Reducing Biogenic Emissions from Landfills

Progress and Opportunities

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ENVIRONZ

About Enviro NZ

National network of collection services and critical infrastructure to manage, recover and process waste streams

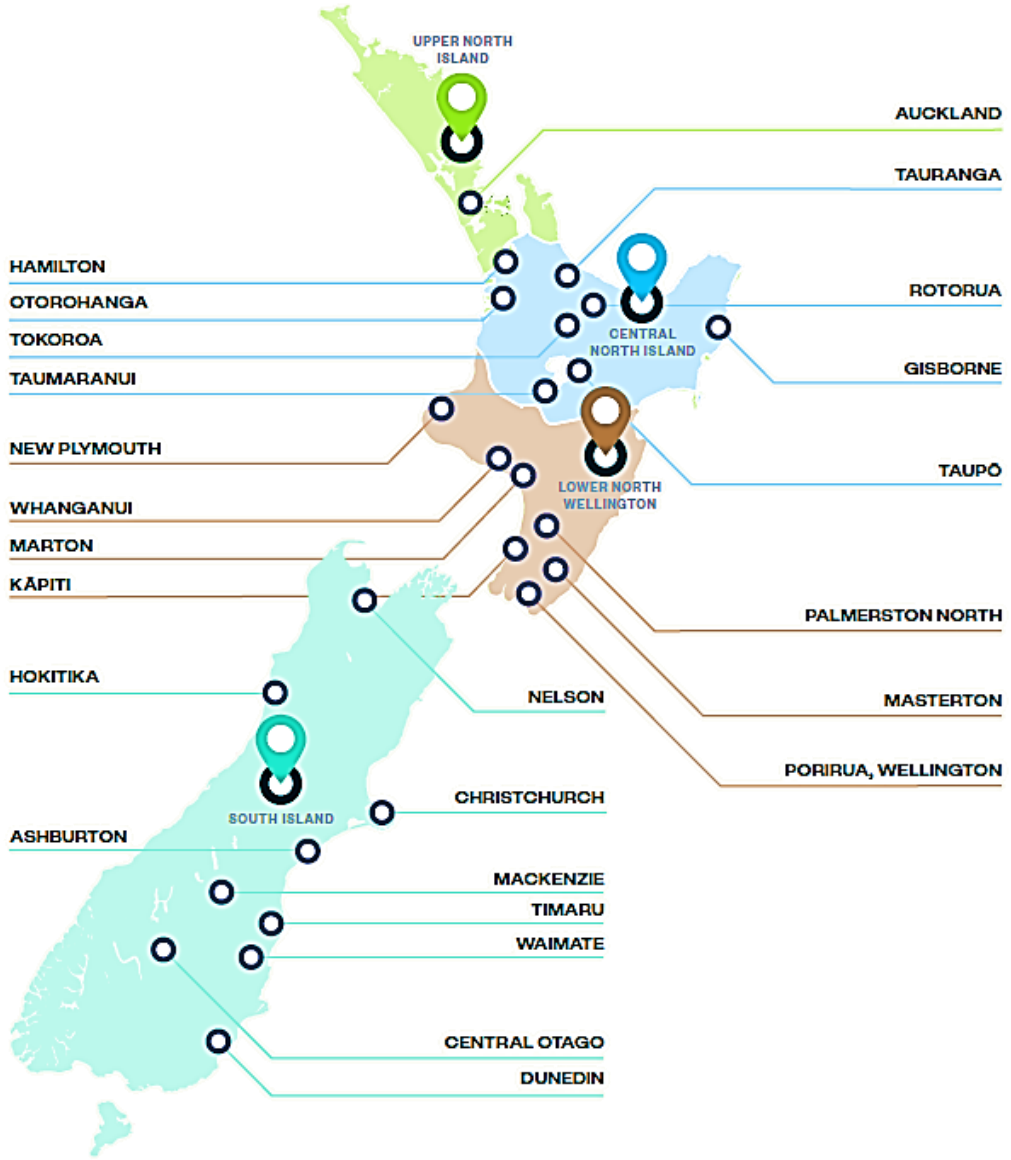
Over **1,200** Employees

500,000 Customers

Over **650** Fleet vehicles

46 Locations

Resource recovery centres | **Managed fill sites** | **Hazardous and liquid waste facilities**

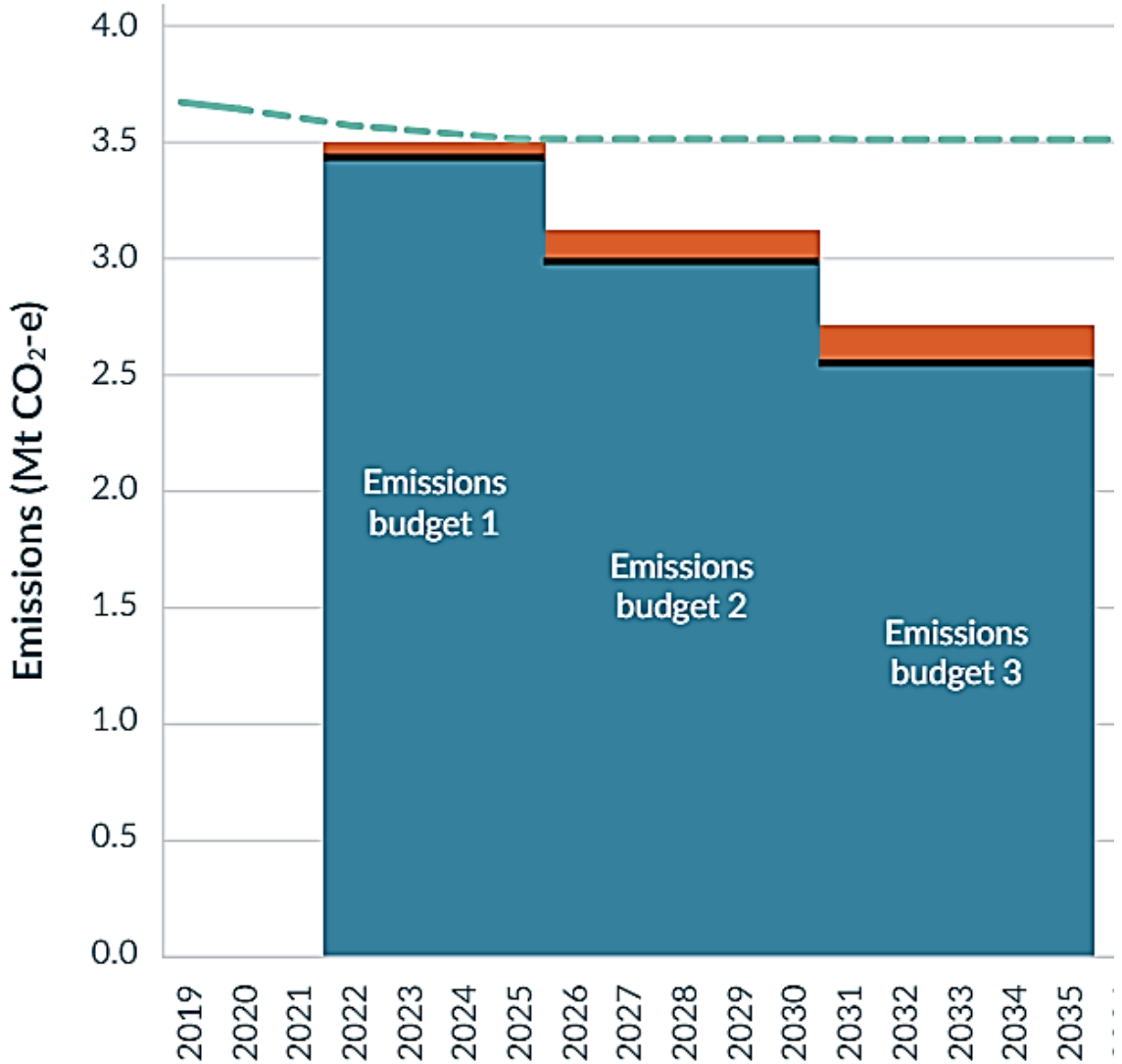


Waste emissions in New Zealand (2021)

3,215 kilo-tonnes of CO_2e

4.2 % of total greenhouse gas emissions

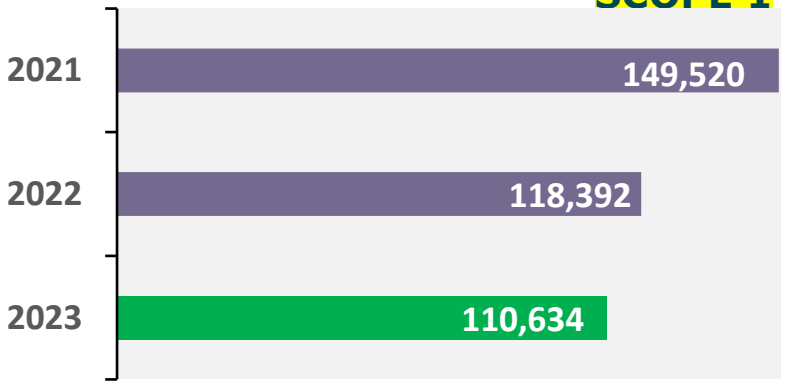
9.0 % of total methane emissions



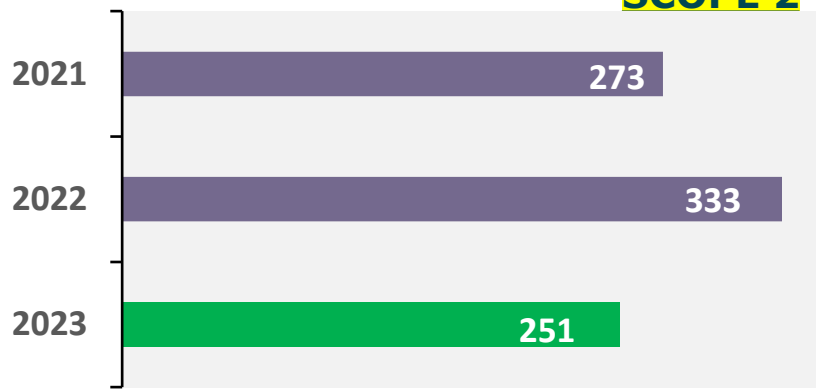
https://environment.govt.nz/facts-and-science/waste/waste-statistics/
https://environment.govt.nz/assets/publications/Aotearoa-New-Zealands-first-emissions-reduction-plan.pdf

Our emissions (in tCO_2e)

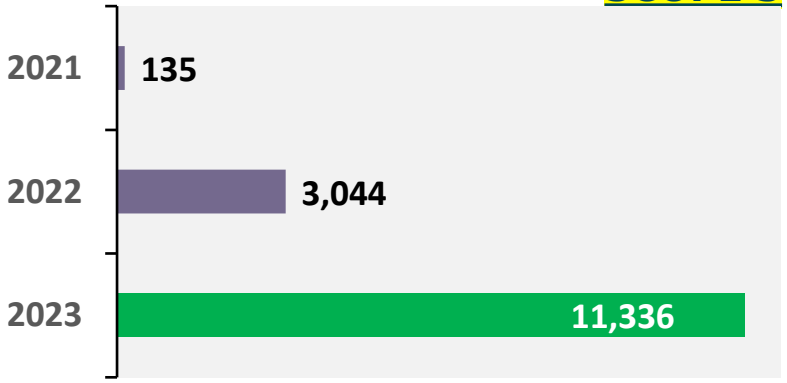
26%



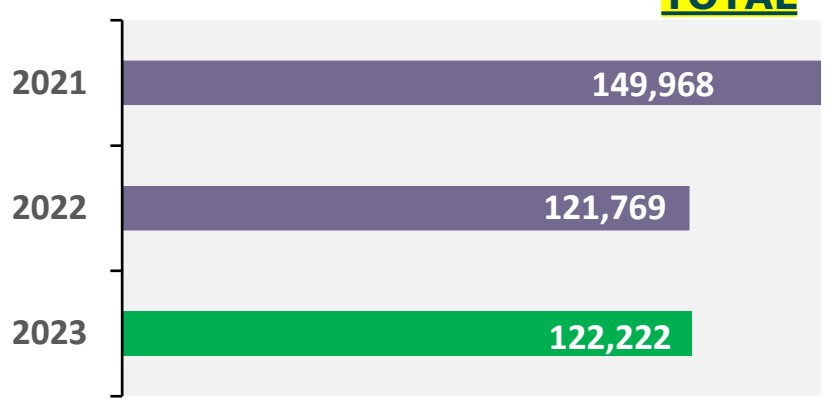
8%



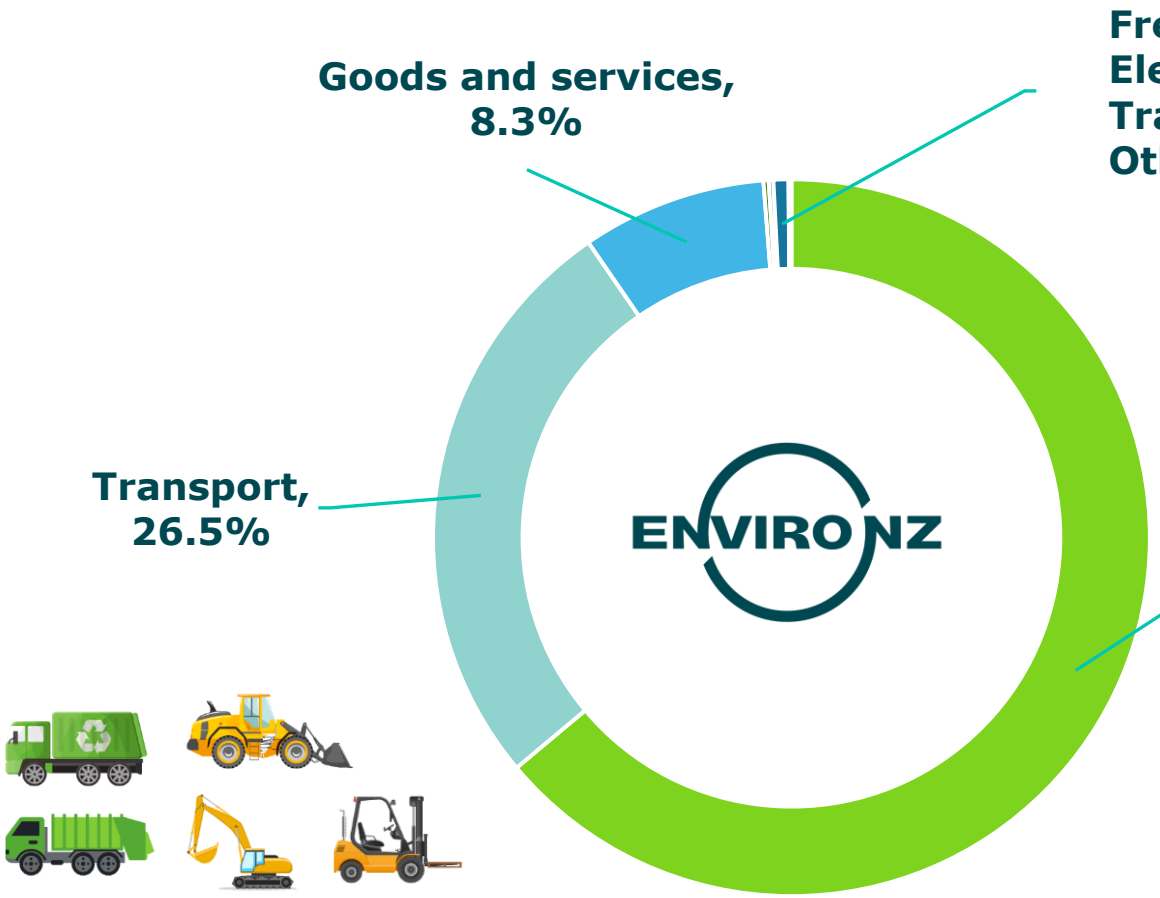
Improved tracking



19%

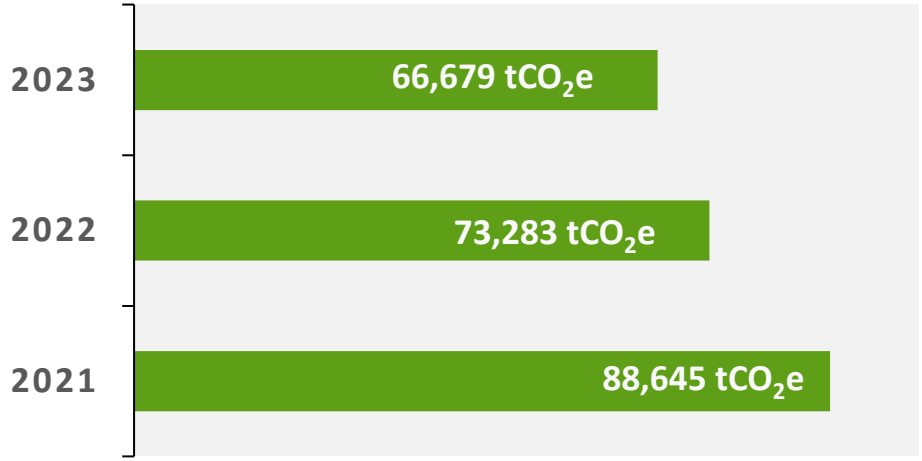


Our emissions



Hampton Downs landfill

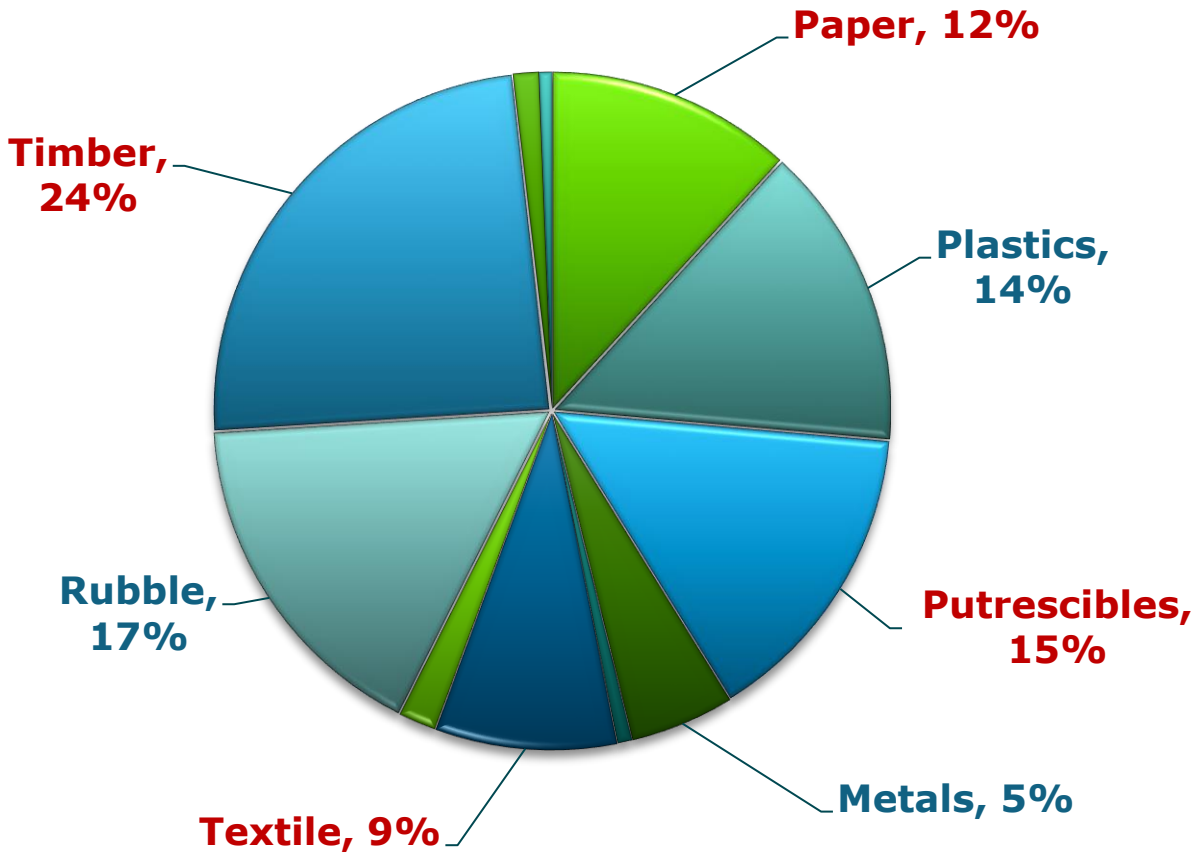
>90% gas capture achieved, reducing emissions and boosting electricity generation



Emission sources

WASTE STREAM	EMISSION FACTOR
Paper	3.36
Food waste	1.26
Garden waste	1.68
Textile	2.016
Wood	3.612

https://www.legislation.govt.nz/regulation/public/2009/0286/latest/DLM3515123.html



Emission reduction strategy

ACTIONS	CONTROL
1. Maintain landfill gas capture rate above 90%	★★★★★
2. Create regional resource recovery infrastructure	★★★★★
3. Facilitate reduction in organic waste disposed to landfills	★★★
4. Create awareness on waste minimisation	★

Diversion infrastructure

Organic Waste

Advanced composting technologies, i.e., aerated static pile composting, to transform food and other organic waste into nutrient-rich compost.

- 3 existing facilities
- 6 new facilities targeted
- **51,000** tonnes/year diverted

Potential emissions reduction
>8,000 tonnes CO_2e

Diversion infrastructure

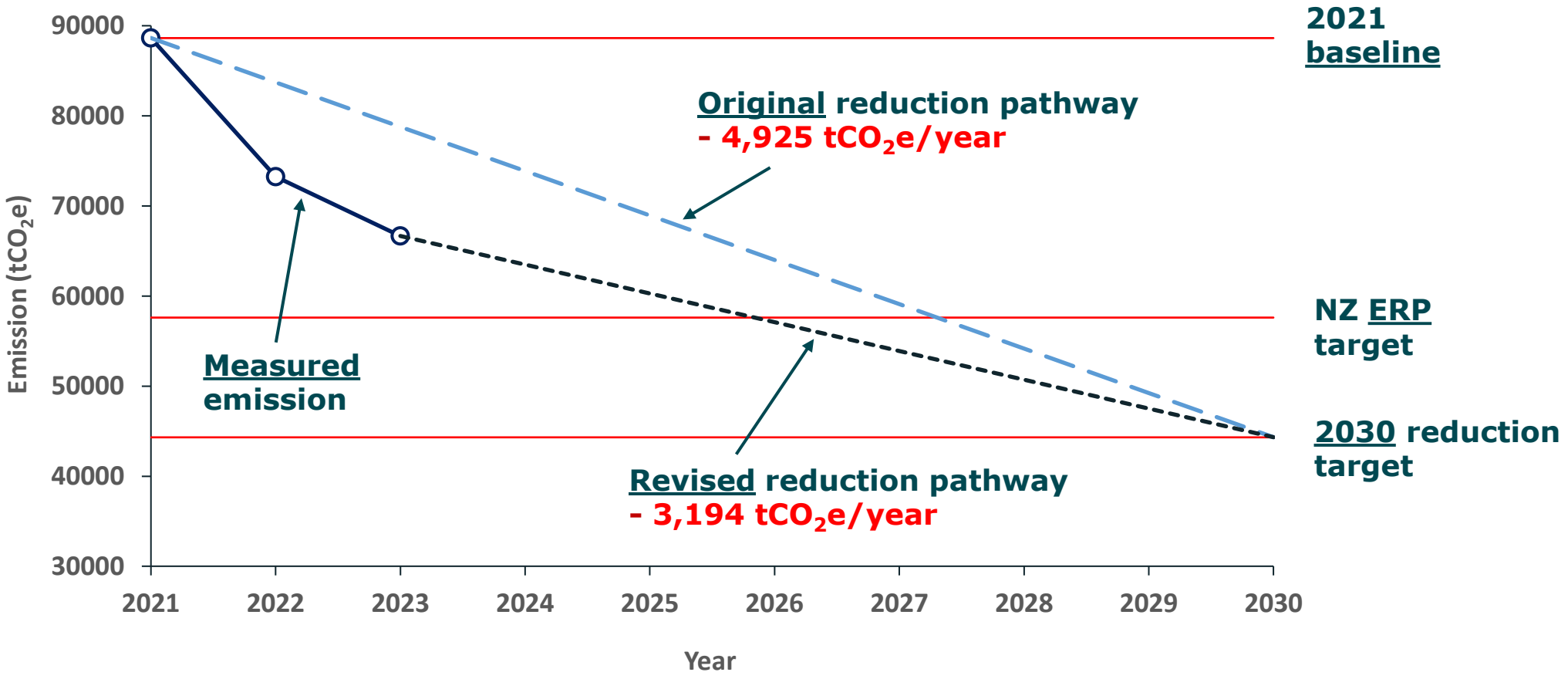
Timber waste

Collection and shredding of treated timber into wood chips for use as biofuel in cement manufacturing.

- 1 existing facility
- **14,000** tonnes/year diverted
- 3 facilities under progress

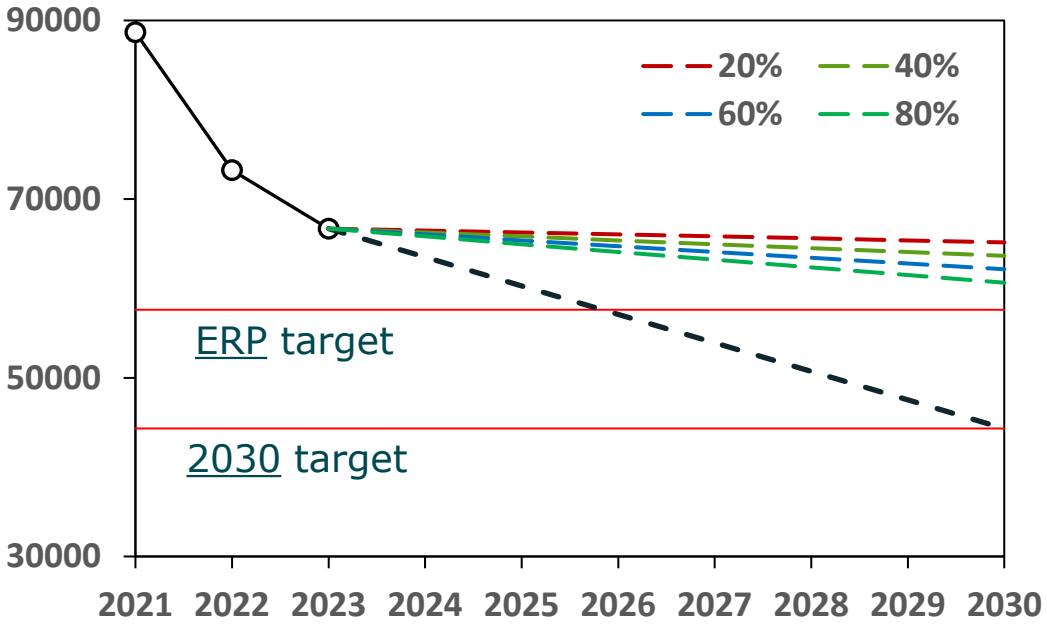
Potential emissions reduction
>2,000 tonnes CO_2e

The "target"


90000
80000
70000
60000
50000
40000
30000
Emission (tCO_2e)
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
Year
2021 baseline
Original reduction pathway
- 4,925 tCO_2e/year
NZ ERP target
Measured emission
2030 reduction target
Revised reduction pathway
- 3,194 tCO_2e/year

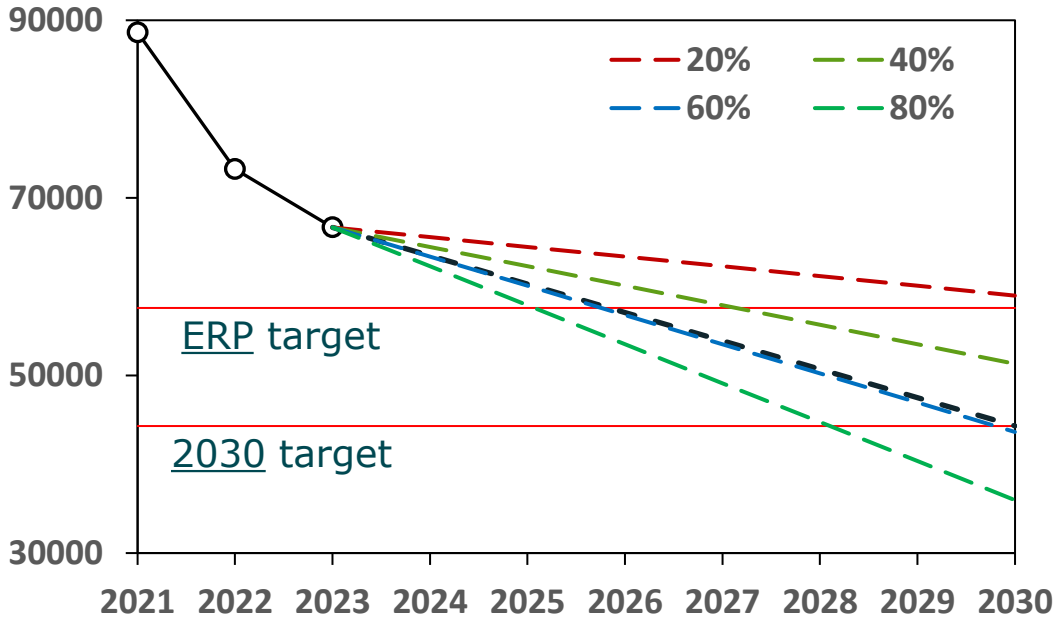
Emission reduction scenarios

SCENARIO 1:
Food diversion only (20-80%)



-200 to -900 tCO_2e/year

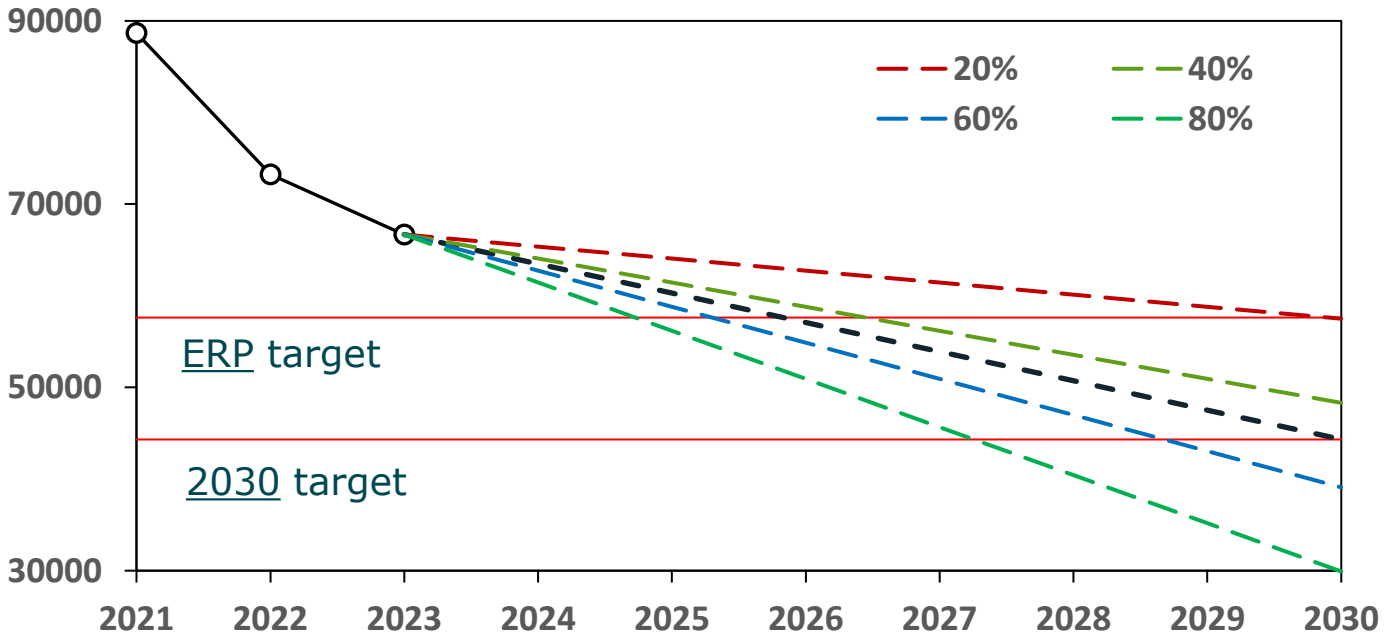
SCENARIO 2:
Wood diversion only (20-80%)



-1,000 to -4,400 tCO_2e/year

Emission reduction scenarios

SCENARIO 3:
Food and wood diversion (20-80%)

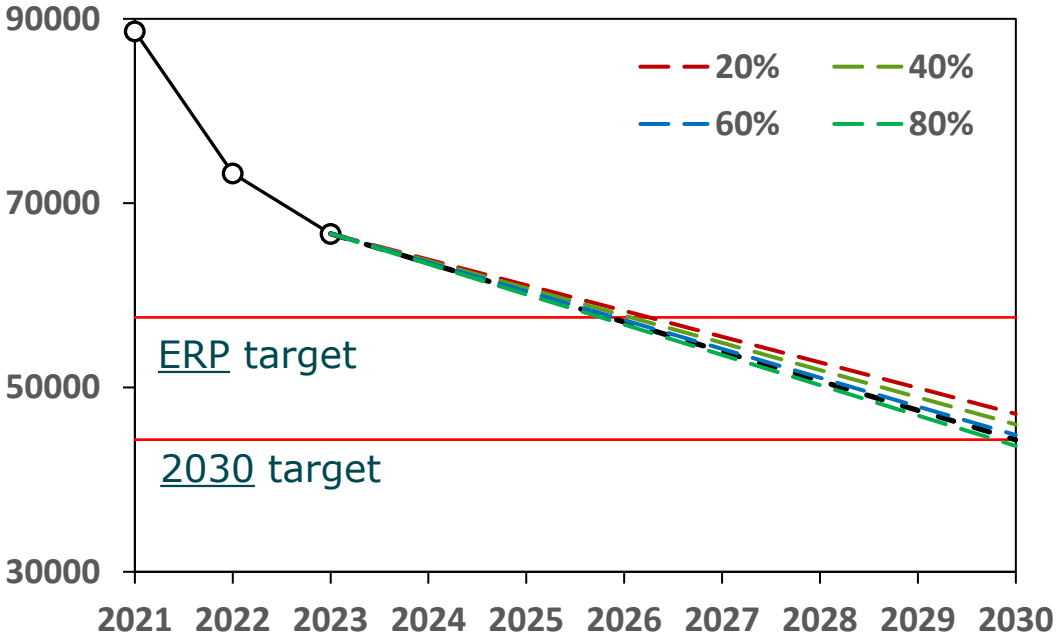


-1,300 to -5,300 tCO_2e/year

- **>20% diversion of food and wood waste likely to achieve ERP targets**
- **>50% diversion of food and wood waste likely to achieve 2030 targets**

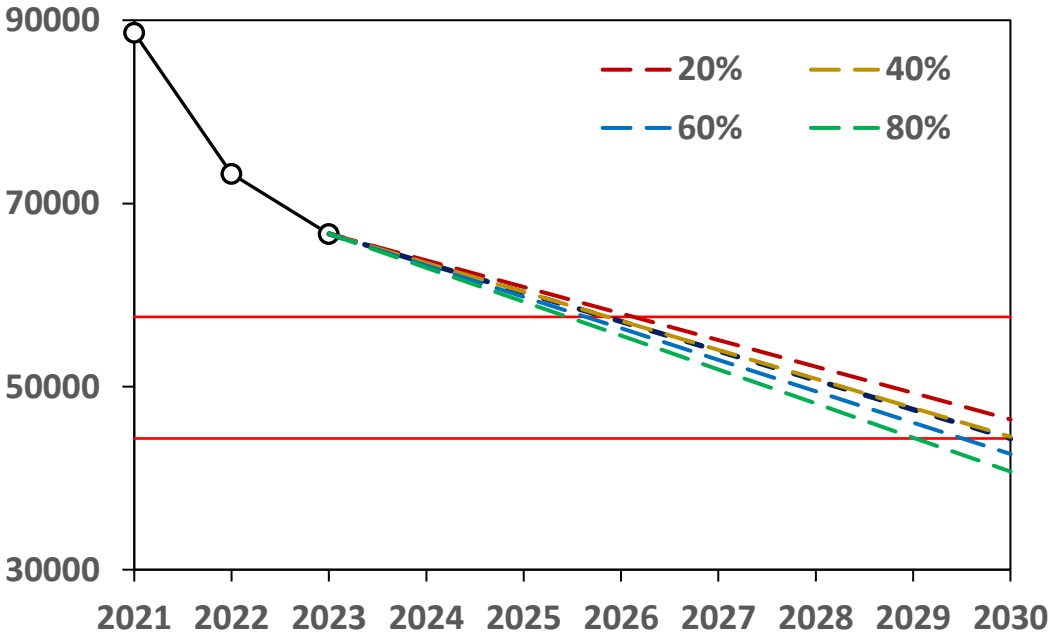
Emission reduction scenarios

SCENARIO 4:
Food (40%), wood (40%) and greens (20-80%) diversion



-2,800 to -3,300 tCO_2e/year

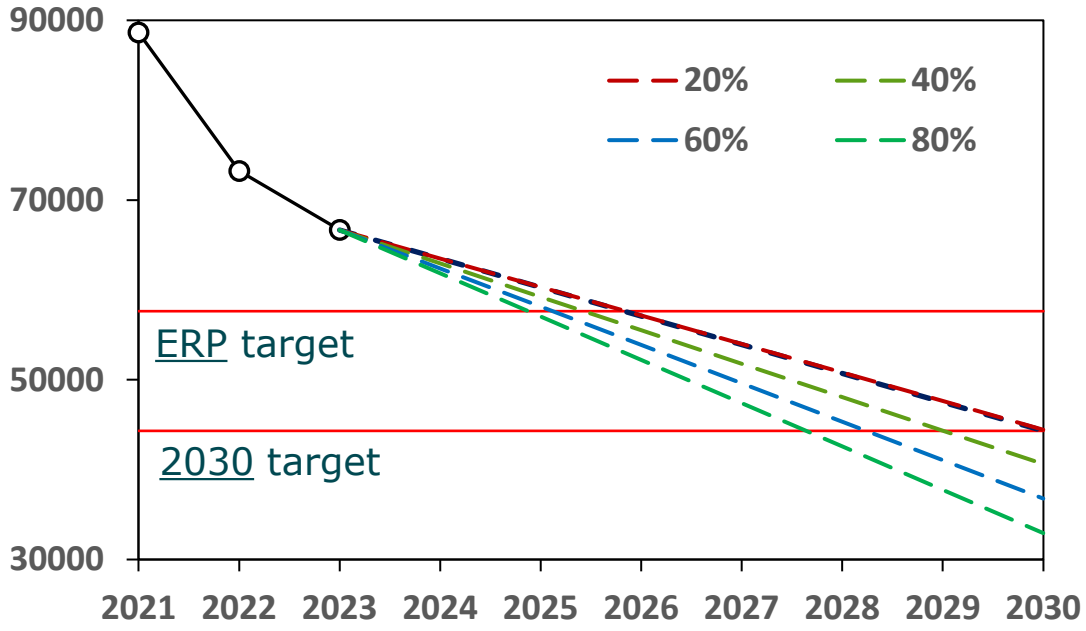
SCENARIO 5:
Food (40%), wood (40%) and textile (20-80%) diversion



-2,900 to -3,700 tCO_2e/year

Emission reduction scenarios

SCENARIO 6:
Food (40%), wood (40%) and paper (20-80%) diversion



-3,100 to -4,800 tCO_2e/year

SUMMARY

Diversion	ERP target	2030 target
Food	X	X
Wood	✓	X
Food + wood	✓	X
Food + wood + greens	✓	X
Food + wood + textile	✓	✓
Food + wood + paper	✓	✓

Risks and opportunities

PAPER

Recent regulatory changes may result in higher volumes of paper going to landfills

GROWTH

Business growth may result in increased amounts of waste going to landfills

WASTE COMPOSITION

Changes in waste composition in other landfills may reduce emission for all waste sector

Summary

- Through a combination of gas capture and resource recovery, Enviro NZ reduced direct emissions by 26% and total emissions by 19% since 2021
- Improved diversion of food and wood waste from landfill likely to reduce emissions in line with NZ ERP
- Meeting 2030 climate targets possible only with substantial (≈40%) diversion of food, wood and paper waste
- Increase in paper disposal in landfills could increase methane emissions

Thank you

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