Auckland Airport

Climate Change
Disclosure Report 2022

Auckland Airport

Prepared in accordance with the recommendations of the
Taskforce on Climate-related Financial Disclosures

Introduction

As New Zealand's largest airport, Auckland International Airport Limited ("**Auckland Airport**") is an important economic engine for New Zealand, making a significant contribution to the Auckland community and helping to grow the country's success in travel, trade and tourism.

Our operations deliver high levels of availability, reliability and resilience, and we recognise climate change has the potential to affect our business, both through physical impacts and in the transition to a low-carbon economy.

We are committed to reducing our carbon footprint, improving our operational resilience and adapting to the predicted effects of a changing climate, now and into the future. We are also committed to supporting others, particularly in the aviation sector, to reduce carbon emissions.

Climate-related Disclosure Standards

In 2015, the Financial Stability Board established the Task Force on Climate-related Financial Disclosures ("**TCFD**") to review how the financial sector can take account of climate-related issues.

In 2017, the TCFD released recommendations for climate-related financial disclosures which promote transparency, leading to better climate-risk management. The recommendations are structured around four thematic areas that represent core elements of how organisations operate: governance, strategy, risk management, and metrics and targets. These are intended to interlink and inform each other.

In 2021, the New Zealand Government passed legislation to enable mandatory climate-related disclosures. This means that from 2024, Auckland Airport will be required by law to publish annual disclosures on the impact climate change has on our business. The New Zealand External Reporting Board ("**XRB**") has published a suite of draft standards which align with the TCFD recommendations.

Core elements of recommended Climate-related Financial Disclosures

Governance

The organisation's governance around climate-related risks and opportunities

Strategy

The actual and potential impacts of the climate-related risks and opportunities on the organisation's businesses, strategy and financial planning

Risk management

The process used by the organisation to identify, assess and manage climate-related risks

Metrics and targets

The metrics and targets used to assess and manage relevant climate-related risks and opportunities

Our Climate Disclosure Plans

For the second year, we are following the guidelines of the TCFD to disclose the impact of climate change on our business and our impact on climate change.

As we further identify, assess and manage climate change risks and new opportunities to the business we will continue to increase our disclosure. Auckland Airport expects to produce a disclosure fully aligned with the TCFD recommendations as well as the New Zealand XRB standards in the 2023 financial year.

TCFD Element	Future Actions
Governance	• Further integrate climate-related considerations into strategic planning and other business policies and processes
Strategy	• Continue to implement climate resilience actions • Expand understanding of climate-related risks and opportunities, and the actual and potential financial impacts of these on the business, through scenario analysis
Risk Management	• Further mature risk management approach
Metrics and Targets	• Continue to make progress on climate-related targets • Expand disclosure of climate-related metrics

Governance

Board oversight of climate-related risks and opportunities

Auckland Airport's Board of directors is responsible for reviewing and ratifying the risk-management structure, processes and guidelines which are developed, maintained and implemented by management, including climate change. The Board sets the company's risk appetite on an annual basis and tracks the development of any existing risks and the emergence of new risks to the company. The Board also considers climate change issues when reviewing and guiding business strategy, plans and budgets.

The Board has delegated risk oversight and monitoring (including in relation to climate change) to the Safety and Operational Risk Committee ("**SORC**") which currently comprises four Board directors.

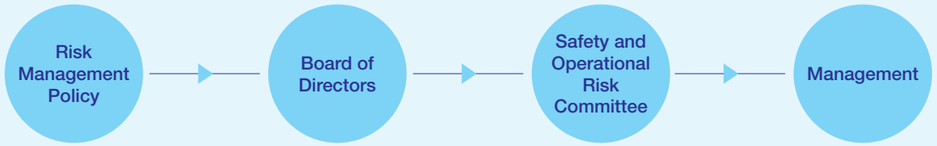
The SORC is responsible for assisting the Board in discharging its responsibilities in relation to risks, and oversees, reports and makes recommendations to the Board on the safety, environmental (including climate change) and operational risk profile of the business. The SORC receives a quarterly report from management on whole-of-company risks and controls, including the physical and transitional impact of climate change on the business. The SORC also receives a more detailed annual update on climate-related risks and opportunities, progress towards climate-related goals and the implementation of mitigation initiatives.

Management manages climate-related risk and opportunities

Auckland Airport's management is responsible for the active identification of risks and implementation of mitigation measures, including for climate change, to achieve and maintain operational and strategic objectives. Management has developed an enterprise risk management framework, designed to promote a culture which ensures a proactive and consistent approach to identifying, mitigating and managing risk on a company-wide basis. Our chief executive oversees the risk framework and reporting to the SORC, including climate change risks, and the general manager for each business unit is responsible for assessing and monitoring the risks specific to their business unit.

The Sustainability Management Group, involving nine senior leaders from across the company, oversees the implementation of the Sustainability programme including material climate change initiatives. Overall management of climate-related risks and implementation of controls and initiatives is the responsibility of the Sustainability team. This includes ongoing monitoring of climate change modelling and research, and the advancement of our ongoing climate change disclosure reports.

Figure 1. Governance of climate-related risks at Auckland Airport



- Provides the overall framework and governance for risk management, including the process for identifying, assessing, managing and monitoring risk

- Ensures Auckland Airport has appropriate and effective risk management in place
- Considers climate-related risks and opportunities in strategy development and decision-making
- Receives quarterly updates on sustainability progress including on climate change

- Receives quarterly risk updates from management, including on climate-related risk
- Receives annual climate change updates from management
- Assesses the internal processes for determining, monitoring and managing risks
- Holds management accountable for managing risks appropriately

- Identifies, assesses and monitors climate-related risk relevant to their area of the business
- Develops and implements strategies to mitigate climate-related risk to an acceptable level of residual risk
- Regularly monitors and evaluates the effectiveness of Auckland Airport's processes and risk plans
- Prepares quarterly risk updates and annual climate change updates for the SORC
- Prepares climate change disclosure reports

Risk Management

Our enterprise risk management framework and risk management company policy guide our approach to risk management in relation to climate change. Risks are identified at all levels of the organisation, and all employees are responsible for implementing, managing and monitoring the processes and risk plans with respect to material business risks, as appropriate.

All enterprise-wide material risks, including those relating to climate change, are assessed through Auckland Airport's Risk Assessment Matrix. This assesses the likelihood of the risk occurring, and the impact on the business should it occur, to produce a total "risk rating". Risk ratings are described as "residual risks" and "inherent risks", reflecting the impact to the business with or without controls in place to mitigate the risks.

Auckland Airport's process for risk management is continuous and is designed to provide advanced warning of material risks before they eventuate. In addition to identifying and assessing risks, the process includes:

- Risk mitigation strategy development
- Reporting
- Compliance, monitoring and evaluation to ensure the ongoing integrity of the risk management process.

Priority physical and transitional climate change risks are included in Auckland Airport's enterprise-wide risk register, which is updated by management on a quarterly basis. The SORC receives a quarterly update on executive-level risks, the controls in place to mitigate the risk and the planned actions to address them. In the 2022 financial year, climate-related risks were escalated to be classified an executive-level risk.

Climate-related risks that have a risk rating of medium or higher are assigned controls to reduce the residual risk to a lower level. Management is responsible for identifying and implementing these controls, with the Board providing confirmation that the controls sufficiently mitigate the risk to an acceptable level.

Strategy

Resilience of business strategy

Auckland Airport has an extensive coastline given our unique location adjacent to the Manukau Harbour. As a result, physical inundation and flooding of assets due to sea-level rise and extreme weather events is one of our key climate-related risks. Our business model is built on the operation and development of aeronautical infrastructure and commercial property; this means impacts from sea level rise and extreme weather events could significantly affect our business operations.

In addition, due to the high carbon profile of the aviation industry, there are various risks to the business associated with the transition to a low-carbon economy. Global and domestic carbon policies impacting aviation activity, as well as public perceptions towards air travel, have the potential to affect Auckland Airport.

We keep abreast of global and local trends in climate change research and modelling and undertake regular environmental scans and analyses of key factors such as developments in global carbon policy, public perception of aviation, and technological advancements to decarbonise aviation, so that we are able to respond to any emerging risks early.

Climate-related risks and opportunities

Climate-related risks and opportunities are considered as part of Auckland Airport's strategic planning, including our short-term asset management plans, medium-term infrastructure projects and longer-term masterplan for the whole of the Auckland Airport precinct.

We have assessed physical and transitional climate-related risks for our business across three time horizons:

Short term
1–5 years
Aligned with asset management

Medium term
5–10 years
Aligned with capital planning

Long term
10–30 years
Aligned with masterplanning

We consider climate change risks specific to Auckland Airport as well as potential impacts on the wider supply chain and aviation industry. The climate-related risks we have identified are outlined in the table below.

Risk Driver	Impact on Auckland Airport	Risk Timeframe	Current and Future Controls
Short term = 1–5 years; Medium term = 5–10 years; Long term = 10–30 years			
Physical			
Sea-level rise	Business interruption and operational delays due to inundation of areas and assets critical to airport operations	Long term	• Increased monitoring, maintenance and enhancement of the seawall • Maintenance of existing (and development of new) infrastructure undertaken in consideration of climate change • Development of a second runway further inland and on higher ground
	Future development areas constrained due to inundation, resulting in loss of potential income or impact to customer experience	Long term	• Consideration of climate change in Auckland Airport's masterplan • Increased monitoring, maintenance and enhancement of the seawall • Stormwater masterplan and planned infrastructure upgrades
	Saltwater intrusion into wetlands and ponds, and loss of functionality of stormwater and wastewater systems and consequential impact on the surrounding marine environment	Long term	• Stormwater masterplan and planned infrastructure upgrades • Ongoing monitoring of stormwater discharges
Increased frequency and intensity of storm and rainfall events	Damage to infrastructure, business interruption and operational delays due to flooding of areas and assets critical to airport operations	Short term Medium term Long term	• Stormwater masterplan prepared taking into account climate change modelling • Upgrades of existing (and development of new) infrastructure undertaken in accordance with stormwater masterplan
	Reduced asset life and increased maintenance costs due to damage and wear from salt impacts from storm surge and more intense storms	Long term	• Regular maintenance and monitoring of assets, particularly those critical to airport operations
Variable wind patterns	Changes to aircraft noise contours due to changing wind patterns	Medium term Long term	• Annual review of wind direction data to identify emerging changes that would impact on the location of the aircraft noise contours
	Damage to infrastructure and operational delays due to high winds	Long term	• Design to take increased wind loads into account as part of development and asset renewal • Regular review of trends from third-party wind monitoring data at Auckland Airport
Decreased rainfall days	Water shortages due to drought resulting in increased potable water prices and the introduction of water restrictions	Short term Medium term Long term	• Water efficiency initiatives • Secured access to non-potable water supplies • Further inclusion of non-potable water reticulation to increase non-potable water usage
	Increase in electricity price and introduction of restrictions on electricity use, particularly at times of peak demand, due to less generation capacity from 'dry' hydro-electric rivers and storage lakes	Short term Medium term Long term	• Energy-efficiency initiatives • Exploration of feasibility for on-site renewable energy generation
Rising mean temperatures	Increased risk of mosquitos and other exotic pests which pose a threat to New Zealand biodiversity and human health	Medium term Long term	• Ongoing biosecurity monitoring programme • Elimination of potential breeding grounds such as standing water
	Increase in operating costs for air cooling as the operating parameters need to be expanded for the increased temperature and humidity range	Medium term Long term	• Factoring future requirements into long-term asset management and replacement plans
	Increased plant growth and presence of insects and pests causing more frequent flocking and bird strike	Long term	• Ongoing biosecurity monitoring programme • Wildlife management and monitoring programme, including relocation of habitats • More frequent landscape maintenance

Risk Driver	Impact on Auckland Airport	Risk Timeframe	Current and Future Controls
Short term = 1–5 years;	**Medium term = 5–10 years;**		**Long term = 10–30 years**
Transitional			
Policy and legal	Increased cost and restrictions on operations due to implementation of regulation and pricing mechanisms to reduce carbon emissions from the aviation sector	Short term Medium term Long term	• Policy engagement and advocacy • Provision of infrastructure to enable adoption of low-carbon aircraft energies and technologies
	Constraints to airport operational expansion due to external decarbonisation policy, regulation and legislation	Medium term Long term	• Policy engagement and advocacy • Decarbonisation of operational emissions and investment in low-carbon infrastructure
	Decreased revenue due to the introduction of aircraft movement or passenger caps to reduce carbon emissions from the aviation sector	Medium term Long term	• Policy engagement and advocacy
	Reduced passenger demand due to pass-through of increased cost from mandatory emissions-related levies	Short term Medium term Long term	• Policy engagement and advocacy • Decarbonisation of operational emissions and investment in low-carbon infrastructure • Provision of infrastructure to enable adoption of low-carbon aircraft energies and technologies
	Inability to obtain insurance or increased insurance premiums due to physical climate change risks	Short term Medium term Long term	• Maintenance of existing (and development of new) infrastructure undertaken in consideration of climate change (including sea-level rise, extreme weather events and wind patterns)
Market	Customers substitute flight with other lower-carbon transport alternatives	Medium term Long term	• Provision of infrastructure to enable adoption of low-carbon aircraft energies and technologies
Reputation	Climate change performance fails to meet stakeholder expectations	Short term Medium term Long term	• Stakeholder engagement to understand expectations • Transparent and digestible climate-related disclosures • Decarbonisation of operations and regular disclosure of performance against targets
	Moderation in growth of passenger numbers if public sentiment towards air travel changes due to the carbon footprint of aviation	Short term Medium term Long term	• Effective monitoring of consumer perceptions in New Zealand and key inbound markets • Maintaining a diverse portfolio of markets and strengthening short-haul markets • Supporting airline partners to reduce their emissions at gate through the provision of ground power units and pre-conditioned air • Maintenance of a precinct-wide masterplan that promotes an efficient airport design and layout
	Investors avoid aviation sector due to carbon footprint	Short term	• Decarbonisation of operations • Development of low carbon infrastructure • Disclosure of Greenhouse Gas Emissions Inventory and decarbonisation pathway

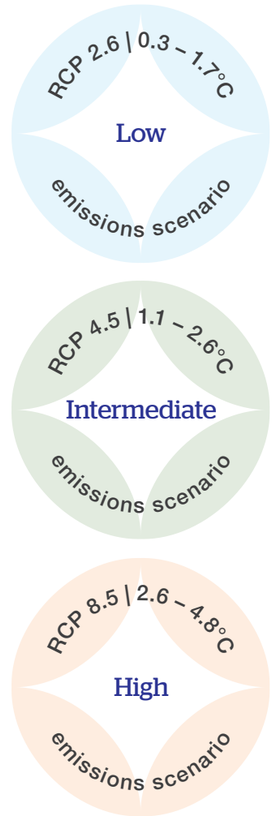
Climate change also presents opportunities for Auckland Airport. These include:

- Lowering operating costs by reducing energy consumption and other efficiency initiatives
- Playing a role in bringing new renewable electricity generation capability into the New Zealand market
- Supporting communities to enhance the environment that is impacted by the physical impacts of climate change
- Supporting our airline partners to reduce their emissions through provision of electrification and low-emission fuels infrastructure
- Advancing the sustainability capability of the New Zealand design and construction sector.

Scenario analysis

During the 2022 financial year, Auckland Airport undertook further modelling of flooding and inundation across the airport precinct under three Representative Concentration Pathways ("**RCPs**") outlined in the Intergovernmental Panel on Climate Change ("**IPCC**") Fifth Assessment Report. This modelling identified that under all pathways, without intervention, infrastructure close to or draining to the coastline will be subject to more frequent and severe flooding and inundation in the long term (circa 2110). However, planned upgrades to the stormwater network and surrounding infrastructure in the near term and further long-term flood management responses will mitigate this risk.

To enable Auckland Airport to better understand our resilience as a business to climate change, we intend to advance our climate scenario analysis incorporating both transition risk and physical climate change modelling. These scenarios are not intended to predict the future but rather explore possible futures against which to test our business strategy.



Metrics and Targets

Auckland Airport recognises that the aviation industry contributes to climate change. The impacts of climate change, including rising sea levels and temperatures, and unpredictable weather patterns will impact our company, the local community, New Zealand and the planet.

We seek to take a leading-practice approach to managing and reducing our carbon emissions.

Managing our own footprint

Having measured and disclosed our carbon emissions since 2008, and being the first airport in the world to set a carbon reduction target under the Science-Based Targets Initiative, in 2021 we lifted our sights and challenged ourselves again by setting a suite of new sustainability targets.

Our planned pathway to Net Zero aligns with a 1.5-degree warming trajectory and will see us reduce scope 1 and 2 emissions[1] by 90% by 2030. We will achieve this by:

- Phasing out the use of natural gas in the terminal through the incremental replacement of natural gas boilers with electric alternatives
- Electrifying our corporate vehicle fleet
- Using refrigerants with the lowest global warming potential possible
- Using electricity generated from a mix of on- and off-site renewable generation, likely from 2024.

1 Scope 1 = direct emissions from business activity.
Scope 2 = indirect emissions from the generation of purchased electricity.

Our targets

Net Zero

Scope 1 and 2 **emissions by 2030**

90%

▼ Reduction in scope 1 and 2 **emissions** from 2019 levels by 2030

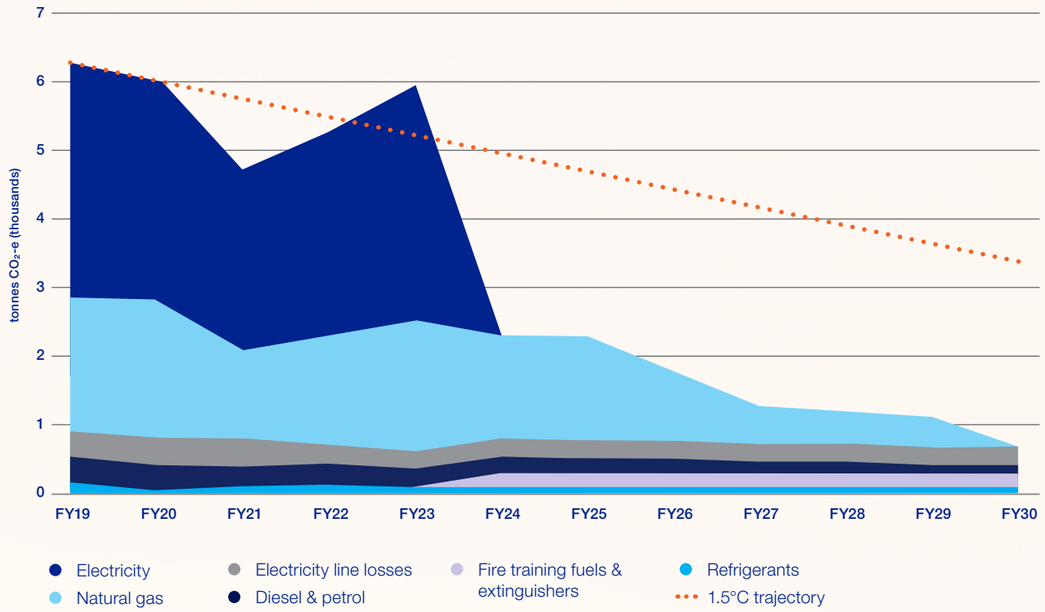
20%

▼ Reduction in potable **water** use from 2019 levels by 2030

20%

▼ Reduction in **waste** to landfill from 2019 levels by 2030

Auckland Airport's planned scope 1 and 2 decarbonisation pathway to Net Zero aligns with 1.5°C trajectory



Reducing our indirect emissions

We are working with our airline, ground handling and air navigation partners to increase operational efficiency and reduce the impact of aviation on the environment. This includes:

- Provision of electric vehicle ("**EV**") chargers on the airfield to enable ground handlers to adopt low-emissions ground support equipment
- Provision of ground power units and pre-conditioned air at all international gates, for aircraft to connect to New Zealand's low-carbon electricity grid instead of burning jet fuel while at the gate. Ground power units will be installed at all domestic gates in our new integrated terminal.
- Ongoing work with Airways and airlines to reduce aircraft fuel burn by setting fuel-saving flight paths, allocating taxiways to minimise aircraft taxi time and just-in-time pushback allowing aircraft to delay engine use.

The most important role an airport can play in the decarbonisation of the wider aviation sector is to make sure the right infrastructure is in place to enable the adoption of future aircraft technologies and fuels, such as electric and hydrogen aircraft and Sustainable Aviation Fuel (SAF). Auckland Airport engages with our airline partners to understand the requirements of these aircraft fuels and technologies and we have ensured our 30-year masterplan makes provision for these requirements.

Similarly, we are future-proofing our transport network to enhance connectivity and provide for low-emission transport modes. Our 30-year masterplan accommodates a variety of transport options, including active modes such as cycling and walking, mass rapid transit (bus and light rail), and the anticipated increase in EVs.

In the 2022 financial year, we've continued our long-standing commitment to the New Zealand Climate Leaders Coalition by signing the new Statement of Ambition. This will see us work alongside other business leaders to help New Zealand transition to a low carbon economy and requires Auckland Airport to:

- Set short- and long-term science-aligned scope 1, 2 and 3 emissions reduction targets
- Assess and disclose climate-related risks and opportunities
- Prepare a climate action plan that details how we are partnering with other businesses to reduce emissions and how we are contributing to New Zealand's decarbonisation, adaptation journey and the restoration of nature
- Support stakeholders, including employees, suppliers and customers to reduce their emissions.

Auckland Airport's 2022 carbon emissions

Our scope 1 and 2 emissions have increased this financial year, reflecting the beginning of the recovery of aviation and an increase in passenger numbers through the terminals after two years of COVID-19-related lockdowns and border restrictions. Our scope 3 emissions within our control have reduced this year due to the completion of the two substantial roading projects in the 2021 financial year. This year we have also introduced the measurement of aircraft landing and take-off emissions.

Below is a summary of Auckland Airport's scope 1 and 2 greenhouse gas emissions.

Scope	FY19	FY20	FY21	FY22
Scope 1	2,472	2,397	1,674	2,004
Scope 2	3,802	3,648	3,031	3,274
Scope 3 – Within control[2]	6,228	5,185	16,497	10,616
Scope 3 – Aircraft landing and take-off	N/A	N/A	N/A	66,059
Scope 1 & 2 emissions intensity (tonnes CO_2-e per m² terminal area)	39.23	36.10	28.06	25.69
Scope 1 & 2 emissions intensity (tonnes CO_2-e per passenger)	0.30	0.39	0.73	0.94

For the full 2022 emissions profile, please refer to Auckland Airport's Greenhouse Gas Emissions Inventory Report on the company website.

Information within the Greenhouse Gas Emissions Inventory Report is stated in accordance with the requirements of International Standard ISO 14064-1 *Greenhouse gases – Part 1: Specification with guidance at the organisation level for quantification and reporting of greenhouse gas emissions and removals* ("**ISO 14064-1:2018**") and the *Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004)* ("**the GHG Protocol**").

2 Scope 3 emissions within our control includes waste, water, staff business travel, electricity line losses and construction materials

Auckland Airport