ETS price, this range in efficiencies corresponds to the following NZ ETS liabilities for that median:
    - 90% (at the NZ ETS efficiency cap) = ~$655,000
    - 35% = ~$4,258,000
- The average of 90% is skewed upwards by those efficiencies over 100%.
- **Efficiencies this high suggests that a landfill is capturing and destroying more methane than it is generating** which should not be possible if the estimates of total methane generated were correct.
- The Ministry is gathering further evidence from landfill operators in order to further understand modelled efficiencies and to inform options for possible regulatory changes (eg WMA, NZ ETS and/or NES AQ).

Appendix 3: Large organic processing facilities and council catchment areas showing progress on introducing kerbside organics collections

- The large composting facilities shown were identified through consultation (in 2022) as having capacity to take food waste at scale.
- There are *many* more composting facilities, and in every region. Based on their current operations, they are unable to manage food waste at scale, however, small scale plants are the preferred approach in some areas.
- For example, Section 9(2)(b)(ii) - commercially sensitive, information on private operators operations and lower cost processing options such as Section 9(2)(b)(ii) - commercially s (worm farming) may be suitable in some situations and scaled more easily.
- Currently, the WMF is agnostic towards processing technologies, with a wide range of preferences emerging across the regions.



*Note: CHCH is investigating a new processing facility and living earth (Bromley) is to be shut down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