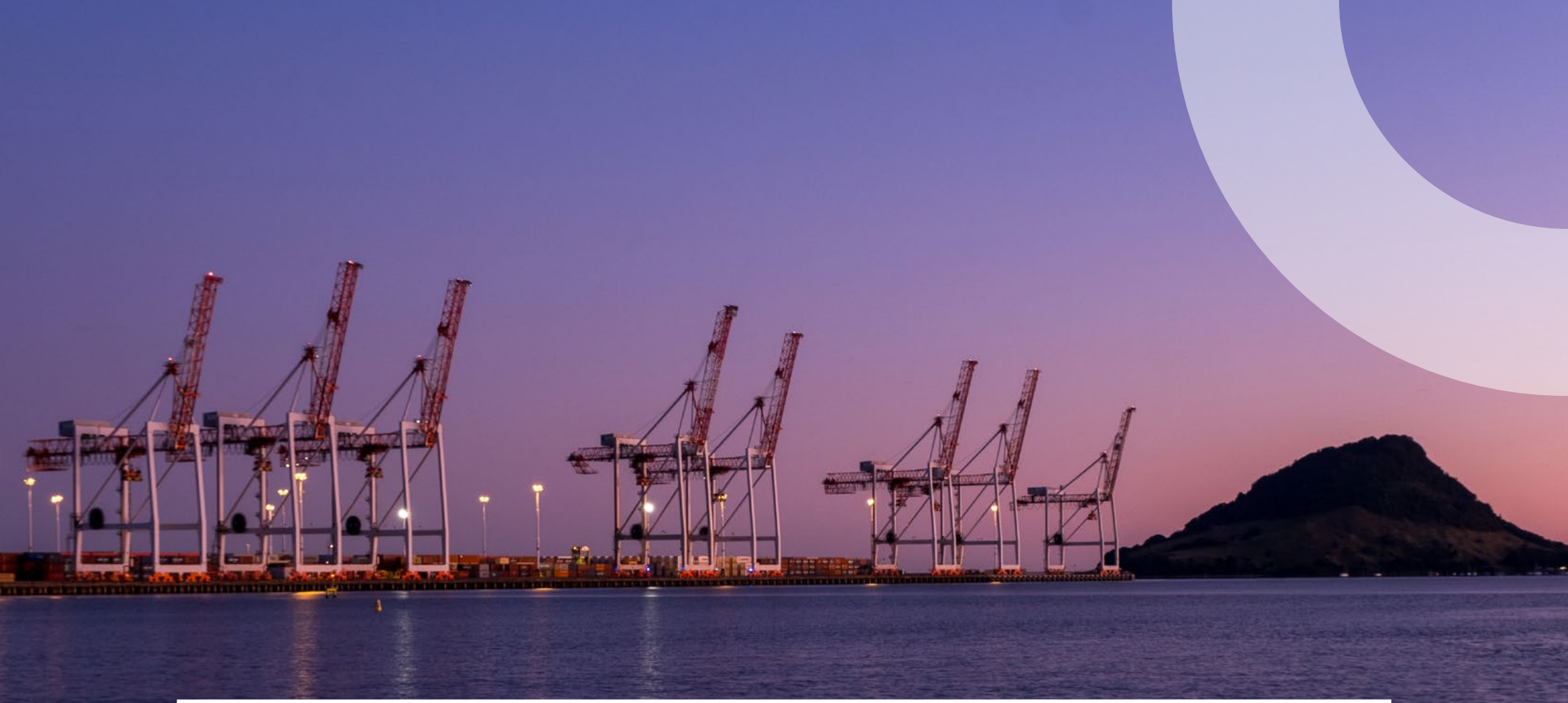


Climate-related Disclosures Report

Port of Tauranga

FY2024

Scroll down to view the report

Introduction

This report is prepared in accordance with the Aotearoa New Zealand Climate Standards (CS1, CS2 and CS3). These new, mandatory climate standards are designed to encourage companies to proactively manage climate-related risks and opportunities, demonstrate how they are doing so, and support capital allocation to activities consistent with the transition to a low emissions, climate-resilient future.

This is the first Climate-related Disclosures report produced by Port of Tauranga Limited (the Port). The Port is taking advantage of the adoption provisions in the new legislation to ensure that the information presented in the report is not only thorough, but meaningful and robust.

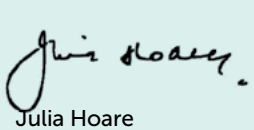
Statement of compliance

Port of Tauranga Limited is a Climate Reporting Entity under the Financial Markets Conduct Act 2013. This report constitutes our Climate Statements in accordance with the Act and covers the reporting period 1 July 2023 to 30 June 2024. The statements are compliant with the Aotearoa New Zealand Climate Standards (CS1, CS2 and CS3) issued by the External Reporting Board (XRB).

Of the adoption provisions provided within the standards (CS2), the Board of Directors has chosen to apply the following exemptions:

- *Adoption provisions 1 and 2:* Current and anticipated financial impacts. Port of Tauranga is in the process of quantifying the current and anticipated financial impacts of climate-related risks and opportunities. Port of Tauranga intends to report its current and anticipated impacts from FY2025.
- *Adoption provision 3:* Transition planning. The Port is in the process of considering the climate-related risks identified and is developing its Transition Plan.
- *Adoption provision 4:* Scope 3 greenhouse gas emissions: The full scope of its Scope 3 emissions and comparatives. While Port of Tauranga has been measuring some Scope 3 emissions since 2018 (e.g. the emissions relating to chartered freight trains), the Port will not be reporting Scope 3 emissions in this report. The Port is seeking to define appropriate and sensible Scope 3 boundaries and is working with other New Zealand ports to agree sector level boundaries for consistency. Port of Tauranga intends to report its Scope 3 emissions in FY2025.
- *Adoption provisions 5 and 6:* Comparatives. Port of Tauranga has not disclosed comparatives for Scope 3 greenhouse gas emissions or for other metrics in the current year.
- *Adoption provision 7:* Analysis of trends. Port of Tauranga has not disclosed an analysis of trends for metrics reported in the current year. FY2023 will be set as Port of Tauranga's base year for metrics.

Approved on behalf of the Board of Directors on 27 September 2024.



Julia Hoare
Chair

Sir Robert McLeod
Chair, Audit Committee

This report sets out Port of Tauranga Limited's inaugural mandatory Climate-related Disclosures (CRD) for the financial year ending 30 June 2024, in accordance with the Aotearoa New Zealand Climate Standards (also referred to as NZ CS1, CS2 and CS3).

Pursuant to the requirements of NZ CS1-3, this report includes a range of forward-looking statements (including but not limited to climate-related scenarios, assumptions, and projections, forecasts, estimates and judgements regarding climate-related risks, opportunities, impacts and related matters, as well as statements of the Port's future intentions, and metrics and targets). These statements are often based on early and evolving assessments of current and future data, which may be incomplete and estimated, particularly in areas such as climate change projections and socio-economic anticipated outcomes/forecasts. These are inherently uncertain as they are driven by numerous dynamic factors, many of which are interconnected, complex, non-linear and unpredictable especially over the medium to long-term. Accordingly, all forward-looking statements set out in this CRD report (whether they relate to climate-related risks and opportunities or otherwise):

- *Are not facts, nor are they intended to constitute capital growth, earnings guidance, and/or any other type of advice or guidance (legal, financial, tax or otherwise)*
- *Pertain to outcomes that may arise under stipulated climate change scenarios set out within, which, as noted in NZ CS1, "...are not intended to be probabilistic or predictive, or to identify the "most likely" outcome(s) of climate change. They are intended to provide an opportunity for entities to develop their internal capacity to better understand and prepare for the uncertain future impacts of climate change"*
- *Are inherently uncertain and subject to limitations, particularly as to inputs, available data and information (including that which the Port has derived from relevant sector climate change scenarios), all of which are likely to change and evolve*
- *May not eventuate (in full or in part), and where they do eventuate, may be materially more or less significant than is anticipated or otherwise indicated in this report*
- *May have omitted to identify and include (in full or in part) material climate-related risks, opportunities and impacts that do eventuate.*

Owing to the above, all climate-related forward-looking statements in this CRD report may be less reliable than statements contained in the Port's non-climate-related annual reporting.

Notwithstanding the above, this CRD report represents the Port's best estimate and current understanding of future climate-related eventualities at the date of publication. Subject to the various practical challenges and limitations, the Port has used all reasonable endeavours to ensure the accuracy and completeness of this report (subject to specified omissions in reliance of the adoption provision in NZ CS2), but strongly cautions against undue reliance being placed on representations within.

To the maximum extent permitted by law, the Port and its directors, officers, employees and contractors shall not be liable for any loss or damage arising in any way from or in connection with any information provided or omitted as part of this report.

Climate-related Disclosures Report

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Governance

Port of Tauranga is listed on the New Zealand Stock Exchange (NZX) and adheres to the NZX Main Board Listing Rules and guidance, including the NZX Corporate Governance Code.

Committees of the Board that report to full Board

Support the Board by providing input and detail on specific matters, including sourcing specialist advice.

- Audit Committee
- People and Remuneration Committee
- Nomination Committee
- Board Health and Safety Committee

Board

Ensures the Port has a fit-for-purpose climate-related risk and opportunity framework and resourcing (i.e. processes and methods, as well as the expertise and resources required to implement them).

Senior Management Team

Reports to the Board at least monthly on strategy implementation and risk management.

- Chief Executive
- Chief Financial Officer/ Company Secretary
- General Manager Property and Infrastructure
- General Manager Commercial
- General Manager Communications
- General Manager Corporate Services
- General Manager Health and Safety

Extended Leadership Team

Each member of the extended leadership team reports directly to a senior manager, including these key roles in relation to climate change response.

- Financial Controller
- Risk Specialist (from 1 October 2024)
- Environmental Manager
- Engineering Manager
- Terminal Development Manager
- Marine Operations Manager

Board oversight of climate-related risks and opportunities

Port of Tauranga's Board of Directors ensures the company adheres to NZX governance requirements and maintains high ethical standards in serving the interests of Port of Tauranga stakeholders, including shareholders, employees, customers and the wider community.

The Board approves the company's strategic direction and oversees management of long-term value drivers such as asset investment, employee engagement, iwi and community engagement, customer satisfaction, enhanced environmental performance and reputation protection. Key Port strategies are formally reviewed at least once per year.

All risks, including climate-related risks, are also reviewed annually by the Board, with "deep dives" into specific risks on a quarterly basis.

The Board has overall responsibility for the Port's climate change response.

The Audit Committee is specifically responsible for ensuring the Port complies with climate-related reporting requirements. Other committees of the Board have specific responsibilities related to risk management, outlined below. All committees report to the full Board.

Audit Committee	People and Remuneration Committee	Board Health and Safety Committee	Nomination Committee
Assists the Board with the financial reporting process, internal controls and management of financial risks, and the audit process (including assurance on regulatory requirements such as Climate-related Disclosures). The committee holds at least three meetings annually to review all climate change risk and opportunity-related work and approves the publication of the company's Climate-related Disclosures.	Oversees remuneration policies and practices, including executive packages that include performance targets for sustainability-related measures such as greenhouse gas emissions, health and safety, and employee and community engagement. The committee has incorporated specific climate-related metrics into executive remuneration.	Assesses health and safety risks and controls relating to the impacts of climate change.	Reviews the Board's composition, performance and succession planning to ensure it has skills in sustainability, as well as regulatory compliance, risk management, stakeholder liaison and other competencies. The committee, of which all Directors are members, meets at least twice per year.

Board skills and competence

The Board requires Directors to have competencies across a range of disciplines, including sustainability and risk management, to operate effectively and meet its responsibilities. Directors' skills are self-assessed annually, moderated by the Board as a whole, and provided to shareholders in a matrix published annually in the Corporate Governance Statement. The statement and other governance-related documents, including the charters of the Board and its committees, are available on the Port's website[1].

Monitoring progress

The Board approves and monitors progress against the metrics and targets used to measure the Port's climate-related risks and opportunities. For example, management reports to the Board annually on greenhouse gas emissions and progress in relation to achieving the Board's long-term objective of net zero emissions by 2050, and its short-term goal of a reduction in carbon intensity annually (t CO_2e per cargo tonne). Additional metrics and targets will be developed in alignment with the Port's climate Transition Plan in FY2025 (which will be approved and monitored by the Board). Specific decarbonisation projects requiring capital expenditure are also reported to the Board for approval as required by delegation of authority policies.

The Board considers the identification, understanding, control and monitoring of core risks (including climate-related risks and opportunities) to be a whole-of-Board function.

1 www.port-tauranga.co.nz/investors/governance

Management's role in assessing and managing climate-related risks and opportunities

All members of the senior management team have responsibilities related to the company's strategy and risk management. They ensure that risks to the business, including climate-related risks, are identified and evaluated, and that effective and practicable responses and control activities are developed.

The senior management team reports monthly to the Board and attends all Board meetings. The Chief Executive and Chief Financial Officer attend the Audit Committee meetings. The Chief Executive and General Manager Corporate Services attend the People and Remuneration Committee meetings, and the Chief Executive and General Manager Health and Safety attend the Board Health and Safety Committee meetings.

Risks to Port of Tauranga's ability to create value are regularly discussed in-depth by the senior management team, which meets at least weekly. The team identifies risks and their materiality, evaluates mitigation options and ensures they are feasible.

Sustainability measures are incorporated into the remuneration of members of the senior management team as well as their relevant direct reports.

The individual responsibilities laid out in this table have been agreed over time through consultation, job descriptions, strategic planning processes and directives of the Board. Performance is monitored by the Chief Executive and incentivised through remuneration policies, including a short-term incentive component measured through mutually agreed Key Performance Indicators (KPIs) and approved by the Board's People and Remuneration Committee. The Board is responsible for the performance of the Chief Executive.

Previously, specific climate-related risk KPIs have only been applicable to the at-risk, short-term incentive component of the remuneration of the Chief Executive and General Manager Property and Infrastructure. In FY2025, all of the senior management team have a specific climate-related KPI, requiring the development of a Transition Plan and associated metrics and targets. 5% of the managers' short-term incentive will be allocated to this KPI.

Day-to-day risk management is undertaken by an empowered and coordinated extended leadership team, with centralised oversight by the senior management team. The senior management team is required to establish formal and/or informal processes with their teams to demonstrate a positive risk culture by actively monitoring and discussing risk.

All teams have some responsibility to identify, assess and monitor critical risks, including those related to climate change, relevant to their areas of the business.

Members of the extended leadership team report directly to a senior management team member. Those with specific climate-related responsibilities include:

- Environmental Manager
- Financial Controller
- Terminal Development Manager
- Engineering Manager
- Risk Specialist
- Marine Operations Manager.

Chief Executive	Chief Financial Officer/ Company Secretary	General Manager Property and Infrastructure	General Manager Commercial	General Manager Communications	General Manager Corporate Services	General Manager Health and Safety
Manages and delivers the company's strategy and performance. Responsible for promoting proactive risk management, including risks and opportunities associated with climate change, and reporting it to the Board. Incorporates climate-related risks and opportunities into the company's strategic planning process. Maintains relationships with local and central government and regulators.	Ensures timely release of information to the market and adherence to the relevant rules and regulations, including NZX, accounting and Climate-related Disclosure standards. Assesses the financial impacts of climate-related risks and opportunities in financial planning, capital allocation, insurance and financial reporting. Responsible for an effective risk management framework that identifies, assesses, monitors and manages risk.	Overall responsibility for the development and implementation of Port of Tauranga's decarbonisation strategy and greenhouse gas emissions inventory report. Ensures port infrastructure is resilient to climate change, including the provision of new infrastructure to meet increased demand (e.g. power equipment for electrification). Prioritises the purchase of more fuel-efficient vehicles and equipment whenever possible (e.g. hybrid straddles).	Jointly responsible (with the General Manager Corporate Services) for business continuity and crisis management planning. Ensures the business plan has inherent flexibility and resilience. Oversees significant operational initiatives, such as container handling automation and marine fleet purchases, with a material impact on greenhouse gas emissions.	Publishes Port of Tauranga's announcements via website, broadcast emails and media releases. Publishes comprehensive financial and non-financial disclosures in the company's Integrated Annual Report, including material exposure to environmental, economic and social sustainability risks.	Overall responsibility for employee engagement and implementation of the Port's people-related strategies and policies. Develops and recommends climate-related KPIs for the senior management team to the People and Remuneration Committee.	Assesses the health and safety impacts of climate change. Promotes proactive employee and contractor engagement in the Port Users' Health, Safety and Environment Forum. Membership of the Port Industry Association Leadership Group.

Risk management

Port of Tauranga operates in a complex environment with a wide range of strategic, operational, commercial and safety risks that must be effectively managed to protect the company's employees, the environment, company assets and reputation.

Risk management approach

Our risk policy and risk management framework guides our approach to managing all business risk, including climate change, and our framework is aligned to the Australian/New Zealand Risk Management Standard ***AS/NZS ISO 31000:18 Risk management – Principles and Guidelines***.

Known risks are identified and recorded in Port of Tauranga's risk register and any material risks are incorporated into our enterprise risk management system. Risks are assessed on their likelihood and impact and are rated pre- and post-mitigation.

Port of Tauranga's comprehensive risk management programme is overseen and reviewed annually by the senior management team and Board to establish an integrated and forward-looking perspective of the company's risk landscape including the internal and external environment, changes in likelihood and consequence ratings, and the business unit risk profiles. Both specific risks and any broader linkages are considered.

Following a thorough review of Port of Tauranga's Risk Management Policy and Framework in FY2024, a Risk Specialist role has been created. The Risk Specialist is responsible for preparing quarterly enterprise risk reports for the senior management team and Board, detailing:

- Risks outside the acceptable tolerance levels (the "risk appetite" set by the Board)
- Details of any escalating or emerging risks
- Any significant project risks
- The status of top strategic risks, and any emerging strategic risks.

During FY2024, Port of Tauranga enlisted specialist consultants Onepointfive and Tonkin + Taylor to assist with the identification and assessment of climate-related risks and opportunities.

Identification and assessment of climate-related risks and opportunities

Over the past year, Port of Tauranga has carefully considered how its climate-related risks and opportunities are best identified, assessed, managed and reported within the context of the new reporting framework, as well as the Port's existing risk management framework to ensure integration.

Port of Tauranga has adopted a five stage approach, summarised at Figure 1 and based on international risk management practices and standards. The steps and methods employed at each of the five stages are based on the Port's existing risk management systems, although several specific adjustments take into account both the unique nature of climate-related risks and the need for compliance, including:

- Compliance with all aspects of NZ CS1 and NZ CS3
- Understanding and managing climate-related risks and opportunities in a judicious and responsible manner
- Compliance with any applicable Director duties as a result of the Port's exposure to climate-related risks and opportunities.

We have based these adjustments on a number of existing international and New Zealand climate change-related standards and guidelines.

XRB guidance

We have also ensured the XRB's "Staff Guidance, Entity Level Scenario Development" requirements were integrated into the Port's five stage process, including:

- Project setup
- Climate context assessment – identifying and mapping value chains, identifying climate hazards and transition drivers
- Objectives and settings – ensuring the process and scope were tailored to suit the Port's climate context
- Stakeholders and data – briefing, engaging and upskilling stakeholders.

In identifying current and anticipated climate-related risks and opportunities, the Port:

- Used traditional assessment methods to identify past, current and potential anticipated climate-related risks and opportunities in a comprehensive and detailed way
- Identified sector scenarios relevant to the Port's business model (e.g. Aotearoa Circle transport, agriculture and energy scenarios)
- Defined parameters including global references, emission trajectories, temperature outcomes and other assumptions.

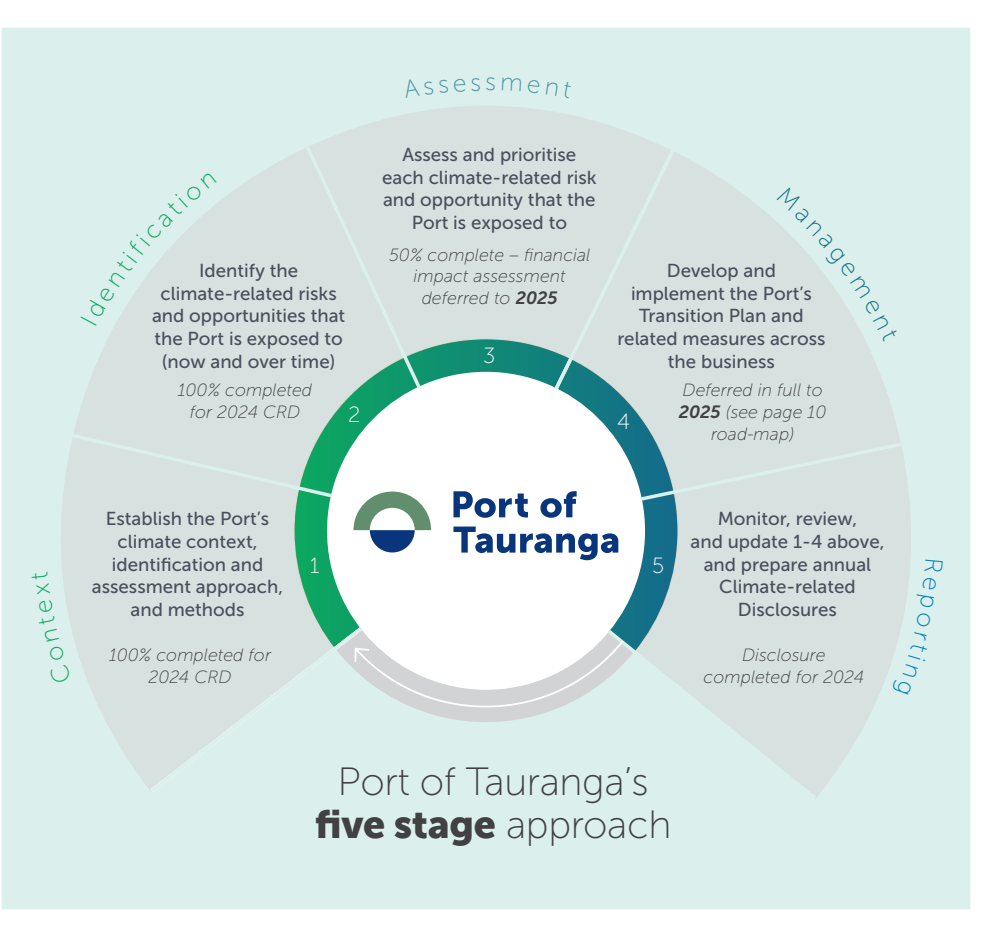
A long list of drivers was assessed and ranked by influence and uncertainty. Various methods were used to unpack, rationalise and map how each driver might play out under each scenario, including understanding interactions and dependencies between one or several drivers. The scenarios were then used to identify anticipated climate-related risk and opportunities not already identified, followed by a qualitative assessment of the Port's exposure and vulnerability to each.

Identification

A comprehensive assessment of potential indirect climate risks and opportunities was carried out across key value chains – dairy, logs and other forestry, kiwifruit, liquid fuel and stock feed.

A detailed assessment of current and anticipated knock-on impacts of each potential risk and opportunity was carried out to establish materiality.

Figure 1:



Containerised goods, lower volume commodities and break bulk imports and exports were also addressed. However, because of the practical limitations, this entailed a much higher-level assessment of upstream (supply chain) and downstream (market access and demand) risks and opportunities.

Key operations and material assets such as buildings, infrastructure, plant and equipment were also assessed for exposure to physical and transition risks. This was carried out at the individual asset level for all building and infrastructure assets, as well as for key operations.

Staged approach to reporting

In the first mandatory reporting cycle, our focus is on building robust foundational Climate-related Disclosure systems, capability and knowledge. In years two and three, we will build on this foundation identification and assessment work.

2024 (complete)	**Stage 1:** Context	Establish Port of Tauranga's climate context and develop a fit-for-purpose Climate Risk Framework (i.e. suite of processes, methods and tools) to enable the Port to identify, assess, manage and report on its climate-related risks and opportunities.
	Stage 2: Identification	Use traditional risk screening methods to identify existing and emergent climate-related risks and opportunities that: • The Port's operations, buildings, infrastructure and other key assets are directly exposed to • The business model and strategy are indirectly exposed to, as a result of knock-on impacts across the value chain for the Port's five key import and export commodities. Undertake a high level identification and assessment of joint venture companies' material risks and opportunities. Develop and apply three Port climate scenarios by: • Identifying three relevant standard sector climate scenarios • Developing scenario "archetypes" and a shortlist of key drivers aligned with the relevant sector scenarios (in particular the agricultural and transport sector scenarios) • Building out the detail with Port-relevant outcomes for each key driver • Identifying climate-related risks and opportunities that may arise under each scenario.
	Stage 3: Assessment	Qualitative assessment of the Port's exposure and vulnerability to each climate-related risk and opportunity identified at stage 2. Derivation of an impact/risk rating based on the assessments. Prioritisation of risks and opportunities to help determine significance, urgency, and availability/feasibility of response options.
2025	**Stage 2** (continued): Identification	Update and refresh the Port's identified climate-related risks and opportunities across the value chain based on: • Any material changes to the Port's strategy, risk management framework or external climate context • New insights gained from sector peers and commodity customers • New or updated standard sector scenarios (e.g. energy sector).
	Stage 3 (continued): Assessment	Update the detailed assessment findings and undertake a detailed assessment of joint ventures' climate-related risks and opportunities. Establish a robust means of assessing the financial impact of the Port's current and anticipated climate-related risks and opportunities, ensuring the findings are reliable, valuable and not unduly speculative.
	Stage 4: Management	Begin detailed transition planning with a focus on formulating a comprehensive, effective and coherent response to the Port's priority short and medium-term risks and opportunities.
2026	**Stage 3** (continued): Assessment	Utilise emerging qualitative and quantitative data to improve assessment of financial impacts, particularly those arising from current and emergent risks and opportunities.
	Stage 4 (continued): Management	Update and refine 2025 transition planning, taking into account the performance of any initiatives implemented. Identify and select preferred action and pathways, with corresponding metrics and targets, for longer term risks and opportunities.

Time horizons

Time horizons have been based on Port of Tauranga's business planning cycles, infrastructure asset life planning, and long-term strategies.

Time horizons	
Short-term	Risk over the next 0-5 years, in line with Port of Tauranga's budget and business planning cycle.
Medium-term	Risk within the time horizon 5-25 years, in line with Port of Tauranga's long-term strategy, including our net zero emissions ambition.
Long-term	Risk within the time horizon 25-50 years, in line with long-term infrastructure asset life planning and strategic outlook for Port of Tauranga.

Port of Tauranga value chain

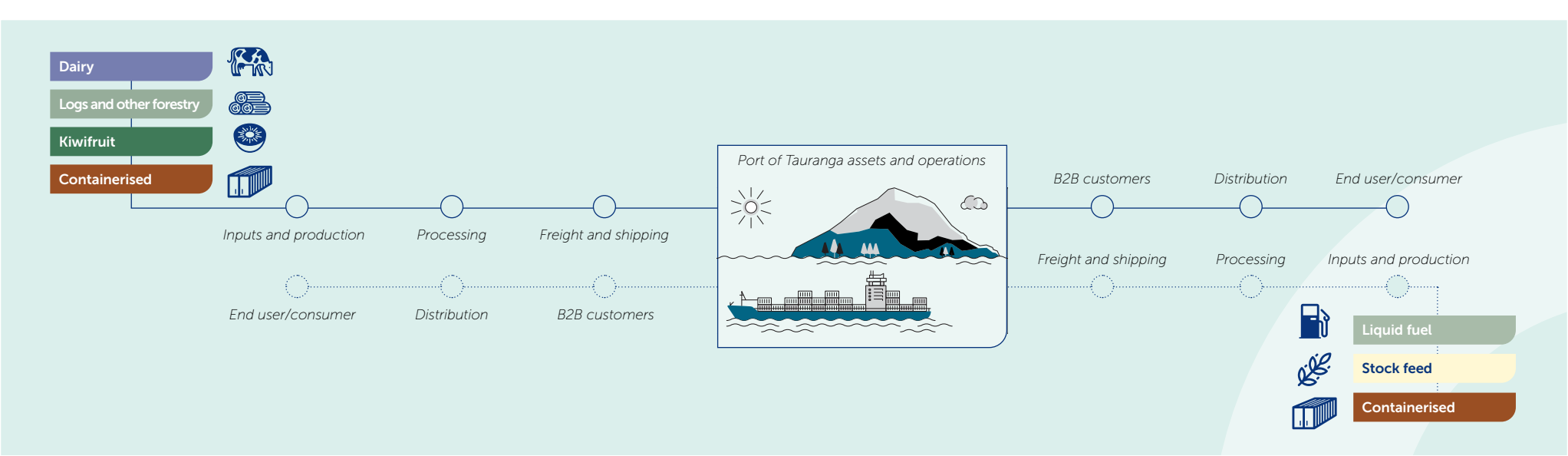
Context

As New Zealand's largest sea port, Port of Tauranga (together with its inland ports and wider Group sea port operations), imports and exports commodities and goods that belong to an indeterminate number of value chains.

For this reason, it is not feasible to carry out a full value chain analysis of every one, especially in the case of containerised freight, as accurately identifying the specific value chain of every container's contents is not practically possible.

Accordingly, guided by the fair presentation, value chain and materiality requirements of NZ CS3, the Port focused on identifying and mapping the value chain for its:

- Four largest export commodities, i.e. dairy, logs, other forest products and kiwifruit, which comprise approximately 75% of total exports by volume
- Two largest import commodities, i.e. liquid fuels and stock feed, which account for 30% of total imports by volume.



Strategy

Port of Tauranga has examined how the company might perform under a range of potential futures. The Port's operating environment will be influenced by social, technological, economic, environmental and political drivers. We have made some assumptions and logical conclusions to help identify potential impacts and their severity on our operations, strategy and finances. Because of Port of Tauranga's unique position within the supply chain, we have drawn from the scenarios developed by the agricultural, transport and energy sectors.

In this section we summarise the climate-related risks and opportunities identified as impacting, or likely to impact, Port of Tauranga's business as well as the Port's response.

Port of Tauranga is currently developing a Transition Plan to be reported on in detail in the FY2025 Climate-related Disclosures Report.

Port of Tauranga's business model and strategy

Port of Tauranga is New Zealand's largest and most efficient port. It has grown to become the key international freight gateway for the country's imports and exports, and the only port able to accommodate the largest container vessels that visit New Zealand.

According to Ministry of Transport data, Port of Tauranga handles 32% of all New Zealand cargo by volume, 39% of all shipping containers and 38% of all New Zealand exports by volume.

Purpose and vision

The Port's purpose of "connecting New Zealand to the world" is underpinned by seven key aspirations that go beyond profit:

- Drive national prosperity
- Improve community wellbeing
- Protect our natural environment
- Respect mana whenua
- Nurture our people
- Provide superior customer service
- Deliver long-term value.

The Port's approach to the challenges and opportunities presented by climate change is approached through this lens. The Port's assessment and prioritisation of climate-related risks and opportunities is also informed by this purpose and vision.

Business model

Port of Tauranga works with key import and export partners to develop and deliver highly effective logistics solutions. The Port has developed an efficient and integrated national freight and logistics network utilising a number of subsidiaries and joint ventures.

Port of Tauranga operates three multi-modal (connected by road and rail) inland ports in Ruakura (central Hamilton), South Auckland and Rolleston (near Christchurch). It has also partnered with local owners in two regional feeder ports – Northport (a deepwater commercial port near Whangārei in Northland) and PrimePort Timaru. At PrimePort Timaru, Port of Tauranga owns the Timaru Container Terminal, which is operated by the Port's wholly-owned subsidiary, Quality Marshalling.

Quality Marshalling also operates the container rail exchange at Port of Tauranga and the Ruakura Inland Port.

Port of Tauranga also has joint ownership in Coda Group, a freight logistics group, and PortConnect, an online cargo management system.

The network described here is crucial to the Port's ability to provide its customers with highly effective supply chains, and is integral to the Port's climate resilience.

Key import and export commodities

Port of Tauranga's business model has been shaped in large part by its focus on servicing a range of key commodities responsible for the majority of annual cargo volumes and revenue. Export cargoes, responsible for around 67% of all Port volumes, include:

- Logs and other forest products (approximately 54% of total export volumes)
- Dairy exports, including milk powder (approximately 13% of total export volumes)
- Kiwifruit (approximately 10% of total export volumes)
- Other, mostly containerised, cargo (approximately 23% of total export volumes).

Imports fluctuate year-to-year, but typically make up around a third of Port cargo volumes. Key import commodities include:

- Liquid fuel imports (approximately 19% of total import volumes)
- Stock feed imports (around 11% of total import volumes)
- Other, mostly containerised cargo (nearly 70% of total import volumes).

Port of Tauranga's climate change strategy

Port of Tauranga has developed a diverse and resilient portfolio of cargoes, operations, assets and revenue sources that will help ensure it is protected from the physical effect of climate change.

Port of Tauranga monitors and responds to cargo trends, which will be increasingly influenced by the changing climate. It is preparing to accommodate increased numbers of larger vessels.

Port of Tauranga has pursued a long-term strategy to become New Zealand's international hub port. It is currently the only port able to accommodate the largest container vessels to visit the country. Port of Tauranga has invested and continues to build capacity to cater for this trend to larger vessels, which have greater fuel efficiency and lower greenhouse gas emissions per cargo tonne.

Port of Tauranga has developed a national network of inland freight hubs and regional ports connected by road, rail and coastal shipping to the hub port, offering importers and exporters access to a lower carbon pathway to and from international markets.

The Port is also preparing to further decarbonise its operations through the introduction of electrification and automation in its container terminal, and the purchase of lower emission marine plant.

In accordance with the Climate-related Disclosures framework, Port of Tauranga is preparing a detailed Transition Plan describing its influence on the Port's business strategy. The Port's management response to specific climate-related risks and opportunities is outlined later in this report.

Port of Tauranga-specific climate scenarios

Port of Tauranga, has developed three climate scenarios to identify and assess its climate-related risks and opportunities across short, medium and long-term time horizons.

Climate-related risks and opportunities have been categorised as being driven by either physical impacts (acute and chronic) or impacts from the transition to a lower-carbon future.

As outlined on page 11, Port of Tauranga's time horizons reflect its business model and planning cycles:

- Short-term: 0-5 years
- Medium-term: 5-25 years
- Long-term: 25-50 years.

Port of Tauranga's chosen three scenarios are not predictive or probabilistic forecasts but aim to provide plausible futures to enable the Port to identify climate-related risks and opportunities and test the resilience of its business model and strategy.

Scenario development

The Port's three climate scenarios were developed with assistance from external experts and input from external stakeholders to challenge and test the assumptions and findings of each scenario.

The Port has sourced data and information from the New Zealand Climate Change Commission (CCC), the National Institute of Water and Atmospheric Research (NIWA), Representative Concentration Pathway (RCP) scenarios, the Network for Greening the Financial System (NGFS), the Intergovernmental Panel on Climate Change Shared Socioeconomic Pathways (SSP) and other sources.

The three scenarios are:

- Orderly: global warming is kept to 1.4 degrees Celsius by 2100
- Disorderly: global warming is kept to 2.6 degrees Celsius by 2100
- Hothouse: global warming reaches 3.9 degrees Celsius by 2100.

They draw on the sector scenarios most relevant to the Port, namely:

- Transport sector[2], applicable to the Port's broader freight and logistics operations as well as liquid fuel imports
- Agricultural sector[3], applicable to all of the Port's key export commodities (logs and other forestry, dairy, kiwifruit) as well as stock feed imports
- Energy sector[4], applicable to the future of freight and shipping energy (e.g. alternative fuels), shore power, and liquid fuel imports.

A comparative analysis enabled the downscaling of the relevant elements, such as emissions trajectories, to the Port level in a coherent and internally consistent way. Various methods were used to unpack and rationalise how each scenario might play out.

2 https://www.theaotearoacircle.nz/reports-resources/transport-sector-climate-change-scenarios
3 https://www.theaotearoacircle.nz/reports-resources/agri-sector-climate-change-scenarios
4 https://www.theaotearoacircle.nz/energy-sector-climate-scenarios

Port of Tauranga climate scenarios: defining features and characteristics

Scenario	**Orderly** - 1.4°C at 2100	**Disorderly** - 2.6°C at 2100	**Hothouse** - 3.9°C at 2100
Macro context Globally New Zealand	**Ambitious and coordinated international action leads to the world promptly and decisively shifting to a more sustainable, low emission, and inclusive path, which prioritises ensuring global and domestic economies respect planetary boundaries.** NZ's transition is coordinated and immediate. Emission reduction occurs across all sectors, driven by clearly signalled policy changes and proactive sector-led initiatives aligned with achieving net zero emissions by 2050. Initial transition momentum is catalysed by ambitious policies that are implemented immediately and become gradually more stringent in the lead up to 2050.	**Action is delayed until 2032, when a spate of severe weather events and missed Paris Agreement targets push many countries to rapidly implement stringent policies aligned with reducing emissions to net zero as soon as possible. Not all countries take equal action.** NZ follows suit to keep up with and retain access to export markets. Stringent and blunt mitigation policies are introduced over a shorter timeframe, often in poorly coordinated fashion. Prioritisation of emissions reduction is required to achieve revised targets. The resulting transition comes at a higher level of cost, disruption, and inequity across society, and between sectors and regions.	**Conflict and economic disruption in the 2020s and 2030s lead to geopolitical division that stalls effective climate action and drives prioritisation of energy and food security. Global mitigation action falters and fossil fuel use continues as a result. Some abatement occurs as a by-product of energy security and resilience concerns.** NZ joins the rest of the world in prioritising food and energy security. As a result, no additional mitigation policies are implemented from the late 2020s onwards. Faced with high costs and disrupted global markets, the focus shifts to adaptation and ensuring food production remains high despite increasingly severe physical climate impacts.
Reference scenarios and data sources	NGFS: Net Zero 2050 — RCP 1.9 (NIWA RCP 2.6)[5] SSP1-1.9 — CCC Tailwinds *Tū-ā-pae (Orderly) Agriculture Sector Scenario and the Fully Charged Transport Sector Scenarios are both aligned with the above. For the reasons outlined at footnote 6 the Port also elected to base its orderly scenario on the above.*	NGFS: Delayed Transition — RCP 4.5 (NIWA RCP 4.5)[5] SSP2-4.5 — CCC Headwinds *Tū-ā-hopo (Disorderly) Agriculture Sector Scenario aligns with the above in full. The selected SSP and RCP deviate from the Short Detour Transport Sector Scenario (which uses SSP2-2.6 and NIWA RCP 2.6 projections) – see footnote 6.*	NGFS: Current Policies — RCP 8.5 (NIWA RCP 8.5)[5] SSP3-7.0 — CCC Current policy reference *The Bypass to Breakdown Transport Sector Scenario aligns with the above in full. The selected SSP reference scenario deviates from the Tū-ā-tapape (Hothouse) Agriculture Sector Scenario (which is based on SSP5-8.5) – see footnote 7.*
Policy ambition and response	**Ambition:** 1.5°C aligned (highly ambitious) **Response:** Immediate, becoming gradually more stringent; smooth; coordinated and well signalled (international and domestically).	**Ambition:** 2°C aligned (low ambition to 2032, then highly ambitious) **Response:** Delayed until 2032; then swift and stringent but disorderly; variable/differentiated between nations.	**Ambition:** ≥ 3.0°C (low ambition) **Response:** No further mitigation policy; Adaptation focused policy response becomes stringent over time.
Temperature outcomes	Global mean annual change: 1.6°C at 2050 1.4°C at 2100 NZ mean annual change: 2031–2050: 0.7°C 2081–2100: 0.7°C–1°C	Global mean annual change: 2.0°C at 2050 2.6°C at 2100 NZ mean annual change: 2031-2050: 0.7–0.9°C 2081–2100: 1.3–1.4°C	Global mean annual change: 2.5°C at 2050 3.9°C at 2100 NZ mean annual change: 2031–2050: 0.9–1.1°C 2081–2100: 2.8–3.1°C
Market response and behaviour changes	**GDP:** moderate to high impacts short-term then eases. Lower household consumption offset by significant and sustained transition capital investments. **High pressure to decarbonise:** rapidly mainstreams across customer, investor, lender, and insurer preferences (particularly in developed economies).	**GDP:** High impact medium-term. Consumer consumption reduction is greater. Transition capital investment softer due to capital and resource constraints. **Orderly analogous but delayed and more stringent/abrupt:** due to the shorter timeframe sectors, investors, lenders and insurers have to decarbonise.	**GDP:** relatively uneffected short-term. Medium to long-term impacts high to extreme due to the physical effects and adaptation related transition. **Slow and delayed:** mitigation over the long-term. Access to capital and insurance becomes increasingly difficult over time due to physical impacts.
Impact severity	Short-term: / Medium-term: / Long-term:	Short-term: / Medium-term: / Long-term:	Short-term: / Medium-term: / Long-term:
Physical impacts	Low / Low/Moderate / Moderate	Low / Moderate / High	Low / Moderate/High / High/Extreme
Transition impacts	Moderate/High / Moderate / Low	Low/Moderate / High/Extreme / Low/Moderate	Low / Moderate *(adaptation only)* / High *(adaptation only)*

5 *At the time of preparing this report NIWA had not produced downscaled climate projections based on AR6 SSP couplings. Accordingly, NIWA RCP 2.6, RCP 4.5 and RCP 8.5 projections were relied on in place of SSP1-1.9, SSP2-4.5, and SSP3-7.0 respectively.*

5 *The Agricultural Sector Tū-ā-hope, Misstep (Disorderly) scenario is based on RCP 4.5, which yields substantially difference physical impact outcomes compared to RCP 2.6, which the Transport Sector's Short Detour equivalent is based on. Port of Tauranga chose to align its Disorderly scenario with the Agricultural Sector equivalent because: (a) it provides a more distinct set of challenging circumstances to test against (i.e. compared to RCP 2.6, which yields physical impact outcomes that are similar to those in the Port's Orderly scenario); and (b) the difference in physical impacts (i.e. between RCP2.6 vis-a-vis RCP 4.5) was deemed to be more pertinent to the primary sector commodities that make up the majority of the Port's exports than it is to elements of the transport system which are relevant to the Port.*

7 *SSP5 assumes continued fossil fuel consumption and rapid technological advancement will enable functional global trade that delivers high economic growth. In contrast, SSP3 depicts a fragmented world characterised by regional blocs, protectionism, and low economic cooperation. The Port elected to align with SSP3 because: (a) it entails circumstances that are arguably more challenging and thereby present more opportunity to stress test the resilience of the Port's business model; and (b) it will likely entail physical impacts that are similar to those under SSP5-8.5.*

Climate-related risks and opportunities for Port of Tauranga

In accordance with the reporting requirements in NZ CS1 and NZ CS3, the Port has (subject to practical limitations), identified and assessed a detailed list of climate-related risks and opportunities arising along the full value chain (in this case "chains" plural) that the Port forms part of.

The depth and specificity with which climate-related risks and opportunities have been identified and assessed, including at each Port of Tauranga site and across the value chains of key export and import commodities, were guided by the following considerations:

- The assessed level of materiality on capital or revenue value at risk basis (as applicable), and/or strategic importance basis
- The availability of information and data (i.e. as the lack of data can inhibit a more detailed assessment)
- Other practical limitations (e.g. it is not possible to assess every import and export on a value chain basis).

Direct climate-related risks and opportunities

The Port elected to identify and assess current and anticipated climate-related risks and opportunities that its assets and operations are directly exposed to (i.e. as a result of their direct exposure to a given climate hazard or transition driver):

- At the individual asset level for those with a capital value of $5 million or more, and/or critical to operations
- At the asset category level (e.g. for plant and equipment, lower value assets, and underground infrastructure)
- On a site and category basis for key Port operations.

Indirect climate-related risks and opportunities

Climate-related risks and opportunities arising across a given value chain can generate knock-on impacts that materially affect the Port. These indirect climate-related risks and opportunities were identified and assessed at a relatively granular level by:

- Identifying and mapping the key segments of each value chain
- Identifying the climate hazards and transition drivers that key segments of each value chain are exposed to now and will/may be exposed to over the relevant time horizons
- Deriving a long-list of potential climate-related risks and opportunities to be considered as part of the Port's scenario analysis.

Containerised goods, lower volume commodities and break bulk imports and exports were also addressed. However, because of the practical limitations, this entailed a much higher level assessment of upstream (supply chain) and downstream (market access and demand) climate-related risks and opportunities.

Joint ventures

Port of Tauranga has undertaken a high level identification and assessment of material joint venture climate-related risks and opportunities. Both PrimePort Timaru and Northport are exposed to similar physical risks (subject to some site-specific differences). These have been noted, where relevant, in the following pages. Their transition risks and opportunities are also similar, as both ports form part of Port of Tauranga's wider national network.

The carrying value of all of the Group's investment in joint venture companies constitutes less than 7.5% of the value of the total asset base of the Group. The largest individual investment in a joint venture company, Northport, comprises less than 3.5% of the Group's total asset base.

Snapshot of key climate-related risks and opportunities for Port of Tauranga

KEY | Impact rating: Low | Moderate | High | Extreme

Climate-related risks

KEY | Impact rating: Material | High | Very high

Climate-related opportunities

Risk/opportunity summary	Time horizon	Orderly	Disorderly	Hothouse
Direct Risks ("DR") – Physical				
DR1: Increased wear and tear and risk of acute damage to Port sites and assets, caused by exposure to increased rainfall, wind and storm events.	Medium – Long-term *(Long-term impact ratings depicted only)*	Moderate	Moderate	High
DR2: Increasing instances of disruption to Port operations, caused by exposure to increased rainfall, wind and storm events.	Medium – Long-term *(Long-term impact ratings depicted only)*	Moderate	High	High
DR3: Heightened risk of flood related damage and disruption, due to sea level rise and increased extreme weather (rain, wind and storm) events.	Long-term	Moderate	Moderate	Moderate
DR4: Increasing risk of disruption to road and rail access due to sea level rise and increased extreme weather (rain, wind and storm) events.	Long-term	Moderate	Moderate	High
DR5: Risk to Port of Tauranga wharves, harbour access, and loading/unloading capability, due to sea level rise and increased coastal inundation.	Long-term	Low	Moderate	Moderate
Indirect Risks ("IDR") – Physical				
IDR1.A: Compromised dairy seasonal production and gradual loss of productive capacity over time, due to multiple acute, chronic climate hazards.	Medium – Long-term *(Long-term impact ratings depicted only)*	Moderate	High	High
IDR1.B: Compromised forestry seasonal production and gradual loss of productive capacity over time, due to multiple acute, chronic climate hazards.	Medium – Long-term *(Long-term impact ratings depicted only)*	Moderate	High	Extreme
IDR1.C: Compromised kiwifruit seasonal production and gradual loss of productive capacity over time, due to multiple acute, chronic climate hazards.	Medium – Long-term *(Long-term impact ratings depicted only)*	Moderate	High	Extreme
IDR2: Reduced availability and/or increased cost of stock feed due to multiple acute, chronic climate hazards and rising biofuel sector demand.	Medium – Long-term *(Long-term impact ratings depicted only)*	Moderate	High	Extreme

Risk/opportunity summary	Time horizon	Orderly	Disorderly	Hothouse
Direct Opportunities ("DO") – Transition				
DO1: Structural changes to New Zealand's national freight system (road to multi-modal) due to various heavy transport decarbonisation transition drivers.	Medium – Long-term *(Long-term impact ratings depicted only)*	High	Material	Material
DO2: Introduction of larger low carbon shipping vessels due to policy, market, and sentiment decarbonisation pressure and technology advances.	Short – Medium-term *(Medium-term impact ratings depicted only)*	Very high	Very high	Material
Indirect Risks and Opportunities ("IDR/IDO") – Transition				
IDR3: Reduced demand for dairy export commodities due to changing preferences and the emergence of new low-emission alternatives.	Medium – Long-term *(Long-term risk ratings depicted only)*	Moderate	Moderate	Low
IDO1: Increased demand for logs and other forestry export commodities due to changing preferences and the emergence of new low-emission alternatives.	Medium – Long-term *(Long-term impact ratings depicted only)*	High	Very high	Very high
IDR4: Impact of changing market access rules and other climate-related regulations on key export commodity volumes (dairy and kiwifruit in particular).	Short – Medium-term *(Medium-term risk ratings depicted only)*	Moderate	Moderate	Low
IDR5: Decarbonisation of New Zealand's transport system, due to various transition drivers, is expected to fundamentally alter demand for liquid fuel imports.	Medium – Long-term *(Long-term risk ratings depicted only)*	Extreme	High	High
IDO2: Effect of climate migration and transition to a low carbon and climate resilient future on demand for imported goods (containerised and bulkbreak).	Short – Long-term *(Medium-term impact ratings depicted only)*	Very high	Very high	Material

Direct physical risks

The following table summarises key physical climate-related risks that the Port of Tauranga's sites, assets, and operations are: (a) currently exposed to; and (b) reasonably expected to be exposed to over the short, medium, and long-term under each of the Port's three climate scenarios.

KEY | Impact rating: Low Moderate High Extreme

Climate-related risks

Risk summary Type and description	**Elements at risk** Sites/assets/operations	**Current impacts** Historical and enduring (as applicable)	**Anticipated impacts** Prior to management response and by scenario	**Management response** Existing and planned
DR1: Increased wear and tear and risk of acute damage to Port sites and assets *Type:* *Acute physical risk* *Timeframe:* *Medium to long-term* Exposure of Port sites and assets to increased heavy and extreme weather (i.e. rainfall, wind and storm events that are projected to increase in severity, frequency, and duration): 1. Will impose increased stress (e.g. wind load, corrosion, humidity and moisture) that is likely to cause some assets to experience increased or accelerated wear and tear. 2. May cause instances of serious and acute damage to one or multiple Port assets.	**Assets:** Port of Tauranga, MetroPort Christchurch, Gateside Auckland, and Timaru Container Terminal (plant only):[8] • Building assets • Wharves and sea protection structures • Pavements, hardstand areas, and other ground improvements • Utilities and services (e.g. three waters, roads, substations) • Plant and equipment (e.g. cranes, straddle carriers, marine fleet). Only 19 assets across all Port of Tauranga-owned sites are critical to operations, of which: 11 are resilient assets (e.g. wharves, underground utilities, and rail); 3 are substations; and 5 are buildings which house functions that can be stood up off site at short notice. All 5 buildings are constructed with resilient materials (e.g. concrete floor, steel frames, and steel-based cladding).	Historical weather events have demonstrated that the vast majority of assets and infrastructure across all Port of Tauranga sites enjoy a high level of inherent resilience to heavy and extreme acute climate events. During Cyclone Gabrielle for example, there were no notable instances of acute damage (caused by wind and rain or otherwise). A rare tornado event approximately 10 years ago caused relatively minor damage to roof sections of two Port shed buildings (one at Sulphur Point and another at Mount Maunganui). Extreme events are currently rare. The Port is also trending towards having fewer buildings at its Sulphur Point and Mount Maunganui sites, thereby reducing its exposure to this physical risk.	Increases in heavy and extreme weather event intensity and frequency are expected to: • Increase the likelihood of serious damage (particularly to large span buildings), and subject to an affected asset's criticality, disruption to asset-dependent operations • Increase asset wear and tear and maintenance. In some cases, it may reduce expected useful life (e.g. increased wind stress may lead to early replacement of roof systems) • Cause a gradual increase in maintenance and insurance costs in the medium to long-term, especially under the hothouse scenario which is projected to increase extreme weather event frequency threefold by 2090. Due to the non-linear rate of climate change the assessed risk is low out to 2040 under all scenarios. A planned shift to fewer on-site buildings and ensuring all new capital works have a high level of resilience will significantly reduce this risk. Short-term Medium-term Long-term Orderly Disorderly Hothouse	A significant proportion of the most vulnerable Port assets are earmarked for replacement or retirement in the short to medium-term (when the risk of acute damage is relatively low). While a Transition Plan is yet to be completed, current actions include: • Monitoring asset performance during acute weather events • Understanding tenant business continuity requirements and incorporating this into ongoing updates to the Port's business continuity planning • Ensuring that future climate resilience demands are a priority consideration when planning and designing all future capital works.
DR2: Increasing instances of disruption to Port operations *Type:* *Acute physical risk* *Timeframe:* *Medium to long-term* Exposure of Port sites to increased heavy and extreme weather (i.e. rainfall, wind, and storm events, which are projected to increase in severity, frequency, and duration), are expected to increase the frequency of disruption to certain key operations over time.	**Operations:** at Port of Tauranga, Timaru Container Terminal, Northport and PrimePort Timaru including: • Ship entry/exit, pilot and tug operations, landing/berthing, lines • Loading and unloading vessels • Crane operations (inland and coastal) • Straddle carrier and reach stacker operation (containerised freight) • Container storage • Receiving, dispatching and marshalling (all freight).	Heavy and extreme weather events tend to have a short-lived impact on: • Ship entry, exit, and berthing • Loading/unloading ships, especially if cranes that cease operations in high winds are required, or wind sensitive bulk dry goods are involved • Handling and storing containers. Interruptions are usually short-lived, the diversity of Port cargo means other activities can often continue despite high winds, and backlogs tend to be resolved promptly minimising knock-on impacts.	Increased extreme weather will cause the frequency of operational disruptions to rise gradually, especially from 2040 onwards under disorderly and hothouse scenarios. This may also create increased safety risks (e.g. containers toppling). However, the Port has identified a number of viable measures that can be implemented to improve the resilience of most key operations (if the need arises) and address safety issues. Short-term Medium-term Long-term Orderly Disorderly Hothouse	The Port's shift to automated electric stacking cranes will increase operational resilience and reduce health and safety risks. Other potential adaptive measures include stacking containers at lower heights, and implementing use of battery-electric automated guided vehicles to minimise container fall risks.

8 *All joint venture companies are also exposed to this physical risk and, by extension, so is Port of Tauranga's investment in these companies.*

KEY | Impact rating: Low | Moderate | High | Extreme

Climate-related risks

Risk summary Type and description	**Elements at risk** Sites/assets/operations	**Current impacts** Historical and enduring (as applicable)	**Anticipated impacts** Prior to management response and by scenario	**Management response** Existing and planned
DR3: Heightened risk of flood related damage and disruption ***Type:*** *Acute physical risk* ***Timeframe:*** *Long-term* Exposure of specified Port sites to increasingly intense and frequent extreme rainfall, and partial exposure of Tauranga sites to an increasing risk of coastal inundation and storm surge events (due to sea level rise and increased extreme weather) creates a heightened risk of flood related damage and disruption.	**Assets:** Port of Tauranga and Gateside Auckland: • Building assets • Pavements, hardstand areas, and other ground improvements • Utilities and services (e.g. three waters, roads, substations) • Plant and equipment (e.g. cranes, straddle carriers, marine fleet). **Operations:** All operations that depend on access to and use of materially-affected Port assets and sites[9]	Sulphur Point and Mount Maunganui sites have experienced small amounts of localised surface ponding during heavy and extreme rainfall events. To date, this has not led to an instance of significant flooding, nor has it interfered with Port operations or caused instances of material damage, outcomes that are largely attributed to: • Site characteristics, such as elevation above sea level, and setback from the coast in the case of the Port's Gateside site in Auckland • Capacity of the Port's stormwater management systems to detain and remove runoff.	The risk of pluvial and coastal flooding is assessed as low in the short-term and moderate over the medium to long-term. For example Tauranga pluvial flood maps, which are based on a 1% AEP rainfall event under an RCP 8.5 median scenario, indicate only discrete areas of the Tauranga sites are at risk. Coastal inundation modelling based on RCP 4.5 and 8.5 scenarios indicate that coastal inundation would also be confined to largely the same areas. Anticipated impacts at the Tauranga sites are low, as most of the assets and operations in at-risk locations tend to have a low sensitivity to flooding. Most at-risk building assets will also be removed or upgraded in the relevant timeframes. Impacts at the Auckland site could be more significant as it houses several building assets that are more sensitive to inundation. Short-term / Medium-term / Long-term Orderly Disorderly Hothouse	The Port's Transition Plan is yet to be completed. However, current measures include: • A detailed examination of the impact sea level rise may have on the Tauranga and Auckland site's stormwater systems (e.g. in terms of capacity and performance), particularly when an extreme weather event coincides with an extreme inundation event (taking into account planned changes to each site over relevant timeframes) • Continuing to monitor stormwater system performance as and when heavy and extreme rainfall events arise.
DR4: Increasing risk of disruption to road and rail access ***Type:*** *Acute physical risk* ***Timeframe:*** *Long-term* Exposure of Port road and rail links to: • increased extreme rainfall and flooding; and • an increasing risk of coastal inundation (due to sea level rise and increased extreme weather), lead to access being disrupted (i.e. if low lying access routes begin to experience flooding and/or become prone to inundation).	**Operations:** Port of Tauranga and MetroPort Auckland as well as all directly-owned and joint venture sites:[10] • Rail and road freight ingress and egress to affected Port sites • Any other Port operations likely to experience knock-on disruption due to a temporary loss of rail and road access (e.g. receiving, dispatching and marshalling, and loading/unloading vessels).	Current levels of coastal inundation and pluvial flooding are within manageable levels and are yet to impact road and rail access in a way that disrupts Port operations. To date, road and rail access to Gateside Auckland and the adjacent MetroPort facility (which is not owned by the Port) is similarly unaffected. As demonstrated by wind related shut downs to date, the Port has been able to manage temporary disruptions without major knock-on impacts arising. This was further highlighted by the log freight train derailment near Te Puke in January 2023. Rail log freight pivoted to road freight for several weeks while rail link was repaired. As a result delays were minor and manageable. Both PrimePort Timaru and Northport have experienced disruption to road or rail access due to severe weather events in recent years.	Projected increases in the intensity of extreme rainfall events will lead to greater depth and extent of ponding in low lying areas where some access routes to Tauranga and Auckland sites are located. Coastal inundation models indicate only the Port's Sulphur Point and Mount Maunganui site access may be affected. Infrequent short-lived loss of rail and road access is unlikely to have a significant impact on operations, unless both are disrupted for an extended period. In a hothouse scenario coastal inundation could lead to Sulphur Point experiencing longer access disruptions in the long-term. If this became frequent it may require significant investment in the development of alternative access, but this is unlikely. Short-term / Medium-term / Long-term Orderly Disorderly Hothouse	See DR3 above.

9 *MetroPort Christchurch has limited flood risk exposure deemed immaterial. Gateside Auckland/MetroPort Auckland have limited exposure in a 1% AEP event. Northport and Timaru Container Terminal/PrimePort have higher levels of coastal flooding exposure in a 1% AEP event. Insufficient data to establish Ruakura Inland Port exposure.*

10 *MetroPort Christchurch road and rail access not in flood zones but access could be affected in extreme event. Gateside Auckland exposed to pluvial flood disruption in 1% AEP event, and Northport road access/Timaru road and rail access exposed to coastal flooding in 1% AEP event. State Highway 1 is exposed to flood and slip risks that may affect Northport. Insufficient data for Ruakura.*

KEY

Impact rating: Low Moderate High Extreme

Climate-related risks

Risk summary Type and description	**Elements at risk** Sites/assets/operations	**Current impacts** Historical and enduring (as applicable)	**Anticipated impacts** Prior to management response and by scenario	**Management response** Existing and planned
DR5: Risk to wharves, harbour access, and loading/unloading capability ***Type:*** *Acute physical risk* ***Timeframe:*** *Long-term* Sea level rise and increased coastal inundation theoretically has the potential to compromise the ability of ships to: 1. Access the Sulphur Point and Mount Maunganui wharves; and 2. Navigate the harbour entry/channel (e.g. due to silt build up caused by changes in tidal effect, and floods).	**Assets:** most Port buildings, infrastructure and other improvements to land assets at the Port of Tauranga are exposed to full or partial stranding (i.e. if wharf and/or harbour access is compromised). **Operations:** Port of Tauranga, Timaru Container Terminal/PrimePort Timaru, and Northport. • Marine (ship entry/exit, pilot and tug operations, landing/berthing, lines) • Loading and unloading vessels (via ship and port cranes or discharge to hopper or tanks) • Maintenance of harbour entry and channel access (e.g. channel depth and navigable depth). At a high level, the assets and operations of Timaru Container Terminal, PrimePort Timaru and Northport will also be exposed to the same risks. A more detailed assessment will be carried out in future.	Te Awanui Tauranga Harbour is a dynamic environment with depths subject to frequent change. Consequently, the Port undertakes regular maintenance dredging to ensure safe navigation and to maintain the required level of under keel clearance. To date, the Port has not encountered any known notable changes to dredging requirements due to sea level rise. Ship access to and use of the Port wharves is also unaffected thus far, as Sulphur Point and Mount Maunganui wharves all have more than sufficient freeboard (i.e. vertical distance from the water level to the top surface of the wharf). The same applies to Timaru Container Terminal and PrimePort Timaru.	This risk is assessed as low across all scenarios in the short to medium-term and moderate over the long-term under the disorderly and hothouse scenarios. This is because current level of freeboard at all Sulphur Point and Mount Maunganui wharves: • Is high enough to prevent wharf inundation even under hothouse sea level rise and storm surge projections • Ensures ship loading/unloading is not sensitive to sea level rise or changes in tide, even if ship sizes increase. While it is difficult to anticipate the effect of sea level rise on the movement and build up of sand and silt in the harbour, the recent Bay of Plenty Regional Council climate risk assessment[11] did not identify this as a material risk. While the same level of analysis has not been carried out for PrimePort Timaru, Timaru Container Terminal and Northport sites, preliminary assessments indicate that they have a relatively similar level of resilience to these risks. Short-term / Medium-term / Long-term Orderly Disorderly Hothouse	The Port will continue to review and monitor the effect of sea level rise on the harbour and work with key stakeholders when planning and executing future harbour access maintenance. While the likelihood of sea level rise impacting ship access to Port wharves is low, this issue will be given careful consideration when planning future wharf upgrades to ensure any prudent adaptation measures are incorporated into wharf extensions and upgrades.

11 https://www.boprc.govt.nz/environment/climate-change/regional-risk-assessment/

Continued monitoring of direct physical risks currently deemed immaterial

A number of other potential physical climate-related risks identified by Port of Tauranga have been omitted from the above list on the basis that they were not sufficiently material to warrant inclusion. Nonetheless, the Port remains aware of and continues to monitor this cohort of lower-level risks on a precautionary basis for any changes that may affect materiality. In the interests of transparency and completeness a short summary is provided below:

Impact of wetter winters
Chronic physical risk

All Port sites are projected to experience wetter winters. Warmer and wetter winters generate higher humidity levels, thereby increasing the risk of gradual mould, mildew related damage to building assets, or increased corrosion in the case of steel roof and facade systems, and plant and equipment. Wetter winters can also cause asphalt surfaces to experience additional wear and tear that increases maintenance and may lead to early replacement.

This risk was deemed immaterial as most Port assets had low sensitivity to the impact of wetter winters and/or a high level of adaptive capacity. In other instances, repair costs are low and unlikely to disrupt operations.

Impact of drier summers
Chronic physical risk

All Port sites are located in areas projected to experience drier summers. Prolonged dry conditions can cause soil to shrink and contract, damaging underground utilities and building foundations in the process. This can be particularly problematic with clay soils, which tend to contract more significantly. This risk was deemed negligible as the Port's Tauranga and Christchurch sites are situated on substrate with a low propensity to contract. While the Auckland site is situated on clay, all building assets are built on raft foundations which are unlikely to be materially impacted as this design is generally more resilient to the impacts described.

Groundwater rise
Chronic physical risk

Sea level rise can cause water tables near the coast to also rise, thereby reducing surface to groundwater depth. This can lead to fluctuating levels of increased hydrostatic pressure being exerted on foundation slabs and other underground elements, such as basement levels and underground utilities. It can also lead to "salinity intrusion" that attacks concrete and reinforcing. Effects of sea level rise on groundwater have not been modelled in Tauranga. Accordingly, current groundwater depths and sea level rise projections were used to derive, on a best endeavours basis, an estimate of potential groundwater rise.

Eight assets at Tauranga sites were identified as potentially being exposed over the long-term under RCP 8.5 (i.e. hothouse scenario). However, most will have been decommissioned in the relevant timeframe. The remainder were mostly low value assets with minimal below ground elements. Three assets at Gateside in Auckland were also potentially exposed over the long-term under RCP 8.5, however, their raft foundations also ensure that they are resilient to groundwater rise-related impacts.

Increasing temperatures and solar radiation
Chronic physical risk

Increasing temperatures and solar radiation were identified as having the potential to impact thermal comfort levels, lead to increased air conditioning use, generate widespread but low grade additional wear and tear (e.g. cause roofing, façade and flashing materials to expand and contract more, resulting in damaged to anchor points, sealants, paint, and water-tight seals).

Existing and readily available adaptive capacity, as well as low sensitivity of most Port assets resulted in this risk also being deemed not material.

Worker health and safety
Chronic and acute physical risk

Various chronic climate hazards like wetter winters, drier summers, and increasing temperatures (on average, but in particular increases in the number of hot days per year) were identified as having the potential to increase the prevalence of and/or harm caused by workplace hazards, such as:

- Trip, fall, and slip hazards due to wetter winters
- Heat stress and heat stroke due to more frequent hot days per year, as well as other health and safety events that can be caused or contributed to by heat induced factors, such as dehydration, fatigue, and discomfort
- Increased dry and dusty conditions due to drier summers, which can exacerbate or cause anew, respiratory health problems arising from increased exposure to airborne dust, allergens, and pollutants
- Insects and pathogens (specifically bites and infections from the same) due to increasing temperatures and wetter winters.

Acute hazards also have the potential to increase the prevalence and severity of workplace hazards. Of particular note, are anticipated increases in heavy and extreme winds, which have the potential to cause serious injury (e.g. due to containers toppling).

While the above outcomes are serious, the Port has determined that existing and readily available/accessible Workplace Health and Safety measures, can adequately mitigate and manage the anticipated increases in workplace hazards due to climate change. Accordingly, the impacts of climate change on worker health and safety were assessed to be a non-material climate-related risk. However, due to the importance of worker health and safety, the Port will continue to monitor this closely on a watching brief basis.

Direct transition opportunities

The following table summarises key transition opportunities that the Port of Tauranga's business is: (a) currently exposed to; and (b) reasonably expected to be exposed to over the short, medium, and long-term under each of the Port's three climate scenarios.

KEY | Impact rating: Material High Very high

Climate-related opportunities

Risk summary Type and description	**Elements at risk** Sites/assets/operations	**Current impacts** Historical and enduring (as applicable)	**Anticipated impacts** Prior to management response and by scenario	**Management response** Existing and planned
DO1: Long-term structural changes to New Zealand's national freight system (road to multi-modal) ***Type:*** *Transition opportunity* ***Timeframe:*** *Medium to Long-term* Efforts to decarbonise heavy transport will likely lead to: • An increasing proportion of inter-regional freight mode-shifting *from* road freight *to* rail and coastal shipping (i.e. integrated multi-modal freight system) • Increasing movement towards a hub and spoke port network model (i.e. as a result of mode-shift noted above).	**Assets and/or operations:** the Port Group network which consists of: • Port of Tauranga (rail links to Hamilton, Auckland and central North Island) • Northport (deep water port) • MetroPort Auckland (inland port with rail links to Tauranga and Hamilton) • Ruakura Inland Port (rail link to Tauranga and Auckland) • Metroport Christchurch (freight hub with rail links to Timaru Container Terminal and rest of South Island) • Timaru Container Terminal, and PrimePort Timaru (road and rail links).	A collective of large companies has backed a heavy transport mitigation pathway that entails a 12% net emissions reduction by 2050 being achieved by mode shift (as outlined in the "Low carbon freight pathway" report for the Sustainable Business Council in 2020). **Road to rail:** Inter-regional rail freight volumes appear to have been relatively stable over time (subject to seasonal variations). This would suggest that any mode shift from road to rail is minimal. **Road to coastal shipping:** In 2021 Waka Kotahi invested $30 million over three years into four suppliers of new and enhanced coastal shipping services, including Pacifica Shipping, which services the Port. A further $30 million over three years in reallocated rail funding has also been approved. While Port transhipment volumes have fluctuated, the long-term trend has been upwards. However, this is attributed to factors unrelated to mode shift.	Anticipated mode shift is expected to increase in export and import freight volumes moving via the Port network due to its: • Role as NZ's main international hub port; • Network of strategic links to key rail and road corridors across New Zealand (including via several inland ports and freight hubs); and • Network of strategic links to the regional ports listed. Forecasting mode shift rates is challenging. However, using the Transport Sector Scenarios as a guide, the projected % share for rail ("**R**") and coastal shipping ("**C**") are as follows: 2030 / 2040 / 2050 **Orderly**: R: 16% C: 14% / R: 21% C: 19% / R: 21% C: 20% **Disorderly**: R: 14% C: 13% / R: 15% C: 14% / R: 15% C: 14% **Hothouse**: R: 13% C: 12% / R: 13% C: 12% / R: 13% C: 12%	Work to quantify the financial impact that the anticipated mode shift could produce under each scenario will be done for next year's Climate-related Disclosures Report. It will also inform the coastal shipping component of the Port's Transition Plan. Greenhouse gas emissions generated by heavy road transport are larger than coastal shipping. Together with the use of rail, and inland ports for cargo hubbing and consolidation, coastal shipping offers a path to significantly increase cargo volumes in future while decarbonising the supply chain.
DO2: Introduction of larger low carbon shipping vessels ***Type:*** *Transition opportunity* ***Timeframe:*** *Short to medium-term* Core to reducing shipping emissions is the introduction of larger (e.g. 12,500 TEU[12] New-Panamax) vessels. The Port can cater to these larger vessels (at its Tauranga sites) when it utilises an existing resource consent to dredge to 14.5m low water draft. However, some NZ ports are subject to constraints that may limit their ability to cater to the expected new larger vessels.	Operations: • All operations associated with loading and unloading international import and export shipments (i.e. via new large vessels) • Transhipping (i.e. coastal shipping) to and from other NZ ports that may not be able to receive larger international shipping vessels (e.g. due to ship access/draft and/or other constraints).	The majority of new vessels entering service now are comparatively larger and lower emission ships. This is primarily because larger vessels have significant carbon efficiency benefits and are more able to accommodate low emission technology like hybrid propulsion systems and energy-efficient engines (amongst other things). Eventually these vessels will filter down to NZ routes in time. Critically, the Port already has: • Consent to carry out the dredging to accommodate these larger vessels • Wharf infrastructure needed to receive larger vessels if the requisite dredging is carried out.	The rate at which old vessels are replaced by larger low emission ships is expected to increase in the short to medium-term. This direction of travel, which is greatest under the orderly scenario but also expected (albeit delayed) under the disorderly scenario, is expected to increase the: • Volume of international freight moved via the Port due to its ability to become big vessel capable; and • Rate of mode shift to coastal shipping (e.g. as some ports may not be able to accommodate larger vessels). Short-term / Medium-term / Long-term **Orderly** **Disorderly**: *No impact* **Hothouse**: *No impact*	The Port will continue to monitor and liaise with key shipping stakeholders regarding anticipated timeframes for replacing existing vessels that currently service New Zealand routes with larger low emission vessels. Planning and implementation of the necessary works to accommodate larger vessels, including berth extensions and dredging, will be coordinated and aligned with introduction of larger vessels to New Zealand routes.

12 TEU = twenty foot equivalent unit, a standard measure of shipping containers.

Continued monitoring of direct transition risks and opportunities currently deemed immaterial

A number of other potential direct transition risks and opportunities identified by the Port have been omitted from the above list on the basis that they were also not sufficiently material to warrant inclusion. Again, the Port will continue to monitor these on a precautionary basis for any changes that may affect materiality. In the interests of transparency and completeness a short summary is also provided below:

Stakeholder and public expectations

Opportunity (market and sentiment)

The Port expects and welcomes the increased scrutiny of its greenhouse gas emissions and climate-related risk profile by all stakeholders. It is anticipated that scrutiny on these fronts will intensify as a result of drivers such as:

- The new Aotearoa New Zealand Climate-related Disclosure Standards and increasing investor, lender and insurer emphasis on financed emissions
- Exertion of increasing pressure to decarbonise across key supply chains (e.g. Nestlé/Fonterra aim of cutting emissions by 30% by mid-2027[13], and a 10-year ambition of reaching net zero carbon emissions)
- Increasing emphasis on "carbon miles" and the introduction of carbon border adjustment mechanisms.

The Port is accredited under the Toitū *carbonreduce* programme and has developed a carbon reduction plan that targets being carbon-zero by 2050. Recent and planned investments in low and zero carbon plant and equipment pursuant to this plan (e.g. the Port's shift to automated electric stacking cranes) will generate meaningful emission reductions. Release of the Port's first Transition Plan as part of its 2025 Climate-related Disclosures will also provide further transparency regarding its management of climate-related risks and opportunities.

Cost and security of electricity supply

Risk (policy and market)

Electricity costs may increase significantly over the short-term under the Port's orderly and disorderly scenarios and based on existing transition drivers already under way (e.g. changes to the Input Methodologies rules under Part 4 of the Commerce Act, which allow electricity lines companies to set higher prices).

Anticipated drivers include large-scale investment in renewable generation, energy storage capacity, and network capacity upgrades, which are expected under both scenarios, as is increased demand for electricity driven by the electrification of industry and transport, outcomes that have the potential to cause price volatility and unprecedented demand side increases in electricity costs, over the short to medium-term, especially if this is to occur in concert with potential peak demand supply scarcity discussed below.

Regarding supply security, as New Zealand transitions away from thermal flexible energy generation (as a means of securing base load), there is a theoretical risk of increasingly scarce flexible generation capacity (e.g. if alternative forms of flexible generation do not coincide with removal of thermal peaking plants). As Meridian Energy observes[14], "it is likely higher levels of electricity spot price volatility and increased demands on flexible elements within the existing power system, such as hydro will be experienced."

Over the longer term, increased renewable generation and technology advances may contribute to lower electricity prices.

From a cost perspective, this risk was deemed manageable, as any electricity cost increases should be, to a large extent, able to be passed on. Security of supply and the risk of brownouts and blackouts have the potential to significantly impact the Port's coolstores and ability to power refrigerated containers. However, on balance, it is unlikely that government and the sector would allow this to become a real and appreciable risk.

Building regulation changes

Risk (policy)

Prior to a change in government in 2023, the Port examined the "Operational Efficiency" and "Whole-of-life Embodied Carbon Framework" Building Code changes proposed by the now disestablished Building for Climate Change team at the Ministry for Business, Innovation and Employment.

It is likely that analogous changes would eventuate prior to 2030 under the Port's orderly scenario and in the early 2030s under its disorderly scenario. The assessed level of impact on the Port under each was considered immaterial, on the basis that:

- Low carbon and energy efficiency outcomes are already a Port priority regardless when carrying out any new capital works; and
- Cost of compliance is passed on to Port tenants; and
- The Port is trending towards fewer buildings on its main Sulphur Point and Mount Maunganui sites, further reducing potential costs associated with complying with the anticipated changes to building regulations.

Other supply chain risks, cost and access

Risk (market)

Many domestic and offshore producers and manufacturers are in the process of implementing carbon reduction strategies, many of which entail significant upfront investments in new technologies, infrastructure, and processes. This is anticipated to increase significantly in the short-term, especially under the Port's orderly and disorderly scenarios.

In most cases, these additional costs will be passed on in full, causing the price of key materials, plant and equipment that the Port relies on to increase short-term before longer term efficiency gains are realised. As the Port would also pass on these costs however, this is unlikely to have a material impact.

Shore-to-ship power

Opportunity (policy and market)

Investing in shore-to-ship power would enable the Port to secure a meaningful reduction in Scope 3 emissions. This mitigation measure is being investigated, however current transmission capacity constraints may make this a medium to long-term opportunity.

Resource management and consenting

Risk and Opportunity (policy)

Over the short and medium-term the Port anticipates that resource management and environmental policies will be subject to ongoing changes associated with:

- Implementing key actions set out in current and updated National Adaptation and Emission Reduction Plans
- Local authorities responding to increasingly manifest physical impacts at the district and regional level (e.g. through local adaptation plans and the incorporation of key adaptation policies into long-term planning).

At this stage it is not possible to anticipate the exact substance and timing of such policy changes or whether they will represent a positive or negative outcome from the Port's perspective. Accordingly, the Port is currently treating this as a general climate-related risk and opportunity, which requires ongoing monitoring on a watching brief basis.

Increased insurance costs

Risk (market)

The increased frequency and severity of climate events like Cyclone Gabrielle are expected to have significant impacts on the insurance and reinsurance markets in New Zealand. It is anticipated that this will lead to higher insurance costs, tighter underwriting criteria, and potential cover limitation.

Notwithstanding the Port's inherent level of resilience, such drivers are expected to generate insurance related cost increases for the Port group. The Port intends to mitigate this anticipated cost pressure by continuing to focus on preserving climate resilience and engagement with insurance stakeholders.

13 https://www.fonterra.com/nz/en/our-stories/media/net-zero-carbon-emissions-dairy-farm.html

14 https://www.meridianenergy.co.nz/public/Sustainability/2024/Meridian-Climate-related-Disclosure-2024.pdf

Indirect physical risks and opportunities

The following table summarises key transition risks and opportunities that the Port of Tauranga's business is: (a) currently exposed to; and (b) reasonably expected to be exposed to over the short, medium, and long-term under each of the Port's three climate scenarios.

KEY | Impact rating: Low Moderate High Extreme

Climate-related risks

Risk/opportunity summary Type and description	**Elements at risk** Sites/assets/operations	**Current impacts** Historical and enduring (as applicable)	**Anticipated impacts** Prior to management response and by scenario	**Management response** Existing and planned
IDR1: Compromised seasonal production and gradual loss of productive capacity over time ***Type:*** *Acute and chronic physical risk* ***Timeframe:*** *Medium to long-term* Exposure of dairy, forestry, and kiwifruit agricultural systems to a number of acute and chronic climate hazards detailed below:[15] • Gradually increases the risk of compromised seasonal production that impacts export volumes via the Port • May have longer term impacts on productive capacity that leads to a sustained decline in volumes exported via the Port.	**IDR1.A: Dairy production** – specific elements at risk include: • Pasture (quality and growth) • Stock (wellbeing and productivity) • Access to water • Land, plant and equipment • Transportation: farm gate to processor • Processor facilities and operations.	Establishing a direct causal link between physical effects of climate change and specific fluctuations in dairy production is difficult. This is because: • Total annual production is influenced by a multitude of different factors, of which weather is only one • Weather-related impacts can also be due to natural climate variations not linked to climate change – e.g. El Niño and La Niña patterns. Historical La Niña to El Niño shifts provide a proxy starting point for understanding how anthropogenic climate change may impact dairy production going forward. Historical El Niño shifts have caused single digit % drops in annual production. However, reports[16] indicate that the most recent El Niño shift is yet to produce an observable impact on production. In the last 20 years dairy export volumes have trended up due to many factors, including an increase in dairy farms and herd numbers, and advances in farm management practices and technology. However, this does not rule out climate change having had some impact on production, which has flowed through to dairy export volumes via the Port.	Projected increases in the climate hazards listed are likely to have impacts on soil quality, water and feed availability, and stock, which are capable of reducing dairy production and the viability of dairy farming over time. Increases in the frequency and intensity of acute climate hazards may also cause season-specific losses of productive capacity. However, improved farming practices and technology are also increasing farm productivity and resilience (e.g. 2022/2023 production remained stable despite increased climatic challenges). Forecasting net impacts on dairy production is challenging. However, under the hothouse and disorderly scenarios a reduction in dairy productivity that is reflected in Port export volumes would be likely over the medium to long-term. This risk is assessed to be notably lower under the orderly scenario, as the listed climate hazards are projected to generate less intense impacts, which on-farm adaptation and productivity advances have a better chance of countering. Anticipated transition-related impacts on demand for key export commodities are also expected to mitigate the financial impact that a reduction in dairy exports may otherwise cause. Short-term / Medium-term / Long-term **Orderly** **Disorderly** **Hothouse**	Port of Tauranga has a long-term strategy of diversifying cargoes and income streams to increase business resilience. The Port also consults regularly with its key customers regarding forecasts and long-term trends in order to understand, manage and mitigate any impacts on the business. The Port continuously seeks opportunities to innovate to serve existing customers' changing needs as well as secure new customers and/or cargoes. Port of Tauranga also acknowledges the innovation and adaptive capacity of the primary production sector as a risk mitigant.
	IDR1.B: Log and forest product production – specific elements at risk include: • Seedlings and maturing stands • Land, soil quality and stability • Water courses and access to water • Infrastructure, plant and equipment • Roads and site access.	Cyclone Gabrielle highlighted the impact that extreme weather can have on forestry producers in terms of: • **Direct damage** to forestry plantations (e.g. widespread damage to trees, site access, land and soil); and • **Indirect impacts** arising from damage that silt and slash mobilised by the cyclone caused to neighbouring land, waterways and property (e.g. reputation and social licence impacts, legal and financial liabilities), as well as increased regulatory compliance and operating costs (e.g. due to regulation changes in the wake of Cyclone Gabrielle forestry damage).	Projected increases in the chronic climate hazards listed are expected to have impacts on: • The prevalence of weeds, pests and disease • Soil quality, due to increased drought in summers and increased soil erosion and runoff during wetter winters • Groundwater holding potential of soil and access to water. Such impacts are capable of limiting growth rates, tree health and log yield, as well as increasing plantation management costs. However, projections also indicate[17] that chronic changes such as wetter winters and increasing temperatures also have the potential to improve photosynthesis rates and extend growing seasons, thereby increasing growth rates and wood density.	

15 *Projections indicate dairy, forestry, and kiwifruit agricultural systems will experience increasing exposure to:*

Chronic climate hazards: including increasing temperatures, wetter winters, drier summers, reduced frost days and reduced cold nights

Acute climate hazards: including increased: extreme weather (i.e. rainfall, wind and storm, and flooding events, which are projected to increase in severity, frequency, and duration); drought; and wildfire weather

Related natural hazards: including increased landslide and soil erosion events caused by extreme rainfall, wind and storm events; and increased pests and pathogens (new and increased prevalence) caused by increased temperatures.

16 https://dairyexporter.co.nz/new-zealand-dairy-industrys-continued-resilience/

17 https://www.ccaae.govt.nz/assets/Documents/Climate-change-will-affect-planted-forests-in-New-Zealand.pdf

KEY | Impact rating: Low Moderate High Extreme

Climate-related risks

Risk summary Type and description	**Elements at risk** Sites/assets/operations	**Current impacts** Historical and enduring (as applicable)	**Anticipated impacts** Prior to management response and by scenario	**Management response** Existing and planned
Compromised seasonal production and gradual loss of productive capacity over time (continued)	**Log and forest product production continued:** • Seedlings and maturing stands • Land, soil quality and stability • Water courses and access to water • Infrastructure, plant and equipment • Roads and site access.	The direct impacts noted previously resulted in early harvesting of cyclone-damaged trees at impacted forestry sites. As a result, the Port experienced a notable increase in log volumes for a period following Cyclone Gabrielle. The indirect impacts associated with Cyclone Gabrielle have not had an observable impact on log and forest product export volumes to date. However, these impacts do have the potential to influence replanting and afforestation decision making, and as a result, log and forest product production volumes over the long-term.	Increasing extreme rainfall, wind, and storm events heighten the risk of acute damage to trees, land and soil, infrastructure and damage caused by forestry waste. Wind, drought, and temperature increases are also expected to increase wildfire events, especially long-term under a hothouse scenario. Estimating the net impacts on annual log volumes is difficult. A decrease in log yield due to the physical impacts noted previously may be offset by expected increases in afforestation (under all three scenarios), improved resilience arising from locating new forestry activities in less erosion prone sites, and ongoing improvements to plantation planning, management and harvesting practices. Due to the scale of New Zealand forestry (estimated at 10.1 million hectares), acute events are also less likely to have a material impact on export volumes. Short-term / Medium-term / Long-term Orderly Disorderly Hothouse	Port of Tauranga has a long-term strategy of diversifying cargoes and income streams to increase business resilience. The Port also consults regularly with its key customers regarding forecasts and long-term trends in order to understand, manage and mitigate any impacts on the business. The Port continuously seeks opportunities to innovate to serve existing customers' changing needs (e.g. accommodating additional log export volumes in the wake of Cyclone Gabrielle) as well as secure new customers and/or cargoes. Port of Tauranga also acknowledges the innovation and adaptive capacity of the primary production sector as a risk mitigant.
	IDR1.C: Kiwifruit production: • Vine systems and fruit • Land, soil quality and stability • Access to water • Infrastructure, plant and equipment • Roads and site access.	Current impacts include acute climate events like Cyclone Gabrielle and a hail storm in Te Puke in April 2023, which led to a significant reduction in export volumes via the Port of Tauranga. Increasing recurrence of warmer winters is also reducing winter chilling, causing kiwifruit to break bud less frequently and later in the season. Green and gold varieties are affected by a reduction in winter chilling, however green varieties tend to see greater impacts on yields and quality. The Port is not able to quantify the impact that this is having on export volumes at present.	Loss of winter chilling due to increasing temperatures poses the biggest threat to yield and may render some locations climatically unsuitable for green varieties. Projected increases in temperature also heighten the risk of pests and pathogens, heat stress and access to water impacting yield and quality.[18] The sector's proactive adaptation response and inherent ability to adapt via improved orchard management practices, new varieties and ability to move production to cooler locations if necessary, is expected to improve overall climate resilience and mitigate impacts on productive capacity. Short-term / Medium-term / Long-term Orderly Disorderly Hothouse	See IDR1.A.

18 https://www.zespri.com/content/dam/zespri/nz/sustainability/Zespri-Climate-Change-Adaptation-Plan.pdf

KEY | Impact rating: Low Moderate High Extreme

Climate-related risks

Risk summary Type and description	**Elements at risk** Sites/assets/operations	**Current impacts** Historical and enduring (as applicable)	**Anticipated impacts** Prior to management response and by scenario	**Management response** Existing and planned
IDR2: Reduced availability and/or increased cost of stock feed *Type:* *Physical and transition risk* *Timeframe:* *Medium to long-term* Exposure of key stock feed cultivation systems to increasing acute and chronic climate hazards has the potential to reduce supply and increase cost.[19] Increasing biofuel sector demand may also drive up prices of stock feed imports. Over time, these drivers have the potential to cause a material reduction in demand for some stock feed imports.	**Demand:** for key stock feed imports, including: • Palm kernel[20] • All other stock feed types (remaining 46% of imported feed).[20]	Approximately 75% of total stock feed imports are consumed by the dairy sector, followed by poultry at 12% and other livestock, including pigs, at 4%.[21] Because demand for supplementary feed outstrips domestic supply by nearly double, feed stock imports have trended upwards, largely in step with increased dairy production which is also less price sensitive to feed price hikes compared to agricultural systems like poultry. To date, import volumes have remained relatively stable, suggesting that recent weather related impacts on global production volumes and increasing demand from the burgeoning biofuel sector are yet to have a material impact on domestic demand and, in turn, total annual import volumes.	World Bank projections indicate temperatures in key growing regions may exceed the optimal range for oil palm leading to reduced yield, and declining climatic suitability. Increasing temperatures and drought events are also expected to reduce other key crop yields over the medium to long-term.[22] International Energy Association projects that biofuel demand, which is already impacting the price of many stock feed imports, is set to expand 38 billion litres over 2023-2028, a near 30% increase from the last five-year period.[23] In terms of overall impact, a recent AgFirst report indicates continued access to stable volumes of imported stock feed will likely prevail. However it may be subject to increasing prices, which are likely to affect affordability for non-dairy agricultural systems, rather than overall imported volumes.[24] Short-term Medium-term Long-term Orderly Disorderly Hothouse	See IDR1.A.

19 *Refer to the list of acute and chronic climate hazards and related natural hazards on page 24 above*

20 *Vast majority of palm kernel imports are from Malaysia and Indonesia. Most of the other stock feed imports come from a comparatively diverse range of geographical locations (e.g. Australia, Europe, USA, Argentina). However, the majority of grain stock feed imports, including corn, come from Australia*

21 *https://ourlandandwater.nz/news/demand-supply-trends-and-risks-of-imported-feed/*

22 *https://climateknowledgeportal.worldbank.org/sites/default/files/2021-05/15504-Indonesia%20Country%20Profile-WEB_0.pdf*

23 *https://www.iea.org/reports/renewables-2023/transport-biofuels#*

24 *https://ourlandandwater.nz/outputs/implications-global-price-supply-supplementary-feeds-on-nz/*

Continued monitoring of indirect physical risks and opportunities currently deemed immaterial

Several potential indirect physical impacts identified by the Port have been omitted from the above list on the basis that they were also not sufficiently material to warrant inclusion. The Port will continue to monitor these on a precautionary basis for any changes that may affect materiality. In the interests of transparency and completeness, the most notable indirect physical risks and opportunities deemed immaterial are provided below:

Comparative extent of climate impacts

Opportunity

New Zealand's geographic isolation and relatively moderate pre-existing climate has the potential to result in domestic producers of primary exports experiencing less severe physical impacts (arising from climate change) compared to their counterparts in other key producing nations.

If this comparative outcome does play out in a demonstrable way, it has the potential to benefit domestic primary production in terms of:

- Increased demand (arising from reduced productive capacity overseas, especially in sectors already subject to capacity constraints)
- Lower operating costs vis-a-vis producers in countries harder hit by climate change (e.g. as the latter may have greater adaptation costs).

At present, this potential "opportunity" of sorts is too speculative to include as a key physical opportunity. However, it is a factor that is taken into account when considering the potential longer term impacts that the physical effects of climate change may have on all primary sector exports.

Shipping disruptions

Risk (physical)

The physical effects of climate change are set to impact shipping in a number of ways and are expected to deepen over time. The most high profile impacts to date include reduced water levels in the Panama Canal due to drought, which have led to restrictions in daily ship traffic, and the Northern Sea Route becoming navigable in summer due to receding sea ice.

It is anticipated that over time, expected increases in the severity and frequency of acute weather events will also necessitate changes in route planning, vessel design and safety protocols.

Some routes may also need to be altered to avoid storm prone areas over time. Marine insurance companies are working with shipping companies to implement loss prevention technology to manage in voyage climate-related risks to vessels and cargo, and improve vessel design.

While the above changes may impact transit times, leading to some routes becoming longer and more expensive, they are expected to preserve shipping access to New Zealand over the long-term.

For this reason, the risk of New Zealand experiencing a major loss of overall shipping connectivity is currently assessed as being low, primarily because of the understood levels of adaptive capacity across the shipping sector.

Impacts on dairy transport

Risk (physical)

The potential future impacts of increased heavy and extreme rainfall events on farm gate access and supply chain integrity were also identified and assessed. For example, Cyclone Gabrielle caused mass disruption of access to over 600 Fonterra farms, primarily due to slips and flooding.[25]

The resulting loss of access led to the disposal of more than 4.6 million litres of milk that could not be collected from farms in time. Ongoing productivity impacts also occurred as a result of more than 100 farms experiencing operational disruption due to power cuts. This culminated in a number of the affected farms having to dry off herds early.

While these impacts were serious, they did not translate into a material reduction in total export volumes, as they represent only a small fraction of the approximately 21 billion litres produced each year by New Zealand farms.

25 https://view.publitas.com/fonterra/2023-climate-related-disclosure/page/15

Indirect transition risks and opportunities

The following table summarises key indirect transition risks and opportunities that the Port of Tauranga's business is: (a) currently exposed to; and (b) reasonably expected to be exposed to over the short, medium, and long-term under each of the Port's three climate scenarios.

KEY

Impact rating: Material | High | Very high — *Climate-related opportunities*; Low | Moderate | High | Extreme — *Climate-related risks*

Risk/opportunity summary Type and description	**Elements at risk** Sites/assets/operations	**Current impacts** Historical and enduring (as applicable)	**Anticipated impacts** Prior to management response and by scenario	**Management response** Existing and planned
Changing preferences and the emergence of new low-emission alternatives *Type:* *Transition risk and opportunity* *Timeframe:* *Medium to long-term* Changing preferences and buyer behaviour, and the increasing availability of low-emission alternatives, has the potential to: • IDR3: Reduce demand for dairy export commodities *(Transition Risk)* • IDO1: Increase demand for logs and other forestry export commodities *(Transition Opportunity).* *Transition drivers of note include (but are not limited to):* • *Increasing consumer emphasis on embodied emissions (including carbon miles) and broader environmental impacts* • *Increasing consumer preference for low carbon sustainable alternatives* • *Increasing pressure to reduce supply chain emissions (e.g. from business-to-business customers, consumers, lenders, investors and insurers)* • *Increasing availability, affordability, and appeal or performance (as applicable) of low emission alternatives due technological advances and innovation.*	**Reduced demand (risk):** across existing and emerging markets for key dairy exports, such as: • Whole milk powder • Anhydrous milk fat • Infant formula • Whey protein and other products • Cream • Butter • Casein • Cheese.	Growing consumer concerns about the climate impacts of traditional dairy products, coupled with the increasing availability, affordability, and popularity of plant based and "lab-derived" alternatives, is having an observable impact on consumer preferences, primarily in established markets like Australia, Europe and North America. This has flowed into demand from business-to-business buyers, many of which have committed to ambitious greenhouse gas reduction targets of their own. To date, these changes have not had a demonstrable impact on export volumes. This may be attributed (at least in part), to New Zealand dairy exports being one of, if not the most sustainable in the world, and the fact they are concentrated in emerging markets.	It is anticipated that dairy export demand and volumes will at least remain stable over the short to medium-term even under orderly and disorderly scenarios. This is attributed to: • OECD-FAO Agri Outlook indicating global export supply becoming constrained for reasons likely to persist (e.g. climate change, land and water scarcity, rising input costs)[27] • Growing emerging markets with increasing populations and incomes and limited domestic dairy capacity • The likelihood high setup and feedstock costs will lead to precision fermentation only achieving cost parity in respect of a small subset of specialist high-value proteins • The likelihood NZ dairy will retain its sustainability based competitive advantage due to its mitigation strategy. Short-term / Medium-term / Long-term Orderly Disorderly Hothouse	See IDR1.A.
	Increased demand (opportunity): across existing and emerging markets for sustainable wood exports, including: • Logs • Wood chips • Sawn timber • Engineered wood • Pulp and paper • Bio-energy (e.g. biofuel and biomass products), bio-manufacturing and biotechnology products.[26]	Sustainable timber and wood fibre derivative products are increasingly becoming a core pillar of decarbonisation strategies adopted by many emission intensive sectors around the world (e.g. engineered wood products to replace structural steel; cellulose and other materials to replace plastic; woody biomass to replace coal; various bio-energy replacements for liquid fuels amongst many other new uses). The emergent use of sustainable timber derived alternatives like those listed above is yet to have an observable impact on forestry exports. However, this may be attributed (at least in part) to many of these alternatives having not yet achieved price parity.	Increased exports may arise medium to long-term under orderly and disorderly scenarios, driven by: • Some bio alternatives reaching price parity short-term due to decarbonision and technological advances • Increased afforestation due to the above, NZ price increases, and introduction of agricultural emissions pricing. An increase may also occur under the hothouse scenario as energy security becomes a global priority. More afforestation is expected in a disorderly scenario (relative to an orderly pathway). However, it may take 6-10 years longer to impact export volumes, as action is delayed and planting typically takes 25-30 years to reach optimal rotation age. Short-term / Medium-term / Long-term Orderly — *No impact* Disorderly — *No impact* Hothouse — *No impact*	Port of Tauranga is well-placed to accommodate large volumes of forestry export products given its significant land holdings, berth capacity and excellent road and rail access.

26 Emerging goods not currently exported in volume, which are expected to increase in demand as the world transitions.

27 https://www.fao.org/markets-and-trade/publications/detail/en/c/1697630/

KEY | Impact rating: Low Moderate High Extreme

Climate-related risks

Risk/opportunity summary Type and description	**Elements at risk** Sites/assets/operations	**Current impacts** Historical and enduring (as applicable)	**Anticipated impacts** Prior to management response and by scenario	**Management response** Existing and planned
IDR4: Impact of changing market access rules and other climate-related regulations on key export commodity volumes ***Type:*** *Transition risk* ***Timeframe:*** *Medium to long-term* Exposure of all key export commodities to the anticipated introduction of carbon border adjustment mechanisms ("**CBAMs**") and other climate change related regulations which have the potential to influence future market access, and, in turn, demand for key commodity exports.	**Demand:** for all key export commodities: • Dairy • Logs • Other forest products • Kiwifruit.	Many countries have signalled their intention to implement CBAMs and other domestic regulatory changes (i.e. that prioritise climate and sustainability), over the short to medium-term. Some export market countries are also in the process of introducing or have otherwise signalled their intention to introduce climate reporting obligations and other regulations, which also have the potential to indirectly impact market access (e.g. by incentivising or requiring that commercial purchasers move away from or reduce high embodied emission inputs). The above changes are yet to occur at a scale which is likely to materially affect demand for New Zealand key exports. So far, no impacts on export volumes which are attributable to CBAMs have been observed.	The Port anticipates CBAMs and other climate-related regulatory changes will become an increasing part of developed export markets in the short-term. It also anticipates that developing markets will start to follow suit late short-term to early medium-term onwards under an orderly scenario and in the medium-term under a disorderly scenario. The Port does not envisage CBAMs and other regulatory changes having a significant impact on export volumes in the short-term, as most key export commodities are concentrated in developing markets. In addition, provided New Zealand maintains its value proposition as one of the most greenhouse gas efficient and sustainable dairy producers and a source of sustainable timber, impacts over the medium to long-term are also likely to be low to moderate. Similar outcomes are also expected in the medium-term for kiwifruit. Short-term Medium-term Long-term Orderly Disorderly Hothouse	Port of Tauranga has a long-term strategy of diversifying cargoes and income streams to increase business resilience. The Port also maintains close relationships with government agencies in order to anticipate likely market access rule changes and understand any potential impact on the business. The Port regularly communicates its climate change response and regulatory compliance to investors and other stakeholders.
IDR5: Decarbonisation of New Zealand's transport system ***Type:*** *Transition risk* ***Timeframe:*** *Long-term* A range of policy, market and technology-related changes are expected to fundamentally alter the demand profile for liquid fuel imports. *Transition drivers of note include:* • *Reduced internal combustion engine vehicle production* • *Increased uptake of EVs and mode shift away from private vehicles* • *Introduction of alternative fuel for heavy transport.*	**Reduced demand:** for traditional liquid fuel imports. **Increased demand:** for biofuel imports.	Following the closure of Marsden Point in early 2022, New Zealand's entire supply of refined fuels (petrol, diesel and jet fuel) has been imported. To date, the volume and frequency of liquid fuel imports has remained relatively stable. However, as NZ's existing and anticipated efforts to decarbonise the transport system start to gain momentum, this may change the demand profile, particularly if the heavy transport sector elects to pursue biofuel or other alternatives as a transitional or long-term fuel option.	The Port anticipates that the volume of traditional liquid fuel imports will decrease significantly over short to medium-term, driven by the decarbonisation of the light fleet in the first instance. Harder to abate heavy transport fleets are expected to decarbonise over a longer period. As this occurs the Port anticipates biofuel imports replacing a proportion of heavy vehicle related liquid fuel imports in the medium-term onwards. However, due to uncertainty regarding the future of transport energy, it is difficult to anticipate in what proportions and over what timeframes this shift will occur, if at all. However, using the Transport Sector Scenarios as a guide, the projected pace and rate of change under each scenario is as follows: Short-term Medium-term Long-term Orderly Disorderly Hothouse	Port of Tauranga is a long-term advocate of rail transport and coastal shipping as an alternative to road transport for moving large volume and heavy cargo. The Port is also consulting with customers about future infrastructure needs for traditional, biofuel and alternative fuel imports in the future and will respond as required.

KEY | Impact rating: Material | High | Very high

Climate-related opportunities

Risk/opportunity summary Type and description	**Elements at risk** Sites/assets/operations	**Current impacts** Historical and enduring (as applicable)	**Anticipated impacts** Prior to management response and by scenario	**Management response** Existing and planned
IDO2: Effect of climate migration and transition to a low carbon and climate-resilient future on demand for imported goods ***Type:*** *Transition opportunity* ***Timeframe:*** *Short to medium-term* The physical effects of climate change and transition to a low carbon, climate resilient future is expected to produce: • Increased migration to New Zealand over time • Unprecedented levels of capital investment, driven by increasing pressure to decarbonise and the need to improve climate resilience. These expected changes in particular have the potential to generate an increase in the volume of imports and freight movements via Port sites.	**Demand:** for imports of: • Containerised goods (consumer) • Containerised goods (commercial) • Bulk break commodities, materials and equipment (e.g. associated with mitigation and adaptation capital works projects) • Low emission and alternative fuel vehicles (e.g. electric cars).	Decarbonisation and adaptation projects are already taking place across a range of New Zealand sectors including energy, transport, process heat, agricultural and construction amongst others. Participants across these sectors have also indicated: • Further planned investments in mitigation and adaptation projects • Carbon reduction and resilience building pathways, which are expected to entail significant levels of capital investment. It is understood that a notable proportion of the materials, components, plant, and equipment required to complete past mitigation and adaptation projects was imported (e.g. many of the parts and materials needed to expand and improve electricity generation and transmission infrastructure must be imported). This will likely be the case for future adaptation and mitigation projects, especially those that require specialist technology produced overseas. At present the Port is yet to see a material uplift in imports that is directly attributable to mitigation and adaptation related investment. However, this is likely due to the emergent nature of this work.	Economic headwinds capable of softening demand for imported goods are expected under each climate scenario. For example, under the Port's: • Orderly scenario, a moderate but generally manageable level of negative economic impact is anticipated in the short to early medium-term • Disorderly scenario, greater levels of economic disruption, inflationary pressures, financial instability (amongst other impacts) are expected in the medium-term. These headwinds will likely have a level of suppression effect on demand for imported goods, this is expected to be offset, at least in part, by an anticipated increase in: • NZ's population, which by 2050 is projected to increase by 16%, 22% and 26% respectively under each of the Port's climate scenarios below • Capital investment by Government and the private sector in mitigation and adaptation related projects. Under an orderly scenario these variables have the potential to generate a net increase in import volumes over the short to medium-term. Under a disorderly scenario, they at least have the potential to offset and minimise the impact that the above economic headwinds may otherwise have on import volumes. Short-term | Medium-term | Long-term **Orderly** **Disorderly** *No impact* **Hothouse** *No impact*	Port of Tauranga is well placed to accommodate larger volumes of imported cargo according to demand. Port of Tauranga is currently the only New Zealand port visited by the largest container vessels calling in New Zealand. It has established a network of inland ports close to large population centres, linked by rail to the seaport at Tauranga, in order to facilitate timely delivery of imported cargo.

Metrics and targets

This statement constitutes the preparation used by Port of Tauranga in the disclosures of its Scope 1 and 2 greenhouse gas (GHG) emissions and related targets for reporting under the CRD regime (having utilised the adoption provisions of NZ CS2 regarding Scope 3 emissions).

Reporting period

This statement is applicable for the reporting period 1 July 2023 to 30 June 2024, following the Port's financial year cycle.

Assurance statement

NZ CS1 Appendix B paragraph B1 requires assurance over an entity's GHG emissions for reporting periods that end on or after 27 October 2024.

The GHG emissions disclosed by the Port for the reporting period have not undergone assurance.

Intended use and users

The Port wants to measure and report its emissions for a number of reasons, namely to:

- Identify and prioritise emissions management and reduction opportunities
- Meet stakeholder expectations
- Meet Climate-related Disclosure reporting obligations.

On this basis, the intended users of the Port's emissions inventory are:

- The Port's management and the Board of Directors
- All interested stakeholders including investors, regulators, communities, employees, customers, and contractors.

Standards used in the preparation of the inventory

The Port has prepared its Scope 1 and Scope 2 GHG emissions for the reporting period in accordance with:

- The Greenhouse Gas Protocol – A Corporate Accounting and Reporting Standard (Revised Edition)
- The Greenhouse Gas Protocol: GHG Protocol Scope 2 Guidance: An amendment to the GHG Protocol Corporate Standard.

Organisational boundaries

The Port as the reporting company has used the operational control consolidation approach, as defined by the GHG Protocol.

Under this consolidation approach the organisational boundaries established by the Port include the Port as the parent company and its wholly owned subsidiaries, Quality Marshalling and Timaru Container Terminal and its joint venture interest in Ruakura Inland Port that is operated by Quality Marshalling. This organisational boundary is collectively referred to as the Group. The Port has another wholly owned subsidiary, Port of Tauranga Trustee Company Limited, that has been excluded from the inventory as it has no associated emissions. The Port also holds interests in additional joint ventures Coda Group, Northport, PrimePort Timaru and PortConnect that have been excluded from the Scope 1 and 2 emissions inventory due to a lack of operational control held by the Port or its subsidiaries. This is further detailed in Table 1 (see page 32).

The selected consolidation approach was chosen as it allows for the establishment of an organisational boundary that best aligns with the ability of the Port to influence emissions reductions.

The emissions of joint ventures not included in the organisational boundary will be included in the Port's Scope 3 inventory in FY2025.

Operational boundaries

The GHG Protocol Standard differentiates emissions into Scopes as follows:

- **Scope 1** – Direct GHG emissions
- **Scope 2** – Indirect GHG emissions (from the generation of acquired and consumed energy)
- **Scope 3** – Indirect GHG emissions (other sources).

Direct GHG emissions are from sources that are owned or controlled by companies within the organisational boundary and indirect GHG emissions are from sources that occur as a consequence of the activities of the companies within the organisational boundary but occur at sources owned or controlled by another company.

Scope 1 emissions included for the Group include diesel combustion in owned or controlled plant (such as straddle carriers, tugs, pilot vessels, generators, terminal tractors, reach stackers, mobile harbour cranes and light vehicles) as well as the combustion of unleaded and premium petrol in light vehicles.

Scope 2 emissions for the Group include the consumption of electricity used in refrigerated container slots, ship-to-shore cranes, floodlighting, office buildings and electric vehicle charging stations.

A small amount of Scope 1 emissions has been excluded from the inventory, being gasses utilised in the Port's mechancial workshop, and a one-off refrigerant gas leak. These have been excluded due to being immaterial to the inventory and/or poor data quality.

The Port leases several buildings where the Port pays for the electricity consumption and then on-charges the cost to the tenant. These electricity emissions have been excluded as they are the Scope 2 emissions of the Port's tenants (Scope 3 of the Port's emissions).

For the specified reporting period, all Scope 3 emissions have been excluded as the Port has elected to adopt provision 4: Scope 3 GHG emissions of NZ CS2 that allows for a climate reporting entity to not report on Scope 3 emissions in its first mandatory reporting year. This has been adopted as the Port is still undertaking an assessment of Scope 3 emissions operational boundaries.

Table 1: Organisational boundaries

Entity	Percent interest	Description of entity	Included in inventory?	Justification
Port of Tauranga Limited	100% (Parent company)	New Zealand's largest port and international freight gateway. Facilities include a container terminal, bulk cargo wharves, a bunker berth and extensive cargo storage and handling facilities in Tauranga. Road and rail connections to Hamilton, Auckland and the central North Island with extensive road networks and coastal shipping connections.	Yes	Port of Tauranga is the reporting company and therefore full Scope 1 and 2 emissions are included in the inventory.
Quality Marshalling (Mount Maunganui) Limited	100% (Subsidiary)	Specialist cargo handling services company with operations at Tauranga, Timaru and Ruakura.	Yes	Quality Marshalling is a wholly owned subsidiary of the parent company and therefore the full Scope 1 and Scope 2 emissions of the organisation are included in the inventory.
Timaru Container Terminal Limited	100% (Subsidiary)	Direct shipping links from Timaru to the international hub port at Tauranga and is operated by Port of Tauranga's subsidiary Quality Marshalling.	Yes	Timaru Container Terminal is a wholly owned subsidiary of the parent company and therefore the full Scope 1 and Scope 2 emissions of the organisation are included in the inventory.
Ruakura Inland Port	50% (Joint venture)	Inland container terminal located within Ruakura Superhub, at the nexus of the golden triangle of Tauranga, Auckland and Hamilton. Sits adjacent to the East Coast Main Trunk rail line and the Waikato Expressway. Operated by Port of Tauranga's subsidiary Quality Marshalling.	Yes	Ruakura Inland Port is under the operational control of Quality Marshalling and therefore the full Scope 1 and Scope 2 emissions of the organisation are included in the inventory.
Coda Group	50% (Joint venture)	Freight logistics group incorporating Tapper Transport, Dairy Transport Logistics, Priority Logistics and MetroPack. Coda Group operates New Zealand's largest intermodal freight hub at Savill Drive, Ōtāhuhu in Auckland.	No	Port of Tauranga or its subsidiaries do not have full operational control over Coda Group and therefore it has been excluded from the inventory.
Northport Limited	50% (Joint venture)	Northport is a deep-water commercial port situated at Marsden Point near Whangārei. Northport is New Zealand's most northern multi-purpose port.	No	Port of Tauranga or its subsidiaries do not have full operational control over Northport and therefore it has been excluded from the inventory.
PrimePort Timaru Limited	50% (Joint venture)	Commercial port that handles bulk cargoes and is home to a major cement facility and oil terminal.	No	Port of Tauranga or its subsidiaries do not have full operational control over PrimePort Timaru and therefore it has been excluded from the inventory.
PortConnect Limited	50% (Joint venture)	Online cargo management system.	No	Port of Tauranga or its subsidiaries do not have full operational control over PortConnect and therefore it has been excluded from the inventory.
Port of Tauranga Trustee Company Limited	100% (Subsidiary)	A non-trading holding company for Port of Tauranga's employee share scheme.	No	Port of Tauranga Trustee Company has no associated GHG emissions and therefore it has been excluded from the inventory.

Base year

The base year for the Group's Scope 1 and Scope 2 emissions has been set for the reporting period 1 July 2022 to 30 June 2023. This base year has been selected as it represents a period for which reliable data exists and is reflective of usual operational and economic conditions. The base year's Scope 2 emissions have been calculated using the location-based method.

The Group is still undertaking an assessment of operational boundaries with respect to Scope 3 emissions. An appropriate base year for Scope 3 emissions will be determined through this process and may differ to the Scope 1 and Scope 2 base year.

Emissions inventory summary

The Group's calculated emissions for the reporting period for Scope 1 and Scope 2 emissions are detailed in Table 2 (see page 34) expressed in t CO_2e as well as broken down into the six major GHGs covered by the Kyoto Protocol in Table 3 (see page 34). There is no biologically sequestered carbon to report on for the Group's Scope 1 and Scope 2 emissions.

Calculation methodologies and uncertainty

All calculations of emissions are expressed in tonnes of carbon dioxide equivalent (t CO_2e).

Calculations are based on multiplying activity data (e.g. litres of fuel or kilowatt-hour (kWh) electricity) by an emissions factor (EF).

EFs utilised in the Group's inventory for the reporting period are sourced from the Ministry for the Environment (MfE) "Measuring emissions: A guide for organisations 2024" detailed guide. This edition uses Global Warming Potential (GWP) values with a 100-year time horizon sourced from the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5) and these are the GWPs that have been utilised in the Group's emissions inventory. In calculating the Scope 2 market-based emissions, the 2023/2024 residual supply mix emissions factor published by BraveTrace was used.

The Group has utilised EFs in calculating the emissions inventory as described in Table 4 (see page 35) that also highlights the method used, activity data uncertainty and assumptions and the rationale for the selected calculation methodology.

Uncertainties in either source data quality or EF uncertainties can have an impact on the accuracy of GHG emissions inventories and disclosures. Overall, the Scope 1 and Scope 2 emissions of the Group have a low degree of uncertainty due to clear supplier activity data. In the Group's view, the overall impact of the uncertainty on the disclosures of its Scope 1 and 2 emissions is low.

Emissions reduction targets

The Group's emissions reduction target is a combined Scope 1 and 2 target where Scope 2 emissions (and associated reductions) are calculated using the location-based method. The Group target is set out in Table 5 (see page 36).

The net zero by 2050 target is aspirational in nature and reflects the Group's desire to align its reductions with the Paris Agreement goal to hold the increase in the global average temperature to well below 2°C above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels. It is the Group's view that having a long-term aspirational target is an important component of the organisation's long-term future vision.

For the past five years, the Group has targeted a 5% annual reduction in intensity of Scope 1 and 2, and some Scope 3 emissions, without relying on offsets. However, due to the need to reassess Scope 3 emissions boundaries, near-term emissions reduction targets for the Group are currently under review and will be set in FY2025. This review will include a more detailed assessment of near-term decarbonisation opportunities and will also give consideration to whether the setting of near-term science-aligned targets is a feasible option for the Group.

Performance in FY2024

The Scope 1 and 2 emissions intensity for the reporting period was 0.74 kg CO_2e per cargo tonne, equal to the previous reporting period (0.74 kg CO_2e per cargo tonne).

Absolute Scope 1 and 2 emissions were 18,020 t CO_2e, down 3.9% from the previous reporting period (18,758 t CO_2e).

Internal carbon pricing

For the reporting period, no internal carbon price has been set. The internal carbon price used in the analysis of projects that could contribute to emission reductions has been based on current market pricing.

Base year recalculation policy

A base year recalculation is triggered where significant changes occur to the organisational boundary (i.e. merger, acquisition or divestiture), changes to calculation methodologies or emissions factors or the discovery of errors or omissions in the emissions source data.

The significance threshold that triggers recalculation is set at 5% for combined Scope 1 and 2 emissions and could be either a single source or cumulative sources. The Group will review the recalculation significance threshold upon determination of its Scope 3 base year. The Group may decide to recalculate the base year for changes below the significance threshold for other reasons such as consistency or clarity. The reasons for recalculation will be clearly stated. For the avoidance of doubt, organic growth or decline does not trigger recalculation.

Table 2: Calculated emissions for the reporting period for Scope 1 and Scope 2 emissions

Scope	Current reporting period (1 July 2023 to 30 June 2024) t CO_2e	Base year (1 July 2022 to 30 June 2023) t CO_2e
Total Scope 1 and Scope 2	18,020	18,758
Scope 1	15,417	15,590
Scope 2 (Location-based)[28]	2,603	3,168
Scope 2 (Market-based)[28]	2,784	2,856

Table 3: Major GHGs covered by the Kyoto Protocol

Greenhouse gas	Metric tonnes	t CO_2e
CO_2 (Carbon dioxide)	17,700	17,700
CH_4 (Methane)	4	120
N_2O (Nitrous oxide)	1	199
HFCs (Hydrofluorocarbons)	–	–
PFCs (Perfluorocarbons)	–	–
SF_6 (Sulphur hexafluoride)	–	–

28 The location-based method is the average emissions intensity of the electricity grid. The market-based method reflects emissions from no or low emission electricity purchased. If none is purchased, then a residual supply mix "emission factor" can be used that reflects the intensity of whatever electricity remains on the grid, minus renewable energy already purchased. The reporting of both methods is required under the GHG Protocol as the Group operates in a market where product or supplier specific electricity data is available.

Table 4: Calculating the emissions inventory

Scope and type	Unit	EF	EF source	Method adopted	Activity data uncertainty and assumptions	Rationale for selected methodology
Scope 1 (Diesel)	Litres	Transport fuel Stationary combustion commercial use	MfE MfE	Activity-based	Low uncertainty. Activity data is sourced directly from suppliers and expressed as litres sold in the reporting period. It is assumed that supplier reports are accurate, and that fuel reported for the reporting period was used in the reporting period.	This calculation methodology and EFs were selected for quantifying diesel related emissions as the Group understands it to be the most accurate method available for the quantification of emissions associated to diesel utilised in Group owned or controlled assets.
Scope 1 (Petrol premium and petrol regular)	Litres	Transport fuel	MfE	Activity-based	Low uncertainty. Activity data is sourced directly from suppliers and expressed as litres sold in the reporting period. It is assumed that supplier reports are accurate, and that fuel reported for the reporting period was used in the reporting period.	This calculation methodology and EFs were selected for quantifying petrol premium related emissions as the Group understands it to be the most accurate method available for the quantification of emissions associated to petrol utilised in Group owned or controlled plant.
Scope 2 (Electricity)	kWh	Location-based method grid-average annual 2023 Market-based method residual supply mix 2023/2024	MfE BraveTrace	Activity-based	Low uncertainty. Activity data is sourced directly from suppliers either through reports or extracted from data portals or from invoices. Electricity consumption is expressed in kWh per installation control point (ICP) that is charged to the Group. It does not include kWh associated to transmission and distribution losses. kWh consumption for ICPs fully on-charged by the Group to tenants are not included. Partially on charged ICPs are included. It is assumed that supplier reports are accurate, and that kWh reported for the reporting period was used in the reporting period. It is assumed that the annual EF used is representative of the emissions associated to kWh consumed in the reporting period by the Group despite not aligning completely with the reporting period as the location-based EF is based on a calendar year and the market-based EF for the period 1 April to 31 March.	This calculation methodology and EFs were selected for quantifying electricity related emissions as it can be applied to the full reporting period kWh consumption. The Group understands it to be the most accurate method available (other than quarterly EFs for the location-based method) for the quantification of emissions associated to electricity utilised in Group owned or controlled assets.

Table 5: Group greenhouse gas emissions targets

Applicable Scopes	Target	Target base year	Target type	Reliance on offsets	Rationale for selected methodology
Scope 1 Scope 2	Net zero t CO_2e by 2050	2023	Absolute	To be determined	Target is science-aligned when comparing to Science Based Targets Initiative (SBTi) long-term target criteria and therefore contributes to limiting global warming to 1.5°C.
Scope 1 Scope 2	To be determined	2023	Intensity	To be determined	The organisation intends to strive for continued reductions whilst investigating further opportunities and developing a decarbonisation plan, with the potential to set ambitious targets following full assessment. The assessment will include the feasibility of SBTi near-term target criteria.

Allocation of capital towards climate-related risks and opportunities

The tables below describe the actual spend for FY2024. This expenditure is part of multi-year projects and does not represent the full investment in these initiatives.

Investment in low carbon initiatives – Climate-related Risks	FY2024
Hybrid straddles	$5,606,859
Automation/electrification	$1,131,660
Lighting upgrades	$233,978
Total parent capital expenditure	$34,691,000
Percentage on low carbon initiatives	20%

Bigger ships – Climate-related Opportunities	FY2024
Dredging the shipping channel	$1,286,767
Sulphur Point berth expansion (Stella Passage project)	$440,075
Total parent capital expenditure	$34,691,000
Percentage on CROs	5%
Percentage on CRRs and CROs	25%

% of straddle fleet which are low emissions vehicles	FY2024
Number of hybrid straddles at 30 June 2024 (4 purchased in FY2024)	7
Number straddles at 30 June 2024	54
	13%

Internal emissions price	FY2024
Price of carbon per $tonne	No internal emissions price has been set

Management remuneration linked to CRR/CROs		FY2024
CE – Short Term Incentive (STI)	Terminal automation project	10%
	Environmental targets including a reduction in GHG emissions intensity of 5%	5%
CFO – STI	Carbon-related Disclosures	5%
GM Commercial – STI	Terminal automation project	10%
GM Property and Infrastructure STI	Environmental targets including a reduction in GHG emissions intensity of 5%	10%
GM Corporate Services STI	No specific CRR/CRO linked objective	0%
GM Communications STI	No specific CRR/CRO linked objective	0%
GM Health and Safety STI	No specific CRR/CRO linked objective	0%

Port of Tauranga Limited – Targets for the Financial Year Ended 30 June 2025

Target category			Short-term	Year	Long-term	Year
GHG emissions	Intensity per cargo tonne Scope 1 and 2 (reduction target)		To be determined	FY2025	Net zero	2050
	Absolute emissions Scope 1 and 2 (reduction target)		No target	FY2025	Net zero	2050
Investment in low carbon initiatives	Hybrid straddles Automation/electrification Lighting upgrades Low emission fleet vehicles Hybrid fleet vehicles		No specific target has been set, however capital budget has been allocated to all items			
Investment in climate-related opportunities	Dredging the shipping channel Sulphur Point berth extension (Stella Passage project)		No specific target has been set, however capital budget has been allocated to all items			
Internal emissions price	Price of carbon per $tonne		No target	FY2025		
Management remuneration linked to CRR/CROs	**CE – STI**	Develop Transition Plan and target reduction in t CO_2e	5.0%	FY2025		
		Targets linked to port expansion, infrastructure development (including berth extension and automation)	15.0%	FY2025		
	CFO – STI	Develop Transition Plan and target reduction in t CO_2e	5.0%	FY2025		
	GM Commercial – STI	Develop Transition Plan and target reduction in t CO_2e	5.0%	FY2025		
		Terminal automation project	7.5%	FY2025		
	GM Property and Infrastructure STI	Develop Transition Plan and target reduction in t CO_2e	5.0%	FY2025		
		Targets linked to port expansion, infrastructure development (including berth extension and automation)	10.0%	FY2025		
	GM Corporate Services STI	Develop Transition Plan and target reduction in t CO_2e	5.0%	FY2025		
	GM Communications STI	Develop Transition Plan and target reduction in t CO_2e	5.0%	FY2025		
		Climate-related Disclosures	5.0%	FY2025		
	GM Health and Safety STI	Develop Transition Plan and target reduction in t CO_2e	5.0%	FY2025		

Direct climate related risk and opportunity metrics

The percentage of Port of Tauranga assets and business activities identified as vulnerable to direct climate-related risks and aligned with climate-related opportunities has been provided on a value at risk ("VaR") basis (capital VaR for assets and annual revenue VaR for activities).

Non-Tauranga assets and business activities

Assets and business activities across sites outside of Tauranga are also addressed (despite constituting a small proportion on a VaR basis) due to the importance of the interconnected and often inter-dependent national network from strategic, value proposition and operational perspectives. Less than 6% of total capital VaR and total revenue VaR is located at sites outside of Tauranga.

Joint ventures

In line with our staged approach to joint ventures, more detailed metrics for these investments (including their underlying assets and revenue streams exposed to climate-related risks and opportunities) will be provided in FY2025. This will incorporate any assessments undertaken by our joint venture partners (e.g. Marsden Maritime Holdings for Northport, which currently constitutes less than 3.5% of the Group's total asset base).

Direct climate-related risk and opportunity key metrics

In accordance with NZ CS1 22(c) to (e), metrics for direct climate-related risks ("DR") 1-5 and direct climate-related opportunities ("DO") 1-2 are as follows:

Capital VaR

100% **Of assets across all sites are vulnerable to DR1: "Increased wear and tear and risk of acute damage to assets caused by exposure to increased rainfall, wind and storm events".**

However, the level of vulnerability varies across sites (due to variances in regional climate hazards projections) and assets (due to their respective levels of resilience).

<9% **Of Port assets across all sites are vulnerable to DR3: "Risk of flood related damage and disruption, due to sea level rise and increased extreme rain, wind and storm events".**

This is based on available fluvial, pluvial and coastal flood projections for a 1% AEP pluvial flooding or coastal inundation event under RCP 8.5 (taking into account sea level rise).

Revenue VaR

100% **Of all Port assets and opportunities located across all Port sites are aligned with (i.e. stand to benefit from):**

DO1: Structural changes to New Zealand's national freight system (road to multi-modal).

Freight mode shift from road to rail and coastal shipping entails a further shift to a hub and spoke model (where international freight enters/exits hubs such as Port of Tauranga and is then moved between regions via coastal shipping). This outcome is likely to increase freight movements via Port sites.

DO2: Introduction of larger low-carbon shipping vessels.

Operating routes to/from the Port of Tauranga is expected to increase the Port's role as an international hub, further facilitating a shift towards the hub and spoke model described above. This is expected to also increase business activity via all sites (due to the inter-connected strategic nature of the Port's national network).

100% **Of business activities across all sites are vulnerable to DR2: "Increasing instances of disruption, caused by exposure to increased rainfall, wind and storm events".**

Marine services and certain cargo-handling activities were identified as being the most vulnerable, whereas commercial leasing has a comparatively low level of vulnerability.

90% **Of all business activities are prima facie vulnerable to being impacted by DR3.**

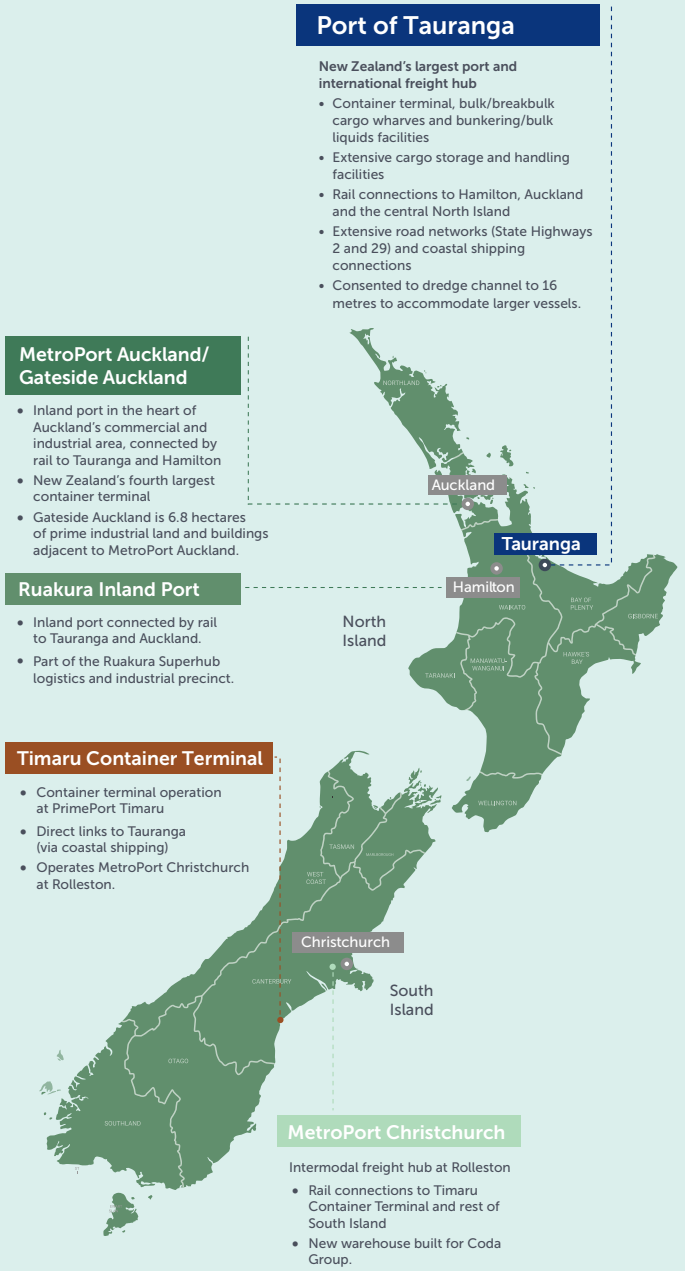
All business activities at the Port of Tauranga, Gateside Auckland, and Ruakura could be disrupted, except for commercial leasing, which is unlikely to be materially impacted by rare instances of flooding and/or coastal inundation.

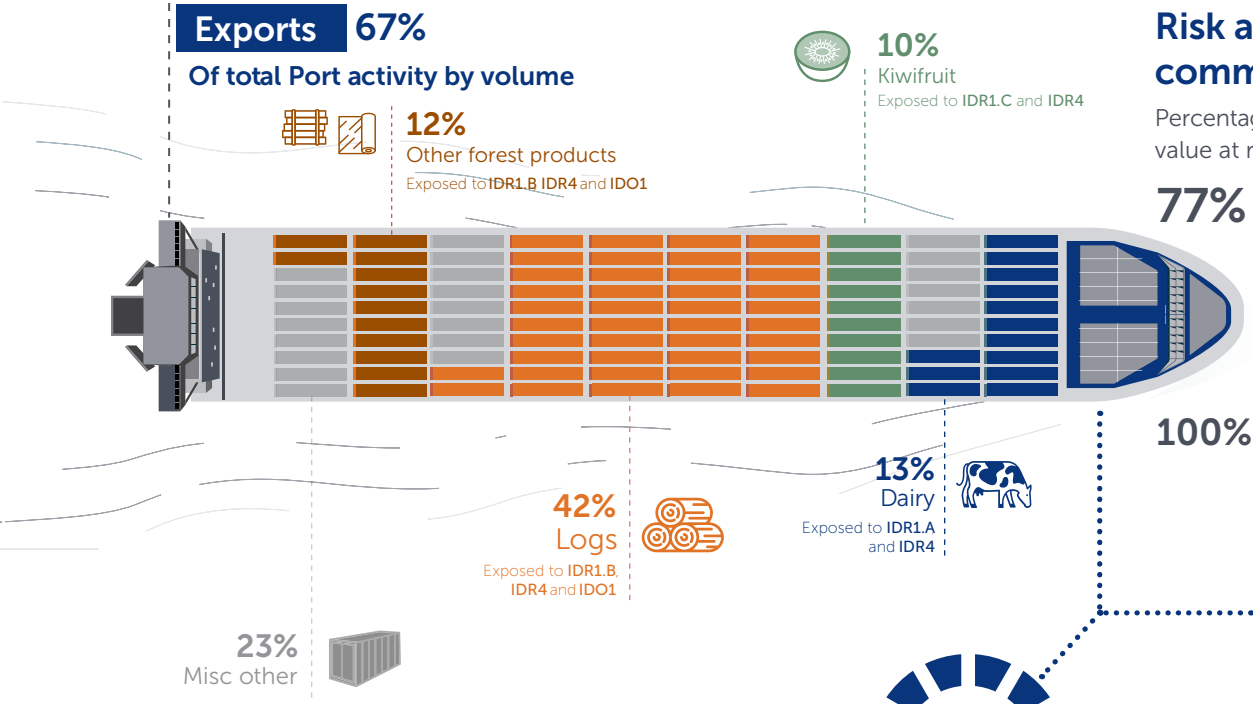
90% **Of Port activities are vulnerable to DR4: "Risk of disruption to road and rail access due to sea level rise and increased extreme weather (rain, wind and storm) events".**

DR4 is relevant to business activities across the Tauranga, Gateside Auckland, and Timaru sites, excluding commercial rentals. This is based on a 1% AEP pluvial flooding or coastal inundation event under RCP 8.5.

100% **Of all business activities are prima facie vulnerable to DR5: "Risk to Port of Tauranga wharves, harbour access, and loading/unloading capability, due to sea level rise and increased coastal inundation.**

Most buildings, infrastructure, and other improvements to land assets at the Port of Tauranga are exposed to full or partial stranding if wharf or harbour access is compromised. This may also have an indirect adverse impact on land capital values. Given the inter-dependent network nature of Port of Tauranga's operations across all sites, all business activities are also deemed potentially vulnerable.





Risk and opportunity exposure via import/export commodities by volume

Percentage of exports exposed to physical and transition risks and opportunities on a revenue value at risk ("VaR") basis:

77% **Of total annual exports are comprised of logs and other forest products, dairy and kiwifruit "Key Export Commodities".**

54% **Of total annual exports are Logs and Other forest products, which are aligned with IDO1: Increased demand for logs and other forestry export commodities due to changing preferences and the emergence of new low carbon sustainable alternatives.**

100% **Of Port business activities are exposed to IDO1, IDR1, and IDR4**

All Port business activities (e.g. terminal, cargo, marine, storage and related operations) play a role in facilitating the receipt and shipment of all exports.

100% **Of Key Export Commodities, which comprise 51% of total freight (i.e. all imports and exports) are exposed to:**

- **IDR1:** Risk of compromised seasonal production and gradual loss of productive capacity over time (see IDR1.A to IDR1.C)
- **IDR4:** Impact of changing market access rules and other climate-related regulations on key export commodity volumes.

All imports and exports are exposed to Direct Risks and Opportunities

As each relies on Port assets and business activities which are exposed to direct risks (DR) 1-5 and Direct Opportunities (DO) 1-2.

100%

Percentage of imports exposed to physical and transition risks and opportunities on a revenue VaR basis:

IDR2: Reduced availability and/or increased cost of stock feed

Has the potential to impact supply of and demand for stock feed imorts, which comprise:

11% of annual imports; or

4% of total freight (i.e. all imports and exports).

IDR5: Decarbonisation of New Zealand's transport system

Is expected to fundamentally alter demand for liquid fuel imports, which comprise:

19% of annual imports; or

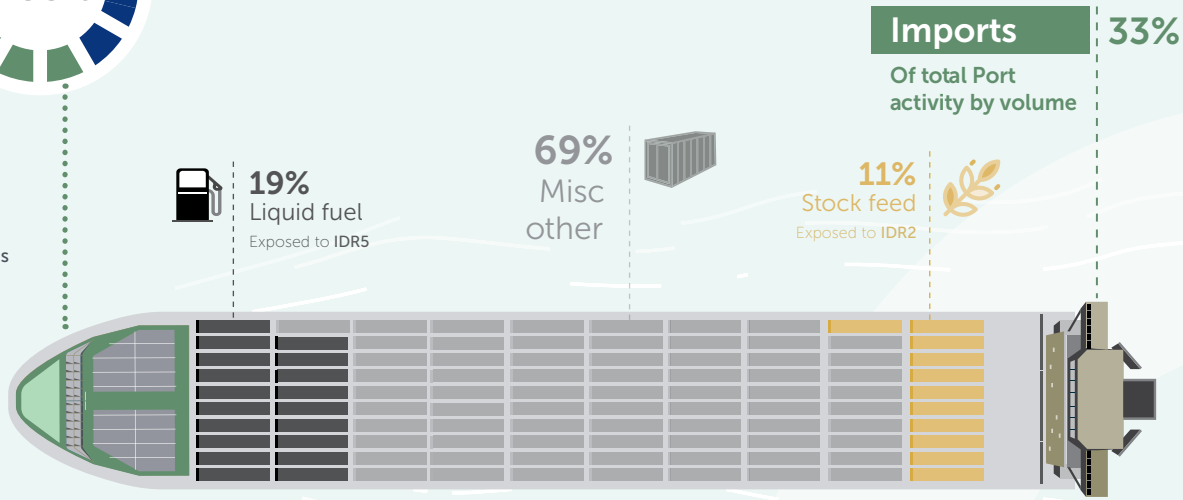
6% of total freight (i.e. all imports and exports).

DO2: Impact of climate migration and transition to a low carbon climate resilient future, on demand for miscellaneous imported goods

Specifically, containerised goods and bulkbreak which comprise:

69% of total imports; or

23% of total freight (i.e. all imports and exports).



100% of Port business activities are exposed to IDR2, IDR5, and DO2

As they each play a role in the landing, holding, and dispatching all imported goods (albeit to varying extents depending on the method of unloading and handling each category, amongst other factors).

Glossary

Aotearoa New Zealand Climate Standards
Standards issued by the External Reporting Board that comprise the Climate-related Disclosures framework.

Climate-related opportunities
The potentially positive climate-related outcomes for an entity. Efforts to mitigate and adapt to climate change can produce opportunities for entities, such as resource efficiency and cost savings, the adoption and use of low-emissions energy sources and building resilience in the value chain.

Climate-related risks
The potential negative impacts of climate change on an entity. See also the definitions of physical risks and transition risks.

Climate resilience
The capacity to cope with a changing climate. This includes the ability to project, assess, prepare for, respond to, recover from, and adapt to the impacts of climate change.

Climate scenario
A plausible, challenging description of how the future may develop based on a coherent and internally consistent set of assumptions about key driving forces and relationships covering both physical and transition risks in an integrated manner. Climate scenarios are not intended to be probabilistic or predictive, or to identify the "most likely" outcome(s) of climate change. Port of Tauranga has drawn from scenarios developed by Aotearoa Circle for the transport, agriculture and energy sectors. These scenarios may not be representative of the entire sector's views.

Greenhouse gas (GHG)
Atmospheric gases including carbon dioxide, methane and nitrous oxide that contribute to trapping heat in Earth's atmosphere. Human activities such as the burning of fossil fuels increase greenhouse gas levels in the atmosphere leading to more trapped heat and therefore consequential increases in the global average temperature and associated effects on climate systems.

Materiality
The degree to which climate-related risks and opportunities could affect an entity's ability to create value for itself, its stakeholders and society at large.

Physical risks
Risks related to the physical impacts of climate change. Physical risks arising from climate change can be event-driven (acute) such as increased severity of extreme weather events. They can also relate to longer term shifts (chronic) in precipitation and temperature and increased variability in weather patterns, such as sea level rise.

Scope 1
Direct GHG emissions from sources owned or controlled by the entity.

Scope 2
Indirect GHG emissions from consumption of purchased electricity, heat, or steam.

Scope 3
Other indirect GHG emissions not covered in Scope 2 that occur in the value chain of the reporting entity, including upstream and downstream GHG emissions. Scope 3 categories are purchased goods and services, capital goods, fuel-related and energy-related activities, upstream transportation and distribution, waste generated in operations, business travel, employee commuting, upstream leased assets, downstream transportation and distribution, processing of sold products, use of sold products, end-of-life treatment of sold products, downstream leased assets, franchises, and investments.

Transition plan
An aspect of an entity's overall strategy that describes an entity's targets, including any interim targets, and actions for its transition towards a low-emissions, climate-resilient future.

Transition risks
Risks related to the transition to a low-emissions, climate-resilient global and domestic economy, such as policy, legal, technology, market and reputation changes associated with the mitigation and adaptation requirements relating to climate change.

Value chain
The full range of activities, resources and relationships related to an entity's business model and the external environment in which it operates. A value chain encompasses the activities, resources and relationships an entity uses and relies on to create its products or services from conception to delivery, consumption and end-of-life. Relevant activities, resources and relationships include those in an entity's operations, such as human resource; those along its supply, marketing and distribution channels, such as materials and service sourcing and product and service sale and delivery; and the financing, geographical, geopolitical and regulatory environments in which an entity operates.