WHAKARATONGA IWI

FIRE EMERGENCY NEW ZEALAND

Tā Mātou Rautaki Kōkiri i te Āhuarangi Hurihuri

Our Climate Response Strategy 2022–2030

September 2022

Ngā Ihirangi
Contents

This page image: Jackie Ranken
Cover page image: Simon Spencer-Bower

Te take kua tuhi mātou i tēnei rautaki
Foreword

"E kore tātau e mōhio ki te waitohu nui o te wai kia mimiti rawa te puna
We never know the worth of water until the well runs dry."

– PROFESSOR TE WHAREHUIA MILROY

KERRY GREGORY
Chief Executive
Fire and Emergency New Zealand

As an emergency services organisation, we have seen, first-hand, the impact of our changing climate. It's affecting the services we provide and the communities we support across Aotearoa. If we are to realise our vision of 'stronger communities protecting what matters', we must be prepared and able to respond to the volatile and increasingly challenging environment before us.

This makes our Climate Response Strategy an incredibly important piece of mahi, as it underpins our response to climate change. It's a strategic roadmap that focuses our efforts to reduce organisational emissions and adapt to the current and expected impacts of climate change.

There is an urgent need for action across Aotearoa and beyond to help combat climate change, and here at Fire and Emergency, we too can play an important part. I'm pleased to see we've already made progress in reducing our carbon footprint, but we now need to explore our ways of working in more detail to identify areas where we can reduce our effect on the environment further, while maintaining our ability to serve our communities well.

The impacts of climate change are already affecting our operations. Extreme weather events are expected to become more common and more severe, which presents a significant challenge for us and our emergency sector partners. Working collaboratively with those partners will be essential. As the temperature increases, many areas across the motu are expected to experience longer wildfire seasons. This strategy will help us anticipate these changes and adapt our operations, ensuring we have the right resources and capability to continue to support our communities when they need us the most.

Working alongside those communities to keep them safe and meet their needs will always be front of mind while we develop and implement our climate response. Our partnership with tangata whenua will be vital to our success as we navigate the challenges ahead. We will encourage iwi led initiatives in the community to ensure effective implementation of this strategy. Our immediate mahi to allow this to happen is to improve our own capability to work with tangata whenua. As an organisation and as individuals we all have a responsibility and an opportunity to do what's right in this pivotal moment. It is incumbent on us to take on this mantle and leave Aotearoa in a better place for our tamariki and future generations.

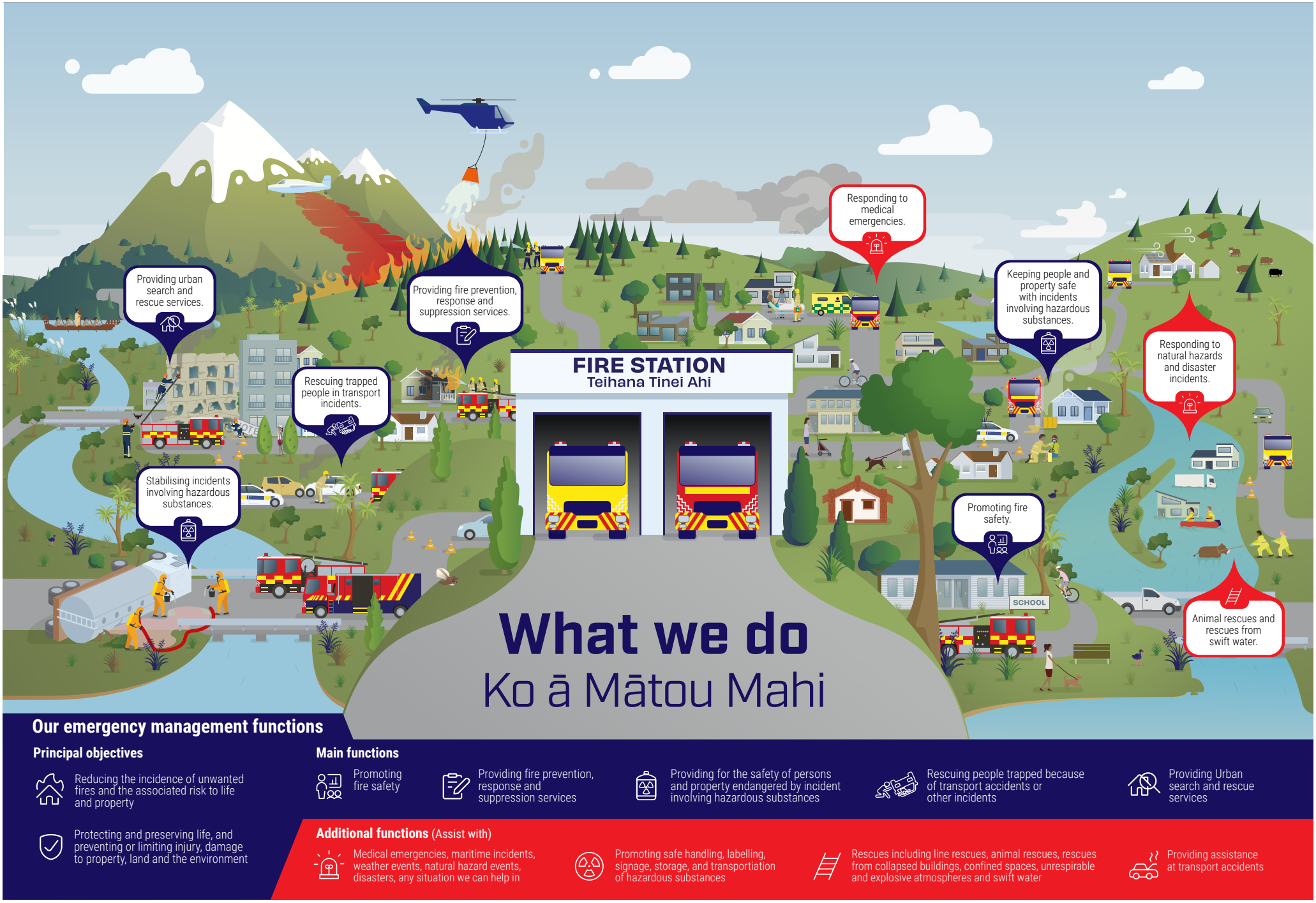
Ko wai mātou me ngā mahi ā tari
Who we are and what we do

For more than 150 years, fire service organisations have been at the heart of New Zealand communities, protecting and preserving life and property. In that time, our service has remained vital to our communities. However, our role and the types of emergencies we respond to have changed.

New Zealand's communities are changing, and with it, their needs. Climate change, new technology, and a growing, ageing and diversifying population mean they face new challenges. Emergency events are becoming more frequent and more severe. The COVID-19 pandemic has also challenged Fire and Emergency and the communities we serve.

Since Fire and Emergency was established on 1 July 2017, we have been building a unified fire and emergency organisation capable of serving New Zealand's communities now and into the future. We have established the foundations of our new organisation, including key strategies, our vision and values, improved health and safety processes, resources and tools for the frontline, and new leadership structures. These days, our firefighters do so much more than just fighting fires. They also work with communities to build their resilience by helping them prepare for, respond to and recover well from emergencies.

We respond to a wide variety of emergencies, including motor vehicle accidents, medical emergencies, hazardous substances, severe weather events and natural disasters. We work to reduce risk and make our communities safer through fire safety campaigns, research, and by providing advice on the Building Code.



Our emergency management functions

Principal objectives

- Reducing the incidence of unwanted fires and the associated risk to life and property
- Protecting and preserving life, and preventing or limiting injury, damage to property, land and the environment

Main functions

- Promoting fire safety
- Providing fire prevention, response and suppression services
- Providing for the safety of persons and property endangered by incident involving hazardous substances
- Rescuing people trapped because of transport accidents or other incidents
- Providing Urban search and rescue services

Additional functions (Assist with)

- Medical emergencies, maritime incidents, weather events, natural hazard events, disasters, any situation we can help in
- Promoting safe handling, labelling, signage, storage, and transportation of hazardous substances
- Rescues including line rescues, animal rescues, rescues from collapsed buildings, confined spaces, unrespirable and explosive atmospheres and swift water
- Providing assistance at transport accidents

He aha matou i tuhi ai i tenei Rautaki
Why we have written this Strategy

Our Climate Response Strategy (the Strategy) is Fire and Emergency's strategic road map. It outlines how we will manage our carbon footprint and how we will respond to the challenges of climate change through to 2030.

It focuses on key areas where we can reduce our emissions, and how we can adapt to the ongoing and expected impacts of climate change.

Our commitment to environmental sustainability

Our environment is changing and the emergency services we provide are already being affected by climate change.

We urgently need to respond to the impacts of climate change. To achieve this, we need to reduce emissions to mitigate our own contribution to climate change, and respond to its impacts by adapting to the changes that are coming.

This strategy sets out our commitment to environmental sustainability. In it, we:

- define our emissions profile, the sources of these emissions and how they contribute to our carbon footprint
- show key areas we will focus on to reduce our carbon emissions
- show the actions we will take to adapt to the impacts of climate change

This strategy has a strong focus on reducing the organisations emissions. This reflects the immediate need to reduce emissions in alignment with the all of Government direction under the Carbon Neutral Government Programme (CNGP).

The Government's expectations

As a signatory of the 2015 Paris Agreement and the United Nations Framework Convention on Climate Change (UNFCCC), New Zealand has committed to work with the rest of the world to limit global warming.

In December 2020, the Government declared a climate emergency and committed to take urgent action to reduce emissions. As a part of the suite of actions, it established the Carbon Neutral Government Programme. The CNGP's purpose is to accelerate emissions reduction within the public sector, and support agencies to be carbon neutral by 2025. This means agencies must:

- measure, verify and report emissions annually
- set gross emissions reduction targets and longer-term reduction plans
- introduce a plan to reduce emissions
- offset remaining gross emissions from 2025 to achieve carbon neutrality.

Horopaki
Background

Our climate is changing

Data shows that New Zealand's environment is changing due to the impact of climate change, and it is expected to continue to change into the future.

The latest science shows that around the world, the impacts of climate change are widespread and rapidly intensifying. Evidence of observed changes in extremes such as heatwaves, heavy rainfall, droughts, and tropical cyclones, and their connection to human activities, has strengthened in recent years (IPCC, 2021).

The magnitude of future changes will depend on the action we take as a global community to reduce greenhouse gas concentrations in the atmosphere over the next few decades. Human greenhouse gas emissions come mainly from burning fossil fuels, such as oil, gas, and coal, since the beginning of the Industrial Revolution in the mid-1700s. Burning fossil fuels has fuelled the technological breakthroughs that have led to our modern way of life. However, higher concentrations of these gases increase the heat held in the atmosphere (acting like a blanket, trapping the energy that would otherwise be reflected back into space), driving atmospheric warming, and the other climatic changes we are observing today.

In New Zealand, temperatures are rising nationwide – a trend that is consistent with observations around the world (MfE and Stats NZ, 2020; IPCC, 2018) (Figure 1). Increasing air temperatures are driving other aspects of the climate, including the occurrence of extreme rainfall events, droughts and the risk of wildfires, which are expected to change in many places. Rising sea levels will make many coastal communities and infrastructure increasingly vulnerable to floods, coastal erosion, tsunamis and other natural disasters (IPCC, 2021).

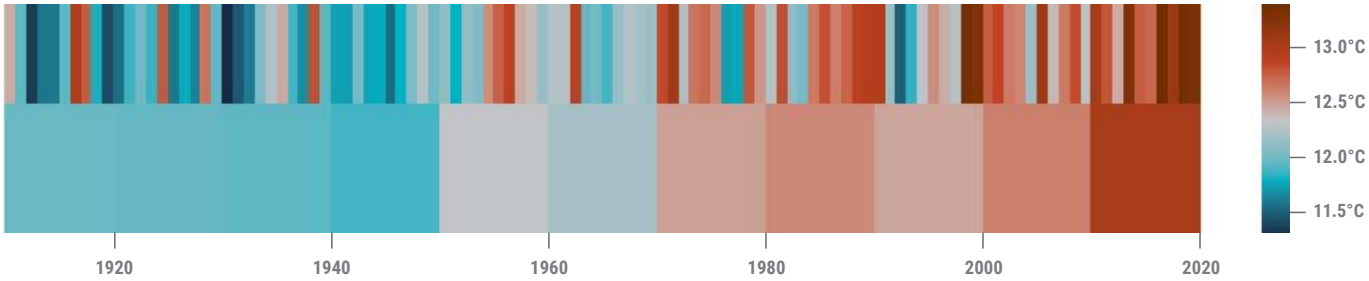


Figure 1: Annual and decadal average temperature in New Zealand between 1910 and 2019 (source: MfE and Stats NZ, 2020)
Note: Stripes on the top row show the annual average temperature for a year. Stripes on the bottom row show the average temperature by decade. 2010-19 was New Zealand's warmest decade on record.

The future of our climate

For New Zealand, climate scenario modelling shows a future that is generally warmer, with higher average temperatures. The number of warm days (greater than 25°C) are projected to increase, and along with it the risk of drought and wildfire in certain areas. Rainfall patterns will change, with extremes becoming more pronounced: wet areas will become wetter and dry areas drier (see Figure 2).

There are also likely to be more extreme daily and seasonal variations in both temperature and rainfall. Extreme rainfall events are projected to become common in areas, and will likely have broad impacts to the community through increased risk of flooding, slips, landslides and impacts to urban infrastructure (Pearce et al., 2019).

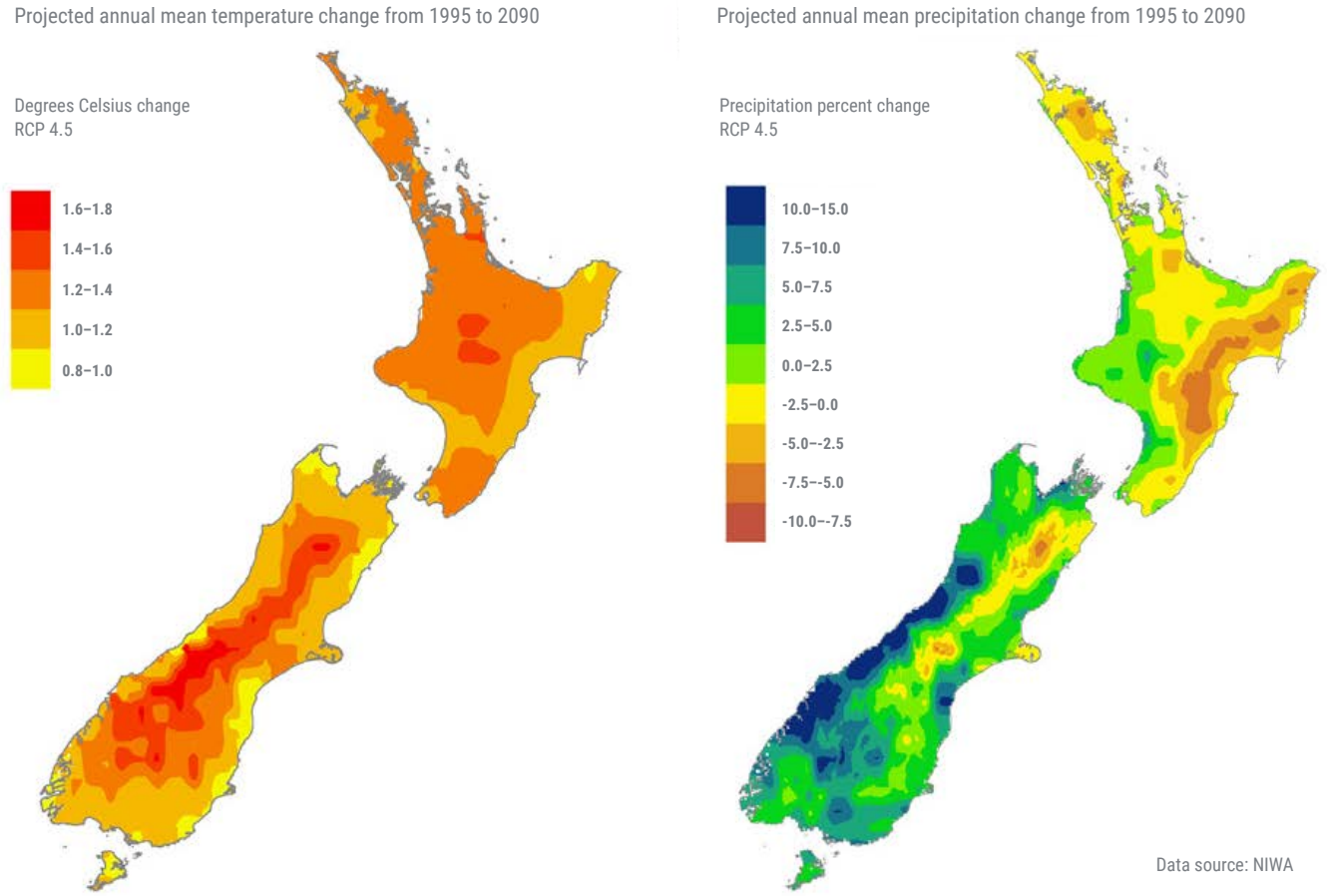


Figure 2: Temperature and precipitation climate change projections for New Zealand (source: MfE and Stats NZ, 2020).
Note: These projections are based on the IPCC Representative Concentration Pathway (RCP) 4.5 emissions scenario. This is an intermediate global scenario, considered to be most probable.

Impacts of climate change

The increasing number and intensity of extreme weather events are a significant challenge for the emergency services sector.

Governments, businesses, and communities have experienced major costs associated with extreme weather, droughts and sea-level rise. Around the world, more frequent extreme weather events are exposing vulnerabilities by causing major impacts to homes, people and the environment. Extreme heat has led to excess deaths and increased rates of many illnesses. Rising sea levels combined with high tides and storm surges have caused more flooding in low-lying coastlines and estuaries. Locally, this has impacted cultural sites, traditions and lifestyles of tangata whenua Māori. Droughts have caused financial and emotional stress for farmers and rural communities, and poor ski seasons and receding glaciers have impacted tourism (IPCC, 2022).

As we experience more extreme weather, the resilience of New Zealand communities to respond and recover will be tested. The demand for our emergency services is expected to increase as we respond to more and more climate related incidents. Preparing for the impacts of climate change is an urgent challenge for us.

Ngā pānga o te huringa āhuarangi
Impacts of climate change

Data shows that Aotearoa's environment is changing due to the impacts of climate change, and it is expected to continue to change into the future.

Our response to climate change

We are exploring ways of reducing our greenhouse gas emissions, and are committed to reducing the impacts of climate change on our operations.

The Government has established ambitious national emissions reduction goals, and has taken steps to support the global transition to a low-emission economy. We support those objectives, and have developed a good understanding of our carbon footprint.

Annually from December 2023, Fire and Emergency and other Crown entities will submit an Emissions Inventory and Emissions Reduction Plan[1] to the Government in line with the requirements under the CNGP.

We are actively working to embed climate change considerations into our day-to-day work and decision-making frameworks. Our response (see Chapters 2 and 3) was developed under Fire and Emergency's sustainability principles. These align with the Australasian Fire Authorities Council's (AFAC's) guiding principles, which were developed to guide sector responses to anticipated environmental, transitional and legal risks related to climate change.

Fire and Emergency's sustainability principles

Environmental protection
It is our responsibility to protect the environment.

Culturally inclusive
We recognise Māori as tangata whenua and their deep cultural and traditional relationship with Papatūānuku (Earth mother) by striving to develop culturally sound practices.

Balanced approach
We will balance operational, financial, environmental and safety requirements.

Collaboration and partnerships
We will collaborate with other agencies, our emergency services partners and the community to promote sustainable behaviours.

Build on best practice
We will base our decisions on international best practice and industry standards.

AFAC climate change response principles[2]

Informed and risk-based decision making – Our response regards the best available evidence, allowing for flexibility and adjustments to plan and resource current and future climate scenarios. We support and contribute to climate change research and improve access to data and information.

Sustainability – We work toward improving energy efficiency and seeking low emissions alternatives across the supply chain, buildings, fleet, and equipment, while maintaining high reliability and continuity of services. We will seek innovative procurement opportunities, exceeding standards where possible.

Working in partnership – We collaborate across all levels of government and the community to transition and adapt to climate change.

Knowledge sharing – We ensure communities have access to the right information to support community resilience efforts, so they can prepare for, respond to, and recover from climate-related disasters.

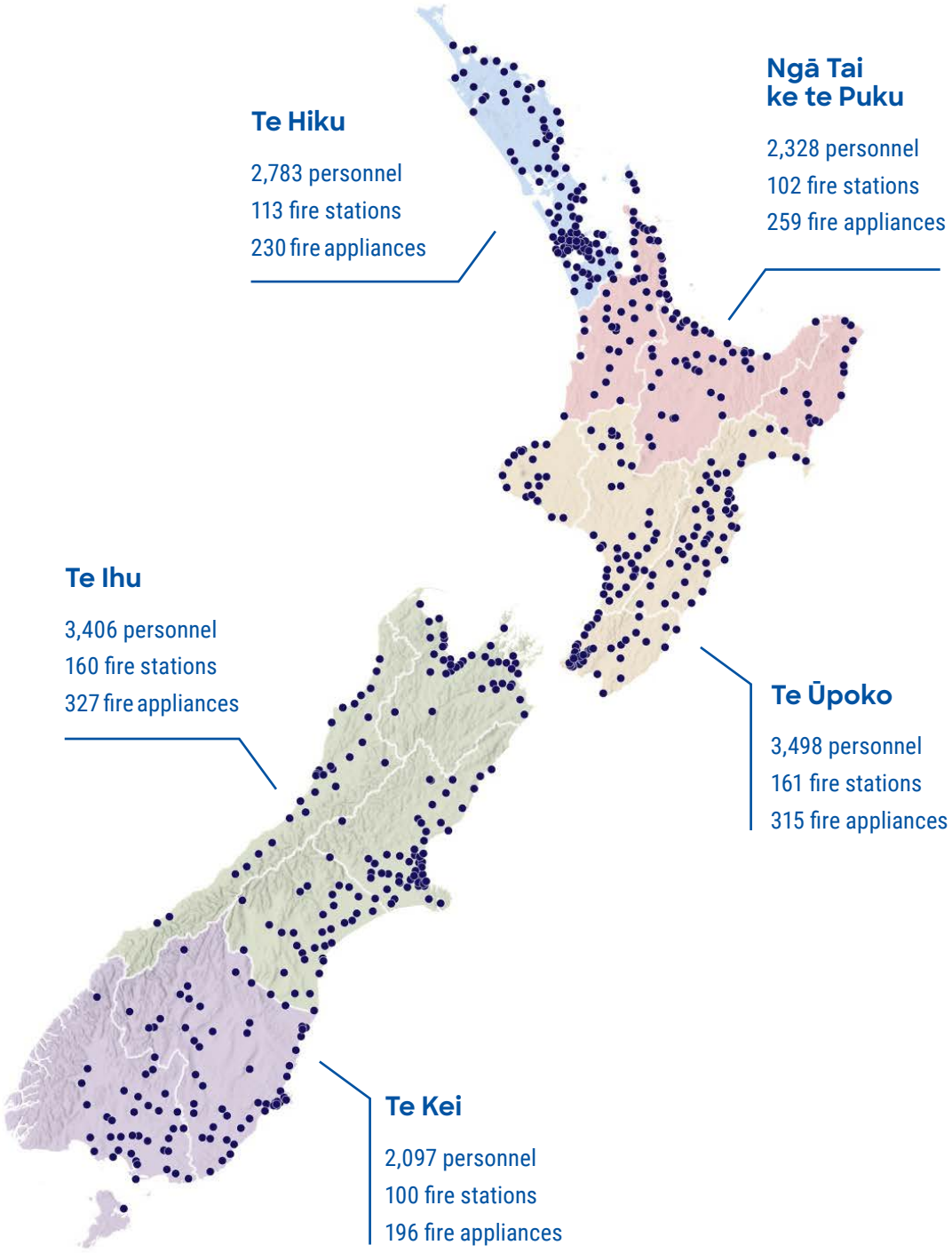
Inclusive diversity and equity – We consider our workforce in the short, medium and long-term in the face of climate change risk and anticipated impacts, adhering to principles of intra- and intergenerational equity.

Integrated approach and continuous improvement – Our response efforts are aligned, transparent and integrated through governance arrangements. Climate change is considered in all areas of strategy and planning by embedding best available projections into strategic and operational decision-making.

1 The Emissions Reduction Plan outlines what actions we are taking to support our response. It details; the range of initiatives we have implemented or planning to implement, their expected benefits and timelines for delivery.
2 AFAC Fire and Emergency Services and Climate Change (2018)

CHAPTER 1

Tō mātou tapuwae waro
Our carbon footprint



Te Hiku

2,783 personnel
113 fire stations
230 fire appliances

Ngā Tai ke te Puku

2,328 personnel
102 fire stations
259 fire appliances

Te Ihu

3,406 personnel
160 fire stations
327 fire appliances

Te Ūpoko

3,498 personnel
161 fire stations
315 fire appliances

Te Kei

2,097 personnel
100 fire stations
196 fire appliances

We have many moving parts

We are a national organisation and have a strong presence in every district throughout New Zealand. As of 30 June 2021, we have 638 station sites, almost 15,000 personnel (including volunteers and support staff), an asset base of $1.50 billion and an annual revenue of over $630 million.

These foundations help us to deliver our purpose under the Fire and Emergency New Zealand Act 2017: to protect and preserve lives, property and the environment.

Our emissions profile

We generate greenhouse gases when we burn fossil fuels to produce energy. This energy powers our fleet (fire appliances and light vehicles), enables us to travel and fight fires from the air, and keeps our facilities running.

Whether it's driving a vehicle or pumping water through a fire appliance, travelling by plane, or burning coal to heat a fire station, all the energy we consume (both directly and indirectly), contributes to our organisation's carbon footprint.

As Figure 3 shows, we generate most of our total emissions through the **diesel** we use to fuel our entire Red Fleet (fire appliances), and the vast majority of the White Fleet (light vehicles). We use our fleet to respond to incidents, so our vehicle emissions, including our aerial responders, are closely linked to the number of incidents we attend.

In 2018/19, **jet fuel** generated about a quarter of our total emissions. We consume it when we travel by plane (domestic and international), and when we use helicopters and fixed-wing aircraft to fight wildfires.

We have a large network of properties throughout the country, which are predominantly powered by **electricity** (generating 8.5 percent of our emissions). Electricity runs our Information, Communications and Technology (ICT) systems, heats our facilities, and keeps our lights on

Our **gas**[3] use generates 8.5 percent of our emissions. We use two types: 1) the reticulated natural gas supply at some North Island sites for water heating and cooking, as well as activities at the National Training Centre in Rotorua, and 2) liquified petroleum gas (LPG) for our live-fire training exercises. This means that our consumption is tied closely to our training programme, which we run throughout the year.

The **remainder** of our emissions (7.8 percent) comes from a range of sources. These include; refrigerant gases, methane produced from waste we send to landfill, energy demand from temporary accommodation, house fire training burns, water and wastewater-related emissions, and steam produced from a coal-fired boiler.

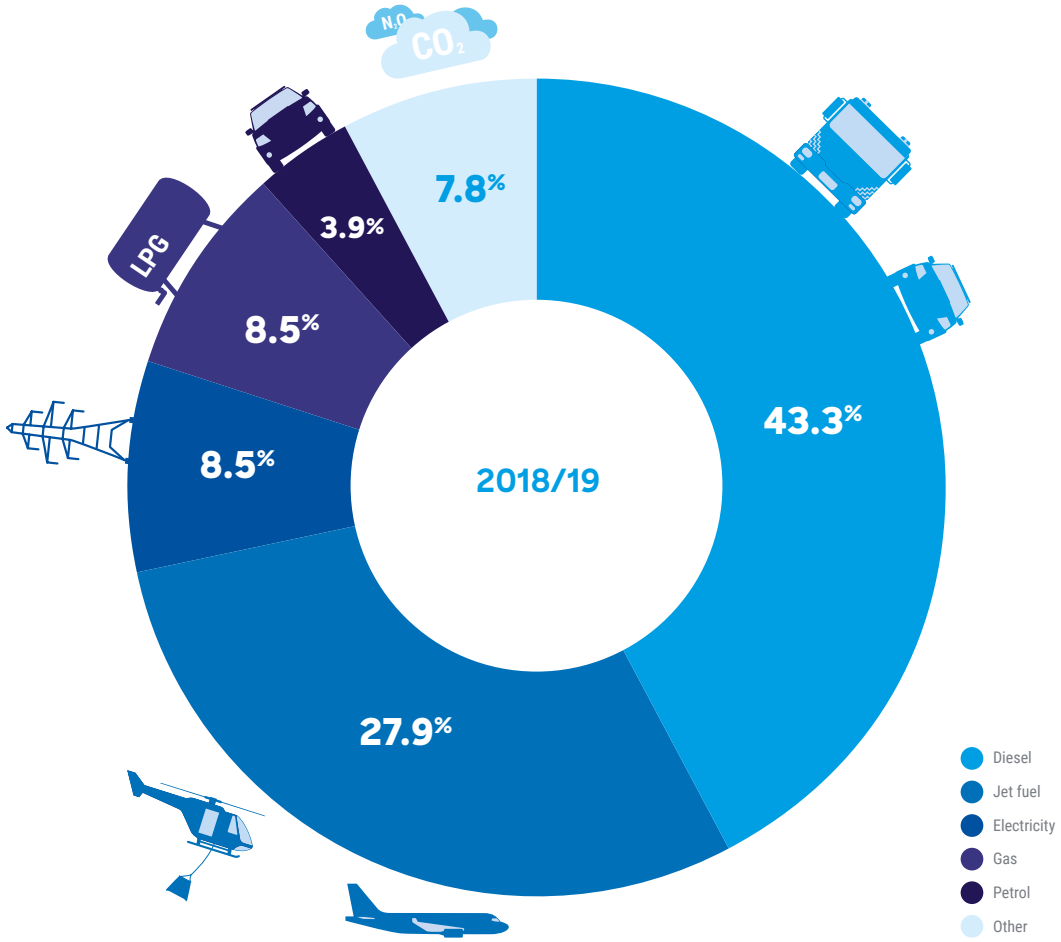
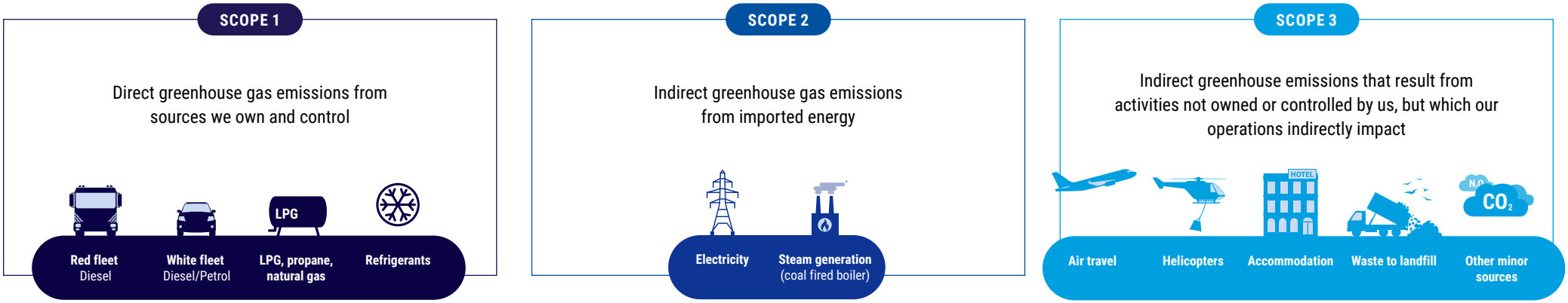


Figure 3: Fire and Emergency's total emissions by energy source (2018/19)

3 Comprised of natural gas (methane), compressed natural gas (CNG), propane and LPG.

How we report our emissions

We report our greenhouse gas emissions under three 'scopes' or categories.



How we measure our emissions

Our measurement and reporting methodology is aligned with the ISO greenhouse gases reporting standard[4] and the Greenhouse Gas Protocol, under the guidance of the Ministry for the Environment (MfE) National Inventory Guidelines. We apply emission factors published by MfE and international factors where local factors are unavailable.

We engage Toitū Envirocare to audit our emissions data, and certify us under the Toitū Carbonreduce Programme.

Our baseline

We need a robust understanding of our carbon footprint as a basis for setting credible reduction targets and measuring our performance.

The 2018/19 year is our baseline year, which we will measure our performance against in the future. This was the most recent year of 'business as usual' that was not impacted by COVID-19. The national lockdowns had a measurable effect on the number of incidents that occurred and influenced how we responded to them.

Our gross (or total) carbon emissions for our baseline year 2018/19 totalled 16,712 tonnes of carbon dioxide equivalent[5] (tCO_2e).

4 ISO 14061-1 Greenhouse gases – Part 1: Specification with guidance at the organisation level for quantification and reporting of greenhouse gas emissions and removals.

5 Carbon dioxide equivalent is a measure used to compare the emissions from various greenhouse gases based on their global warming potential.

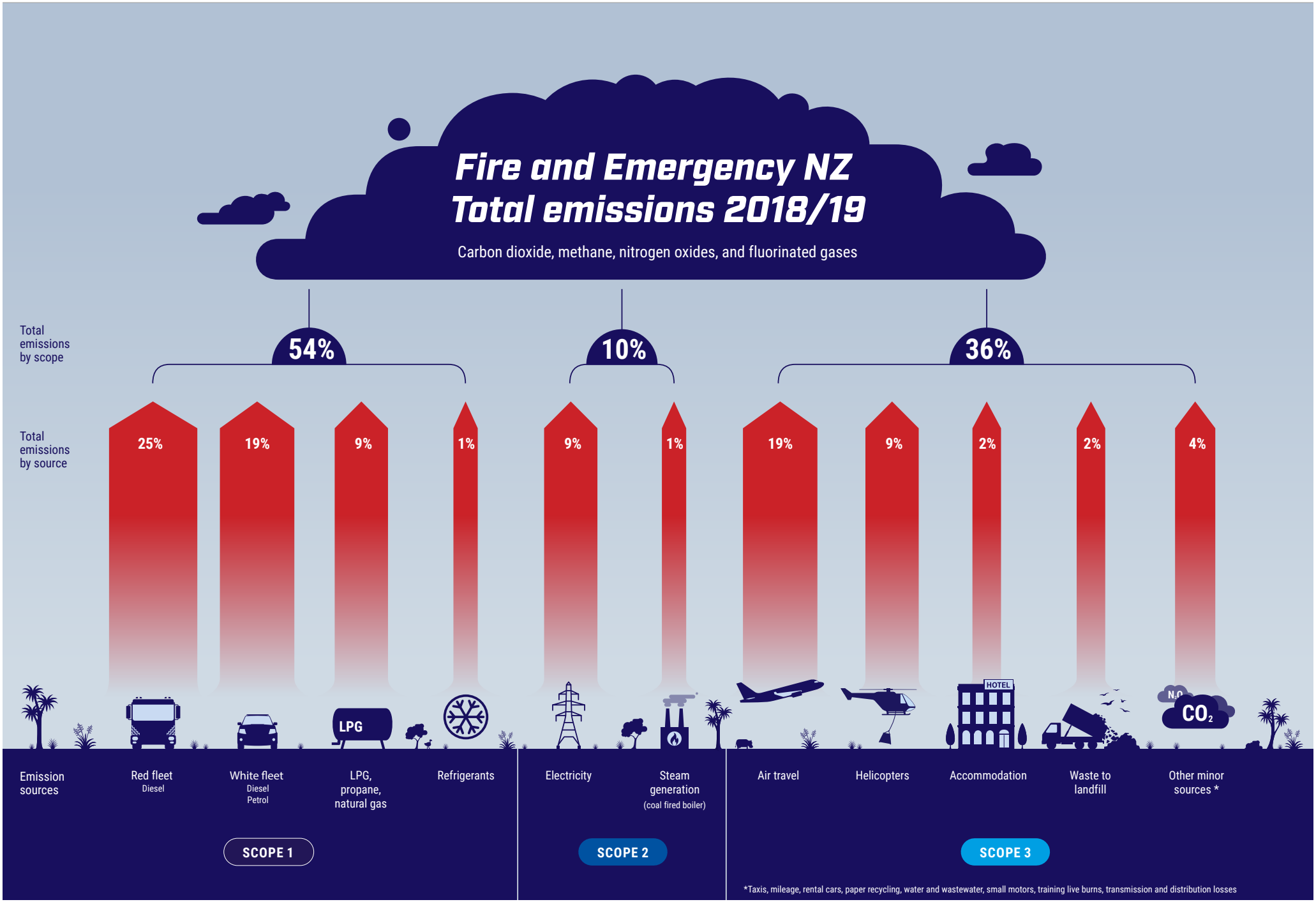


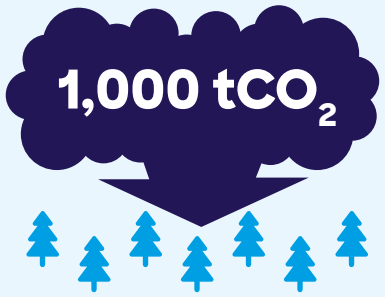
Figure 4: The relative proportion of our emissions sources (2018/19 baseline)

How we are tracking

Figure 5 breaks down our carbon footprint by scope between 2018/19 and 2020/21. Although we have seen changes in some individual sources, broadly, the relative proportion of scope 1 and 2 emissions have been comparable over the three years that have been assessed to date. Scope 1 emissions are our largest contributor, mostly through diesel consumption.

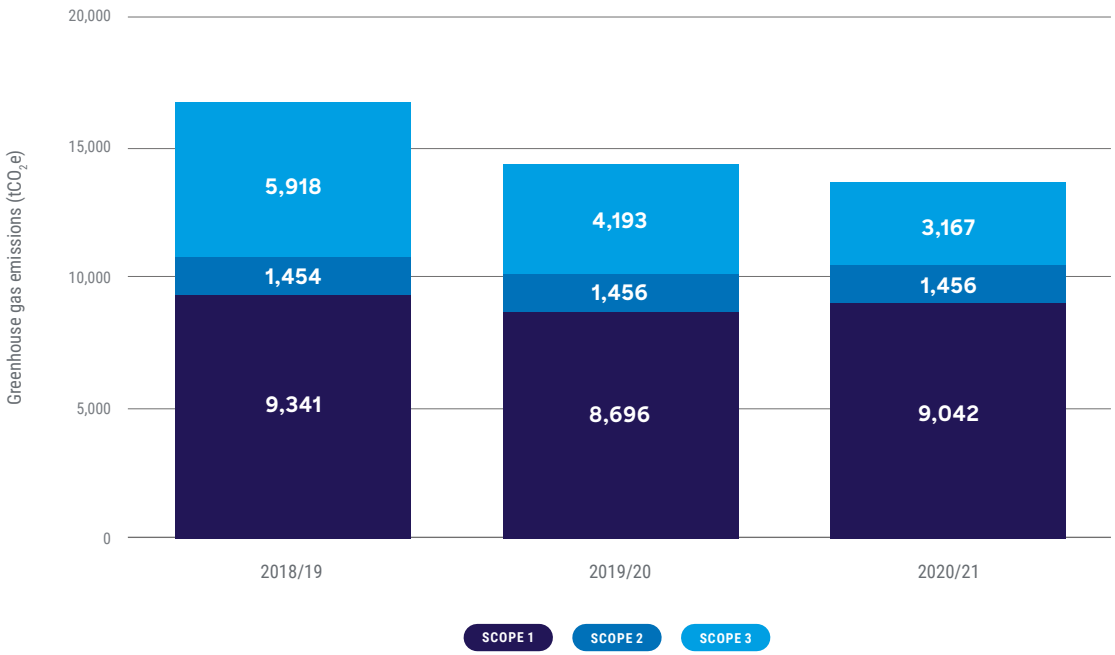
We have measured a decline of scope 3 emissions between 2018/19 and 2020/21, driven primarily through reduction in travel and aerial firefighting hours. In 2018/19, our aerial response function (helicopters and fixed-wing planes) and domestic and international air travel made up a significant proportion of our total emissions (27.9 percent in 2018/19). These emissions have decreased in recent years (21.8 and 15.7 percent for 2019/20 and 2020/21 respectively). For domestic and international travel, this reduction was partly due to COVID-19 restrictions. However, we have greatly reduced our travel emissions by implementing focused reduction initiatives: establishing a centralised travel management function, and a specialist aerial response unit.

In New Zealand **1 hectare (100m x 100m) of pine forest** absorbs approximately



over its **first 40 years** of growth

Figure 5: Fire and Emergency's total emissions by scope over 2018/19 (baseline), 2019/2020 and 2020/21.



Our emissions can be variable

Our emissions are affected by the number of incidents we attend and by seasonal changes. This means that our total annual emissions will vary from year to year.

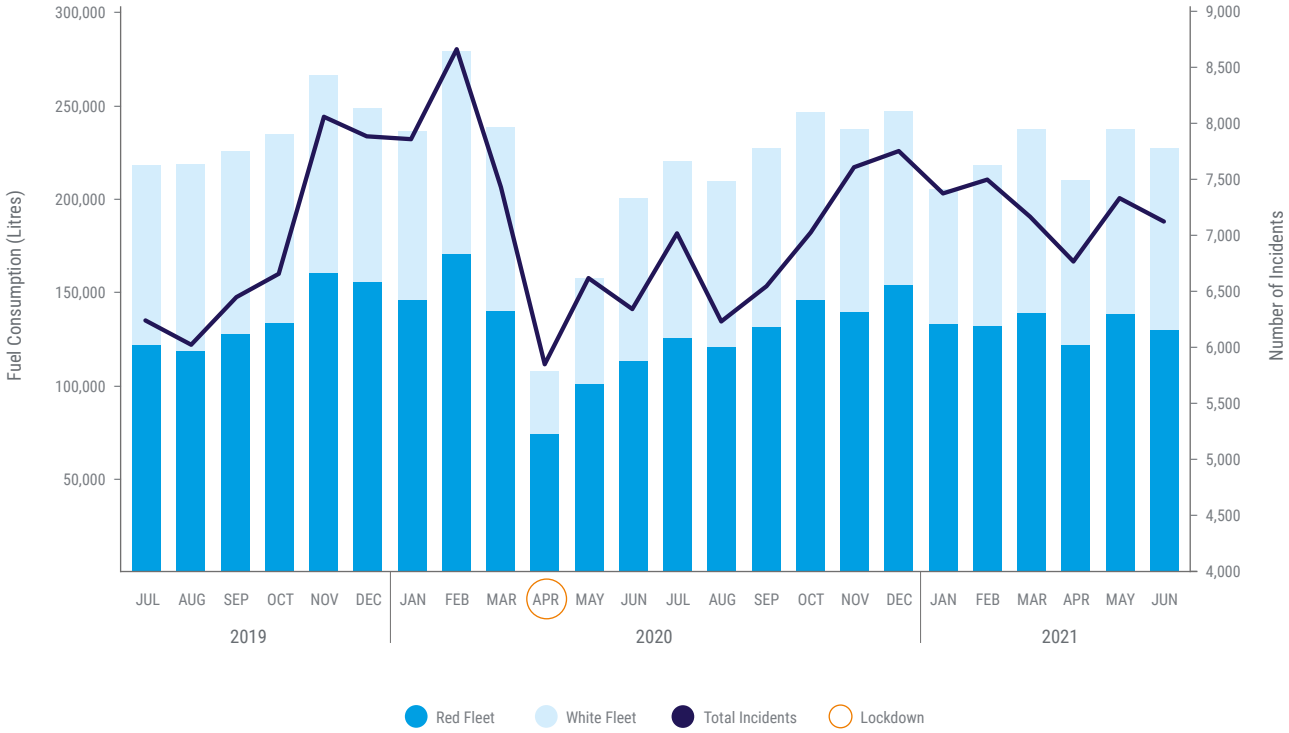
Responding to incidents

When the COVID-19 national lockdown began in March 2020, the number of emergency incidents declined while people were staying at home. The drop in fuel consumption recorded over this period can be partially attributed to this, as low numbers of vehicles on the roads at that time resulted in fewer incidents of certain types (e.g. road crashes). As a result, total fuel consumption across our fleet dropped by approximately half in April 2020 (see Figure 6).

Climate change means we may see an increase in certain types of incidents in the future (such as vegetation fires, or flooding) which could affect our emissions profile through a higher demand for our services.

During the first COVID-19 national lockdown in March and April 2020, **our fuel consumption dropped by half** as total incidents declined while New Zealanders were at home.

Figure 6: Vehicle fuel consumption (Red and White Fleet) and incident counts between July 2019 and June 2021.

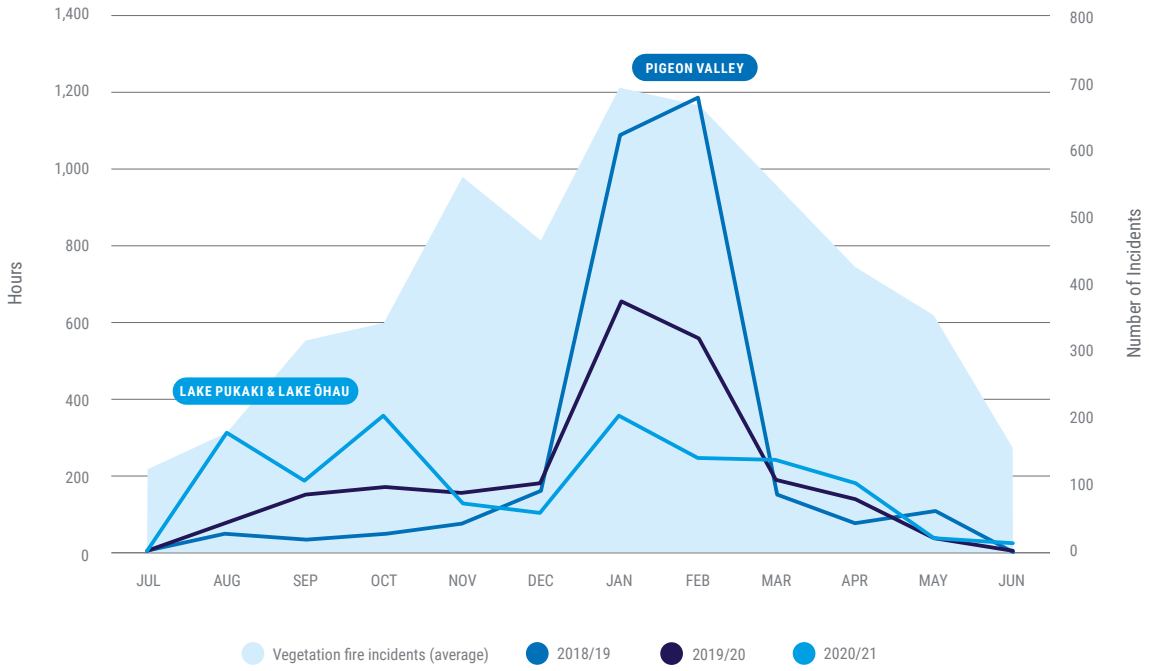


Seasonal change

Seasonal change influences the number and types of incidents we respond to. Wildfire risk is seasonal and the fires themselves can be highly unpredictable. We usually see a much higher risk of wildfires in hot, dry months (late summer and autumn) as warmer air temperatures drive the risk of fires in vulnerable areas (Pearce et al., 2003). We use helicopters and fixed-wing aircraft to fight wildfires from the air, and we traditionally see an increase in their use (and associated increase in emissions) during the warmer months. However, local weather and conditions can cause fires even at unexpected times of the year.

The Lake Pukaki and Lake Ōhau fires occurred in August and October 2020, after several days of unusually dry weather for the former, and due to extremely high winds for the latter. Although the Lake Pukaki fire occurred before the typical fire season (October to April), the area can still experience very dry conditions through the cooler months. With climate change, we can expect unseasonal or severe wildfires to become more commonplace (Pearce et al., 2011), and challenge our response capacity at different times of the year.

Figure 7: Aerial services hours between July 2018 and June 2021. Significant wildfires noted (Pigeon Valley in 2019, Lake Pukaki and Lake Ōhau in 2020).



Note: The light blue area shows the total number of vegetation fire incidents as an average across the three years.

CHAPTER 2

Te whakaheke i ā mātou puhanga

How we will reduce our emissions

New Zealand has made commitments to international emissions targets under the 2015 Paris Agreement and domestic targets under the Climate Change Response Act 2002.

National targets

Under the Paris Agreement, New Zealand has set a Nationally Determined Contribution (NDC1) headline target of a 50 percent reduction of net emissions below our gross 2005 level by 2030, which will be managed by a multi-year emissions budget.

New Zealand's domestic climate objectives are issued under the Climate Change Response Act (Zero Carbon) Amendment Act 2019. They include:

- net zero emissions of all greenhouse gas emissions other than biogenic methane by 2050
- 24 to 47 percent reduction below 2017 levels of biogenic methane emissions by 2050, including 10 percent reduction below 2017 biogenic methane emissions by 2030.

We aim to reduce our emissions to support the national effort. Our transition will balance operational, financial and safety requirements to ensure our ability to support our communities is not compromised.

Our reduction plan

Our emissions reduction targets are defined in our annual submission to the Government, which includes our audited annual Emissions Inventory and the organisation's Emissions Reduction Plan. We will submit this by December 2023, in line with the required time frame set by Te Kawa Mataaho Public Service Commission.

How we change depends on a range of factors, and in many areas, we will implement change gradually. We will ensure that we operate at the point of balance between our operational requirements, finance, health and safety, and environmental sustainability.

To change, we will need to:

- understand more about our emissions through improved data collection and reporting
- adopt low-emission technology as it matures to replace traditional emission sources
- align our procurement processes to ensure we consider sustainability across our supply chain, and identify areas where we can do things differently to reduce our emissions, without compromising our ability to serve our communities
- partner with others to solve our critical challenges, and advance our reduction efforts quickly and efficiently
- embed sustainability criteria into our decision-making processes.

New initiatives that support our reduction efforts will be subject to a business planning process and a clear fiscal case. They will be prioritised by the appropriate management and governance group according to the immediate and strategic needs of the organisation.

Focus areas to reduce emissions

Diesel consumption

We depend on a range of functional vehicle types to transport our people and equipment to where we are needed and to keep our communities safe. Our combined fleet accounted for approximately 45.1 percent of our total emissions for 2018/19, and is a key focus area for emissions reduction.

White Fleet

As of July 2022, Fire and Emergency had 961 vehicles (< 3500 kg) in our White Fleet, made up of a range of hatchbacks, SUVs, station wagons, utility vehicles and vans.

We have begun the transition from fuel combustion to battery electric (BEV) and plug-in hybrid electric vehicles (PHEV). As of July 2022, we have a total of 30 electric vehicles (EVs)[6] in operation in our White Fleet. We will transition our White Fleet to low-emission vehicles where there are no operational constraints in doing so. At the time of writing, many vehicles we use in our day-to-day operations have no viable EV alternative available, but we see the change is coming. We will continue to work closely with our suppliers to position ourselves to acquire low-emission vehicles as they become available.

When implementing our transition to EVs, we will ensure that any new low-emission vehicles have the appropriate capability to meet the requirements of our work, and that we have the right infrastructure installed at our facilities to support EVs. We currently install EV charging stations at urban facilities where we have EVs. We will develop a programme to support the wider roll-out of charging stations across our property portfolio.

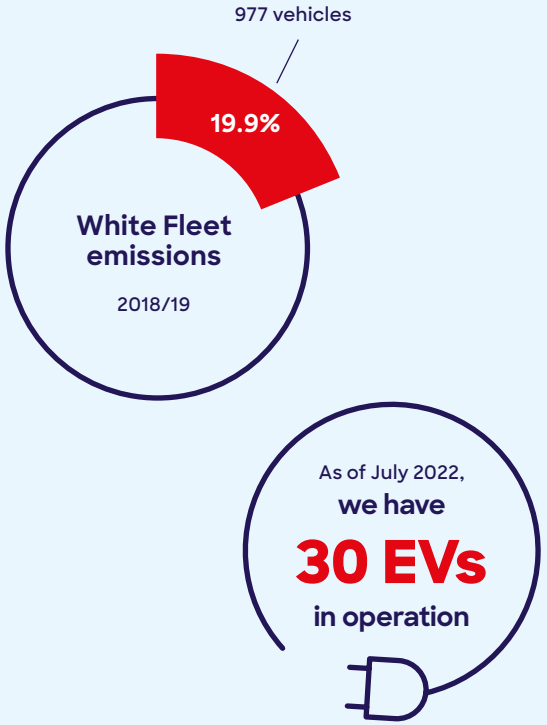
Optimisation

We will ensure our White Fleet is of optimal size and that we have the right vehicle in the right location to deliver our services effectively and efficiently.

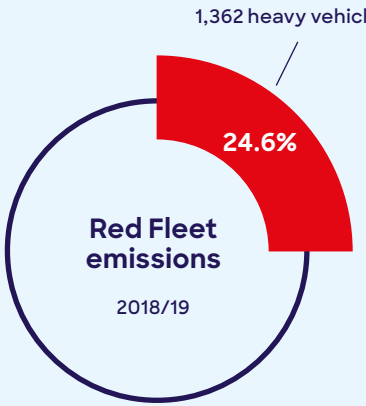
We are reviewing the White Fleet to identify ways to optimise our use of vehicles, improve cost efficiencies and reduce environmental impact. Our immediate priority is to understand the business and operational requirements of each user. This will help us make the best decisions on how to optimise this fleet in the future. Our key focus areas include:

- understanding our current state – composition, usage and cost drivers
- identifying the optimal number and capability of vehicles to support our operations and any gaps between current use and our operational requirements
- developing fleet intelligence to help us better understand vehicle usage, which will inform our decisions about optimal fleet composition.

This information-building phase is the foundation for implementing the White Fleet optimisation programme. Initiatives or interventions identified as 'easy wins' to reduce emissions will be run in parallel to this phase. It is likely that we will need to change our motor vehicle policy and associated processes to support the implementation of the optimisation programme.



6 BEVs , PHEV's and hybrids are collectively referred to as EVs.



Domestic air travel made up

14.6%

of our total emissions

in 2018/19

We took

20,281

local flights

to support our ways of working

Centralising our travel management and adopting new ways of working

during the pandemic helped to realise a

43.6% reduction

in our domestic travel emissions

from 2018/19 to 2020/21 (over 1,300 tCO_2)

Red Fleet

As of July 2022, we have 1,372 heavy vehicles supporting our operations throughout the country.

Low-emissions options for heavy vehicles is an area of development. At the time of writing, there are few viable alternatives to meaningfully transition to low-emission technology in the Red Fleet. We recognise the importance of transitioning our heavy vehicles to low-emission alternatives, but as an emergency responder, we need to manage our transition in a way that does not compromise our ability to keep New Zealanders safe. As technology develops and global production rises to meet the demand for low-emission alternatives, we will position ourselves to adopt this technology as it emerges.

In the interim, we will investigate other ways of reducing our Red Fleet emissions that do not require direct replacement of our vehicles. We will explore how we respond to incidents, and use our fire appliances generally, with the aim of identifying efficiencies in the way we use our vehicles without compromising the effectiveness of our response.

We can see that an overall reduction in call-outs generated from unwanted alarm incidents would meaningfully reduce our vehicle use, and subsequently our emissions. In the coming years, we will focus on refining our operational procedures to ensure our responses are effective and efficient to reduce emissions in our Red Fleet.

Travel

Travel is a necessary part of the way we work. We travel to support one another during national emergencies, respond to international incidents, and attend training programmes at our dedicated training facilities. Within that, we use rental vehicles or taxis to connect us to our destination, and when we are away from home, we stay at local accommodation, sometimes for extended periods. All of this contributes to our carbon footprint.

Domestic air travel was one of our larger sources of emissions in 2018/19 (14.6 percent) and was identified as a key area to reduce emissions. We set up a pilot Travel Office to centralise our travel booking process and make it more streamlined. The success of this initiative led to a permanent Travel Office and demonstrates that changing a process can make a big impact on our carbon footprint. Process changes can be implemented quickly and will be important to support our near term emissions reduction targets.

We continue to review and revise our travel and accommodation policy and associated processes to support our emissions reduction effort. Our current focus is on:

- class selection on long-haul flights
- carpooling, hire vehicle booking request forms (e.g. booking low-emission options by default)
- promoting low-emission ride share services
- selecting sustainable accommodation suppliers as priority
- refining our travel approval process (domestic and international).

In support, we have recently implemented a number of ICT initiatives to enable our people to work and meet remotely. A rollout of improved video conferencing software, and installation of video conferencing hardware across our office spaces have provided more options to connect and have reduced the need to travel.

We have over

660 buildings

in our property portfolio

This portfolio (land and buildings) accounts for 75% by value of Fire and Emergency's physical assets

Electricity use at our buildings generated

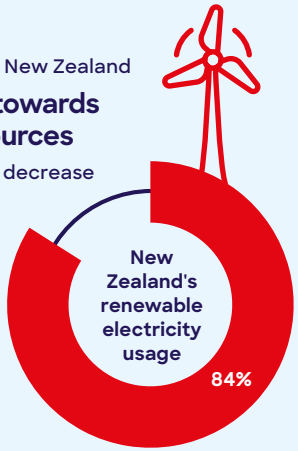
8.5%

of our emissions in 2018/19

As energy production in New Zealand

moves further towards renewable sources

— our emissions will decrease



Electricity use in existing buildings

We have a portfolio of over 660 properties comprising fire stations, depots, training facilities and standalone offices. Electricity use at our facilities accounts for 8.5 percent of our carbon footprint (2018/19).

Within each facility, there are some elements that account for a larger proportion of our electricity consumption. An energy management audit revealed that lighting (indoor and outdoor) accounted for over 50 percent of total electricity demand at surveyed locations. Other notable areas of demand included appliances (such as fridge/freezers, heaters) and ICT equipment. Each of these provide an opportunity for emissions reduction.

Maintaining an energy-efficient property portfolio is a key priority for Fire and Emergency. For existing buildings, we retrofit with energy efficient fixtures and appliances when repairs are required, or in line with our planned maintenance schedule. We have piloted solar panels on selected buildings to assess the potential of onsite electricity generation and are actively seeking more opportunities to adopt this technology where it makes sense to do so. We are also working closely with the Energy Efficiency and Conservation Authority (EECA) to remove our dependence on steam generation (coal-fired boiler) in Te Kei, and will explore options to move away from fossil fuel use (gas and diesel) in our existing buildings.

New buildings

We are committed to building sustainably. This means we incorporate environmental considerations into the design and landscape of our builds, the materials we use, and the energy use over the lifetime of the building.

Adhering to the Government's Construction procurement guidelines, we deliver our new builds through a building strategy and design guidelines[7] that incorporate elements of the Government's Building for Climate Change Programme. Appropriate thermal insulation, low carbon building materials, and optimised passive design to support natural lighting and heating are important features of our new builds.

We continue to evolve and develop our building design guidelines to support improved environmental performance. This includes considering appliance specification, such as the energy efficiency of heating installations, and the global warming potential (GWP) of gases used in our heat pump units.

For our larger office spaces (floor area > 2000 m^2), we are working to comply with the Government's directive to achieve a five-star rating (market leading performance) as measured by the National Australian Built Environment Rating System NZ (NABERSNZ) energy performance rating tool.

Through our commitment to building sustainably, we expect to achieve gradual energy efficiency gains within our property portfolio over time. However, while we transition our fleet to EVs and move away from fossil fuels in our buildings, our electricity demand is likely to increase. By offsetting this increased demand against delivering more energy efficient builds and ensuring energy performance is a key consideration in our choice of appliances, we aim to keep our electricity consumption stable.

7 Specified in Fire and Emergency's Property Handbook 2021–2024.

Training and development

In 2020/21, we delivered 3,569 training courses to 26,316 attendees across a range of areas and disciplines. This included career progression training (such as leadership development) and a broad range of specialist equipment courses (such as pump operations on fire appliances). These courses equip our people with the right capabilities and situational awareness for their role and are an essential platform to ensure we are an effective emergency services organisation.

Over 90 percent of our training is delivered in the Regions, enabling people to access training courses without needing to travel to a central location. While this reduces training-related travel, we see further opportunities to improve. A priority of our Training and Development Strategy (which sets the direction of improvements and changes to Fire and Emergency's training environment) is to explore how training is delivered so we can identify efficiencies (cost and emissions) without compromising the effectiveness of our programme. This includes:

- moving toward flexible modular design of our training material, bringing that material online. This will improve flexibility, reduce duplication and enhance the ability to respond to new areas of training and collaborate with external partners
- leveraging technology. Access to tools such as video conferencing and virtual or augmented reality creates opportunities for online learning, and delivery of simulated training modules to supplement our specialist training courses.

We expect these initiatives to decrease the amount of travel needed to deliver our training courses, and subsequently our domestic travel-related emissions.

We also recognise the value of collaboration, and will continue to work with AFAC and our international partners to ensure we are part of the conversation around innovative low-emission training opportunities.

Behaviour change

Our emissions output is heavily influenced by the way we work. It's important that we deliver clear information to our people to encourage and promote behaviour change that will support our emissions reduction targets.

We will develop appropriate education material for key areas of change, and work with our people to support the organisational shift. We will work to deliver a range of education modules throughout the Regions that highlight key areas for emissions reduction and lift awareness around the need for change.

Embedding climate change into our organisation – evaluation and reporting

This year, we have improved our understanding of our carbon footprint, and we seek to continuously improve our understanding of our emissions profile through a data improvements workstream.

To manage our emissions throughout the year, it is critical that we have the right information to support our decision making. We will establish a routine emissions reporting system that will give our decision makers visibility of our emissions for the month, cumulatively over the year, and projections against our reduction targets. This will increase our awareness of the emissions we produce and will be a key input into strategic decision-making.

Moving forward, we aim to embed carbon considerations into our governance and decision-making processes. While we develop and establish our emissions reporting mechanisms, we will assess existing decision-making processes and include sustainability-related considerations in our decision-making criteria.

CHAPTER 3

Te urutau ki te huringa o te āhuarangi

Adapting to a changing climate

To achieve our vision of 'stronger communities protecting what matters', we need an adaptive emergency services organisation. This means an organisation that is fully engaged with the risks and opportunities of a changing climate, building resilience together with the communities of New Zealand.

Adaptation in Fire and Emergency

For many years, the impact of a changing climate has been recognised as a key strategic risk for Fire and Emergency. The anticipated physical and transitional risks of climate change require us to examine all aspects of our operations – to protect and preserve lives, property and the environment.

Our operating environment is complex, with many partner organisations and diverse communities working with us to respond to emergencies and disasters. With long-term investment in our people, buildings, fleet and equipment, we must be vigilant in looking ahead and anticipating change.

With the right tools and approach, we can embed climate change considerations in our decision-making frameworks to reduce its impact and manage its risks to deliver on our strategic intentions.

The need to adapt

Despite efforts to limit the human causes of climate change, a level of change in our climate is unavoidable. The need to respond to climate change is clear, and deliberate purposeful action is needed at global, national and regional levels to adapt to the changes that are coming.

Focus areas

Organisational adaptation

Scenario planning – identifying the range of potential futures

The location of our facilities and positioning of key response units is an increasingly important tactical consideration for Service Delivery. We need to understand the range of potential impacts of climate change on our communities to prepare and position ourselves to respond effectively when we are needed.

The emergency management sector has traditionally relied on experience from past events to inform planning and operational strategies for future events. However, the uncertainty of climate change impacts means we need a different approach to planning for the future.

Projecting changes in climate, and their effect on people and the things we care about, is a significant focus for climate specialists worldwide. However, this work always has a (sometimes large) degree of uncertainty, as environmental, social and economic systems are complex and will be impacted differently across regions. Choosing one future state limits the ability to prepare for climate change effectively and appropriately.

Acknowledging this uncertainty and its impact on our operations, we are focused on developing dynamic scenario-planning tools to help us prepare for multiple future states. One such tool is the Wildfire Risk Assessment Model. This model is specifically designed to project wildfire risk, and is being developed to produce risk projections based on a range of global emissions scenarios. This important mahi contributes to the national understanding of wildfire risk, and directly supports the Government's response through the National Adaptation Plan.

The sea around Aotearoa is rising due to climate change. At the same time due to seismic activity, the land is going up in some places, and down in others. This means that in some areas (like in Wellington and the Wairarapa), the annual rate of sea level rise will be considerably higher.

Scenario planning is a practical way to explore a range of future states to learn, identify and challenge assumptions, and recognise hidden opportunities. We will work with our partners and utilise data and strategic foresight[8] to explore a range of potential impacts and what that could mean for our sector. We will utilise a range of climate-related projections (e.g. flood risk) to support our planning.

These outputs will provide District-level information on a range of impacts relevant to our position as emergency service managers. This will help us to prepare and plan for multiple future scenarios and serve as a basis for the 4Rs[9] conversations with our communities.

Building climate resilience

We will also be assessing the direct and indirect effects of climate change on our services to understand the specific risks for our organisation. This includes understanding the direct threat of sea-level rise and coastal inundation to our property portfolio. Some of our buildings are located in coastal areas, which may be impacted by rising sea levels. We will use modelling outputs to determine the immediate and longer-term risk level to our buildings, and use that information to support our planning.

Having our own climate change risk assessment is critical to inform our priorities for adaptation going forward.

8 Strategic foresight is a discipline for creating and interrogating functional views of alternative futures to enhance the robustness of strategy and plans. Through this process, organisations and communities can better prepare for potential impacts and capitalise on emerging opportunities.

9 Risk reduction, readiness, response and recovery.

Supporting research

We are working with partner agencies, specialist suppliers, and Crown Research Institutes to engage with and support research into the impacts of climate change in New Zealand. This research will help to increase our understanding of the risks to our communities, assets and response capability.

The need for research touches many areas within the organisation. Our National Research and Evaluation Strategy identifies the impacts of climate change as a key focus area moving forward. This strategic document will help us to prioritise investment in climate research and evaluation to ensure it supports both our strategic priorities and operational decision making.

Building our partnerships

We work closely with communities and partner agencies across New Zealand to plan for and respond to emergency situations.

We will develop and maintain strong relationships with our partners to provide more cohesive services, and where appropriate, to help them to deliver services on our behalf. This includes partnerships with the emergency sector, forestry, Department of Conservation (DoC) and the New Zealand Defence Force (NZDF). These partnerships are becoming increasingly important to lift the sectors collective understanding of the risks of climate change, and how to respond to them.

We will continue to focus on building strong and sustainable partnerships within the national response network. The Emergency Services Leadership Board (ESLB) and associated Emergency Services Operational Leadership Group (ESOLG) were established in 2020. These aim to make our communities even more resilient and increase our readiness to respond to significant incidents.

Representatives of the Emergency Services Operational Leadership Group

New Zealand Defence Force – Te Ope Kātua O Aotearoa

New Zealand Police – Ngā Pirihimana o Aotearoa

Ministry of Health – Manatū Hauora

Fire and Emergency New Zealand – Whakaratonga Ahi

St John – first to care

National Emergency Management Agency – Te Rākau Whakamarumaru

Wellington Free Ambulance – kia ora te tangata

Community adaptation

Working to prevent fires

Fires release significant quantities of carbon into the atmosphere. In most cases, these incidents are avoidable if people are aware of the risks, and the right prevention or mitigation mechanisms are in place. Our primary aim is to support communities to prevent unwanted fires, reduce their severity and mitigate their impacts across the country. We achieve this through a number of mechanisms. We seek to build awareness, promote positive behavioural change, and reduce fire risk within all New Zealand communities.

Building resilient communities is one of our strategic priorities. Through this, we seek to empower communities to identify local risks and needs so they are well prepared when emergencies happen.

Fire safety campaigns

We design and deliver a range of risk reduction and community readiness campaigns throughout the year, through a range of media.

Our wildfire prevention campaigns aim to raise awareness of the increased risk of wildfires, and support communities to take action to reduce the chances of starting a fire. Our partnerships with the MetService and TVNZ have ensured fire danger information is linked to daily televised and digital weather updates during the summer months. This has allowed us to deliver regular messaging to a very wide audience, and our survey results confirm that our messaging is getting through to the public.

As the impacts of climate change continue to play out, raising public awareness of the risks will be one of Fire and Emergency's important responsibilities. We will continue to ensure our communications campaigns provide the best information possible.

Targeted support for the community in high-risk areas

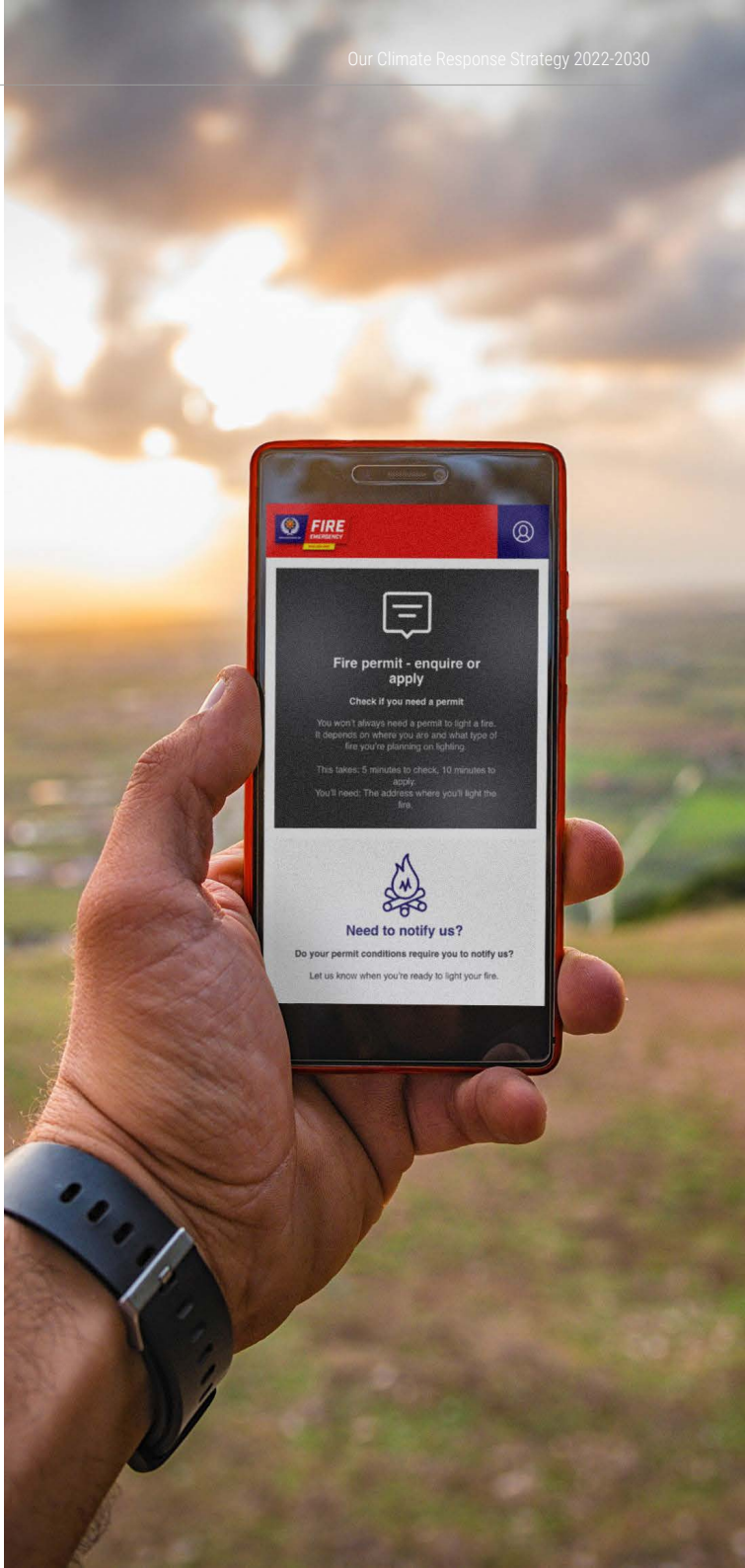
As the impacts of climate change intensify and the fire risk increases in areas of the country, people living in the highest risk areas need a strong understanding of fire prevention and the present and future risks. Properties located in the rural-urban interface (RUI) where houses and developments are adjacent to or intermixed with rural vegetation are recognised as being at particularly high risk for wildfires (Langer et al., 2021) and where many lifestyle block owners are largely unaware of the risks (Jakes et al., 2010).

The need for collective action at a community level in areas of high risk is important, as the actions and activities undertaken on a property level are critical in terms of whether fires can start and then spread to adjacent properties.

We expect the risk of wildfire to vulnerable communities will increase as the effects of climate change are felt and the RUI footprint expands. Improving wildfire awareness and preparedness among homeowners and communities is essential.

In addition to the work we do with communities under the 4Rs, we are exploring new ways to engage the public and work with local councils to increase awareness of the risks. In 2021, we piloted an online tool based on the Collective Action Model (CAM), which was used to assess how well a property and its owners were contributing to mitigating neighbourhood fire risk. The CAM was designed to encourage a dialogue between neighbours, improve awareness of wildfire risk, clarify the public responsibility to act on that awareness, and give property owners access to information on how to mitigate risk to themselves and their neighbours.

The pilot study was a success, and respondents recognised the benefit of the process and the awareness it provided. Fire and Emergency are currently collaborating with regional councils on the findings, working to improve the user experience, and will seek to utilise this community engagement tool in the near future.



Supporting Māori communities

Māori are tangata whenua of Aotearoa, and Fire and Emergency recognises that Māori are significant partners in fire prevention, and building community resilience.

Māori will always have a special relationship as kaitiaki (guardians) of the environment. For Māori, the people of a place are related to its mountains, land, rivers and coasts, and the systems of plants and animals that live within them through whakapapa (ancestral lineage and connection). The connection to the environment is both physical and spiritual, and integral to the survival and wellbeing of Māori.

Our changing climate is an unprecedented challenge to tangata whenua and is already impacting the ability of Ranginui (Sky Father) and Papatūānuku (Earth Mother) to provide the environment in which it needs to thrive and support us all. The impacts of climate change will intensify and vary throughout regions, which means iwi will be impacted differently across Aotearoa.

In response, some iwi have already developed climate adaptation strategies. This has helped those iwi to understand change through a local perspective, the risks and opportunities associated with that change, and how to adapt now and in the future. A long-term intergenerational perspective is a key principle for successful adaptation.

To support Māori with fire prevention, the Pou Takawaenga Māori (our Māori Liaison Team) are well established across our Regions, and are an important conduit for the work being developed under this strategy. As we take steps to increase our understanding of climate-related fire risks to our land and communities, we seek to ensure these risks are included in our ongoing kōrero with Māori communities when planning for the future.

E ahu atu ana tātou ki hea?
Where to from here?

We will publish our emissions inventory and reduction progress in line with the Government's expectations and be transparent about our goals and objectives.

We will set clear objectives through our performance expectations process and hold ourselves to account for our performance against targets set.

The Government's expectations

The CNGP was established to accelerate the reduction of emissions within the public sector. Under the requirements of the CNGP, all Crown agencies are to report emissions and publish reduction plans from the 2022/23 financial year. In line with this requirement, we will:

- measure and submit the organisation's verified annual greenhouse gas emissions to the CNGP Programme Lead (MfE) by December 2023, and every year thereafter
- establish and maintain gross emissions reduction targets and an emissions reduction plan (detailing projects or focus areas for emissions reduction). These will be submitted to the MfE by December 2023, and every year thereafter
- publicly disclose our organisational greenhouse gas emissions and reduction targets, and provide a commentary of progress against those targets in our Annual Reports from 2022/23 onwards
- offset remaining gross emissions from 2025 to achieve carbon neutrality.

Performance expectations

We measure our performance success against the annual Statement of Performance Expectations (SPE). This key accountability document sets out our strategic intentions and expected performance for the financial year, and provides the Government and the public visibility of our goals and objectives.

Our strategic intent is captured in our Statement of Intent 2020–2024, the 10-Year Plan 2020–2030, and Our National Strategy 2019–2045. These guide our work and outline what we plan to achieve over the short, medium and long term (i.e. the next 4, 10 and 25 years respectively).

This document, Our Climate Response Strategy 2022–2030, supports the organisation's strategic intent. We will incorporate our emissions reduction and adaptation objectives into the SPE to ensure we hold ourselves to account.

Moving forward

We have taken positive steps toward our sustainability objectives and recognise that there is more we need to do and understand to improve our environmental performance.

Extreme weather events are becoming more common and severe. The growing weight of scientific evidence around of the impacts of climate change highlight the urgency to act, and to act quickly. Being aware of these issues and taking responsibility at the organisational and individual level is important for us to support the decarbonisation effort and adapt to future changes. To be successful, all of us have a role to play.

Responding to climate change requires us to challenge the way we have always done things. Implementing new processes or adopting new technologies is sometimes uncomfortable, and for some of us that are used to operating in a certain way, the transition to a new way of working can be difficult.

At Fire and Emergency, we pride ourselves that 'We do the right thing – Kia tika'. Responding to climate change presents a genuine opportunity to assess the status quo, build our organisational and community resilience, and contribute meaningfully to reducing our environmental impact. Like any disruptive force, climate change creates an opportunity for those who are willing to adapt and innovate.

We have to be bold. We have to challenge the way we have always done things. This strategy shows that the green shoots of progress are emerging at Fire and Emergency New Zealand. We look forward to building on this progress, and actively supporting the national effort to respond and adapt to the impacts climate change.

Our Climate Response Strategy 2022–2030 will be updated in 2025.

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