Notes

How we present emissions

This section provides information on how emissions and removals have been presented throughout the emissions reduction plan.

Gross and net emissions

Throughout the emissions reduction plan, we have presented both gross and net emissions amounts.

Gross emissions include emissions from the following key emitting sectors:

- transport
- energy and industry
- agriculture
- waste
- fluorinated gases.

Net emissions refers to the overall balance of emissions and carbon dioxide removals. It is the sum of gross emissions combined with emissions and removals from the land use and land-use change and forestry sector (land sector). In Aotearoa New Zealand, emissions are mainly removed by forests, which absorb carbon dioxide from the atmosphere that gets stored as carbon as they grow.

Accounting approach

There are specific accounting rules used to assess and track Aotearoa New Zealand's progress towards meeting the emissions budgets and the 2050 target. In the emissions reduction plan, net emissions have been calculated on a target accounting basis. This uses gross emissions estimates aligned to the national GHG inventory but accounts for the land sector differently. The removals used for target accounting are a subset of net removals from the land sector, which are also published in the National Greenhouse Gas Inventory (GHG Inventory).

Carbon dioxide equivalent

In order to aggregate and compare the different types of greenhouse gases – which have different levels of global warming potential – emissions and removals are largely expressed in megatonnes of carbon dioxide equivalent (Mt CO_2-e). Where appropriate, other measurements like tonnes of carbon dioxide equivalent (t CO_2-e) or gigatonnes of carbon dioxide equivalent (Gt CO_2-e) have been used. The carbon dioxide equivalent is calculated by multiplying the quantity of a greenhouse gas by the relevant global warming potential.

Presenting emissions using global warming potential over 100 years (GWP100)

When presenting emissions in Mt CO_2-e, these emissions are based on the GWP100 metric values from the Intergovernmental Panel on Climate Change's (IPCC) Fifth Assessment Report (AR5). The AR5 report sets out the most up-to-date GWP.

Comparisons to the New Zealand Greenhouse Gas Inventory

Comparisons using the GHG Inventory, such as descriptions of emissions per sector, are based on the 2019 figures from latest GHG Inventory published in April 2022 and converted to CO_2-e using AR5 GWP100 metric values. We have chosen to compare to the year 2019 and not the latest available inventory year (2020) due to the distortive impact that the COVID-19 pandemic had on some sectors during 2020. We have chosen to convert the GHG inventory GWP100 metric values from AR4 to AR5 as this is how emissions will be reported in the GHG inventory from the 2023 year onwards.

Glossary

TERM	MEANING
2050 target	Set in the Climate Change Response Act 2002, this target requires: ▶ emissions of all greenhouse gases (except biogenic methane) to be net zero by 2050 ▶ emissions of biogenic methane emissions to be 24–47 per cent below 2017 levels by 2050 (and 10 per cent by 2030).
abatement	The reduction or removal of greenhouse gas emissions.
adaptation	Actions to respond to the effects of a changing climate.
anthropogenic	Originating in human activity.
awa	River, stream, creek.
baseline projections	Compiled annual estimates of emissions that represent the expected level of emissions in Aotearoa New Zealand between now and 2050. Baseline emissions are calculated on the basis of existing policies and measures only and include an assumed carbon price of NZ$35 per tonne of CO_2-e in the New Zealand Emissions Trading Scheme. The baseline projections referred to in the emissions reduction plan were published in March 2022 and are available on the Ministry for the Environment's website.
bioeconomy	The parts of the economy that use renewable biological resources to produce food, products, and energy.
bioenergy	Energy produced by living organisms.
biofuel	Fuel produced from organic material – often plants or animal waste.
biogenic methane	All methane emissions produced from the agriculture and waste sectors (as reported in the New Zealand Greenhouse Gas Inventory).
carbon sequestration or carbon sink	Any reservoir that absorbs more carbon than it releases, thereby lowering the overall concentration of carbon dioxide in the atmosphere. Examples include forests, vegetation, peatland and the ocean.
circular economy	An economic system based on designing out waste and pollution, reusing products and materials, and regenerating natural systems.

TERM	MEANING
Climate Change Commission	A Crown entity that gives independent, expert advice to the Government on climate change matters and monitors progress towards the Government's mitigation and adaptation goals.
climate resilience	The capacity of social, economic and environmental systems to cope with a hazardous event, effect, trend or disturbance caused by climate change, including by responding or reorganising in ways that maintain their essential function, identity and structure, while also maintaining the capacity for adaptation, learning and transformation.
CO_2	Carbon dioxide.
decarbonise	Reduce greenhouse gas emissions, for example, through the use of low-emissions power sources and electrification.
embodied emissions	Emissions associated with the production of materials and construction processes throughout the lifespan of a building, including during construction, renovation, ongoing use and demolition.
emissions	Greenhouse gases released into the atmosphere, where they trap heat or radiation.
emissions budget	The cumulative amount of greenhouse gases that can be emitted in New Zealand over five-year periods prescribed in the Climate Change Response Act 2002. Three successive emissions budgets must be in place at any given time.
emissions reduction plan	A plan that sets out the policies and strategies to meet emissions budgets by reducing emissions and increasing removals. A new emissions reduction plan must be in place before the beginning of each emissions budget period.
F-gases	Fluorinated gases; mainly used as refrigerants for heating and cooling.
fossil fuels	Natural fuels formed in the geological past from the remains of living organisms, for example, coal and natural gas. When used as fuel, these emit greenhouse gases.

TERM	MEANING
greenhouse gases	Atmospheric gases that trap or absorb heat and contribute to climate change. The gases covered by the Climate Change Response Act 2002 are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6).
hapū	Kinship group, clan, subtribe.
hydrofluorocarbons	A category of human-made greenhouse gases often used in refrigeration, air conditioning and other processes.
iwi	Tribe, large group descended from a common ancestor.
kaiako	Teacher, instructor.
kaitiaki	Guardian, caretaker, manager, trustee.
kaitiakitanga	Guardian or guardianship, stewardship, for example, of natural resources.
kaupapa Māori	Māori approach, Māori topic, Māori customary practice, Māori institution, Māori agenda, Māori principles, Māori ideology – a philosophical doctrine, incorporating the knowledge, skills, attitudes and values of Māori society.
kawa	Protocol.
kōhanga reo	Māori language preschool.
linear economy	The predominant economic system globally, following the model of 'take-make-use-dispose'.
low-emissions, low-carbon	An economic and social system that has moved away from the use of fossil fuels and adopted low-emissions energy sources and processes, and consequently produces minimal greenhouse gas emissions.
LULUCF	Land use, land-use change and forestry (LULUCF) is a sector that covers emissions and removals of greenhouse gases resulting from direct human-induced land use, land-use change and forestry activities. Activities associated with LULUCF can impact the global carbon cycle by contributing to the addition or removal of greenhouse gases to and from the atmosphere.
mahinga kai	Garden, cultivation, food-gathering place.

TERM	MEANING
mana	Prestige, authority, control, power, influence, status, spiritual power, charisma.
manaakitanga	Hospitality, kindness, generosity, support – the process of showing respect, generosity and care for others.
mana ōrite mō te mātauranga Māori	Equal status for Māori knowledge.
māramatanga	Enlightenment, clarity, understanding.
marau ā-kura	Localised curriculum.
mātauranga Māori	Māori knowledge systems and worldviews, including traditional concepts.
mauri	Life principle, life force, vital essence, special nature, a material symbol of a life principle, source of emotions.
mitigation	Human actions to reduce emissions by sources or enhance removals by sinks of greenhouse gases. Examples of reducing emissions by sources include walking instead of driving, or replacing a coal boiler with a renewable electric-powered one. Examples of enhancing removals by sinks include growing new trees to absorb carbon, or industrial carbon capture and storage activities.
NDC	Nationally Determined Contribution. Each Party to the Paris Agreement must define its contribution to the long-term temperature goals set out in the agreement, in the form of an NDC.
net zero	A target of completely negating the greenhouse gas emissions produced by human activity. This can be done by balancing emissions and removals or by eliminating the production of emissions in the first place.
offshore mitigation	Emissions reductions and removals that occur outside New Zealand, or overseas-based incentives to reduce or remove emissions (eg, by the pricing of emissions through participation in an overseas emissions trading scheme).
operational emissions	Emissions from operating a building.

TERM	MEANING
organic waste	Wastes containing carbon compounds that are capable of being readily biologically degraded, including by natural processes, such as paper, food residuals, wood wastes, garden and plant wastes, but not inorganic materials such as metals and glass or plastic. Organic wastes can be decomposed by microorganisms into methane, carbon dioxide, nitrous oxide, and simple organic molecules (plastic contains carbon compounds and is theoretically organic in nature, but generally is not readily biodegradable).
papakāinga	Original home, home base, village, communal Māori land.
Papatūānuku	Earth mother.
Paris Agreement	A legally binding international treaty on climate change, which includes provisions on mitigation, adaptation and climate finance among other things. It was adopted by 196 Parties in Paris in 2015 and entered into force in 2016. One of the goals of the Paris Agreement is "holding the increase in global average temperature to 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels".
perfluorocarbons (PFCs)	These are organofluorine compounds containing only carbon and fluorine. Some of them are potent greenhouse gases.
product stewardship	A scheme in which a producer, importer, retailer or consumer takes responsibility for reducing a product's environmental impact.
rohe	Boundary, district, region.
tangata whaikaha	People with disabilities.
tangata whenua	The people of the land, local indigenous people. Māori are tangata whenua.
taonga	Treasure, anything prized – applied to anything considered to be of value, including socially or culturally valuable objects, resources, phenomenon, ideas and techniques.
te ao Māori	The Māori world.
te ao tūroa	The natural world, the enduring world.
te taiao	World around us, earth, natural world, environment, nature.

TERM	MEANING
Te Tiriti o Waitangi or Te Tiriti	The Treaty of Waitangi. Note: While these terms are used interchangeably, we acknowledge that the English version and te reo Māori translation are separate documents and differ in a number of respects.
tikanga	Correct procedure, custom, habit.
transition	The shift to a low-emissions, sustainable economy and way of life.
tūpuna	Ancestors, grandparents.
tūrangawaewae	Domicile, standing, place where one has the right to stand.
wairua	Spirit, soul.
whakapapa	Genealogy, genealogical table, lineage, descent.
whānau	Extended family, family group.
whanaungatanga	Relationship, kinship, sense of family connection.
whenua	Country, land, nation, state.

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