Chapter 16

Aronga Kaupapa – Ngā Tukupara Policy direction for waste and fluorinated gases

Summary

Waste accounts for 9% of biogenic methane emissions in Aotearoa. New Zealanders have told us they want to see better waste management to reduce biogenic methane emissions.

Aotearoa has one of the highest rates of waste generated per person in the OECD and low recovery rates of waste, such as to recycling, anaerobic digestion (energy recovery) or composting.

Aotearoa can learn from what has been tried and tested overseas. This means putting the waste hierarchy of reducing, reusing and recycling waste at the centre of decision making. Any landfills that accept the remaining organic waste should capture the resulting methane emissions.

We have made the following recommendations to reduce both biogenic methane and embodied emissions from waste:

- **Revise the waste strategy with ambitious goals** to reduce waste emissions and increase resource recovery.
- **Redesign processes to take out waste at the production stage** where possible - for example unnecessary packaging for consumer products and more efficient building processes that use fewer materials.
- **Invest to make it easier for New Zealanders to reuse and recycle.** There should be an increase in funding for resource recovery infrastructure, research and development. This will also provide support for community groups that run composting and waste education programmes.
- **Regulate so those who produce and import products are responsible for minimising their environmental** impact. This means expanding product stewardship schemes and exploring other measures, such as right to repair legislation.
- **Mandate gas capture at all landfills that accept organic waste.** Most of the waste emissions in Aotearoa come from organic waste decaying at landfills. Just 25% of these emissions are from sites that have landfill gas capture.
- **Reduce emissions from fluorinated gases** through reducing leakage and enabling low-climate impact alternatives.

Changes in our final advice

We have increased our ambition in waste, setting a target to decrease biogenic waste methane emissions by at least 40% by 2035, up from the 15% emissions reduction target in our *2021 Advice Draft for Consultation*. Some of this is because of updates to *New Zealand's Greenhouse Gas Inventory* (released in April 2021), but we also recommend more action in this sector based on what we heard through consultation and further analysis.

We have also moved our circular economy recommendations from the waste section to the multisector strategy section. This was a more appropriate reflection of what we heard from submitters about the potential for emissions reductions through a more circular economy extending beyond waste.

Introduction

1 Waste is made up of the remnant of materials used in other products or processes that usually go to landfills for disposal. Fluorinated gases (F-gases) are mainly used for heating and cooling, and are mostly hydrofluorocarbons (HFCs).

2 Our advice focuses on emissions from solid waste, as they make up most waste emissions in Aotearoa. These come predominantly from the decay of organic material, usually in landfills. However, there are also emissions from the wastewater sector.

3 Reducing waste is important to New Zealanders. This was reflected as a strong theme during consultation.

4 Addressing waste emissions is important in helping to achieve 2050 emissions reduction targets (2050 targets). In 2019, waste accounted for about 9% of biogenic methane emissions, and F-gases accounted for around 4% of long-lived greenhouse gas emissions. Reducing and effectively managing waste can also reduce emissions across the broader economy.

5 The policy direction in this chapter focuses on the three pillars of our policy approach. Appropriate pricing to influence investments and choices in the sector, addressing barriers, and investing in the sector will all be important.

6 The waste hierarchy is an internationally recognised evaluation tool that shows the preferred pathways to maximise resource recovery through the different stages of waste management:

- **Reduce:** Actions to reduce waste at source, through prevention and by redesigning products and processes to create less waste, sit at the top of the hierarchy and should be the highest priority for action.
- **Recover:** Recovery options such as composting, recycling, and anaerobic digestion that use the waste product (for example, turning food waste into compost) come next.
- **Dispose:** Disposal – either at landfill or through incineration – sits at the bottom of the hierarchy.

7 All of Aotearoa can help address waste across this hierarchy. Businesses can reduce the waste they generate and increase their use of recovered material. Households can increase their use of second-hand and more durable goods. Local governments can make investment decisions to prioritise waste reduction, for example supporting community resource recovery centres.

8 However, central government has the critical role in reducing emissions from the waste sector as it holds most of the policy levers to address key issues and incentivise the right behaviours. Additional action is also needed to prevent HFCs from entering the atmosphere.

9 As a package, we have designed our policy direction with the waste hierarchy in mind. We also see the upcoming review of the New Zealand Waste Strategy as a key vehicle for enabling changes.

10 Aotearoa should take the opportunity to set ambitious goals to reduce waste at source and increase resource recovery across waste streams. These goals will require support through accelerated government investment in the sector and supportive regulatory settings.

16.1 Reduce emissions from waste

11 Aotearoa currently generates one of the largest amounts of waste per capita in the OECD and has a low rate of resource recovery.

12 The waste hierarchy of reduce, recover, and dispose should be used as a guiding principle for action. Aotearoa has an opportunity to embed the hierarchy at the centre of the New Zealand Waste Strategy during its upcoming update. This will support the transition to a more circular economy, which would ultimately generate zero waste.

13 A large number of submitters supported action on waste by applying this hierarchy, which would contribute towards the more efficient use of resources and support a more circular economy. It would reduce emissions across the broader economy as well as in the waste sector itself. Some submitters highlighted the opportunities for waste to be a feedstock for the bioeconomy.

14 Submitters across businesses, individuals, and councils wanted Aotearoa to do more to reduce the amount of waste generated and increase the amount of waste recycled and increase gas capture at landfill, including to generate electricity.

16.1.1 Stronger ambition and more government investment are needed

15 The update of the New Zealand Waste Strategy offers an opportunity to put Aotearoa on a track towards a more circular economy, where ultimately zero waste is generated.

16 To support this, the strategy should set goals, across waste streams and aligned with the hierarchy, that will help Aotearoa reach the 2050 targets.

17 The waste hierarchy should be the guiding principle, which means focusing first on maximising what can be reduced at source. This relies on individuals, communities, businesses, and others to change behaviour. Low waste and low emissions choices can be provided and made accessible through actions such as:

- Designing out excess packaging
- Resource sharing
- Waste education programmes (like Para Kore).

18 Change also needs to happen at a system level. Systems need to evolve to provide durable low-waste products, and to process resources once they have been used. For example, improved collection facilities can provide cleaner waste streams that can be more efficiently processed for resource reuse.

19 Some submissions noted food and garden organic waste collection systems as an example of a way to minimise cross-contamination of organic waste. The material collected can also be used to generate high quality compost.

20 Feedback received during consultation noted the need for more investment in the waste sector across the board. This includes investments in local community activities like education, household waste reduction and composting, and in new waste reuse and recycling infrastructure.

21 Some submitters expressed concern that the emissions associated with the collection and transportation of waste could outweigh the emissions reduced through reuse and recycling.

22 While overall emissions should be considered, evidence suggests that the additional transportation emissions are generally significantly smaller than emissions avoided through reuse and recycling. Transportation emissions will also reduce as vehicles are decarbonised.

23 Direct investment will be needed to develop coordinated waste collection and processing infrastructure, and to collect better data. There should also be coordination across regions so that there is consistency in the way waste streams are sorted and separated.

24 These improvements come with an initial cost. The Infrastructure Commission recently highlighted that between $2.1-2.6 billion of additional capital investment and about $0.9 billion in operational funding is needed in the waste sector over the next 10 years.

25 Local government, particularly smaller councils, lack the resources to make the necessary capital investments in waste infrastructure. Much of this investment will need to come from central government.

26 All remaining organic waste should be sent to landfills with high performance landfill gas (LFG) capture. This could be through fitting LFG capture systems to more landfills, or through consolidating waste into landfills that already have LFG capture.

27 Regular monitoring and auditing of landfills to ensure that their gas capture systems are high performance will also be needed.

28 At the moment, larger municipal landfills are required by the Resource Management (National Environmental Standards for Air Quality) Regulations 2004 to have LFG capture systems installed. Municipal sites without gas capture are usually older, regional landfills that were exempted from gas capture requirements because of low waste volumes.

16.1.2 Emissions pricing and regulation will both be important

29 Landfills are owned by a mixture of local governments and businesses. Large municipal and provincial landfills are covered by the New Zealand Emissions Trading Scheme (NZ ETS).

30 Less than a quarter of waste emissions come from landfills covered by the NZ ETS. For the sites that are covered, the NZ ETS provides a significant incentive to reduce emissions.

31 For sites that are not covered by the NZ ETS, significant emissions reductions could be achieved by regulating for, or incentivising, LFG capture.

32 Many landfills also pay a waste disposal levy – this includes all landfills that are covered by the NZ ETS, as well all other municipal landfills. Most non-municipal landfills are not currently covered by the levy. However, the Government is in the process of increasing the levy, and all landfills (except farm fills) will eventually pay it. Municipal landfills will pay more than other landfills.

33 Some local governments receive proceeds back from the waste disposal levy via the waste minimisation fund.

34 The NZ ETS and the waste disposal levy serve different purposes. The NZ ETS incentivises reducing emissions, while the waste disposal levy incentivises reducing the amount of waste going to landfill.

35 However, as waste disposal levy and NZ ETS costs increase for municipal landfills, this could lead to organic waste being diverted to non-municipal landfills that do not have LFG capture. This would lead to higher emissions.

36 Mandating LFG capture for all landfills that accept organic waste (except farm fills), whether inside or outside the NZ ETS, would prevent this.

37 Regulation can also help address other barriers to reducing emissions from waste. For example, one approach suggested in submissions was 'right to repair' legislation, which requires manufacturers to make certain products repairable. This can reduce upstream emissions by reducing the need to manufacture new products.

38 Regulation could also include product restrictions or phase outs for certain types of waste. Some submitters called for phase outs of excess packaging, for example.

39 Some submitters told us that more products should be added to the six 'priority products' covered by the product stewardship scheme, which makes producers and importers responsible for the environmental footprint of their products. The six priority products currently included in the scheme are plastic packaging, tyres, electrical and electric products, agrichemicals, refrigerants, and farm plastics.

40 Increasing the waste types covered by product stewardship regulation would help reduce waste at source and provide avenues to recover resources at the end of that product's life. Suggestions from submitters included textiles, batteries (including from vehicles), paper waste, and more complex waste streams such as organics, and construction and demolition waste.

41 Data collection in the waste sector also needs to be urgently improved to support more informed decision making. For example, the amount of waste (particularly organic) going into farm dumps and non-municipal fills is not well understood, which means that it is difficult to create efficient policies.

42 Some submitters expressed concern that there are higher rates of organic waste going to these landfills than currently estimated.

43 Investment in research and development can also realise new ways of reducing waste. Some submitters noted that waste from construction and demolition can be sorted and sent to appropriate facilities for reuse.

44 The increased waste levy will provide additional revenue to fund activities to reduce emissions from waste. Further investment needs may be identified as the strategy develops, and recycling of NZ ETS auction proceeds could provide an additional funding source.

16.2 Action is needed to reduce HFCs

45 Refrigerants are essential chemicals that enable perishable food to be transported and stored, and which are used for the heating and cooling of interior spaces. HFCs are the most common type of refrigerant used in Aotearoa. HFCs are potent synthetic greenhouse gases with long atmospheric lifetimes. They are present in low atmospheric concentrations.

46 The Government has restricted the import of HFCs in line with the Kigali Amendment to the Montreal Protocol (an international agreement controlling ozone depleting substances).

47 However, there is currently no import limit in Aotearoa of HFCs contained in finished products (such as air conditioning in vehicles). Some submissions supported the placing of restrictions on the import of HFCs in finished products.

48 Many businesses and consumers will need assistance to transition away from HFCs, particularly if equipment needs to be replaced.

49 There are some alternatives to HFCs with a low climate impact, but much existing equipment is not compatible with them. Because of the large amount of HFCs in existing products, there will be a lag between taking action to replace HFCs and achieving emissions reductions.

50 Aotearoa also has an ageing stock of refrigerators and air conditioning units. This equipment is often disposed of, or serviced, improperly, which leads the HFCs contained within them to leak into the atmosphere. These emissions could be reduced by assisting technicians to upskill, or through a technician licensing system. Some submissions noted the need for better training for technicians, and for the tracking of refrigerants.

51 In 2020, the Government declared refrigerants one of six priority products under the Waste Minimisation Act, which means a product stewardship scheme is required for imports of HFCs. This requires manufacturers and importers to take responsibility for the emissions associated with HFCs, including disposal.

Recommendation 23

Revise the waste strategy so it will deliver emissions reductions in the waste sector

We recommend that, in the first emissions reduction plan, the Government commits to:

Revising the New Zealand Waste Strategy so that it will deliver emissions reductions, and implement measures to reduce HFC emissions.

1. The revised New Zealand Waste Strategy should include:
    a. Acting in partnership with Iwi/Māori, giving effect to the principles of Te Tiriti o Waitangi/ The Treaty of Waitangi, and aligning with He Ara Waiora framework.
    b. Acting in collaboration with local government, community groups and industry to leverage cross-sector action and finance.
    c. Shaping plans in line with the 'waste hierarchy' to:
        i. Significantly decrease waste generation and increase resource recovery across waste streams.
        ii. Reduce emissions via specific, time-bound goals.
        iii. Identify and implement regulatory changes to assist people to take actions to reduce waste emissions.
    d. Accelerating investment in:
        i. Research, development, and demonstration to reduce waste through more efficient processes.
        ii. Infrastructure for waste collection, processing, and resource recovery.
        iii. Support for consumers to reduce waste emissions through switching to low-waste or low-emissions alternatives.
        iv. Improved data collection across the waste sector, including farm dumps, non-municipal fills and wastewater treatment plants.
    e. Setting a date by which high performance gas capture systems are mandated for all landfills that accept organic waste.
2. Measures to reduce HFCs should include:
    a. Expanding import restrictions where feasible.
    b. Improving industry practice to reduce leakage.
    c. Enabling businesses and consumers to switch to low climate impact alternatives.

Recommendation 23

Provisional progress indicators

1. Government to have, by 31 December 2022, finalised the revised waste strategy with goals to:
   a. reduce biogenic methane waste emissions to at least 40% below 2017 levels by 2035.
   b. Ensure, by 31 December 2026, that all landfills (except farm fills) that accept organic waste have effective gas capture systems.
   c. prioritise and fund ongoing data collection across the waste sector.
2. Government to publish, from 31 December 2023, annual waste statistics that track waste flows from generation to disposal across all landfill types.

Assessment of our recommendations against our policy approach

Recommendation 23	Action to address barriers	Pricing to influence investment & choices	Enable innovation & system transformation
Revise the waste strategy to deliver emissions reductions from the waste sector			
Update the New Zealand Waste Strategy, in line with the waste hierarchy, to deliver emissions reductions	✓	✓	✓
Measures to reduce HFC emissions	✓	✓	✓