

NEW ZEALAND
SEARCH AND RESCUE

Rapu Whakarauora Aotearoa

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Aotearoa New Zealand
Search and Rescue Sector
Carbon Emissions Report
1 July 2021 – 30 June 2022

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Executive summary

This carbon emissions report quantifies the greenhouse gas (GHG) emissions of the Aotearoa New Zealand search and rescue sector, and frontline water safety, for 1 July 2021 – 30 June 2022.

Results

The total emissions from the sector were 4,686 tonnes of carbon dioxide equivalent (tCO₂-e) for 1 July 2021 – 30 June 2022.

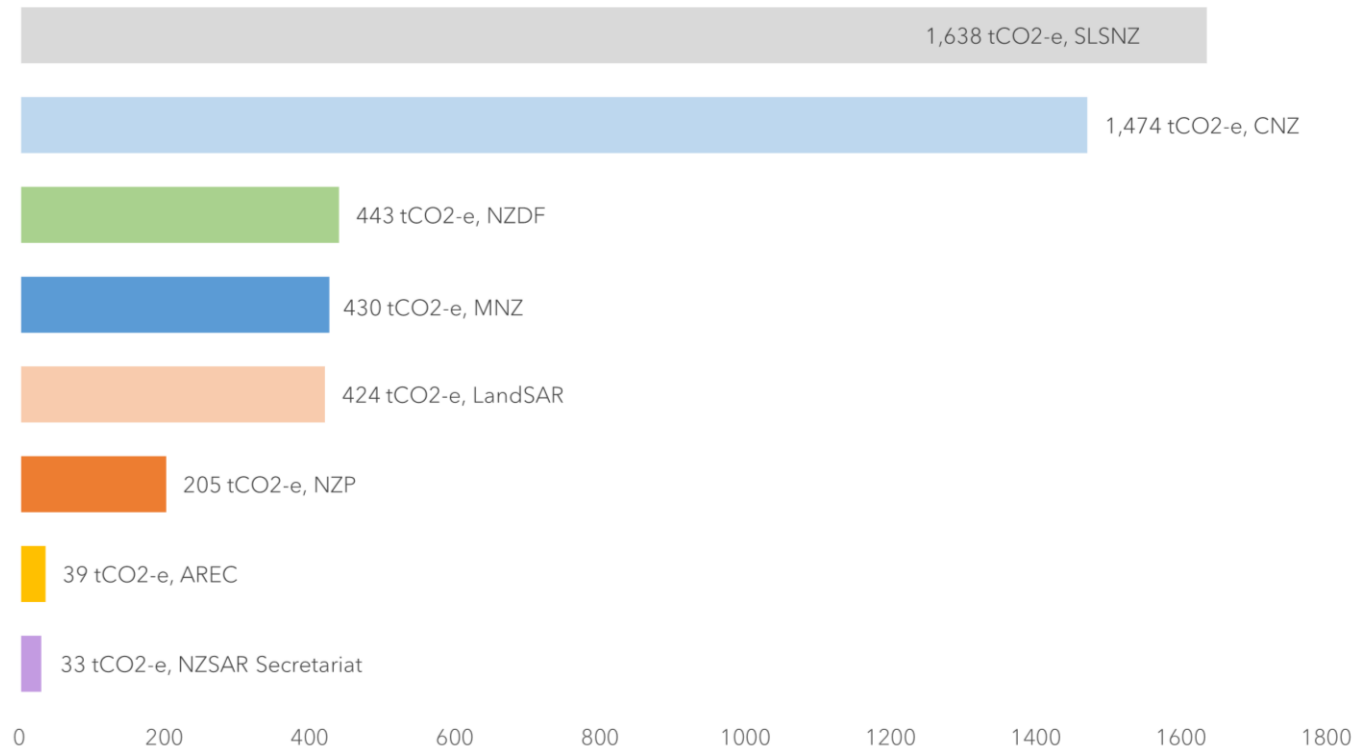


Figure 1: Aotearoa New Zealand search and rescue sector emissions by organisation (tCO₂-e)

Opportunities for reducing search and rescue sector carbon emissions

- Avoiding non-essential and low value travel with videoconferencing: by reducing overall travel, search and rescue (SAR) organisations could significantly cut their carbon emissions. This may also save time and money for both the organisation and volunteers.
- Utilise existing lower emissions fleet vehicles for non-SAR travel: such as lower emissions petrol or hybrid fleet vehicles instead of higher emissions diesel fleet vehicles for non-SAR travel.
- Plan to replace fleet vehicles with hybrid or battery electric vehicles: SAR organisations could plan to replace petrol and diesel fleet vehicles with hybrid or battery electric vehicles, once suitable vehicle options are viable.

1. Introduction

In 2021, the New Zealand Search and Rescue (NZSAR) Council agreed that the SAR sector would develop an assessment of its carbon footprint and identify possible options to reduce emissions. Frontline water safety services are also included in the assessment because it is difficult to separate frontline water safety services from search and rescue services.

Aotearoa New Zealand has committed to reduce greenhouse gas emissions by 50 percent below 2005 levels by 2030 as our Nationally Determined Contribution (NDC) to the Paris Agreement's goal of limiting the global average temperature increase to 1.5° Celsius above pre-industrial levels¹.

Additionally, our government has established a Carbon Neutral Government Programme (CNGP)² to accelerate the reduction of emissions within the public sector and transition to a low emissions economy alongside businesses and communities.

In 2022, the NZSAR Secretariat initiated a workstream to baseline the carbon emissions of the eight key organisations involved in search and rescue and frontline water safety services.

Three of these are government agencies which are already mandated to report and reduce their emissions in accordance with the targets set by the CNGP. The information in this report, however, does not add to, or double up on, the information that these organisations have provided to the CNGP.

Another is the 10-person NZSAR Secretariat which provides services to the NZSAR Council and undertakes actions to advance NZSAR Council goals, mitigate risks and support a cross-sector systems approach to SAR matters.

The remaining four organisations are volunteer-based Non-Governmental Organisations (NGOs). While they are not currently mandated to report or reduce their carbon emissions, they voluntarily chose to be involved. The workstream will support these NGOs to baseline their emissions and provide advice and strategies to assist them consider how to manage and reduce them.

Many SAR volunteers are increasingly concerned about sustainability issues. They expect their organisations to clearly demonstrate high levels of corporate responsibility and a close alignment to their personal values.

This workstream provides a sector view of these eight organisations' carbon emissions from 1 July 2021 to 30 June 2022. It will also create environmental strategies to help the SAR NGOs to manage and reduce these emissions within the context of our time and life-critical operational search and rescue environment.

¹<https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/nationally-determined-contribution/>

²<https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/carbon-neutral-government-programme/>

2. Search and rescue sector description

Aotearoa New Zealand's SAR region is one of the largest in the world, covering over 30 million square kilometres. Additionally, there are approximately 11,225 people in our search and rescue sector - including paid and volunteer professionals.



Figure 2: Map of the New Zealand Search and Rescue Region

The sector covers water, land, air, coordination, and support. Government agencies such as NZ Police Ngā Pirihimana Aotearoa, the New Zealand Defence Force Te Ope Kātua o Aotearoa, and Maritime New Zealand Nō te rere moana Aotearoa (including the Rescue Coordination Centre New Zealand) play an essential role in search and rescue alongside non-governmental organisations such as Coastguard New Zealand Tautiaki Moana Aotearoa, Surf Life Saving New Zealand, Land Search and Rescue New Zealand Rapa Taiwhenua and Amateur Radio Emergency Communications Ngā Irirangi Ohotata Tūao.

Also, the NZSAR Council (which is serviced by the NZSAR Secretariat) provides strategic support for the sector.

3. Background on climate change

Climate change refers to the long-term warming of the planet and changes in weather patterns. It is primarily caused by human activities, such as the burning of fossil fuels, which release certain gases (such as carbon dioxide, methane, and nitrous oxide) into the atmosphere. The increased concentration of these gases traps more heat from the sun in the atmosphere, creating a greenhouse effect which is warming the average temperature of our planet.

Deforestation and other land use changes also contribute to climate change by reducing the natural ability of the land to absorb carbon dioxide. Climate change has a wide range of impacts, including rising sea levels, more severe storms, droughts, and heatwaves, and can lead to disruptions in agriculture, water supplies, and human health.

The Intergovernmental Panel on Climate Change (IPCC) has developed several pathways to limit global warming to different levels. The most ambitious pathway is to limit warming to 1.5 degrees Celsius above pre-industrial levels, which is the target set by the Paris Agreement. This pathway would require rapid and deep reductions in greenhouse gas emissions, particularly carbon dioxide, as well as the use of negative emissions technologies to remove CO₂ from the atmosphere.

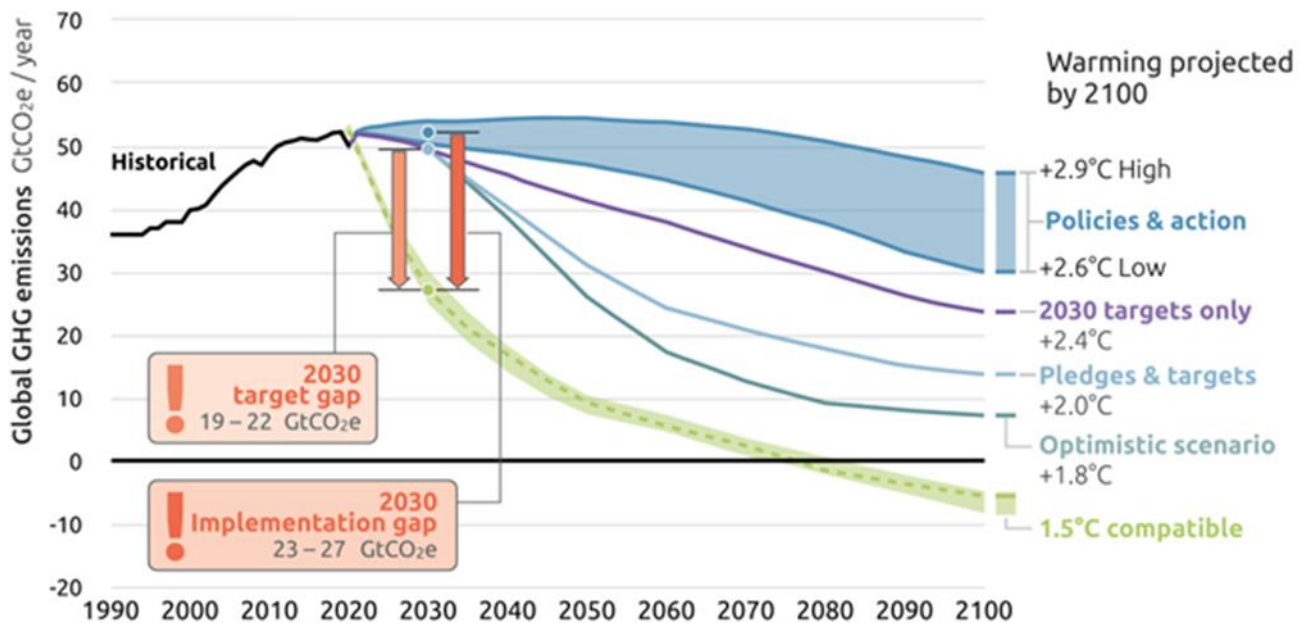


Figure 3: 2100 Warming projections, Climate Action Tracker 2022

Another pathway is to limit warming to 2 degrees Celsius, which is considered the threshold for dangerous and irreversible impacts of climate change. This pathway would also require significant emissions reductions, but not as steep as those required for the 1.5-degree pathway.

Pathways that result in warming higher than 2 degrees Celsius would lead to even greater and more severe impacts, including more widespread and intense heatwaves, sea-level rise, and disruptions to ecosystems and economies.

It's worth noting that the current global warming trajectory is heading towards a warming in the range of 2.6-2.9 degrees Celsius by the end of the century (as shown in Figure 2), which highlights the urgent need for immediate and ambitious action to reduce emissions and shift towards a low-carbon future.

Additionally, this shows the need to not only mitigate further warming increases but also adapt to a certain level of warming, currently at around 1 degree Celsius, which will be unavoidable due to historical GHG emissions in the atmosphere.

4. Climate change and search and rescue

Climate change is viewed as an amplifier or trigger for other risks, reducing predictability and potentially leading to a cascading series of impacts that could increase demand for search and rescue services. Rising temperatures and sea levels, and more frequent extreme weather events such as cyclones and floods, may increase the frequency of natural disasters and put more people at risk.

Because of these extreme weather events, search and rescue personnel and assets may be deployed to support responses to civil defence emergencies which involve specific skillsets, training needs, and operating environments.

In the northern part of the New Zealand Search and Rescue Region, we can expect increased callouts related to tropical cyclones if they increase in severity and frequency. Also, scientists are projecting higher storm surges³ as a result of tropical cyclones which will place coastal populations at increased risk.

³ <https://journals.ametsoc.org/view/journals/bams/101/3/bams-d-18-0194.1.xml>

Furthermore, the rapid retreat of glaciers and ice caps could make it more difficult for search and rescue teams to locate and reach people who are stranded or injured in remote areas (especially in the southern parts of the New Zealand Search and Rescue Region).

As the effects of climate change continue to impact us, it is likely that the search and rescue sector will need to adapt and become more agile to cope with evolving operating environments.

Increasing pressure to reduce the environmental impacts of tourism, as well as other activities, is also likely to challenge aviation operators in the tourism sector. For example, this may impact the availability of helicopters that can participate in search and rescue operations as helicopter operators come under pressure to reduce their carbon emissions.

In addition, rising fuel costs, and the drive to reduce carbon emissions nationally, are likely to lead to greatly increased costs for search and rescue organisations. Many SAR assets are located close to the foreshore – therefore rising sea levels and flooding may increase the risk of damage to these assets and the costs of maintaining them.

5. Sector summary

Aotearoa New Zealand's search and rescue sector is estimated to have emitted **4,686 tonnes of carbon dioxide equivalent (tCO₂-e) from 1 July 2021 to 30 June 2022.**

This total includes greenhouse gas (GHG) emissions related to SAR sector organisations (buildings and travel), search and rescue operations, training, and some volunteers' travel⁴. Despite these emissions, the search and rescue sector plays a crucial role in protecting the safety and well-being of New Zealanders and international visitors. It is therefore important to balance the environmental impact of the sector with the life-saving impact of the services it provides.

As most of the GHG emissions in the sector are from the burning, directly or indirectly, of fossil fuels, almost all the warming impact of these emissions come from carbon dioxide. Other greenhouse gas emissions have been converted to the standard unit of measure which is a carbon dioxide equivalent (CO₂-e). The impact of each different GHG is expressed in terms of the global warming potential (GWP) of one unit of carbon dioxide (CO₂). This measurement is usually expressed in tonnes (tCO₂-e).

Figures 1,4, 5, and 6 below show which organisations and activities have contributed to this total.

⁴ Only a small portion of volunteers submit reimbursement claims, so it is assumed that these emissions are being undercounted.

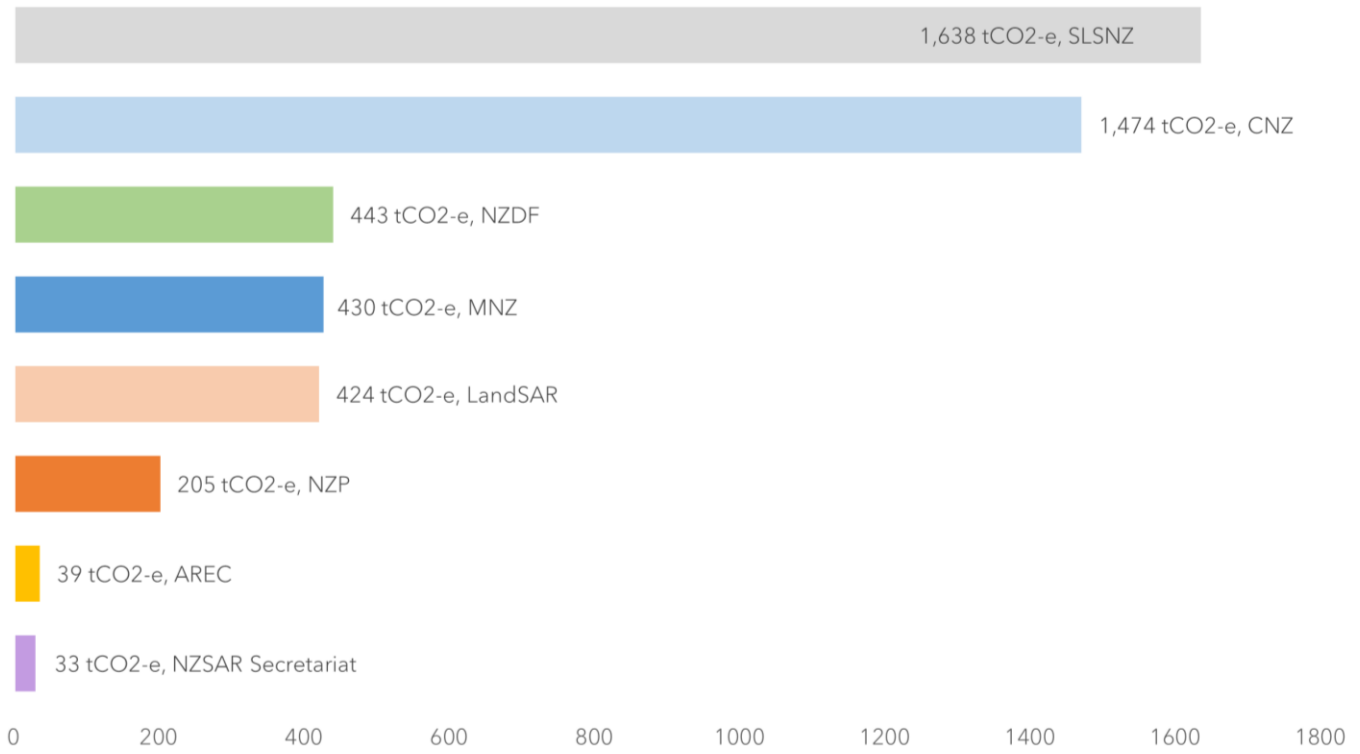


Figure 1: Aotearoa New Zealand search and rescue sector emissions by organisation (tCO₂-e)

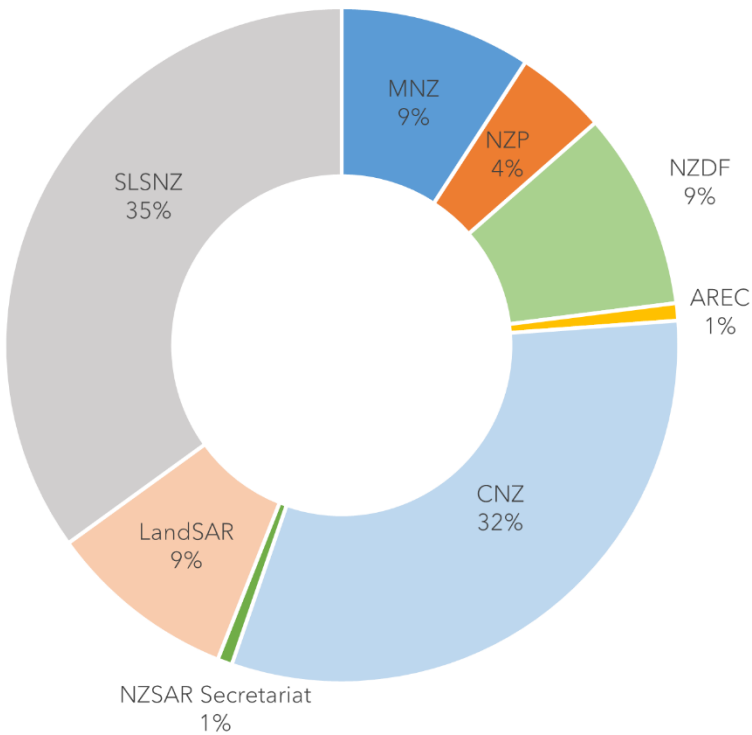


Figure 4: Aotearoa New Zealand search and rescue sector emissions by organisation (%)

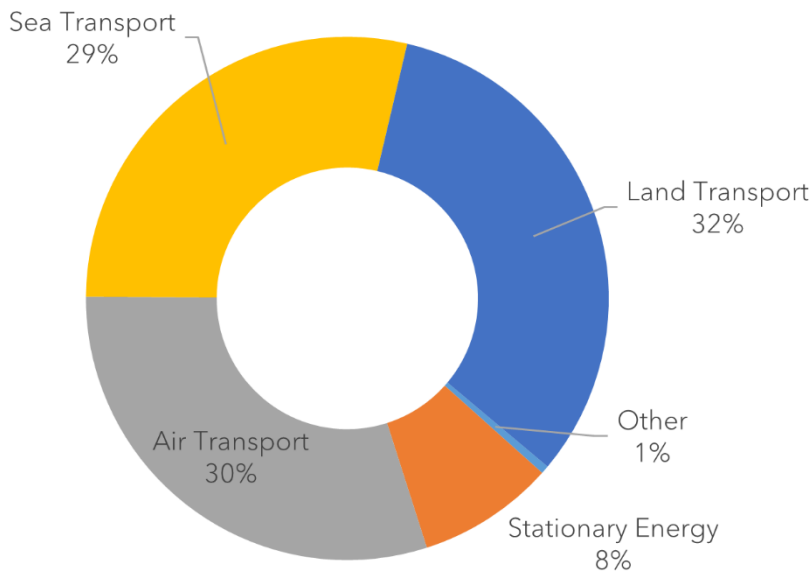


Figure 5: Aotearoa New Zealand search and rescue sector emissions by type (%)

In Aotearoa New Zealand’s search and rescue sector, land transport including cars, utes, trucks, and vans accounts for 32% of the sector’s total carbon emissions.

Air transport, including flights and helicopters, accounts for 30% of emissions. Sea transport, such as Coastguard Rescue Vessels (CRVs) and Inflatable Rescue Boats (IRBs), makes up 29% of these emissions.

Lastly, stationary energy sources like electricity and gas contribute 8% and other sources, such as waste, represent the remainder of carbon emissions in the sector (1%).

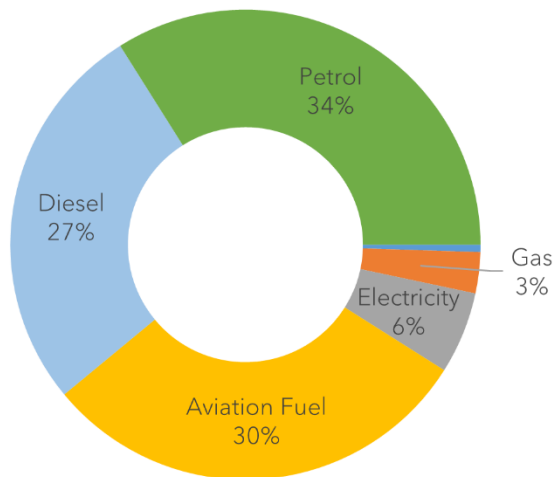


Figure 6: Aotearoa New Zealand’s search and rescue sector emissions by energy source (%)

In Aotearoa New Zealand’s search and rescue sector, most (61%) of the carbon emissions relate to the use of petrol and diesel fuels. Petrol used in cars and boats accounts for 34% of the sector’s emissions whereas diesel used in utes, cars, and boats accounts for 27% of emissions.

Aviation fuel used in helicopters and for fixed-wing aircraft accounts for 30% of emissions. Electricity used for powering buildings represents 6% of emissions and gas used for heating water and space represents 3%.

Putting these emissions in perspective

1 tonne of carbon dioxide equivalent (tCO₂-e) is roughly the amount of carbon dioxide absorbed annually by 40 pine trees or 58 native trees⁵.

Therefore the 4,686 tCO₂-e of emissions from Aotearoa New Zealand's search and rescue sector between 1 July 2021 and 30 June 2022 would be roughly equivalent to the amount of carbon dioxide absorbed by 190 hectares (190,000 trees) of pine forest or 540 hectares (270,000 trees) of native forest.

To put this in perspective, the average Kiwi household is responsible for releasing around 21 tonnes of carbon dioxide into the atmosphere. This is equivalent to the amount of carbon absorbed annually by about 840 pine trees or 1218 native trees⁶.

The average Kiwi drives around 13,000km per year - releasing 3.5 tonnes of carbon dioxide into the atmosphere. This is equivalent to the amount of carbon dioxide absorbed by about 140 pine trees or 203 native trees.

According to the Ministry for the Environment Manatū mō te Taiao, Aotearoa New Zealand's gross greenhouse gas emissions in 2020 were 78.8 million tonnes of carbon dioxide equivalent (Mt CO₂-e)⁷.

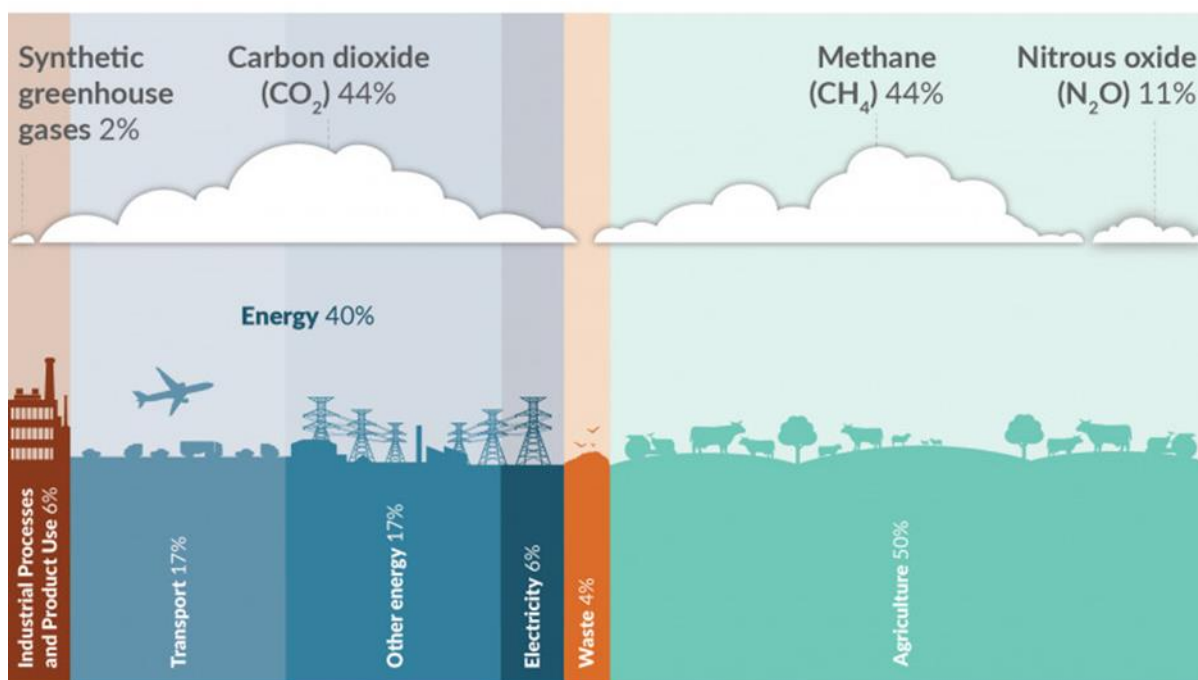


Figure 7: Breakdown of Aotearoa New Zealand's gross greenhouse gas emissions by sector and gas type in 2020, MfE 2022.

Comparisons with other organisations

Aotearoa New Zealand's search and rescue sector emits a relatively small amount of greenhouse gases compared to large corporate emitters such as Air New Zealand. The sector emitted an estimated **4,686 tCO₂-e** during the previous financial year, while Air New Zealand emits 430 times as much with a total of **1,822,957 tCO₂-e** during the same period⁸.

⁵ Over the trees' first 30 years of growth, assuming 1000 stems/hectare for pine and 500 stems/hectare for native forest. <https://legislation.govt.nz/regulation/public/2022/0266/latest/whole.html>

⁶ <https://www.stats.govt.nz/information-releases/greenhouse-gas-emissions-consumption-based-year-ended-2020-provisional/>

⁷ <https://environment.govt.nz/publications/new-zealands-greenhouse-gas-inventory-1990-2020-snapshot/>

⁸ https://p-airnz.com/cms/assets/PDFs/air-nz-2022-greenhouse-gas-inventory-report_FINAL.pdf

A more sector-specific comparison might be the National Emergency Management Agency Te Rākau Whakamarumarū which reported total carbon emissions of **277 tCO₂-e** from 1 July 2021 to 30 June 2022⁹.

These emissions are at a similar level to Land Search and Rescue Rapa Taiwhenua's emissions (**424 tCO₂-e**), or Maritime New Zealand Nō te rere moana Aotearoa's (**430 tCO₂-e**) SAR-related emissions.

Fire and Emergency New Zealand Whakarātonga Iwi emitted **14,866 tCO₂-e** from 1 July 2021 to 30 June 2022¹⁰.

5.1 Data collection

As part of this project, individual carbon emissions reports were produced for each of the four SAR NGOs included in this report. These reports provide a baseline estimate of these organisations' carbon emissions. Note that only the emissions sources where data was available, or able to be estimated to a reasonable degree of accuracy, were included in these baseline estimates. The latest Ministry for the Environment Manatū mō te Taiao's emissions factors (2022) were used to produce these estimates.

The other government organisations (which are mandated to report on their carbon emissions) provided information about their SAR-related carbon emissions.

The information about the NZSAR Secretariat's carbon emissions was provided by Te Manatū Waka Ministry of Transport, which hosts the Secretariat.

5.2 Next steps

For the four SAR NGOs, this project was the first time that carbon emissions data has been collected – and only the emissions sources where data was available or able to be estimated were included. Some of these organisations are now improving their data collection processes to capture more accurate activity data (e.g. litres of fuel) rather than proxy data (e.g. dollars spent on fuel) and therefore gain a better future coverage of all their emissions sources.

This project will also guide the development of environmental strategies to help the SAR NGOs to manage and reduce these emissions within the context of our time and life-critical operational search and rescue environment.

5.3 Opportunities for reducing SAR sector carbon emissions

Search and rescue operations involving the consumption of fossil fuels such as petrol, diesel and aviation fuel need to continue to save lives. However, there are some opportunities across the sector to reduce non-SAR travel, building energy use, and in some cases the fuels consumed to carry out SAR operations.

⁹ <https://dpmc.govt.nz/sites/default/files/2022-10/dpmc-annual-report-2022.pdf>

¹⁰ https://www.fireandemergency.nz/assets/Documents/FENZ_Annual_Report_2022.pdf

Avoiding non-essential and low value travel with videoconferencing

One carbon emissions reduction opportunity is to avoid non-essential and low value travel through increased use of videoconferencing. It is now easier than ever to conduct meetings, presentations, and training remotely and since the COVID-19 lockdowns people are generally more comfortable using videoconferencing to connect.

By reducing overall travel, SAR organisations could significantly cut their carbon emissions. Additionally, videoconferencing might also save time and money for both the organisations and volunteers.

It is worth noting however that, across the SAR sector, travel to enable face-to-face connection is important to build collaboration between the SAR sector organisations. Regular hands-on training and simulated exercises are vital to maintain competent and prepared SAR personnel who are ready to work together under pressure.

Utilise existing lower emissions fleet vehicles for non-SAR travel

Another carbon emissions reduction opportunity is to utilise existing lower emissions petrol or hybrid fleet vehicles instead of higher emissions diesel fleet vehicles for non-SAR travel. Diesel vehicles typically emit higher levels of carbon dioxide and other pollutants compared to petrol or hybrid fleet vehicles.

By switching to lower emissions vehicles for non-essential travel, SAR sector organisations could significantly reduce their carbon footprint and contribute to the fight against climate change. Additionally, using lower emissions vehicles may also lead to cost savings in terms of fuel, maintenance, and repair costs.

Plan to replace fleet vehicles with hybrid or battery electric vehicles

To reduce emissions in the future, SAR sector organisations could plan to replace petrol and diesel fleet vehicles with hybrid or battery electric vehicles, once suitable vehicle options are viable. Electric vehicles (EVs) and hybrid electric vehicles (HEVs) produce significantly lower emissions than traditional petrol or diesel vehicles, and as technology advances and costs continue to decline, they are becoming increasingly viable options for fleet vehicles.

Although the upfront cost of EVs and HEVs may be higher than petrol or diesel vehicles, their overall cost of ownership is often lower due to lower fuel, maintenance, and repair costs. Therefore, in the long run, EVs and HEVs can be more cost-effective than petrol or diesel vehicles.

Helicopter use in the SAR sector

Helicopter use makes up 10% or 490tCO₂-e of the total SAR sector's estimated carbon emissions. Helicopters are used in search and rescue operations and for training. Helicopters are especially hard to decarbonise as they require huge amounts of energy to fight against gravity, provided in the form of aviation fuel, which makes them relatively energy inefficient and heavy emitters of carbon dioxide.

However, when distress beacon activation is paired with the Rescue Coordination Centre New Zealand's tasking of helicopters - a search and rescue response can often become a straightforward rescue response. This can translate into efficient and effective search and rescue results and avoids wasting time (and carbon emissions) searching for people.

Increasing pressure to reduce the environmental impacts of tourism, as well as other activities, is also likely to challenge aviation operators in the tourism sector. For example, this may impact the availability of

helicopters that can participate in search and rescue operations as helicopter operators come under pressure to reduce their carbon emissions.

Co-funding opportunities for reduction opportunities

Although only government agencies have access to the state sector decarbonisation fund (SSDF)¹¹, there are co-funding decarbonisation opportunities available to the SAR NGOs through EECA (Energy Efficiency and Conservation Authority) and from some large companies, such as Meridian Energy.

EECA programmes such as the Low Emission Transport Fund and the Low Emission Vehicles Contestable Fund may be relevant to organisations with large transport emissions, such as CNZ and SLSNZ¹².

Additionally, Meridian Energy provides funding for community-based decarbonisation projects such as energy efficiency, purchasing electric vehicles and roof-top solar power through their Decarbonisation Community Fund¹³. Based on the funding criteria, all the SAR NGOs would be eligible to apply for this funding.

¹¹ <https://www.eeca.govt.nz/co-funding/public-sector-decarbonisation/>

¹² <https://www.eeca.govt.nz/co-funding/transport-emission-reduction/>

¹³ <https://www.meridianenergy.co.nz/community-support/decarbonisation>

6. Carbon emissions from search and rescue organisations

6.1 Amateur Radio Emergency Communications Ngā Iirangi Ohotata Tūao

Amateur Radio Emergency Communications Ngā Iirangi Ohotata Tūao (AREC) is the public service arm of the New Zealand Association of Radio Transmitters (NZART). AREC is a national volunteer, not-for-profit, registered charitable organisation providing radio and technology communications services all over Aotearoa New Zealand. AREC's objective is to support Search and Rescue (SAR), Civil Defence, and other emergency services by the provision of experienced radio communications personnel. AREC does not have any offices and its paid staff work from home.

AREC's total estimated carbon emissions for 1 July 2021 to 30 June 2022 were **39 tCO₂-e**. Figure 8 provides a breakdown of AREC's organisational activities related to these carbon emissions.

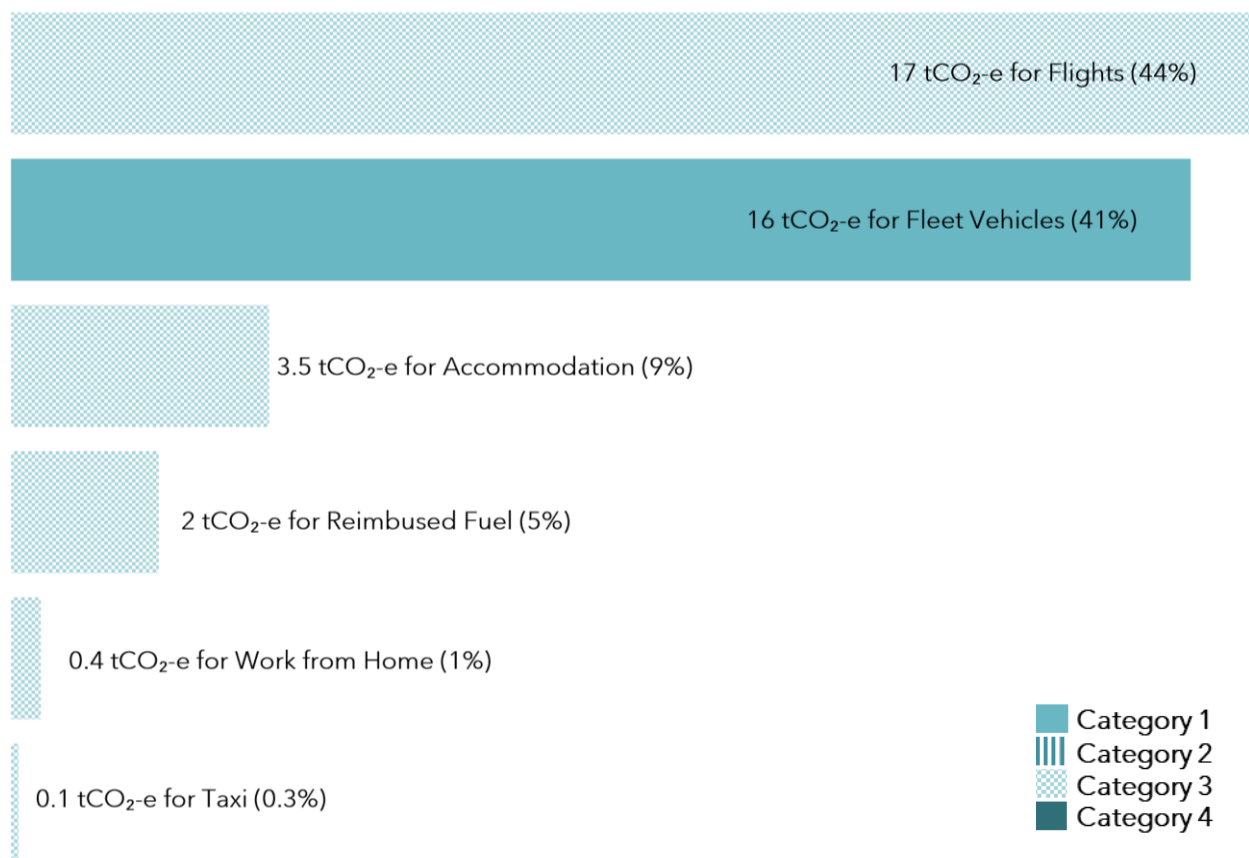


Figure 8: AREC's emissions by activity

AREC's main emissions relate to flights, fleet vehicles, and accommodation.

6.1.1 Opportunities for reducing carbon emissions

There are potential opportunities for reducing emissions related to the use of transport fuels by replacing non-essential and low-value business travel with video conferencing.

6.2 Coastguard New Zealand Tautiaki Moana Aotearoa

Coastguard New Zealand Tautiaki Moana Aotearoa (CNZ) is the primary civilian marine search and rescue organisation for Aotearoa New Zealand. There are four Coastguard regions (Northern, Eastern, Central, Southern), with 63 units between these regions. There are 59 wet unit crewing rescue vessels and providing services to local boaties, positioned around strategic locations around the coast and on major lakes and rivers, from Houhora to Bluff. Additionally, there are air patrol units in Auckland and Northland piloting search and rescue aircraft and dedicated communications units located in Auckland and Tauranga.

CNZ's total estimated carbon emissions for 1 July 2021 to 30 June 2022 were **1,474 tCO₂-e**. Figure 9 provides a breakdown of CNZ's organisational activities related to these carbon emissions.

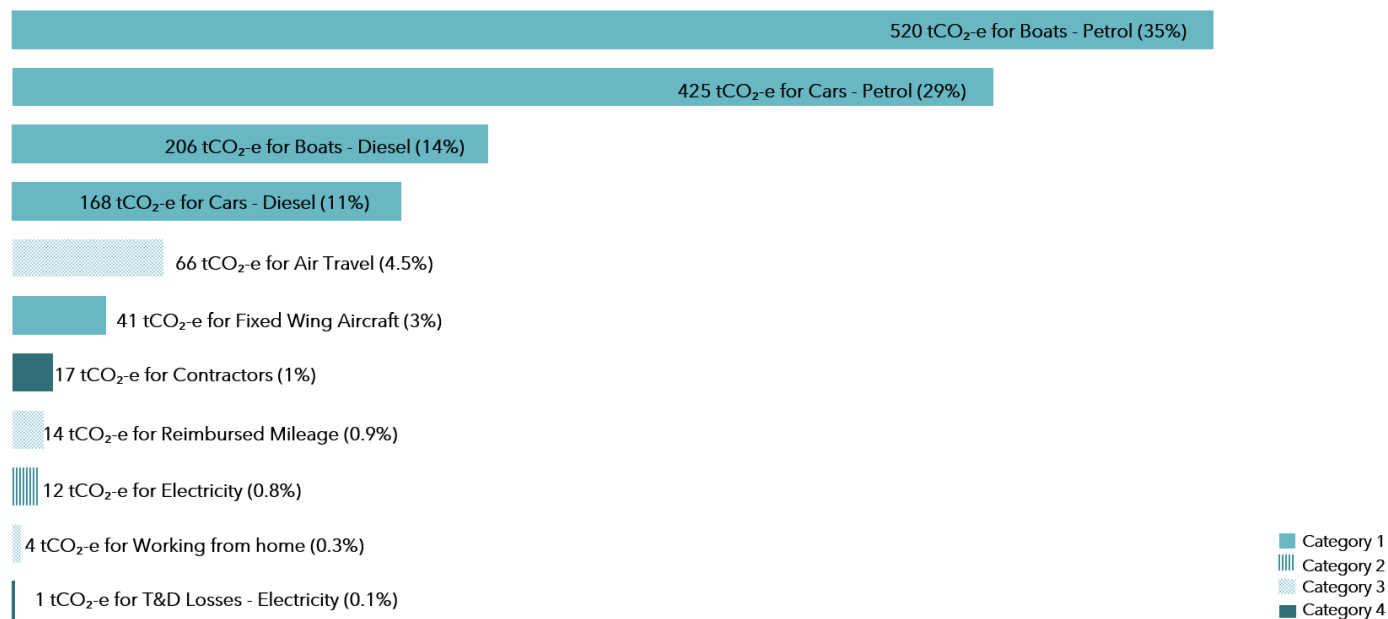


Figure 9: CNZ emissions by activity

CNZ's main emissions relate to fleet vehicles (used in both cars and boats) and flights¹⁴.

6.2.1 Opportunities for reducing carbon emissions

CNZ has reviewed its options to reduce emissions from its fleet of rescue vessels and has installed two OXE300 3-litre, straight-six, twin-turbo diesel outboards on its 12.5m protector rescue vessel Te Awarua which is based at Mana near Wellington.

In CNZ's own sea trials, these diesel outboards have been shown to reduce fuel consumption by 33% compared to similar petrol outboards. Therefore, although diesel has a slightly higher emissions intensity per litre of fuel consumed, the overall carbon emissions from using these diesel outboards are around 25% lower compared with similar petrol outboards. In addition, if a supply of biodiesel can be procured by CNZ, these diesel engines could be fuelled with a biodiesel blend to further reduce emissions.

CNZ may also be able to reduce emissions across its fleet of rescue vehicles through consideration of electric options.

¹⁴ Please note that data was unavailable for rental cars, freight, accommodation, and waste and therefore emissions related to these activities were excluded, however they would be much less significant than the emissions related to transport fuels and flights.

6.3 Land Search and Rescue New Zealand Rapa Taiwhenua

Land Search and Rescue New Zealand Rapa Taiwhenua (Land Search and Rescue) is the national volunteer organisation that provides Land Search and Rescue support services to the Coordinating Authorities (New Zealand Police and the Rescue Coordination Centre New Zealand) to locate and recover lost, missing, and injured people across Aotearoa New Zealand.

Land Search and Rescue volunteers operate in suburban, urban, wilderness and rural areas, including regional and forest parks, mountains, shorelines, rivers, canyons, and caves. Land Search and Rescue is a registered charitable entity with over 3,500 trained search and rescue volunteers who are members of local groups covering the length and breadth of the country.

There are also specialist Land Search and Rescue teams, such as Search Dogs, Cave Search and Rescue, Alpine Cliff Rescue, Canyon Search and Rescue and River Search and Rescue, operating on a local or regional basis, wherever their skills are needed. Land Search and Rescue volunteers also manage and search for known wanderers who suffer from cognitive impairments such as dementia or autism. Land Search and Rescue Training is also a part of Land Search and Rescue.

Land Search and Rescue's total estimated carbon emissions for 1 July 2021 to 30 June 2022 were **424 tCO₂-e**. Figure 10 provides a breakdown of Land Search and Rescue's organisational activities related to these carbon emissions.

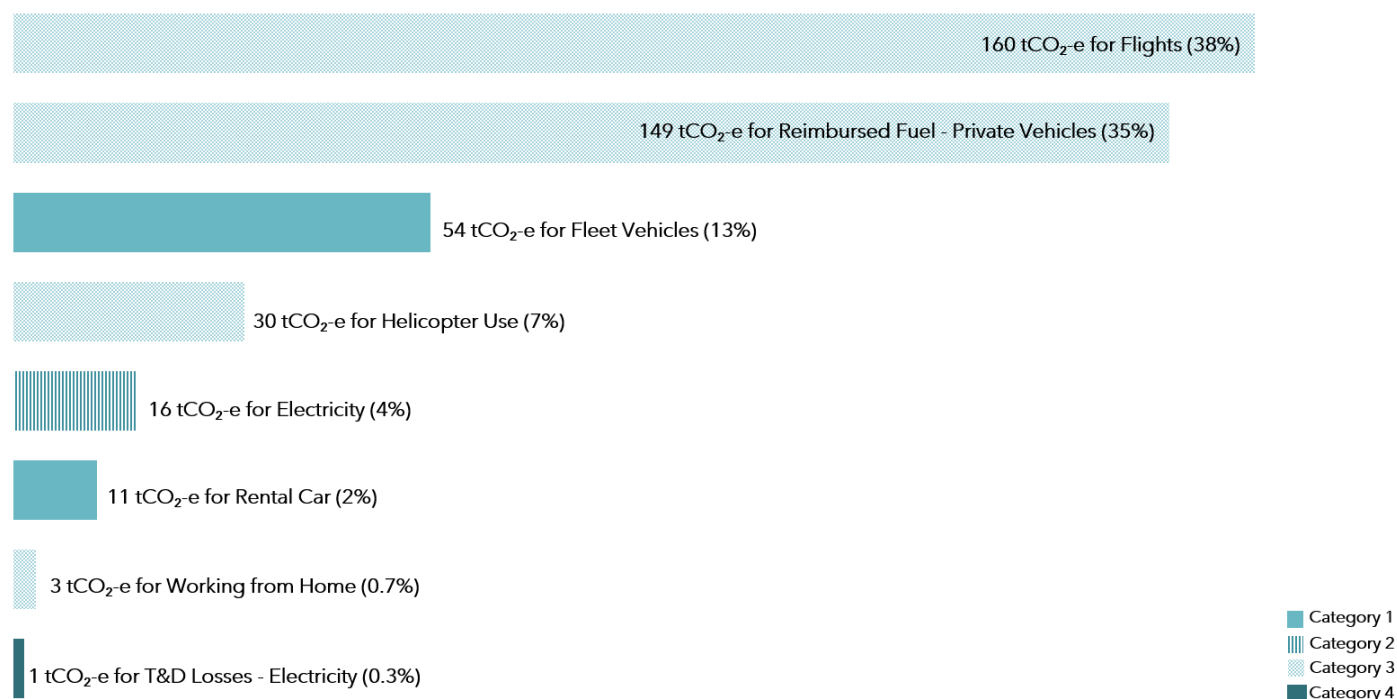


Figure 10: Land Search and Rescue emissions by activity

Land Search and Rescue's main emissions relate to flights, fuel used in Land Search and Rescue fleet vehicles or reimbursed fuel purchased by paid staff or professional volunteers and using helicopters for training purposes¹⁵.

¹⁵ Land Search and Rescue's emissions relating to helicopter use (7% or 30 tCO₂-e) relate to helicopter services which are purchased by LandSAR from third parties and used for training purposes. Land Search and Rescue does not operate or maintain any helicopters.

6.3.1 Opportunities for reducing carbon emissions

There are potential opportunities for reducing emissions related to the use of transport fuels by replacing non-essential and low-value business travel with video conferencing; and replacing Land Search and Rescue vehicles with hybrid or battery electric vehicles, once suitable vehicle options are viable.

6.4 Maritime New Zealand Nō te rere moana Aotearoa

Maritime New Zealand Nō te rere moana Aotearoa (MNZ) is the national maritime regulatory, compliance and response agency for the safety, security, and environmental protection of Aotearoa New Zealand's maritime environment.

The Rescue Coordination Centre New Zealand (RCCNZ) is operated by MNZ and is responsible for coordinating:

- all major maritime and aviation search and rescue missions within New Zealand's search and rescue region; and
- land-based missions arising from someone activating a distress beacon.

MNZ's total estimated SAR-related carbon emissions for 1 July 2021 to 30 June 2022 were **430 tCO₂-e**.

400tCO₂-e (or 45%) of MNZ's total reported carbon emissions from 1 July 2021 to 30 June 2022 relate to commissioning helicopters for Category 2 Search and Rescue Operations (SAROPs).

RCCNZ's emissions related to the RCCNZ operations centre, were 30 tCO₂-e from 1 July 2021 to 30 June 2022. This total isn't exclusively a SAR dedicated output, so it is not specifically SAR-related.

More information about MNZ's carbon emissions, including the SAR component, for the 21/22 financial year is available in MNZ's annual report¹⁶.

6.5 New Zealand Police Ngā Pirihimana Aotearoa (NZP)

New Zealand Police Ngā Pirihimana Aotearoa (NZP) coordinates Category One Search and Rescue Operations (SAROPs) including land, inland waterways, subterranean and close-to-shore operations.

NZP's total estimated SAR-related carbon emissions for 1 July 2021 to 30 June 2022 were **205 tCO₂-e**.

147.7 tCO₂-e of this total relates to the use of maritime assets for search and rescue activities.

57.7 tCO₂-e of this total relates to the use of aviation assets for search and rescue activities. 31% of this 57.7 tCO₂-e represents the use of private helicopter operators contracted to carry out search and rescue activities and 69% represents Eagle Air Support.

More information about NZP's carbon emissions for the 21/22 financial year is available in the NZP annual report¹⁷.

¹⁶ <https://www.maritimenz.govt.nz/content/about/annual-reports/documents/MNZ-annual-report-2021-2022.pdf>

¹⁷ <https://www.police.govt.nz/sites/default/files/publications/annual-report-2021-2022.pdf>

6.6 New Zealand Defence Force Te Ope Kātua o Aotearoa (NZDF)

The New Zealand Defence Force (NZDF) is a modern, professional military, ready and able to protect New Zealand and its interests at home and abroad across diverse geographical and operating environments. It contributes to peace and security, provides the national security the country needs to prosper as a nation, and gives New Zealanders the freedom to go about their daily lives.

NZDF's total estimated NZSAR-related carbon emissions for 1 July 2021 to 30 June 2022 were **443 tCO₂-e**.

407tCO₂-e (or 92%) of this total relates to commissioning air assets for search and rescue operations.

36tCO₂-e (or 8%) of this total relates to commissioning naval assets for search and rescue operations.

More information about NZDF's work to reduce carbon emissions for the 21/22 financial year is available in the NZDF's annual report¹⁸.

6.7 NZSAR Secretariat

The New Zealand Search and Rescue (NZSAR) Secretariat is accountable to the New Zealand Search and Rescue Council and is hosted by the Ministry of Transport. The Secretariat supports the NZSAR Council and provides strategic coordination for Aotearoa New Zealand's search and rescue sector through support services, policy advice, and implementation of the NZSAR Council's decisions. The Secretariat consists of ten non-operational staff, based in Wellington.

The NZSAR Secretariat's total estimated carbon emissions for 1 July 2021 to 30 June 2022 were **33 tCO₂-e**. Figure 11 provides a breakdown of the NZSAR Secretariat's organisational activities related to these carbon emissions.

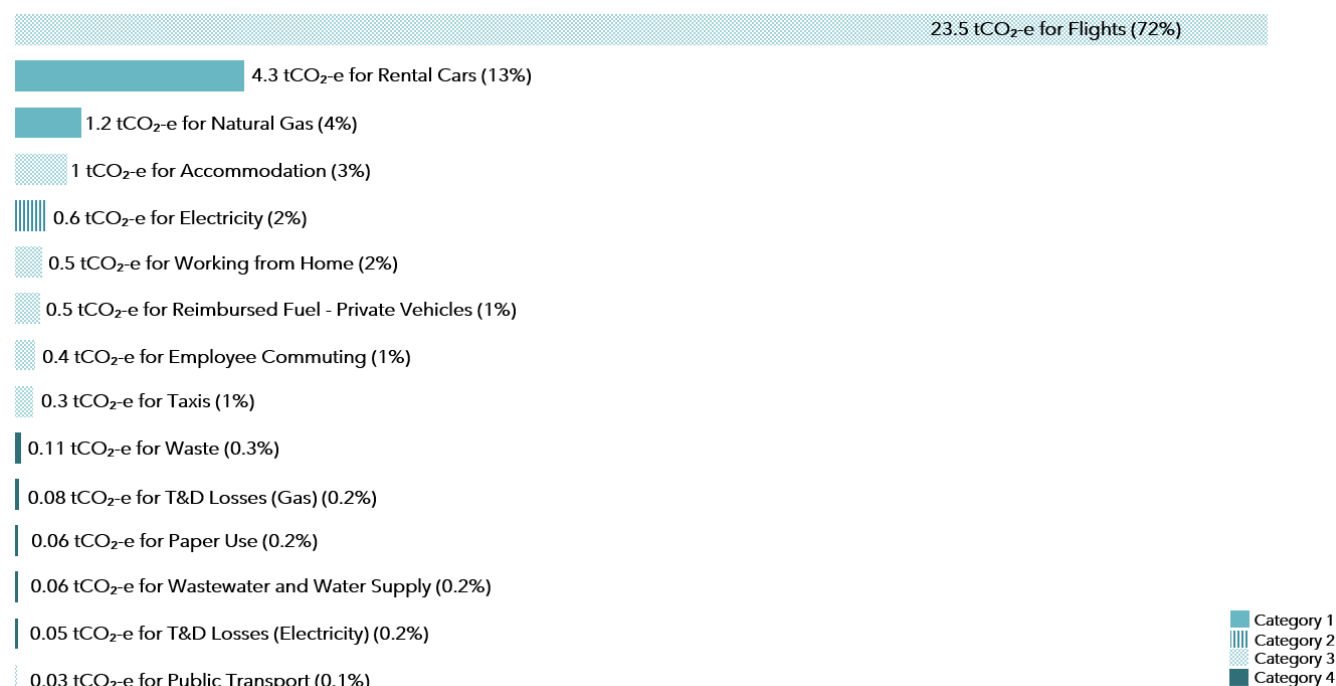


Figure 11: NZSAR Secretariat emissions by activity

¹⁸ <https://www.nzdf.mil.nz/assets/Uploads/DocumentLibrary/M21-038-NZDF-Annual-Report-2021-WEB.pdf>

The NZSAR Secretariat’s main emissions relate to flights and rental cars.

In addition to its own staff’s business travel, the NZSAR Secretariat purchases flights, rental cars and accommodation for sector partners to bring them together to meet and collaborate face-to-face; and also for the purposes of training and associated quality assurance (course moderation, for example). The Secretariat is therefore responsible for the carbon emissions related to these flights and accommodation and these emissions are included in the Secretariat’s total estimated carbon emissions.

Examples of this type of travel include the annual SAR Coordinators’ Workshop, the SAR Tutors’ Forum, and the NZSAR Aviation Workshop.

6.7.1 Opportunities for reducing carbon emissions.

There are potential opportunities for reducing emissions related to the use of transport fuels by replacing non-essential and low-value business travel with video conferencing. The NZSAR Secretariat could also investigate lower emissions petrol or hybrid rental vehicles.

6.8 Surf Life Saving New Zealand

Surf Life Saving New Zealand (SLSNZ) is the national association representing 74 surf lifesaving clubs with over 18,000 members, including more than 4,500 volunteer Surf Lifeguards. These lifeguards patrol over 80 locations each summer and provide emergency callout rescue services throughout Aotearoa New Zealand, saving hundreds of lives each year and ensuring thousands return home safe after a day at the beach.

SLSNZ’s total estimated carbon emissions for 1 July 2021 to 30 June 2022 were **1,638 tCO₂-e**. Figure 12 provides a breakdown of SLSNZ’s organisational activities related to these carbon emissions.

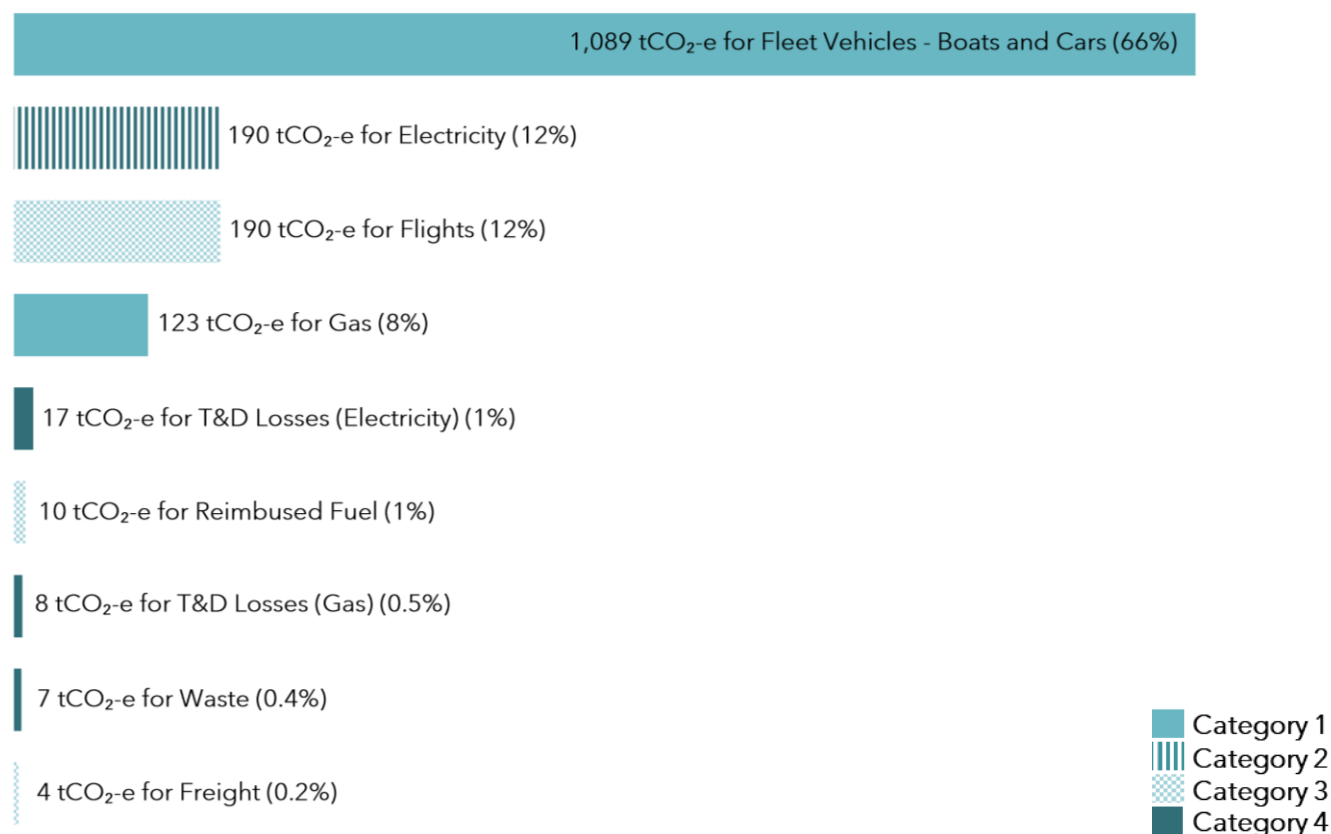


Figure 12: SLSNZ emissions by activity

SLSNZ's main emissions relate to using transport fuels (used in both cars and boats), electricity, flights, and natural gas.

6.8.1 Opportunities for reducing carbon emissions

SLSNZ could look at reducing emissions in fleet vehicles by utilising existing lower emissions petrol or hybrid vehicles instead of diesel fleet vehicles for non-SAR travel. Additionally, it could look at replacing its fleet vehicles with hybrid or battery electric vehicles, over time. Lastly, electrifying the hot water and space heating that is currently produced by gas boilers could be explored.

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