



# Appendix 5: Climate change



**GREAT LAKE TAUPŌ**  
Taupō District Council

**Taupō District Council's  
Long-term Plan 2024-34**

In the 2021 long-term plan, the community asked Council to consider what it could do to reduce emissions and prepare for climate change. The Council adopted a [Climate Change Strategy](#) in 2022, and made sure that both reducing emissions and ensuring resilience were a focus for Council in this Long-term Plan 24 – 34.

## Being prepared for the effects of climate change

Due to global warming and climate change, Taupō district can expect:

- **Hotter and drier summers:** Increased dryness, drought, and high fire risks in summer – with the potential number of dry days per year increasing by 5-15 days every year (~5% increase)<sup>1</sup>. Number of hot days increasing from 24 per year to 38 – 40 by 2050.<sup>2</sup> Potential impacts on water supply shortages and increased irrigation demand. Freshwater impacts from lower river flows, increasing water temperatures, impacts on habitats and species, increased risk of poor water quality and toxic algae bloom.
- **Warmer, wetter winters and increased wind:** Increased rainfall in winter (4 – 7% by 2100)<sup>3</sup>. Increased erosion risks from higher rain, lake and river levels, and wind.
- **Increased frequency and severity of intense rainfall and storm events:** Increased frequency and severity of intense rainfall – up to a 39 percent increase in the annual likelihood of a 1-in-100-year flood by 2100.<sup>4</sup> Ex-tropical cyclones will likely be stronger and cause more damage as a result of heavy rain and strong winds. Increased flooding risks from both urban stormwater, overland flow paths and gully systems, low lying land, and rivers. Increased risk of power and communications outages from wind damage. Taupō has mapped flood areas for its rivers and lakes (which consider the potential impacts of climate change). Council also has internal flood mapping for urban stormwater, which can be used to assess the risks to community facilities, buildings, and infrastructure.

<sup>1</sup> For Waikato region, Precipitation below 1 millimetre/day, Waikato Regional Council, Waikato Regional Climate Change Risk Assessment Phase 1, September 2022

<sup>2</sup> Greater than 25°C, for Waikato Region, Ministry for the Environment, Climate Change Projections for New Zealand, 2018.

<sup>3</sup> For Taupō district, Ministry for the Environment, Climate Change Projections for New Zealand, 2018.

<sup>4</sup> For Waikato region, Waikato Regional Council, Waikato Regional Climate Change Risk Assessment Phase 1, September 2022

## COUNCIL'S ROLE IN PREPARING FOR THE EFFECTS OF CLIMATE CHANGE

**Council plays several important roles in preparing for the effects of climate change:**

- Building controls to ensure buildings are built to withstand likely hazards and avoid unsuitable high-risk hazard areas.
- Emergency management and civil defence planning and operations
- Providing resilient lifeline infrastructure, like water, roads, and community evacuation centres.
- Stormwater management in urban areas (which typically is designed for regular rain events, not large flooding events – which will overwhelm the stormwater network)
- Having appropriate insurance and setting aside money to rebuild infrastructure after a natural disaster.

## INVESTING TO REDUCE THE RISKS OF URBAN FLOODING

We are planning a \$14.2 million programme of stormwater improvement works over 2024/25 – 2030/31 in Mangakino, Tūrangi and Taupō. This will reduce potential flooding in at risk areas for a heavy rainfall event that considers the potential impacts of climate change.

New development areas must avoid high risk flood areas through building and resource consent controls. This includes potential urban, river and lake flood areas identified through modelling that includes the potential increased risks from climate change.

## INVESTING TO IMPROVE THE RESILIENCE OF OUR INFRASTRUCTURE

Council's asset management plans for water, wastewater, transport, and community facilities identify the risks to these assets, the plans for managing those risks, and investment plans to improve resilience.

**We are planning a \$39.7 million programme of resilience improvement works over 2024/25 – 2033/34 including:**

- Managing lakeshore erosion risks around Lake Taupō and in particular at Kuratau
- Protecting our drinking water with treatment for potential toxic algae outbreaks
- Improving waterflow in areas of Kinloch and Whakamaru to support firefighting
- Improvements to Taupō wastewater and water treatment plants to address possible failure points and increase resilience in emergency events
- New water reservoirs to provide increase water reserves in Taupō and improvements to ensure water supply at Waihaha during adverse weather events
- More portable generators to support water and wastewater operations during power outages
- Identifying and addressing road cuttings, banks, and other slip risks, including the only road into Omori / Kuratau
- Investigating rain infiltration into the wastewater network to reduce the risk of wastewater overflows in high rain events.

# Reducing greenhouse gas emissions

Council has always sought to reduce our impact on the environment, including:

- investing in walking and cycling networks
- diverting green waste and recycling from the landfill
- moving to plug-in hybrid council vehicles and electric buses
- native planting, in partnership with Greening Taupō
- electricity efficiency, including switching our street lights to LEDs
- Sending our wastewater sludge to the MyNOKE vermi-composting worm farm.

In August 2022, Taupō District Council committed to further action by adopting emissions reduction targets aligned with getting to net zero carbon emissions by 2050. Council also adopted an emissions reduction directive for the organisation that sets an expectation that Council will:

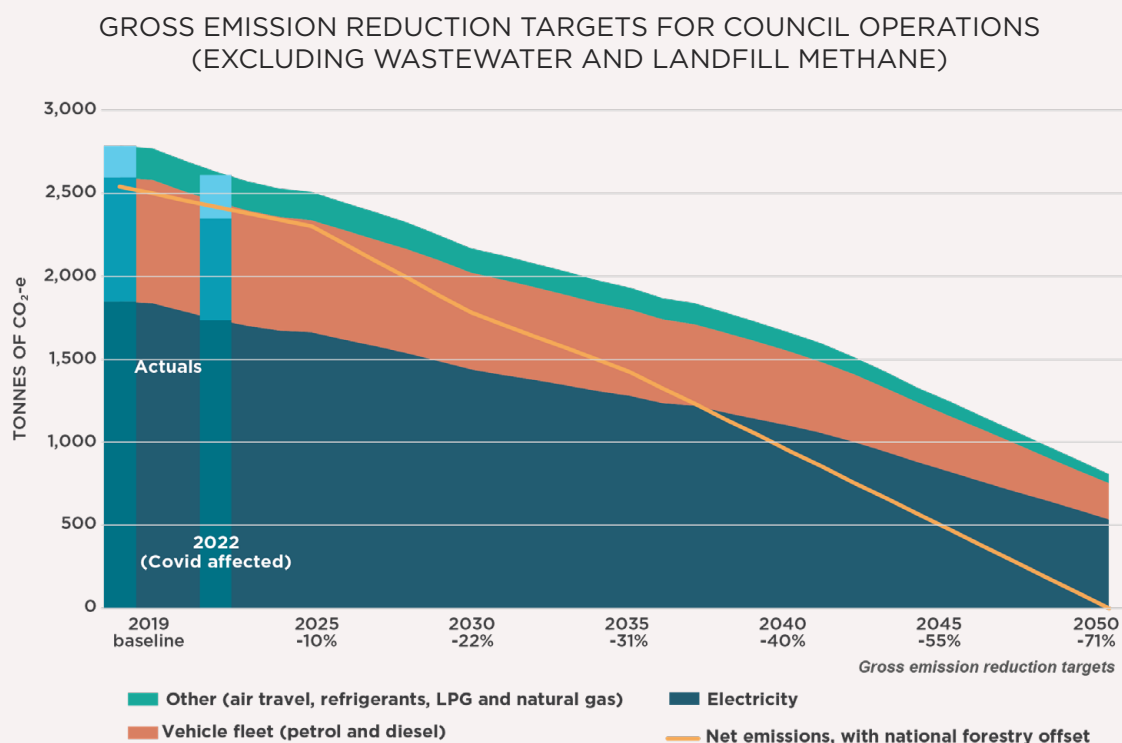
- be a climate change responsible organisation
- consider greenhouse gas emission impacts and options to reduce them in its future decisions, business cases and investment plans
- identify options to reduce emissions as a focus for the council's next investment plan (the Long-term Plan 2024-2034).

Council's climate change targets and direction are available to view on the council website at [www.taupo.govt.nz/climatechange](http://www.taupo.govt.nz/climatechange)

## COUNCIL'S EMISSION REDUCTION TARGETS

Council has adopted the emissions reduction targets set out in the chart and table below. These targets are in line with national emissions budgets, the national target of net zero by 2050, and separate national methane targets. Meeting these targets ensures that Council plays its part and is doing its fair share to reduce emissions.

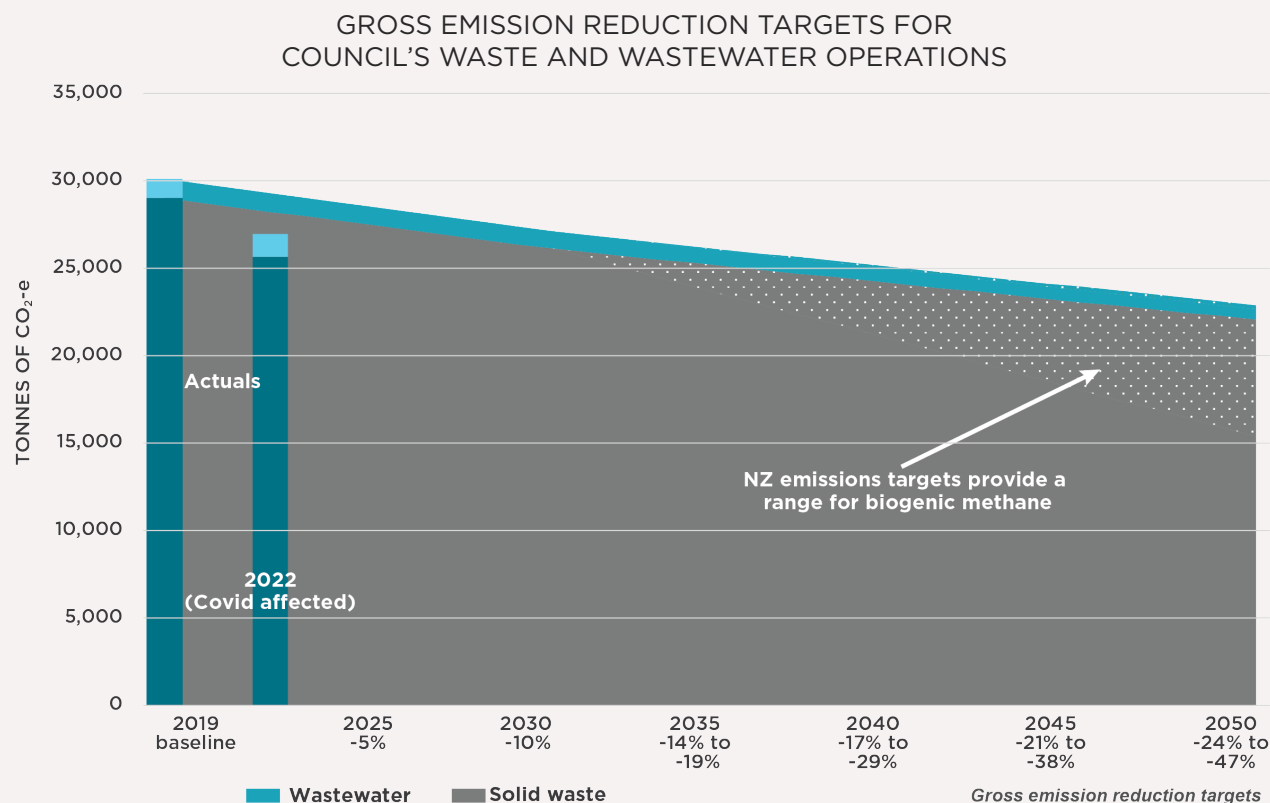
### Emissions reduction targets for council operations



**Taupō District Council's reduction targets are based on:**

- Aligning gross targets with net targets by including an allowance for offsetting some emissions from NZ's forestry activity. Taking a proportionate share from NZ's AR5 projected base scenario, March 2022.
- NZ's net emissions budgets for the periods 2022 - 2025, 2026 - 2030, and 2031- 2035. Published May 2022.
- Path to meeting the national target of reaching zero net emissions by 2050. Set in the Climate Change Response Act.

**Emissions reduction targets for landfill waste and wastewater**



**Taupō District Council's reduction targets are based on:**

- A path to meeting the national target of reaching a 10% reduction target by 2030, and a 24% - 47% reduction by 2050. Set in the Climate Change Response Act.

**Monitoring and Reporting**

We undertake an independent emissions inventory and report the results every three years.

## REDUCING EMISSIONS FROM SOLID WASTE

Broadland landfill is council's greatest source of emissions at around 25,600 tonnes of CO<sub>2</sub>-e per year (87% of Council's emission in 2022), and has the greatest potential for reduction through existing technologies.

\$7.8 million budgeted to install a gas flare to reduce greenhouse gas emissions and a new covered area for the separation and storage of construction and demolition waste in 2025/26 - 2027/28.

A gas capture and flaring systems have the potential to reduce emissions by around 60 - 70% (based on MfE's August 2022, emission factors). That is a reduction in emissions of around 8,000 tonnes of CO<sub>2</sub>-e. The equivalent of planting 8,000 trees per year, or taking 2,600 cars off the road. The financial savings for ratepayers are also significant, with the reduced cost of buying carbon credits of around \$1 million a year.

Waste reduction measures focusing on organic waste like food waste, green and garden waste, and wood construction materials have the potential to further reduce emissions.

## A PROGRAMME OF WALKING AND CYCLING IMPROVEMENTS

**We are planning a \$14.9 million programme of walking and cycling improvements works over the next 10 years including:**

- New shared pathways
- Pedestrian crossing improvements
- New footpath connections and improved footpath lighting in identified dark spots.
- New urban cycle lanes, and more cycle racks.

## REDUCING COUNCIL'S ENERGY EMISSIONS

After waste, Council's main emissions come from fuel for vehicles and mowers, and electricity for our infrastructure (water and wastewater treatment plants and pumps), buildings and facilities.

Council is planning an investigation of solar panels for council buildings. Solar panels have the potential to reduce emissions associated with New Zealand's electricity generation and also save significant power costs over the lives of the solar panels.

Council is also implementing a fleet policy that will shift council vehicles to hybrid and electric over time, which reduces emissions from the burning of fuel, and will also save money over time from the reduction in fuel costs.

## RESPONSIBLE AND SUSTAINABLE FINANCIAL INVESTMENTS

**Council's largest financial holding is the TEL fund<sup>5</sup> at around \$65 million<sup>6</sup>. These funds are professionally managed with a requirement that the managers:**

- work towards aligning the portfolio with net zero emissions by 2050 or sooner.
- exclude investment in companies involved in the extraction of oil sands and thermal coal, or the extraction, production and refining of oil & gas.
- intentionally increase investment in companies, products, or securities that provide solutions for climate change when that aligns with other investment requirements.

<sup>5</sup> The TEL fund was established after Taupō Electricity Limited (TEL) and Taupō Generation Limited (TGL) were sold in 1995.

<sup>6</sup> Taupō Council annual Report 2022/33. Balance of TEL Investment as at 30 June 2023.