Climate Report

For the year ended 31 December 2023

CCB 中国建设银行（新西兰）
China Construction Bank (New Zealand) Ltd.

Contents

Glossary

Term	Definition
ALCO	Asset and Liability Committee
BARC	Board Audit, Risk and Compliance Committee
Board	CCB NZL Board of Directors
CC	Credit Committee
CCB or CCBG	China Construction Bank Corporation
CCB NZB	China Construction Bank Corporation New Zealand Branch
CCB NZBG or CCB NZ	China Construction Bank Corporation New Zealand Banking Group
CCB NZL or the Bank	China Construction Bank (New Zealand) Limited
CCC	Climate Change Commission
CRO	Chief Risk Officer
ELT	Executive leadership team
GHG	Green House Gas
ICAAP	Internal Capital Adequacy Assessment Process
ICCC	CCB NZBG Internal Controls and Compliance Committee
NGFS	Network for Greening the Financial System
NZBA	New Zealand Banking Association
PCAF	Partnership for Carbon Accounting Financials
RAS	Risk Appetite Statement
RBNZ	Reserve Bank of New Zealand
RCP	Representative Concentration Pathways
RMC	CCB NZBG Risk Management Committee
SBTi	Science Based Targets intitiative
TCFD	Task Force on Climate-Related Financial Disclosures
XRB	External Reporting Board

Cover image: Mount Cook and Pukaki Lake, New Zealand

Foreword

The New Zealand Government has committed to decarbonise the New Zealand economy through legislation and policy development.

In 2020, the Government announced that Cabinet had agreed to introduce a mandatory Climate-related Financial Disclosure Regime that would require captured financial entities to report against standards developed by the External Reporting Board (XRB). In December 2022, the XRB issued three climate-related disclosure standards:

- **NZ CS 1: Climate-related Disclosures** – provides a framework for entities to consider climate-related risks and opportunities
- **NZ CS 2**: **Adoption of Aotearoa New Zealand Climate Standards** – outlines a limited number of adoption provisions
- **NZ CS 3: General Requirements for Climate-related Disclosures** – establishes principles and general requirements

These standards are mandatory for some organisations in New Zealand, including large publicly listed companies, insurers, registered banks, non-bank deposit takers and investment managers. They are broadly based on the International Task Force on Climate-Related Financial Disclosures (TCFD)[1] recommendations relating to the physical and transition impacts of climate change and incorporate four key themes: governance, strategy, risk management and metrics and targets, as well as requiring some greenhouse gas (GHG) emissions reporting.

This is China Construction Bank (New Zealand) Limited's (CCB NZL's or the Bank's) first climate report prepared in line with these mandatory climate-related disclosures requirements. The Bank has elected to use a number of adoption provisions[2], as permissible under NZ CS 2 Adoption of Aotearoa New Zealand Climate Standards. This climate disclosure is approved and signed on behalf of the Board of Directors by:

Murray Horn
CCB NZL Chair

Jun Qi
CCB NZL Executive Director and Chief Executive Officer
Date: 27th March 2024

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[1] The TCFD was established by the Financial Stability Board (FSB) in 2015 in response to the Paris Agreement. The Paris Agreement is a legally binding international treaty on climate change. The TCFD provides a disclosure framework that promotes an organisation's consistent, comparable, and reliable reporting of climate-related financial risks and opportunities.
[2] Refer to Appendix A5 for a summary of the Adoption provisions used, and the Bank's rationales for adopting them.

China Construction Bank (New Zealand) Limited's position on climate change

CCB NZL recognises the potential compounding effects climate-related risks may pose to the financial system and CCB NZL's other risks. As a responsible financial institution, CCB NZL is committed to understanding and applying a risk-based approach to the management of the risks and opportunities associated with climate change.

CCB NZL's climate risk appetite is designed therefore to ensure that it can effectively manage and mitigate climate-related risks while balancing the needs of its key stakeholders. This includes having clear processes to identify and assess the physical, transition and other climate related risks across its business activities. Additionally, the Bank embraces the opportunity to work with its customers in this area to deliver better customer outcomes.

Our approach to managing climate risk is outlined alongside our strategy for other key business risks in our Risk Appetite Statement (RAS). This commits us to addressing climate change by:
- Better understanding and mitigating the risks and impacts of climate change on CCB NZL
- Applying a risk-based approach to the management of climate-related risks and opportunities
- Seeking to increase the resilience of our business to climate change
- Reducing our own operational footprint (excluding financed emissions)

Operationally, we are committed to prudently managing our operational carbon footprint and the respective reduction targets, and developing frameworks and building capability to measure and manage our financed emissions in our credit portfolio. Since 2021, we have offset residual operational emissions to be carbon neutral through the Toitū Envirocare net carbonzero programme.

In our lending business, we are committed to:
- properly understanding the climate-related risks prior to providing credit to any high climate risk customers[3]
- being prudent in managing our exposures to high physical risk customers
- being explicit about the sectors that the Bank will not actively target, and high climate risk sectors that the Bank has no/ limited risk appetite for (e.g. coal mining)

We seek to better understand and improve the resilience of our business to climate change risks, including by:
- investing in improving awareness and building capabilities around climate-related risks
- periodically conducting climate change scenario analysis to better understand the risks and opportunities at a credit portfolio and a Bank level
- investing in tools and data and continuing to enhance the measurement, management and reporting of our climate risk exposures across CCB NZL
- on-going strengthening and integration of climate risk management into our business practices, policies and procedures

Transparency of climate-related disclosures is an imperative and CCB NZL firmly sees the benefit this delivers, including:
- providing the incentives for better identification and management of climate-related risks
- facilitation of more effective pricing mechanisms for climate-related risk
- the increased focus on climate-related opportunities, which can lead to the creation of more innovative, sustainable and environmentally friendly financial solutions

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[3] High climate risk customers includes, but are not restricted to, customers in high energy consumption sectors (e.g. metal, cement/concrete product manufacturing) and/or high emission sectors (e.g. electricity, gas, water and waste services)

New Plymouth, Taranaki
New Zealand

01 About this report

- **About this report**
- **Progress summary**

01. About this report

This report has been prepared in response to the three climate-related disclosure standards issued by the XRB in December 2022. Those standards require Climate Reporting Entities (CREs) to start reporting against the standards for their respective accounting periods that start on or after 1 January 2023. Accordingly, CCB NZL with a 31 December balance date (i.e. reporting period 1 January to 31 December) is required to prepare its first climate statement as part of its 31 December 2023 reporting.

The TCFD was established by the Financial Stability Board (FSB) in 2015 in response to the Paris Agreement. The Paris Agreement is a legally binding international treaty on climate change. The TCFD provides a disclosure framework that promotes an organisation's consistent, comparable, and reliable reporting of climate-related financial risks and opportunities. The three climate-related disclosure standards issued by the XRB are broadly based on TCFD recommendations and accordingly this report aligns to the TCFD framework.

This report follows the structure of the TCFD as follows:
- **Governance** – how CCB NZL governs climate-related risks and opportunities.
- **Strategy** – the actual and potential impacts of climate-related risks and opportunities on CCB NZL's business, strategy and financial planning.
- **Risk Management** – the processes used by CCB NZL to identify, assess and manage climate-related risks.
- **Metrics and Targets** – the metrics and targets used by CCB NZL to assess and manage relevant climate-related risks and opportunities.

As the content of this report shows, CCB NZL is in the process of integrating climate change risks and opportunities into its day-to-day business and operations. The progress update in this section summarises our progress to date. We aim to strengthen the quality of our disclosures in years to come, and to further develop the capability and expertise to disclose in line with the standards developed by the XRB. We see this as an iterative process as best practice will continue to evolve.

CCB NZL became the first Chinese bank in New Zealand to become a Toitū Net Carbonzero Certified Organisation in May 2022. External assurance has been obtained on CCB NZL's operational emissions calculation through our certification under that programme, which includes assurance[4] that emissions were measured in accordance with ISO 14064-1:2018 and Toitū requirements. CCB NZL will work towards obtaining assurance on certain other content in our future climate reports.

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[4] Toitū Envirocare has provided reasonable assurance on the Bank's categories 1 and 2 emissions, and limited assurance for the remaining categories annually since 2022.

Progress Summary

Our emissions

Certified Toitū Envirocare
Net carbonzero
since 2022

The total operational emissions balance has increased in FY22 and FY23 from a low base, due to the return to more normal working arrangements post COVID-19 lockdowns.

Efforts were made to optimise specific sources, particularly around the planned completion of a full switch to renewable electricity sources in 2024.

Managing climate risk

Embedded climate risk into our
Risk Appetite Statement

Modelled physical risk across
98.7%
of our residential portfolio

Completed scenario analysis covering
90.5%
of our lending portfolio

Completed the inaugural
ICAAP
with **climate-related risk considerations** included

Supporting a green economy

Green loan[5] balance across CCB NZBG (NZD):
$634m
Of which **$93m** *provided by CCB NZL as at 31 December 2023*

Selective highlights

In June 2023, CCB NZBG co-hosted the "Promotion of Green Development" event with the New Zealand Chinese Building Association. The event attracted more than 150 Chinese and New Zealand customers, and created 40+ bilateral introductory meetings for the attendees following the sessions.

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[5] As measured using the Green Lending definition under the CCB Group methodologies

02 Governance

- **Our approach to governance**
- **Board Governance**
- **Management responsibilities**
- **Board and Management climate capability**
- **Executive remuneration**

02. Governance

Our approach to governance

CCB NZL's governance of climate-related risks involves the CCB NZL Board, senior management and the wider organisation. The charts below reflect the Bank's current approach to governing climate risk alongside its other key risks.

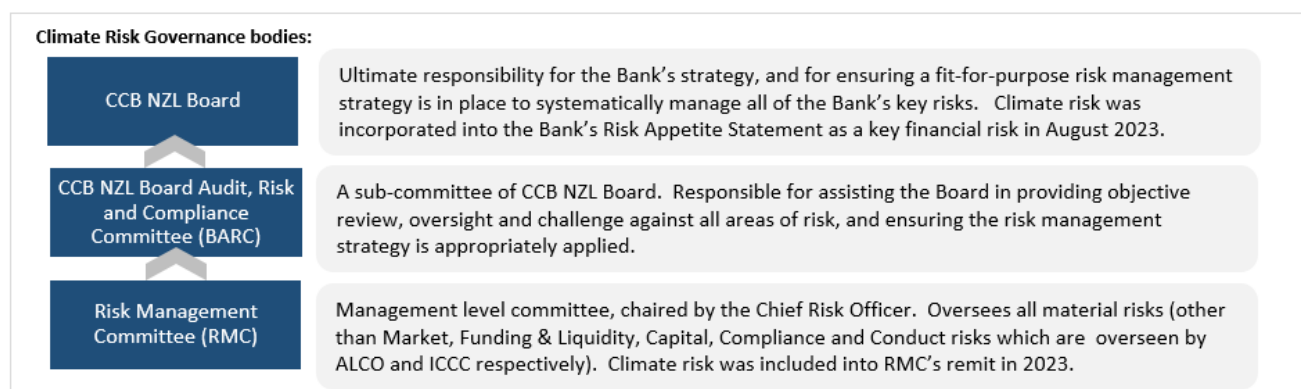*Figure 1: CCB NZL Risk Governance Structure*

Figure 2: CCB NZL key governance structure for climate-related risks and opportunities

Board governance

The Board is ultimately responsible for overseeing the Bank's strategic direction, ensuring good governance and compliance, managing risks, and holding the Bank accountable for long-term and sustainable financial and operational performance. As such, it has the ultimate responsibility for ensuring the Bank has cohesive systems and processes in place to monitor and adequately control its material risks.

The Board is assisted by the BARC in fulfilling its oversight responsibilities to set the Bank's risk management strategy and risk appetite and ensure the integrity and effectiveness of the Bank's controls frameworks, reporting systems and internal audit standards.

The Bank's risk management strategies, approaches and boundaries are articulated in its Risk Management Framework (RMF) and Risk Appetite Statement (RAS). The RMF provides guidance on the risk architecture, whilst the RAS is used to inform the boundaries for all the key frameworks.

As climate-related risk has become more prevalent in the general operating environment, the Board has increased discussions with Management on various elements thereof. In 2023, climate risk was formally incorporated as a key financial risk into the Bank's RAS with it being managed to the same level of cadence and discipline alongside its other material risks. This led to the designation of BARC and the Executive level Risk Management Committee (RMC) as the respective Board and Executive level governing bodies to oversee the management of climate-related risks and opportunities for the Bank.

02. Governance

Management responsibilities

The BARC is supported by the RMC. RMC is a management committee that meets quarterly, and is responsible for overseeing material financial and non-financial risks across the Bank, including climate-related risk. RMC is chaired by the CCB NZL Chief Risk Officer (CRO), and attended by the senior management team and key risk representatives. RMC receives periodic risk updates on key and emerging risk and regulatory matters that fall under its charter, which includes updates on climate-related risks.

Supporting governance: BARC is also supported by two other management-level sub-committees (Internal Controls and Compliance Committee (ICCC) and Asset and Liability Committee (ALCO)). Chaired by the Head of Compliance and the Chief Executive Officer respectively, and attended by the senior management team and key subject matter experts, these forums provide additional considerations of climate-related risks and opportunities where applicable to the respective areas of oversight under these committees.

BARC/Board are provided with periodic updates on the key matters relating to climate-related risks reported to these committees, including providing opinions and approvals on key decisions supported by these committees.

The Bank also has processes and requirements to carry out Climate and Environment Assessment Processes prior to providing credit to any deemed high climate risk customers. Additionally, climate assessments are also required as part of the regular credit rating reviews for designated industry sectors. The Credit Committee (CC) oversees and provides oversight of these requirements and ensures climate-related credit risk considerations are appropriately applied at the transactional level.

Board and Management climate capability

The Board is becoming increasingly involved in directing the Bank's response to climate-related issues and therefore needs to ensure that it has the necessary skill set to discharge those responsibilities. In the 2022 and 2023 financial years, the BARC, as the primary body responsible for assisting the Board with oversight and governance of the Bank's material risks, received formal quarterly presentations from Bank management on the evolving climate-related landscape. It is anticipated that formal quarterly presentations will continue, and become an intrinsic part of the BARC meeting agendas. As part of the awareness building, the BARC and key members from the senior management team were provided with an update session with representatives from the Ernst & Young (EY) Climate Change, Sustainability and EHS Services department on key climate developments within the local and global landscape. Additionally, the Bank will continue to assess and address any necessary awareness raising and upskilling of its Board, Management team and the wider organisation in respect to climate-related risk.

Executive remuneration

Climate risk was incorporated as a key financial risk in the Bank's RAS in 2023. Progress on the management of climate risk and opportunities are currently measured by compliance with the spirit of the RAS and the furthering of CCB Green Financing Strategy. Progress on Green Financing is currently captured in the Bank's scorecard, and is a determinant in the Bank's credit risk management performance (representing 6% of the overall credit risk management score).

03 Strategy

- **Our climate strategy**
- **Integrating climate-related risk into our strategy and decision making**
- **Common NZBA scenario narratives in the development of the Bank's understanding of its climate risk**
- **Scenario Analysis**
- **Physical and transition risk trade-offs**
- **Risks and opportunities by key sectors**
- **Key strategic considerations**
- **Physical risk modelling**
- **Additional considerations on transition risk (impacting residential home loan borrowers)**
- **Opportunities (incl. the green finance focus areas)**

03. Strategy

Our climate strategy

CCB NZL recognises the potential compounding effect climate-related risks may pose to the financial system and CCB NZL's other risks. As a responsible financial institution, CCB NZL is committed to **understanding** and **applying a risk-based approach** to the management of the risks and opportunities associated with climate change. CCB NZL's climate risk appetite is designed to ensure that it can effectively manage and mitigate climate-related risks while balancing the needs of its key stakeholders. This includes having clear processes to **identify and assess the physical, transition and other climate-related risks** across its business activities.

Integrating climate-related risk into our strategy and decision making

In this section, the Bank outlines the scenario analysis it has undertaken, the risks and opportunities identified, the anticipated impacts, and how the Bank will position itself as the global and domestic economy transitions towards a low-emissions, climate resilient future state. These are used to test the resiliency of the Bank's business model and strategy.

The diagram below summarises where the impacts of climate risks, opportunities and financial impacts manifest themselves.
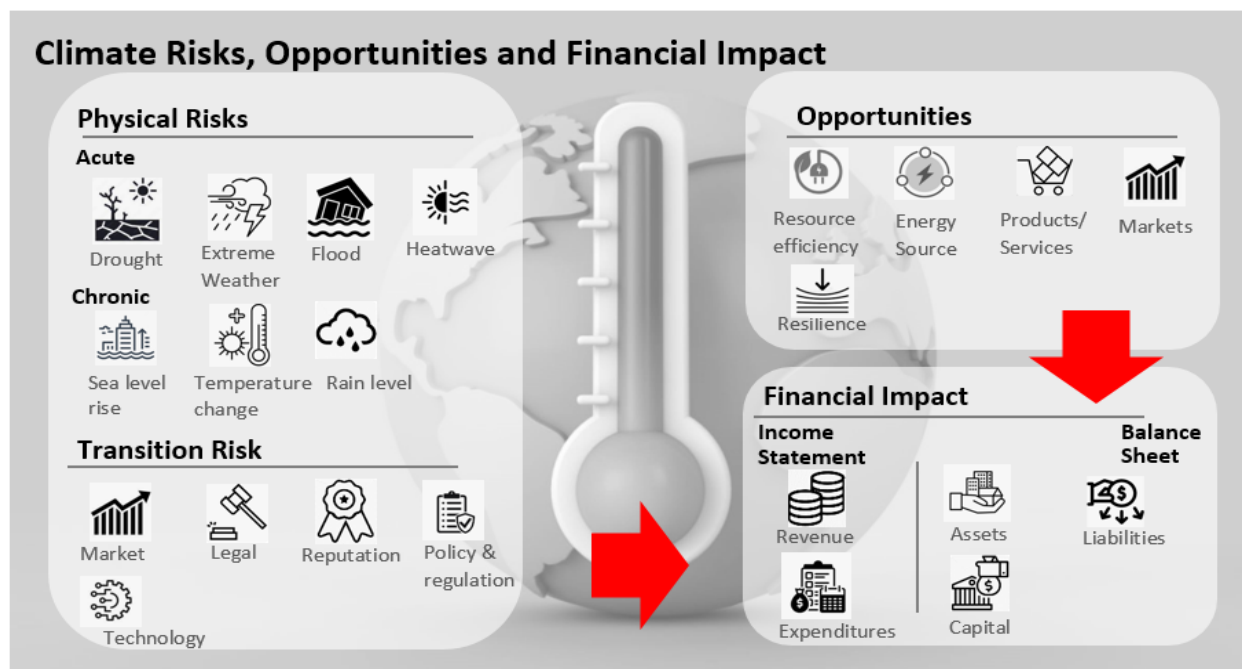

Figure 3: The impacts of climate risks, opportunities and financial impacts

i. Climate risks are divided into **physical** and **transition** risk. These risks can impact a business's ability to operate effectively:
   - Physical risks are manifested through the increased frequency and severity of **acute** weather events, or longer-term **chronic** shifts in climate patterns.
   - Transition risks are a result of uncertainty created by a shift towards a more sustainable, low-emission economy, and include changes to regulatory landscape, consumer preferences, investor expectations etc.
ii. Opportunities present themselves in areas that drive improved resiliency, resource efficiencies, cost savings, new products and services developments, access to new markets etc.
iii. The financial impacts are manifested through changes in revenue/expenditure and assets/liabilities, which have further implications on a business's health and ability to deliver on its strategy and meet its obligations.

Common NZBA scenario narratives utilised in the development of the Bank's understanding of its climate risk

CCB NZL has utilised the common sets of narratives developed alongside its banking peers as the basis of its scenario analysis.

03. Strategy

The work to compile the narratives was commissioned by the NZBA on behalf of its members, and developed by EY. The aim is to develop a common set of narratives to support a better understanding/assessment of climate-related risks and the reporting expectations against the TCFD recommendations and the Standards. The final outputs of that report include:

- A common set of scenario narratives and horizons to be used in climate-related risk assessment and disclosures
- A high-level set of climate-related risks that banks should consider as part of their risk assessment with risks identified based on input from project stakeholders
- Organisational actions for climate disclosures on governance, strategy, risk management, and metrics and targets

These three elements are designed to improve the comparability and consistency of climate-related risk disclosures in the banking sector, ultimately enabling primary users to be able to compare findings more readily. Three scenario narratives and four time horizons were developed to promote alignment of climate-related scenario analysis and risk disclosures across New Zealand's banking sector. Tables 1 and 2 below provide an overview of the dimensions for each of the three scenario narratives and the time horizons selected by the NZBA members. The alignment of the scenarios to the chosen scenario dimensions was done in accordance with the XRB's guidance on sector-level scenario analysis (External Reporting Board, 2022).

	Scenario dimensions		
Category	**Orderly 1.5°C**	**Too Little Too Late >2°C**	**Hothouse >3°C**
Global climate & socio-economic parameters	IPCC SSP1-1.9	IPCC SSP2-4.5	IPCC SSP5-8.5
Global energy and emission pathway parameters	NGFS Net Zero 2050 IEA Net Zero Emissions by 2050 (NZE)	NGFS Nationally Determined Contributions (NDC's) IEA Announced Pledges (APS)	NGFS Current Policies IEA Stated Policies (STEPS)
New Zealand-specific climate parameters	NIWA RCP2.6	NIWA RCP4.5	NIWA RCP8.5
New Zealand-specific transition pathway parameters	CCC 'Tailwinds'	CCC 'Headwinds'	CCC 'Current Policy Reference'

Table 1: Scenario dimensions chosen by New Zealand's banking sector, and relevant international and domestic scenarios.

	Immediate term	**Short term**	**Medium term**	**Long term**
Time horizon	3 years	10 years	30 years	50+ years
Year relative to 2022	2025	2030	2050	2080+
Rationale for selection	Aligned with stress-testing time horizons Aligned with average mortgage re-pricing time horizons Provides a current state assessment	Aligned with interim emissions reduction targets Broadly aligned with average maturity profile of business loans	Aligned with international emissions reduction targets Aligned with international banking sector climate scenario guidance documents	Aligned with further materialisation of physical risks, especially important to agriculture, property and segments of the energy sector due to the reliance on hydropower

Table 2: Time horizons chosen by New Zealand's banking sector

03. Strategy

To support an increased understanding of how climate-related risks may materialise, high-level climate risks were identified in those scenario narratives. Consideration was given to:

- **Credit level** – Climate-related risks faced by the 'priority' sectors in banks' lending portfolios, which might result in borrowers' inability to repay loans. Priority sectors were chosen to focus credit level risks on the most material industries to the banking sector. Chosen priority industries are <u>Agriculture, Transport, Energy, Manufacturing, and Construction & Property</u>.

- **Organisational level** – Climate-related risks faced by the banks' operations, which might result in costs associated with transition and physical impacts at the operational level. Physical operational risks are those where the impact of climate change causes damage to the banks' branches, data centres and operations. Transition operational risks are those where policy, technology or market sentiment leads to higher liability risks of operational activities.

The figures below summarise the framework used to develop the scenario narratives at a sectorial level, and how that was further incorporated into the Bank's own analysis.
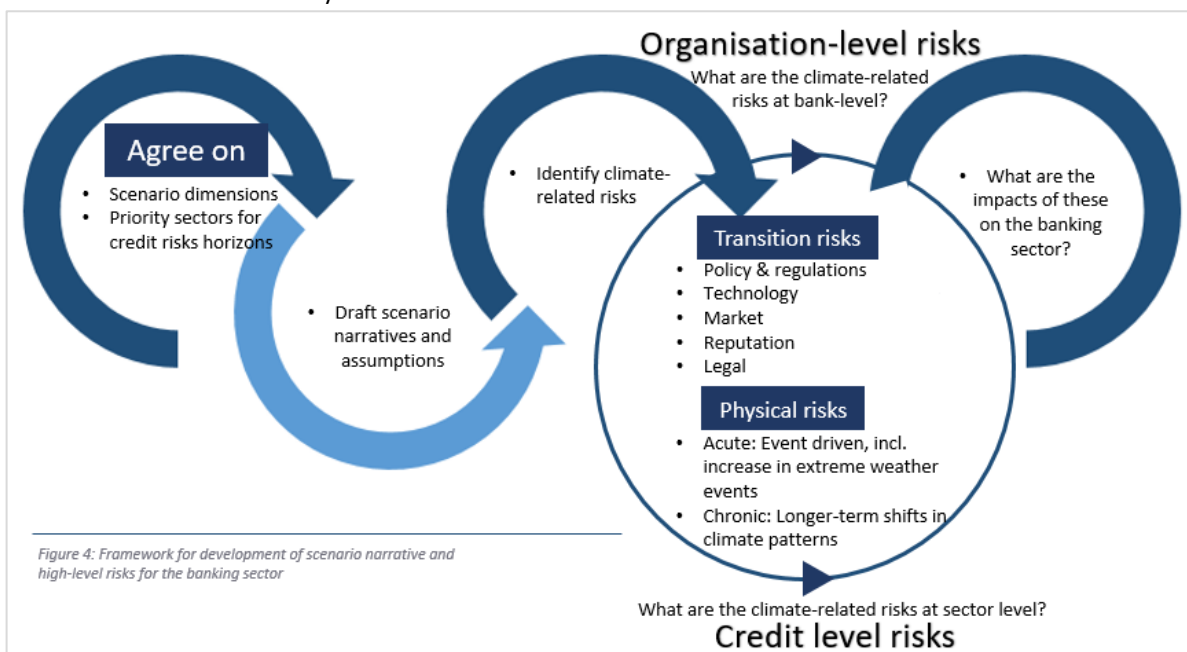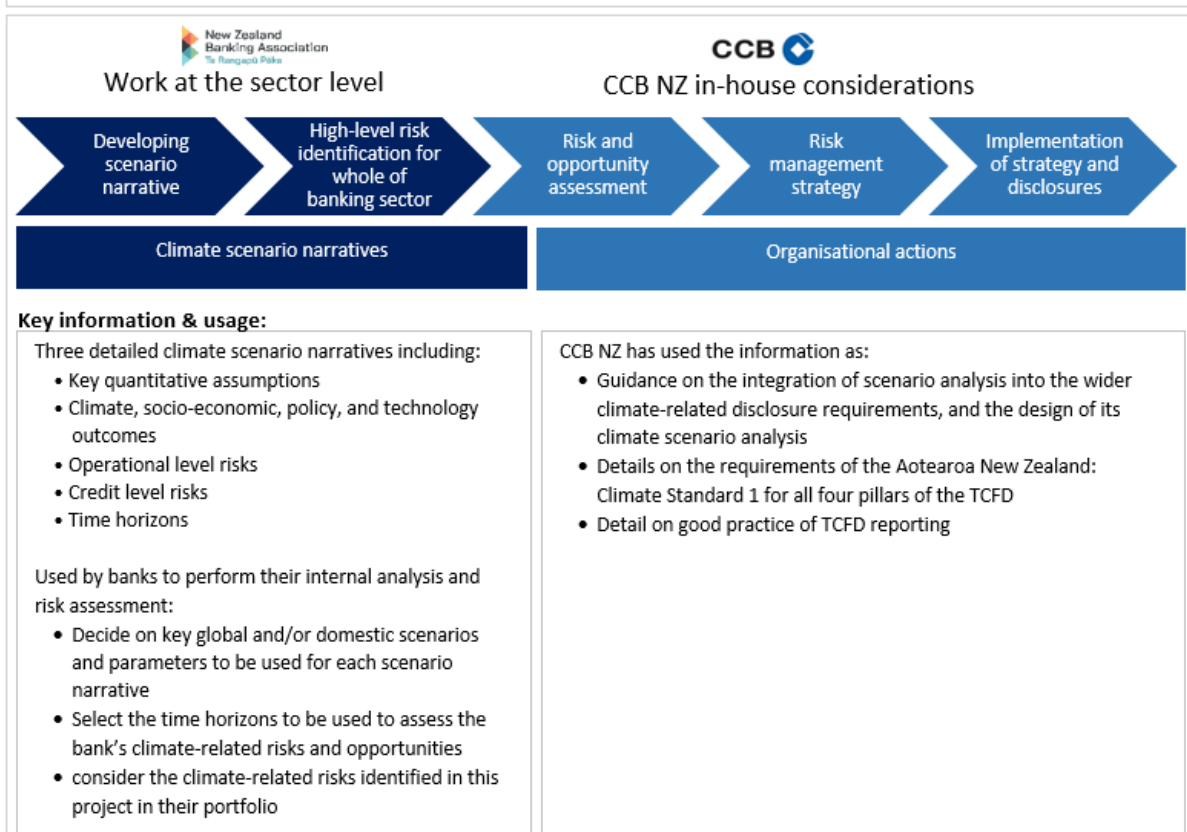

Figure 4: Framework for development of scenario narrative and high-level risks for the banking sector

03. Strategy

Scenario Analysis

The common sets of climate change scenario narratives developed with the NZBA were used by the Bank to identify and understand its climate change risk and opportunities, and test how the business strategy may need to be adapted against a series of plausible, but hypothetical events.

At an organisation-level, the banking industry in general is exposed to different type of physical and transition risks (e.g. on their offices, branch and ATM networks etc.). These risks, however, are relatively contained for CCB NZ, given the Bank's small footprint and an operating model that is not reliant on a branch network. Key considerations around potential climate-related risks at an organisation-level are considered alongside the Bank's day-to-day and contingency planning and are not further elaborated on in this report. The key focus of this report is on the risks and opportunities in the Bank's lending business.

Whilst quantitative output (including modelling) can be an input or a component of a climate-related scenario or scenario analysis, the Bank recognises the more exploratory nature of the scenario analysis, and the difficulties and complexities for some of the drivers to be accurately reflected in a single quantitative model. As such, the Bank's scenario analysis was completed through a series of internal assessments. A high level overview of the key considerations are summarised in this section.

Additionally, the Bank incorporated some high level climate considerations into its solvency stress test as part of its ICAAP process in 2023. The Bank intends to build on this process and leverage the scenario analysis outputs to better inform its stress test, and vice versa. This is built into its current planning/governance process and is expected to take place at least annually.

03. Strategy

Physical and transition risk trade-offs

The charts below provide an overview of the physical and transition risk levels over time for each of the three scenarios. These high-level climate-related risks were identified for the banking sector to support an increased understanding of physical and transition risks that may materialise over time, for each of the scenario narratives. Physical and transition risk determinations over the short, medium, and long-term are based on the general themes in the NIWA and Climate Change Commission scenarios, literature reviews and stakeholder feedback.
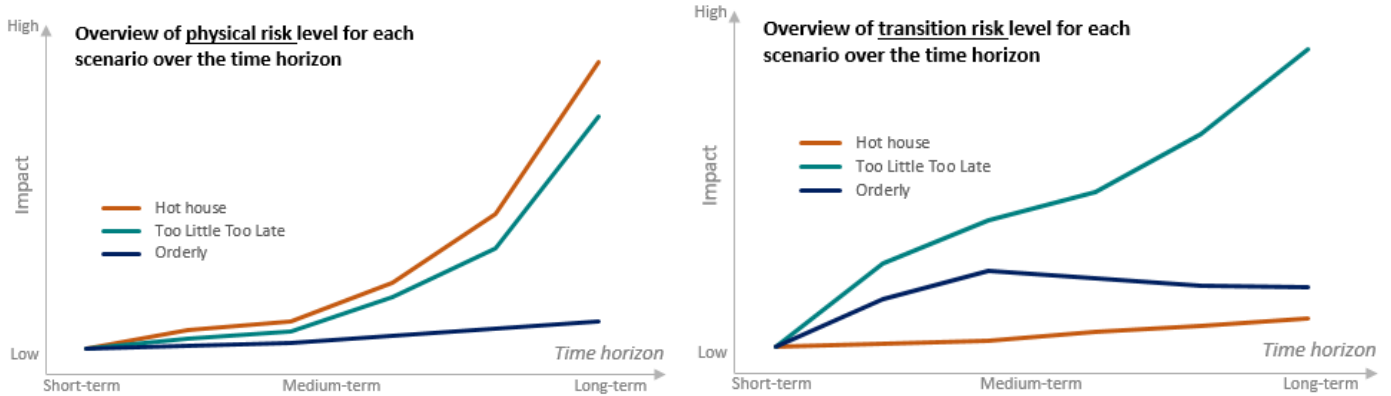

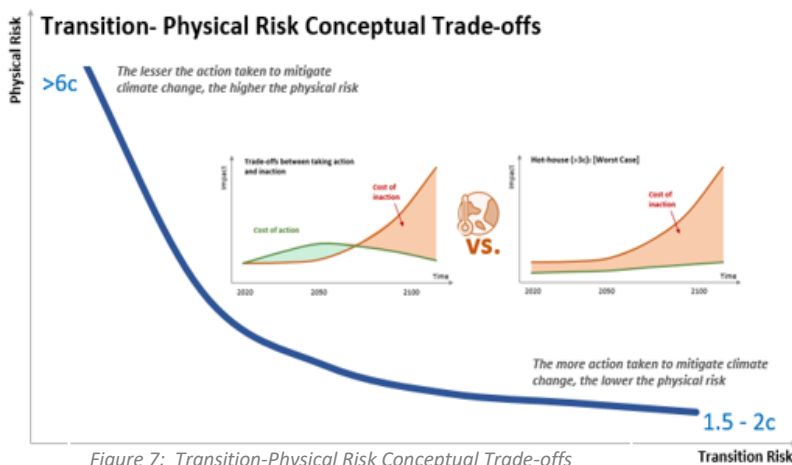*Figure 6: Physical and transition risk trade-offs*

Figure 7: Transition-Physical Risk Conceptual Trade-offs

There is an inverse global relationship between the physical and transition risks of climate change. Taking aggressive action now involves significant short-term transition risks (rises in taxes or cost-of-living, job losses in high-polluting industries, adjustments in government spending etc.), but may have long-term benefits of substantially reducing more catastrophic physical risks in the future. On the other hand, not taking action in the short term may help contain transition risk in the short term but result in significant irreversible physical impacts down the track. *[Source: TCFD ADOPTION: BUY NOW OR PAY LATER; APRA Summerhayes, 2020]*

	Key scenario dimensions		
	Orderly (1.5°C)	**Too Little Too Late (>2°C)**	**Hot House (>3°C)**
Scenario overview	The Orderly scenario represents a future world where collective action is taken towards a low-carbon global economy, with steady and constant societal changes related to technology, policy and behaviour to support the transition to a lower emissions economy. These changes are accompanied by an increasing carbon price that incentivises low-carbon behaviour change. In this scenario, the coordinated and timely action around the world to curb GHG emissions prevents the worst predicted impacts of climate change. However, the long-term chronic physical impacts from historic GHG emissions are still likely to occur, although to a less severe extent than the other scenarios.	The Too Little Too Late scenario describes a misaligned and delayed transition to a low carbon economy between New Zealand and the rest of the world. In this scenario, New Zealand is a first mover on the transition to a low emissions economy, introducing policies that bring about net zero emissions by 2050. However globally, there is very limited action towards a low emissions future. From the medium term, global efforts to address climate change begin to align and may even exceed those in New Zealand. Large increases in carbon prices may drive a rapid improvement in low emissions technology efficacy and uptake. Despite making a concerted effort to reduce emissions and move to a low emissions economy in the medium term, the changes come too late to prevent wide-ranging acute and chronic physical climate impacts.	The Hot House scenario represents a worst-case emissions trajectory with minimal ambition to transition towards a low carbon economy. Despite widespread increase in severe weather events, and associated destabilisation of social, political and economic structures, low demand for carbon alternatives continues to slow the rate of development and uptake of emissions saving technology. Continued and unabated expansion of emissions intensive industries is expected to exacerbate natural biophysical mechanisms that moderate global temperature, pushing them beyond operating thresholds, into a state of unprecedented climate volatility.

Table3: Interplay between the transition-physical risk trade-offs under the three scenarios.

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03. Strategy

The matrices below provide a more detailed summary of these potential risk trade-offs, and the likelihood assessment against each of the underlined five priority sectors referenced below against the three scenarios. **Note:** The risk to the residential home loans portfolio is considered alongside the property sectors in this analysis.

The Bank's analysis showed that **90%** of CCB NZL's credit portfolio[6] (by drawn balance) is covered under these priority sectors (whilst noting there is minimal exposure to the Agriculture sector). Additionally, it is noted that the coverage increased to **99.4%** by customer count.

ORDERLY (1.5c)

Category	Risk driver Numbered	Agriculture	Transport & Shipping	Energy	Manufacturing	Construction & Property
Physical	P1. Drought	Likely	Likely	Likely	Likely	Not likely
	P2. Extreme weather	Likely	Likely	Not likely	Likely	Likely
	P3. Flood	Likely	Likely	Likely	Likely	Likely
	P4. Heatwave	Likely	Not likely	Likely	Likely	Likely
	P5. Precipitation change	Likely	Likely	Likely	Likely	Likely
	P6. Temperature change	Likely	Likely	Likely	Not likely	Likely
	P7. Sea level rise	Likely	Likely	Likely	Likely	Likely
	P8. Biodiversity loss	Likely	Not likely	Not likely	Not likely	Not likely
Transition	T1. Customer behaviour change	Very Likely	Likely	Very Likely	Very Likely	Very Likely
	T2. Increased costs of raw materials	Very Likely	Very Likely	Not likely	Likely	Likely
	T3. Regulatory impacts	Very Likely	Likely	Likely	Likely	Likely
	T4. Emissions reduction requirements	Very Likely	Likely	Likely	Likely	Likely
	T5. Litigation risk	Likely	Likely	Likely	Likely	Likely
	T6. Emissions pricing	Likely	Likely	Very Likely	Likely	Likely
	T7. Reputation impacts	Likely	Likely	Likely	Likely	Likely
	T8. Lower emissions substitutes	Likely	Not likely	Not likely	Likely	Likely
	T9. Emerging technologies	Likely	Not likely	Not likely	Likely	Likely
	T10. Unsuccessful investment	Likely	Not likely	Not likely	Likely	Likely
	T11. Stakeholder relations	Likely	Likely	Likely	Likely	Likely

TOO LITTLE TOO LATE (>2c)

Category	Risk driver Numbered	Agriculture	Transport & Shipping	Energy	Manufacturing	Construction & Property
Physical	P1. Drought	Very Likely	Likely	Very Likely	Likely	Not likely
	P2. Extreme weather	Likely	Very Likely	Likely	Likely	Likely
	P3. Flood	Very Likely	Likely	Likely	Likely	Very Likely
	P4. Heatwave	Very Likely	Not likely	Very Likely	Likely	Likely
	P5. Precipitation change	Likely	Likely	Very Likely	Likely	Likely
	P6. Temperature change	Likely	Likely	Likely	Not likely	Likely
	P7. Sea level rise	Very Likely	Likely	Likely	Likely	Likely
	P8. Biodiversity loss	Very Likely	Not likely	Not likely	Not likely	Not likely
Transition	T1. Customer behaviour change	Very Likely	Likely	Likely	Likely	Very Likely
	T2. Increased costs of raw materials	Likely	Likely	Not likely	Not likely	Likely
	T3. Regulatory impacts	Very Likely	Likely	Likely	Likely	Likely
	T4. Emissions reduction requirements	Likely	Likely	Likely	Very Likely	Very Likely
	T5. Litigation risk	Likely	Likely	Likely	Very Likely	Likely
	T6. Emissions pricing	Very Likely	Very Likely	Very Likely	Likely	Likely
	T7. Reputation impacts	Likely	Likely	Likely	Likely	Likely
	T8. Lower emissions substitutes	Very Likely	Not likely	Very Likely	Likely	Likely
	T9. Emerging technologies	Likely	Not likely	Not likely	Not likely	Likely
	T10. Unsuccessful investment	Likely	Not likely	Very Likely	Very Likely	Likely
	T11. Stakeholder relations	Likely	Not likely	Not likely	Not likely	Not likely

Hothouse (>3c)

Category	Risk driver Numbered	Agriculture	Transport & Shipping	Energy	Manufacturing	Construction & Property
Physical	P1. Drought	Very Likely	Likely	Very Likely	Very Likely	Likely
	P2. Extreme weather	Very Likely	Very Likely	Likely	Very Likely	Likely
	P3. Flood	Very Likely	Very Likely	Likely	Very Likely	Very Likely
	P4. Heatwave	Very Likely	Not likely	Very Likely	Likely	Likely
	P5. Precipitation change	Very Likely	Likely	Very Likely	Likely	Likely
	P6. Temperature change	Very Likely	Likely	Likely	Not likely	Likely
	P7. Sea level rise	Very Likely	Likely	Likely	Very Likely	Very Likely
	P8. Biodiversity loss	Very Likely	Not likely	Not likely	Not likely	Not likely
Transition	T1. Customer behaviour change	Likely	Likely	Likely	Likely	Likely
	T2. Increased costs of raw materials	Likely	Likely	Likely	Likely	Likely
	T3. Regulatory impacts	Likely	Likely	Likely	Likely	Likely
	T4. Emissions reduction requirements	Likely	Likely	Likely	Likely	Likely
	T5. Litigation risk	Likely	Likely	Likely	Likely	Likely
	T6. Emissions pricing	Likely	Likely	Likely	Likely	Likely
	T7. Reputation impacts	Likely	Likely	Likely	Likely	Likely
	T8. Lower emissions substitutes	Likely	Not likely	Likely	Likely	Likely
	T9. Emerging technologies	Likely	Not likely	Not likely	Likely	Likely
	T10. Unsuccessful investment	Likely	Not likely	Not likely	Not likely	Likely
	T11. Stakeholder relations	Not likely	Not likely	Likely	Not likely	Not likely

Legends:

- Not likely (grey)
- Likely (yellow)
- Very Likely (orange)

Source: Matrices summarised from the output of the NZBA Climate Scenario Narratives for the Banking Sector (2023)

CCB NZ Limited top Sectors

Coverage of the five priority sectors, incl. residential mortgages (by loan amount): **90%**

- Agriculture & Forestry — 1.5%
- Manufacturing — 9%
- Energy, Water and Waste Services — 30%
- Construction & Property — 45%
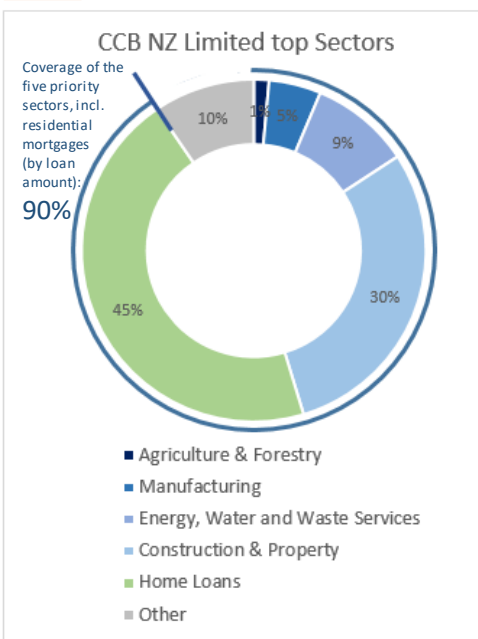- Home Loans
- Other — 10%

Figure 8: Potential risk trade-offs analysis for Top five priority sectors

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[6] Sectors in the remaining 10% not captured in the 2023 scenario analysis are Wholesale/ Retail Trade, Accommodation and Food Services, Information Media and Telecommunications, Financial and Insurance Services, Professional Services, Administrative and Support Services, and Health Care and Social Assistance.

03. Strategy

Risk and opportunities by key sectors

This section summarises CCB NZL's key risk and opportunity considerations undertaken for the top four sectors (excl. the Agriculture sector) under its scenario analysis. Analysis of the Agriculture sector is not reported separately given the small representation (c1%) in the whole credit portfolio. Additional information on the Bank's areas of focus in regards to green lending is provided on page 23.

Top four sectors by business lending exposures	Key potential implications for the sector and CCB NZL		
	Physical Risks	**Transition Risks**	**Opportunities**
Real-estate Rental: Commercial & Residential *; Residential Mortgages – These sectors share a level of commonality in the risks and opportunities profiles*	**Key Risk: Extreme weather, flood, sea-level rise** Increased extreme weather events may incur permanent damage which drastically reduce asset values. Such events can also result in significant increase in repair/maintenance/write-offs and early retirement of assets. Disruptions from weather events, the loss of appeal for assets in flood-prone areas, and inability to meet new compliance standards may result in prolonged/permanent loss of rental income. Insurability/significant rise in insurance cost in high risk areas can significantly impact the value of collateral currently in the Bank's credit portfolio. **Flow-on implications:** 1. Impact on loan repayments from increased operational cost (e.g. repair, compliance and insurance cost) and disrupted income streams 2. Insurability diminishes the value of existing collaterals resulting in drops in credit mitigants, and increasing the loss incurred in the event of defaults.	**Key Risk: Customer behaviour change/regulatory impacts/increased cost of raw materials** Shifting preference for high quality sustainable building standards may impact property (and land) values and appeal of properties. Efforts to meet the shifting preference and new regulatory requirements (including potential forced upgrades, managed retreats etc.) will increase uncertainty and operational cost. This may be further exacerbated by the potential increase in cost for raw materials, resources and transport/distribution due to the passing of carbon price through the value chain. **Flow-on implications:** 1. Impact on loan repayments from increased operational cost to meet the shifting preference and higher building standards, or fines and penalties for those who can't comply. 2. Diminishing land value restricts new amount that can be borrowed and increases the loss incurred on existing exposures in the event of defaults.	Increased demand for products and services **supporting energy, efficiency, sustainability** and **resilience** (e.g. the healthy homes requirements, adaptation measures in certain areas)
Construction	**Key Risk: Extreme weather, flood, sea level rise, heatwave** Extreme weather events can interrupt construction operations, causing damage, delays to project timelines, and disrupt logistics for delivery of supplies and removal of waste. This may increase costs from repairing and replacing infrastructure, impacting profitability in a sector that runs on relatively thin margins and tight cash-flows. Heatwaves may increase health and safety considerations, and add to project delays. Increased inundation and exposure to storm surges can devalue land. **Flow-on implications:** 1. Impact on loan repayments from increased operational cost (e.g. repair, replacements and compliance cost) and delays in project completions. 2. Project delays can increase the rate of settlement default risk, particularly in a downward trending market, impacting loan repayments.	**Key Risk: Customer behaviour change/ regulatory impacts/increased costs of raw materials** Regulatory requirements to use low emissions technologies or alternatives in buildings may increase the overall cost of construction. This may also have flow-on impacts for existing properties where retrofits are required to meet new building requirements, increasing overall operating costs. The impact of regulation on emissions pricing and emissions reduction requirements may increase overall operational and supply chain costs. The use of cement and steel in construction may be particularly impacted by these changes due to the high level of emissions associated with their manufacturing. **Flow-on implications:** 1. Decreased profitability may cause an inability to meet loan repayments.	Increased demand for projects that incorporate more **sustainable design features**, and have **lower GHG emission profiles** as a result of regulatory change and consumer preference.

China Construction Bank (New Zealand) Limited |Climate Statement | December 2023

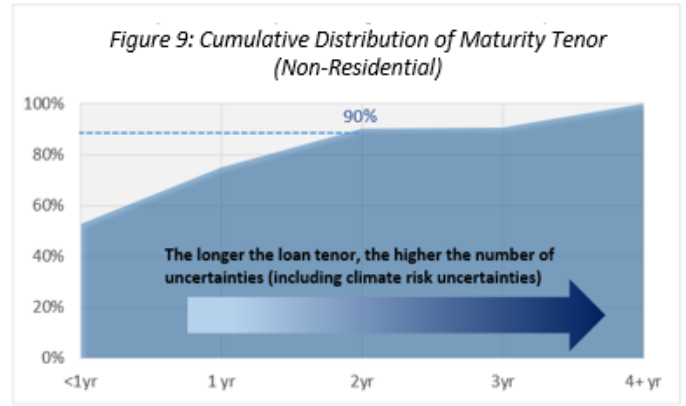# 03. Strategy

Energy	**Key Risk: Drought, heatwave, extreme weather/flood, precipitation change, sea level rise** High demand for water during drought periods may increase cost of power usage and reduce margin. Conversely, high rainfall can drive down market price due to abundant supply. Heatwaves may impair energy production or risk of failure, with the risk of complete plant shutdown incurring extensive losses to the entity. Extreme weather events (floods, high winds, storm surges) can lead to physical damage to generation assets resulting in increase to repair cost and loss of revenue. **Flow-on implications:** 1. Added costs and reduced revenue may impact ability to repay loan. 2. Reduced lifespan of assets due to more rapid degradation can significantly reduce entity values, and alter long term business operations resulting in increased repayment risk.	**Key Risk: Customer behaviour change/ regulatory impacts/ stakeholder relations/ litigation risks/reputation impact** Failing to adhere to changing regulation may impact revenue and reputation. Imbalanced government settings can result in a decline in electricity demand growth and/or a loss of investor confidence in the sector, and/or delayed development of renewable electricity generation capacity. Asset devaluation and plant shutdowns and falling investment due to entity failure to meet regulation will significantly affect revenue and/or devalue entity. Changing consumer behaviour may increase preference for low emissions alternatives, leading to increased costs in order to maintain competiveness. Supply chain constraints on renewable generation technology (e.g. wind turbines and solar panels) may cause construction delays and capital cost overruns. **Flow-on implications:** 1. Significant and rapid reduction in revenue and increase in operating and capital expenditure can impact loan repayments and damage reputation. 2. Divestment and failed investments can impact loan repayment. 3. Reputation risks can impact entity values and increase financial risks.	Increased demand to support **new generation development**, **changing operating model** and **sustainability linked transactions**.
Manufacturing - CCB NZL's exposure in this sector is related to the primary sector and viticulture, and therefore share a level of commonalities in risks and opportunities with those sectors	**Key Risk: Drought, extreme weather/ flood, heatwave, precipitation change, temperature change, sea level rise** Extreme weather and prolonged periods of drought may damage customers' /suppliers' assets or create resource pressure and reduce availability of raw material. Extreme heat may reduce productivity and increase energy demand to keep products chilled. **Flow-on implications:** 1. Decreased sales and profitability and increased operational costs may lead to inability to repay loan. 2. Damaged assets (resulting in diminishing collateral value), and increased repair and maintenance costs and insurance premiums may further impact repayment ability.	**Key Risk: Customer behaviour change/ regulatory impacts/increased costs of raw materials** Customer consumption trends may be influenced by environmental awareness. Increasingly stringent climate change regulations may create additional processes and costs. This may lead to reduced competitiveness, particularly in international markets, as resources are directed towards meeting new requirements. Raw materials, resources and transport/distribution may increase in cost due to carbon price. **Flow-on implications:** Increased operational costs and reduced revenue may lead to an inability to repay loans and discourage new market entrants, thereby reducing demand for new loans.	Increased demand for products and services that supports the shift to **lower emission-intensive practices**.

Table 4: Key risk and opportunity considerations undertaken for the top four sectors

03. Strategy

Key strategic considerations

The Bank's analysis shows that the maturity profile of the non-residential exposures is markedly short at an average of less than 2 years (snapshot as at 31st December 2023). The short maturity tenor profile in the non-residential portfolio allows the Bank to more easily manage the climate risk profile within that portfolio through the more timely pivoting and readjustment of its business strategy. Conversely, climate risk may bring on strategic challenges in growth volume and direction, particularly given the shorter tenor profile.

Figure 9: Cumulative Distribution of Maturity Tenor (Non-Residential)

90%

The longer the loan tenor, the higher the number of uncertainties (including climate risk uncertainties)

The Bank will continue to explore this tradeoff between managing the potential impacts from climate risk within its credit portfolio and the strategic challenges brought on by future operating conditions, business landscape and evolving appetite.

Physical risk modelling

Physical risk modelling was completed on CCB NZL's portfolio using RMS Moody's data (EFP and Climate Conditioning Flood Data ~ Refer to Appendix A1 for an overview of the methodology). Based on an RCP of 8.5 (which reflects the worst case scenario), the profiles are as follow:

Residential Lending Portfolio: key findings

Projection based on RCP8.5 scenario (the worst case: 'Too Little Too Late' scenario)

Year	Low Risk	Moderate Risk	High Risk
2023 (current)	99.3%	0.1%	0.6%
2030	99.3%	0.1%	0.6%
2050	99.3%	0.1%	0.6%
2080	99.3%	0.0%	0.7%

% of property modelled: 98.7%

Property-backed Non-residential Lending Portfolio: key findings

Projection based on RCP8.5 scenario (the worst case: 'Too Little Too Late' scenario)

Year	Low Risk	Moderate Risk	High Risk
2023 (current)	99.4%	0.3%	0.2%
2030	99.5%	0.3%	0.2%
2050	99.4%	0.4%	0.2%
2080	99.4%	0.1%	0.5%

% of property modelled: 95.2%

No Data, 1.3%

Residential Data Availability

98.7%

No Data, 4.8%

Non-Residential Data Availability

95.2%

Figure 10: Physical risk modelling key findings

Figure 11: High Risk Property (By Portfolio)

0.62% 0.64% 0.64% 0.74%

0.24% 0.24% 0.24% 0.53%

RCP8.5

2023 (current) 2030 2050 2080
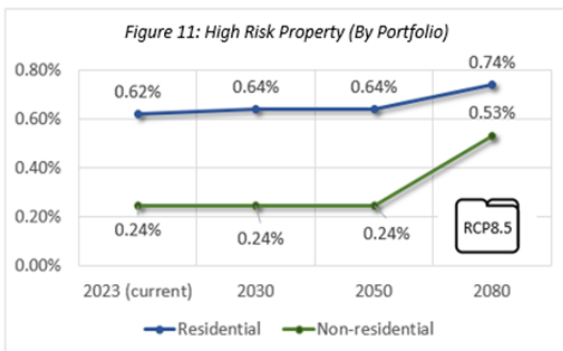
—♦— Residential —♦— Non-residential

Figure 11: High risk property by portfolio

Our analysis showed that 0.6% of residential properties, and 0.2% of non-residential properties may be at high risk currently. This increases to 0.7% and 0.5% by 2080, under the worst-case scenario of RCP8.5. (Refer to *Figure 11*) A property is considered high risk if the expected mean damage ratio is greater than 20% as modelled in the RMS Moody's dataset[7].

Whilst the maturity profile of the residential mortgages in CCB NZL can extend up to 30 years, the maturity profile of the non-residential exposures is significantly shorter at an average of less than 2 years. The shorter profile in the non-residential portfolio allows the Bank to more easily manage the climate risk profile of that portfolio through the adjustment of its business strategy.

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[7] Refer to Appendix A1 for the rating classification definitions

03. Strategy

Additional considerations on transition risk (impacting residential home loan borrowers)

Consideration was also given to the potential impacts on salaried employee borrowers, who may be affected by a transition to a low emissions economy, resulting in financial difficulties in meeting their loan obligations to the Bank. Rural regions have a higher share of workers in emission intensive industries and are expected to face greater impacts in the transition to a low emissions economy. The highest concentration of workers in high emission industries are concentrated in Southland, Gisborne, Taranaki, and the West Coast. The loss of fossil fuel related jobs will impact Taranaki and the West Coast the most, and Manawatu-Whanganui, the West Coast, Southland and Gisborne are heavily reliant on the agricultural sector. *[Source: MBIE -The Impacts of Economic Transitions on Firms, Workers, Regions and Households, 2021]*

Urban regions however, such as Auckland (to which the Bank is predominantly exposed), have the lowest share of employment in high emission industries. Job disruptions can impact on loan repayment abilities, particularly for those in the emission intensive industries which have high concentrations of workers with low or no qualifications (resulting in greater barriers to finding equivalent employment opportunities because of the transition).
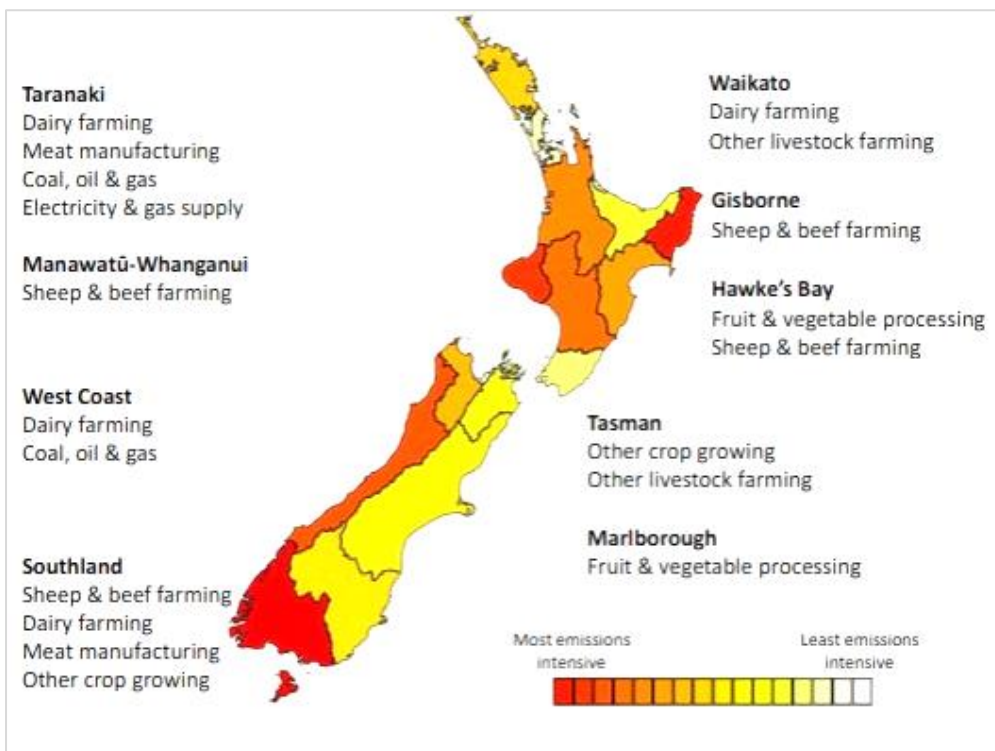
Figure 12: Important high intensity industries by region.

[Source MBIE -The Impacts of Economic Transitions on Firms, Workers, Regions and Households, 2021]

03. Strategy

Opportunities

CCB NZL is a subsidiary of China Construction Bank (CCBG) and a stand-alone registered bank in New Zealand. As a stand-alone bank, we make commitments that are specific to our own operations. As part of the wider China Construction Bank Group (CCBG), we also adopt CCBG positions and contribute towards CCBG's actions where they are appropriate to the Aotearoa New Zealand context.

Some of the ways we are channelling our capital investment in pursuit of better understanding, exploration, and management of our climate risks and opportunities are:
- the emphasis on the development of green finance opportunities
- participation in transactions that drive positive climate actions for our customers (e.g. sustainability-linked loans)
- the drive to improve internal awareness and capabilities around climate-related risks
- sponsorship, partnership and involvement in conferences and business forums (e.g. business matchmaking conferences that explore green opportunities and solutions between our NZ customers and the other offshore markets the Bank operates in)
- investment in tools and data to better inform the Bank's climate risks and finance emission profiles
- the measurement and reduction of our carbon footprint through the Toitū Envirocare carbonzero programme
- the incorporation of climate risk considerations (e.g. scenario analysis and ICAAP stress test etc) into the Bank's strategy setting

Green Finance

CCB continues to place a strong emphasis on the development of green finance opportunities. CCB has identified the following as key focus areas of its Green Finance strategy (refer to Table 5 on the next page). CCB NZL is excited to play a part in supporting this strategy. A breakdown of the green lending is summarised in the diagrams to the right. Given the nature of the business involved (which tends to be of larger scale and complexity), the exposures are currently predominantly booked on the CCB NZB balance sheet.
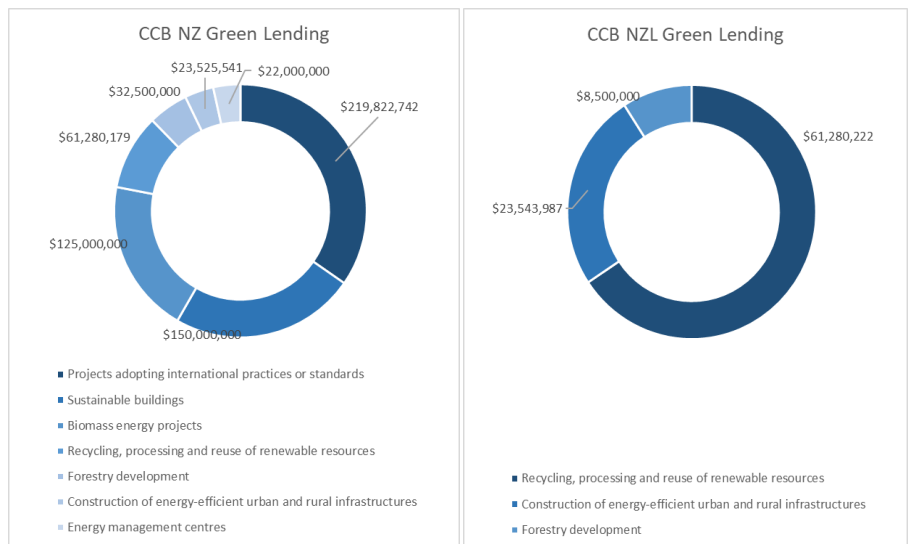

Figure 13a and 13b: Green lending analysis for CCB NZ Banking Group and CCB NZL

Selective highlights

CCB NZ has served as the sole Sustainability Coordinator and co-lender into Wellington City Council's Moa Point Sludge Minimisation Facility. The Facility is part of Wellington City Council's long term strategic plan to invest in alternate sewage sludge disposal technologies to reduce emissions and the amount of solid waste going to landfill.

03. Strategy

Areas of focus & potential areas of opportunities		
1. Clean energy • Wind power generation • Solar photovoltaic power generation • Smart power grid and energy Internet • Distributed energy • Solar heat utilization • Hydropower generation • Biomass energy projects • Clean energy promotion projects • Utilization of other new energy sources	**2. Clean transport** • Railway transport • Urban rail transit • urban and rural road transport - public passenger transport • Waterway transport • Clean fuel oil • New energy vehicles • Internet applications in transport • Transport-related environmental protection projects	**3. Energy conservation and emissions reduction** • Industrial energy conservation • Sustainable buildings • Energy management centres • Construction of energy-efficient urban and rural infrastructures • Reduction of discharge of pollutants • Prevention and control of occupational diseases
4. Energy conservation and environmental protection services • Energy conservation services • Environmental protection services • Water conservation services • Circular economy (resource recycling) services	**5. Resource conservation and recycling** • Water conservation and unconventional water source utilization • Redevelopment and integrated utilization of tailings and associated ores • Industrial solid waste, waste gas and waste fluid recycling and reuse • Recycling, processing and reuse of renewable resources • Remanufacturing of mechanical and electrical products • Biomass resource recovery and utilization	**6. Ecological protection and adaptation to climate change** • Natural ecological protection and protective development of tourism resources • Eco-friendly farming, animal husbandry and fishery • Forestry development • Disaster/emergency prevention and control
7. Pollution prevention and control • Pollution prevention and control • Environmental rehabilitation projects • Clean utilization of coal	**8. Projects adopting international practices or standards** • Projects adopting international practices or standards	**9. Energy-efficient and Low-carbon parks** • Energy-efficient and Low-carbon parks

Table 5: CCBNZBG Green Finance Areas of Focus

04 Risk Management

- **Overview**
- **Identification and assessment of climate-related risks**
- **Management of climate-related risks**

04. Risk Management

Overview

In 2023, CCB NZL incorporated climate-related risk into its existing risk management framework to ensure the risk is given the appropriate focus, and ensuring it is managed to the same level of cadence and discipline alongside its other material risks.

The BARC and the Executive level RMC were designated as the two governing bodies to oversee the management of climate-related risks and opportunities for the Bank. Future consideration may be given to establishing separate dedicated climate risk oversight bodies when warranted by the scale and complexity of the Bank's operations.

Climate Risk Governance bodies:

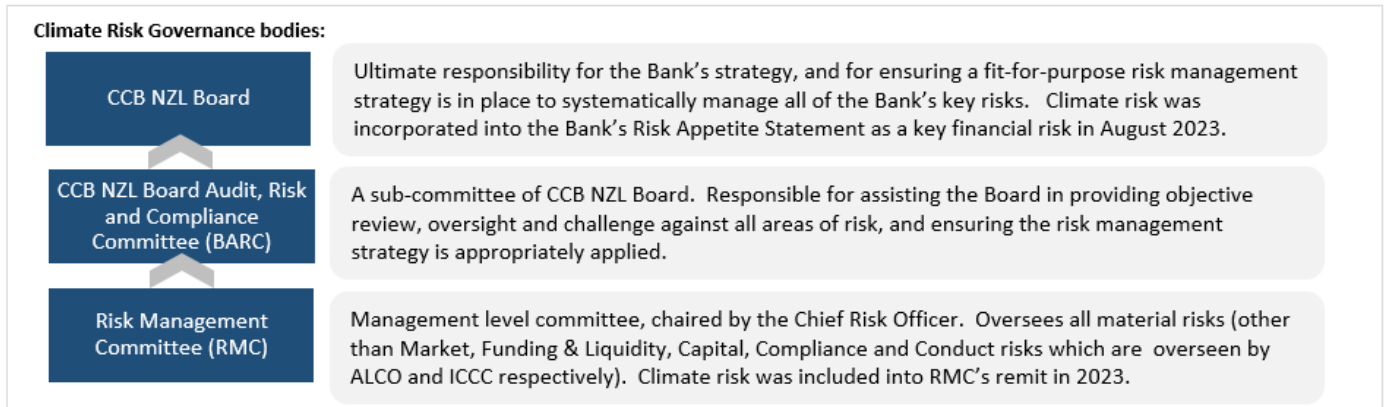|	
CCB NZL Board	Ultimate responsibility for the Bank's strategy, and for ensuring a fit-for-purpose risk management strategy is in place to systematically manage all of the Bank's key risks. Climate risk was incorporated into the Bank's Risk Appetite Statement as a key financial risk in August 2023.
CCB NZL Board Audit, Risk and Compliance Committee (BARC)	A sub-committee of CCB NZL Board. Responsible for assisting the Board in providing objective review, oversight and challenge against all areas of risk, and ensuring the risk management strategy is appropriately applied.
Risk Management Committee (RMC)	Management level committee, chaired by the Chief Risk Officer. Oversees all material risks (other than Market, Funding & Liquidity, Capital, Compliance and Conduct risks which are overseen by ALCO and ICCC respectively). Climate risk was included into RMC's remit in 2023.

Figure14 (same as Figure 2): CCB NZL key governance structure for climate-related risks and opportunities

The diagram below illustrates the key components of how the strategic and risk appetite considerations are integrated into the Bank's identification, assessment and management of climate risk.
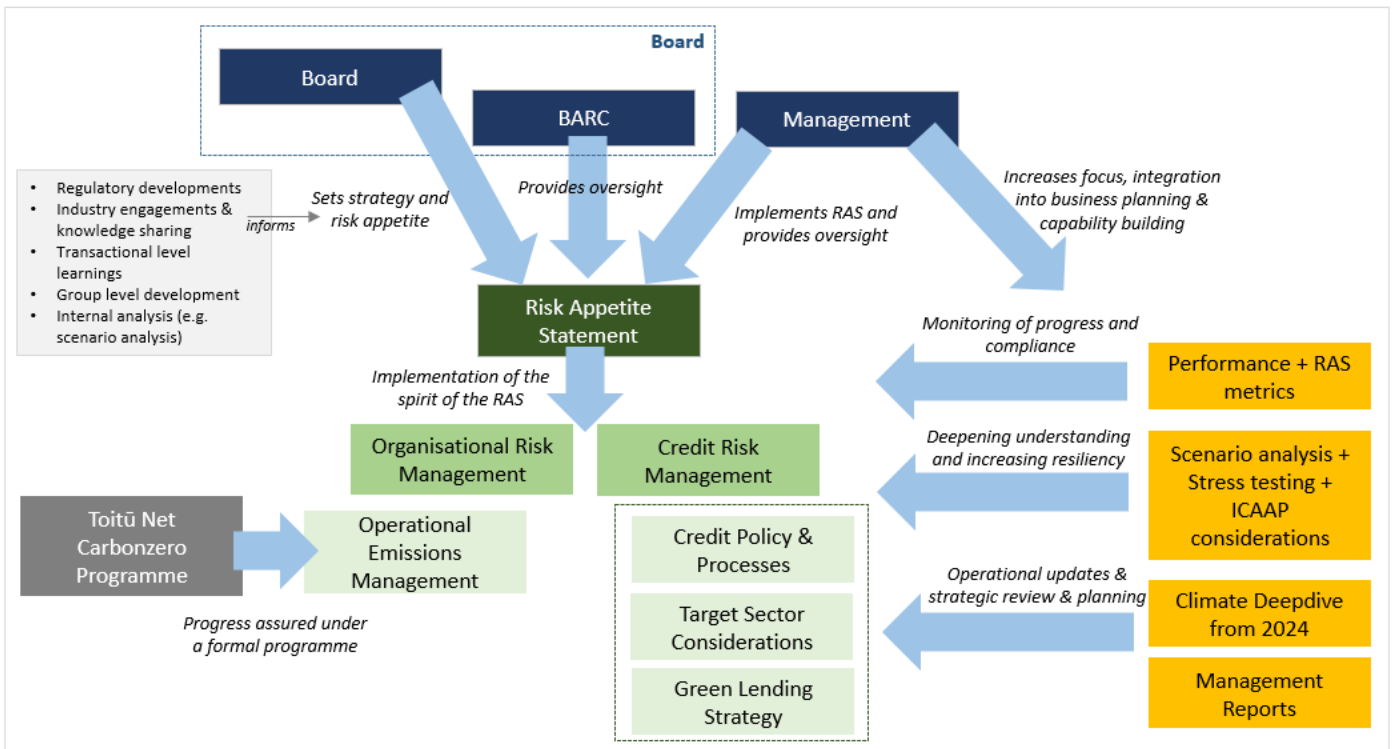

Figure15: CCB NZL Climate Risk Management Overview

Identification and assessment of climate-related risks

i. Regulatory developments

CCB NZL proactively scans the horizon to ensure it stays on top of its regulatory obligations and emerging risks. This helps inform key developments and the prioritisation of appropriate actions in identifying and managing risks. The horizon-scanning outputs are regular updates at Board and Management forums, and form a key basis of the Bank's risk operating rhythm.

04. Risk Management

CCB NZL is committed to staying apprised of regulatory changes and evolving industry practices related to climate risk management.

ii. Industry engagements & knowledge sharing

CCB NZL engages with the relevant industry and regulatory bodies to remain informed about climate risk standards and guidance. Ongoing dialogue with these key stakeholders, as well as our internal review processes, helps evolve our understanding of climate risks and in determining the appropriate responses.

iii. Transactional level trends and observations

The Bank has processes to assess climate and environmental risks prior to providing credit to any high climate risk customers. Additional processes are also in place to reassess the risk in the lifecycle of those relationships. Key trends of emerging risk factors picked up from these processes helps inform any required adjustments to the Bank's strategy. This iterative process allows for continuous improvement, enabling the Bank to refine its approach, optimise resource allocation, and adapt to changing market conditions.

iv. Group level development

CCB NZL has the ability to tap into its parent company's established systems, technologies, and market intelligence in regards to the work around climate-related risks. CCB is a supporter of the TCFD framework and was the first major Chinese Bank to produce TCFD climate reports (in 2021). CCB NZL is linked in with the wider CCB operations when it comes to exploring green opportunities, with key initiatives like MatchPlus (a CCB business matchmaking initiative) being used to create cross border green opportunities for its customers.

v. Internal analysis

The Bank has taken steps to build up its internal capability to better collate and integrate climate risk data-points into its risk management toolkit. In 2023, the Bank procured climate data (on physical risk on its collaterals, emission data etc.) from third party vendors to supplement its internal data and to deliver more timely and forward looking risk insights into this risk.

Management of climate-related risks

i. Risk Appetite Statement

The RAS is part of the Risk Management Framework (RMF), which sets out CCB NZBG's approach to management of all material risk classes across the NZ Banking Group, including appropriate internal capabilities, resources, risk and control and assurance activities. The RAS is intended to be used as guidance to ensure that CCB NZBG's strategic decisions, priorities and risk settings meet customer needs, while maintaining strong risk management and performance disciplines in line with the strategic direction. In August 2023, CCB NZBG incorporated climate-related risk into its RAS to ensure the risk is given the appropriate focus and that it is managed to the same level of cadence and discipline alongside its other material risks.

ii. Credit processes, target sector considerations and green lending strategy

Since September 2021, the Bank has implemented processes and requirements to carry out Climate and Environment Assessment Processes prior to providing credit to any high climate risk customers. Additionally, climate assessments are also required as part of the regular credit rating review for designated industry sectors. These requirements are currently in the process of being further streamlined and incorporated into the Wholesale Credit Policy. Trends and observations from the credit processes are used to inform and help refine the Bank's risk management approaches, including its management of climate risk.

iii. Setting metrics and tracking

The risk appetite metrics reflect the Board's expectations, and provide specific parameters within which the Bank must operate. A risk appetite limit represents the maximum level of risk that the Board is willing to accept for the specific metric. A number of new risk appetite metrics have been adopted. A selection of risk appetite metrics are also included in the metrics and targets section of this report. This is an iterative process. More specific quantification and appetite setting will be considered once the necessary data becomes available.

04. Risk Management

iv. Setting metrics and tracking

The risk appetite metrics reflect the Board's expectations, and provide specific parameters within which the Bank must operate. A risk appetite limit represents the maximum level of risk that the Board is willing to accept for the specific metric. A number of new risk appetite metrics have been adopted. A selection of risk appetite metrics are also included in the metrics and targets section of this report. This is an iterative process. More specific quantification and appetite setting will be considered once the necessary data becomes available.

v. Deep dive and management report

Since 2021, the Bank has undertaken regular research and analysis into a number of climate-related topics, as it builds up its internal capability to improve its understanding and improve its resilience in this area. With the increased maturity and the incorporation of climate-related risk into its RAS, future analysis will be covered in a more structured risk management cadence, including regular updates in key management reports and more comprehensive deep dives that critically analyse the Bank's performance and resilience at a strategic level.

vi. Scenario analysis, stress testing and ICAAP considerations

Stress testing is a critical component of a robust risk management framework that helps identify and quantify potential risk and assess the Bank's resilience under stressed scenarios. The stress test results and learnings are shared with the Board, and are used to inform any potential necessary actions and help shape business direction and decisions.

With the increasing number of extreme weather events (as experienced in New Zealand at the start of 2023), the Bank has started incorporating these more acute climate risk factors into its risk modelling. The Bank incorporated a large weather event scenario into its 2023 ICAAP to assess the quantum of the flow-on impacts, and the Bank's ability to weather such an event. Whilst all analysis to date pointed to the absence of any immediate and/or drastic climate risk both at the organisational and the credit level, the Bank is intending to build further capability to better model out its climate risk, particularly over a lengthened horizon and with the increase in scale and complexity of the business.

Scenario analysis is a strategic tool where the Bank considers and constructs plausible pathways (instead of forecasts) leading to different future scenarios, and analyses how resilient its current business model and strategy would be if it was placed within those scenarios. It is similar to a stress test in many respects (and are used to supplement the considerations behind), and in the context of planning around climate-related risk, provides an exploratory approach for considering significant uncertainties, and the scale and speed that physical and transitional climate-related impacts are likely to play out in the future. In 2022, CCB NZL utilised the common sets of narratives developed alongside its banking peers as the basis of its scenario analysis. The work to compile the narratives was commissioned by the NZBA on behalf of its members, and developed by EY.

05 Metrics & targets

- **Climate risk metrics and targets**
- **Operational emissions: FY23 progress**
- **Financed GHG emissions**

05. Metrics & targets

Climate risk metrics and targets

Initiatives Grouping	Metrics	Target setting (where applicable)	2022	2023	Comments
Reducing emissions in our operations*	Reduce total category 1, 2 emissions	13.73 tCO2e by FY2026	27.54 tCO2e	20.85 tCO2e	As measured in accordance to Toitū Envirocare's Rules. (Base Year 2021)
* Measured for CCB NZL but represents the emission for CCB NZ Banking Group given the interconnected operating model between CCB NZL and CCB NZB	Source renewable electricity equivalent to 100% of our electricity needs	*100%*	0%	25%	One of the bank's largest emission source. Planned to move to fully source the Bank's electricity needs from renewable source from 2024
	Maintain Toitū Envirocare net carbonzero certification	*Maintain certification*	Certified	Certified	Certified in May 2022. The first Chinese bank in New Zealand to become a Toitū Net Carbonzero Certified Organisation
Culture & capability	Board training/discussion sessions on climate risk	*No threshold*	4 sessions	4 sessions	
	Frontline & management training/ discussion sessions on climate risk	*No threshold*	N/A	5 sessions	
	Climate deep dive to RMC and Board (from FY 2024)	*At least annually*	N/A	N/A	Updates on specific focus areas provided since 2021. Deep dive to commence from 2024
Managing climate risk	Lending exposure to business clients in coal mining	*No threshold*	$0	$0	
	Maintain % of residential mortgage portfolio in high risk location (based on available data)	*<5%*	N/A	0.62%	
	Maintain % of non-residential mortgage portfolio in high risk location (based on available data)	*<5%*	N/A	0.24%	
	Quality of financed emission reporting. Measured by GHG emissions data quality score. Target score as per PCAF definition (5 being the least, and 1 the best)	*< 4.50*	N/A	4.24	
Supporting green initiatives	Green credit[8] (measured at CCB NZ Banking Group level)	*No threshold*	$370m	$634m	As measured using the Green Lending definition under the CCB methodologies
	Sustainability Linked Loans	*No threshold*	N/A	$485m	Note: Data not captured in comparable formats in 2022

Table 6: Climate Risk Metrics and Targets

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[8] A change in methodology resulted in the lack of comparability between 2022 and 2023. 2022 figures excluded undrawn balances, whilst 2023 figures include both on-balance drawn exposures and off-balance sheet undrawn exposures.

05. Metrics & targets

Operational emissions[9]: FY23 Progress

Scopes (ISO 14064-1:2006)	Emissions (tCO2e)		
	2021	**2022**	**2023**
Scope 1 *(incl. Category 1: Direct emissions | ISO 14064-1:2006)*	2.05	6.16	7.68
Scope 2 *(incl. Category 2: Indirect emissions from imported energy | ISO 14064-1:2006))*	17.40	21.38	13.17
Scope 3 (excl. financed emissions) *(incl. Category 3,4,5,6: Indirect emissions from transportation, products used by the organisation, use of products from the organisation, other sources | ISO 14064-1:2006))*	28.89	52.20	143.49

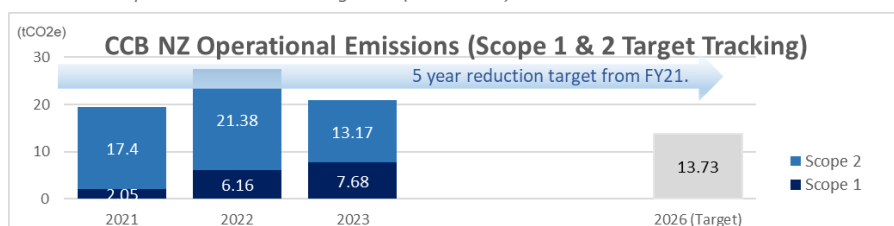*Table 7: Operational Emission Progress   (2021-2023)*

Figure16: Operational Emission Scope 1 & 2

FY 23 CCBNZ Operational Emissions Breakdown by Source (tCO2e)

- Air Travel | 118.2
- Electricity consumption | 14.7
- Accomodation | 12.5
- Waste | 8.4
- Fleet fuel | 7.6
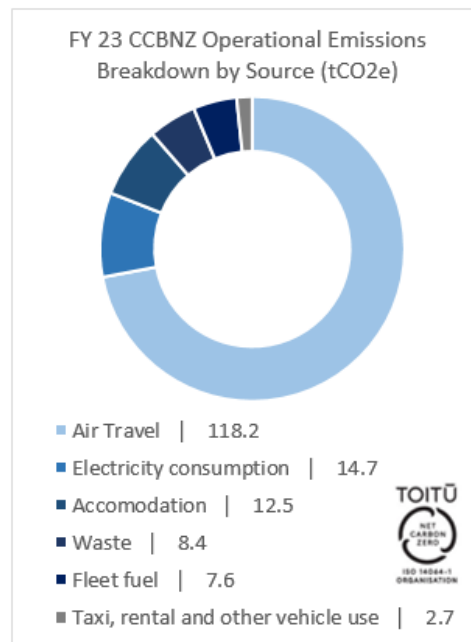- Taxi, rental and other vehicle use | 2.7

Figure 17: Operational Emission Breakdown

CCB NZL was certified Toitū Net Carbonzero in May 2022. CCB NZL was the first Chinese bank in New Zealand to become a Toitū Net Carbonzero Certified Organisation, which demonstrates our efforts to set a positive example in the banking industry and help facilitate New Zealand's transition to a low carbon economy. This is also in line with the robust long-term Green Finance Strategy implemented by CCB which stands at the forefront in promoting sustainable finance.

The accomplishment of the Toitū Net Carbonzero Organisation Certification represents CCB NZL's commitment to positively contribute to the sustainability of the environment through:

- actively measuring, managing and reducing the carbon footprint in accordance with ISO 14064-1:2018[10]; and
- fully offsetting the remaining operational emissions with high-quality carbon credits sourced from sustainable projects in New Zealand and China. (Refer to *Appendix A3* for a summary of the sources of carbon credit purchased)

CCB NZL is committed to managing and reducing its emissions in accordance with the programme requirements, which includes setting forth the reduction targets in line with the Paris Agreement for continuously reducing the carbon footprints and achieving the strategic goal of being carbon neutral in its operations.

The Bank has set an absolute target to reduce its Scope 1 and Scope 2 emissions by 18%, from the 2021 base year, by 2026. Absolute targets are aimed at reducing GHG emissions by a set amount, as opposed to intensity targets which are normalised metrics that set an organisation's emissions target relative to an economic or operational variable. The target is set with reference to <u>average</u> historical expense activities data from 2019 to 2021.

The Bank's target is reviewed against the science-based ambition levels as part of the Toitū Net Carbonzero certification programme. Target ambition levels are considered 'science-based' if they are in line with what the latest climate science deems necessary to meet the goals of the Paris Agreement of limiting global warming to well below 2c above pre-industrial levels and pursuing efforts to limit warming to 1.5c. The Bank's target is however not considered officially validated by the Science Based Targets intiative (SBTi), as the Bank has not made a submission to the SBTi separately for the targets to be validated and reviewed.

Efforts were made to optimise the Bank's specific emission sources, particularly around the planned completion of a full switch to renewable electricity sources in 2024. Part of the network was switched over in 2023, which saw emissions from electricity usage reducing from 21.38 tCO2e in 2022 to 13.17 tCO2e in 2023.

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[9] *Measured for CCB NZL but represents the emission for CCB NZ Banking Group given the interconnected operating model between CCB NZL and CCB NZB*
[10] Toitū Envirocare has provided reasonable assurance on the Bank's categories 1 and 2 emissions, and limited assurance for the remaining categories annually since 2022.

05. Metrics & targets

Financed GHG emissions

Financed emissions are indirect greenhouse gas emissions attributed to the Bank's lending activity. These emissions are categorised by the GHG Protocol as Scope 3, Category 15: Investments. The Aotearoa New Zealand Climate-related Disclosures Standards require reporting entities to report on all material Scope 3 emissions, including financed emissions.   Financed emissions can be calculated in two main ways:

1) at the portfolio level (for the entire portfolio); or
2) the sector level (for sectors where significant emissions from investments arise).

Financed emissions are the most significant source of emissions associated with the Bank's business activities, well exceeding its direct operational emissions.

Emission methodologies overview

In 2022, CCB NZL partnered with third party vendors, Generate Zero and Data Insight, to begin modelling the financed emissions in its business lending portfolio, covering the carbon emissions associated with Scope 3 financed emissions of the top three asset classes in its portfolio, namely:

- Residential mortgage loans
- Commercial real estate loans
- Business lending

Whilst not a member of PCAF (Partnership for Carbon Accounting Financials), CCB NZL uses the PCAF guidance to calculate its financed emissions. PCAF is a global partnership of financial institutions who have come together to develop and implement a harmonised approach to assessment and disclosure of GHG emissions associated with loans and investments, and is recommended by TCFD. Additionally, PCAF is a contributing body to the International Sustainability Standards Board (ISSB).   The high level PCAF methodologies used to calculate the GHG emissions of these sectors are as follow:
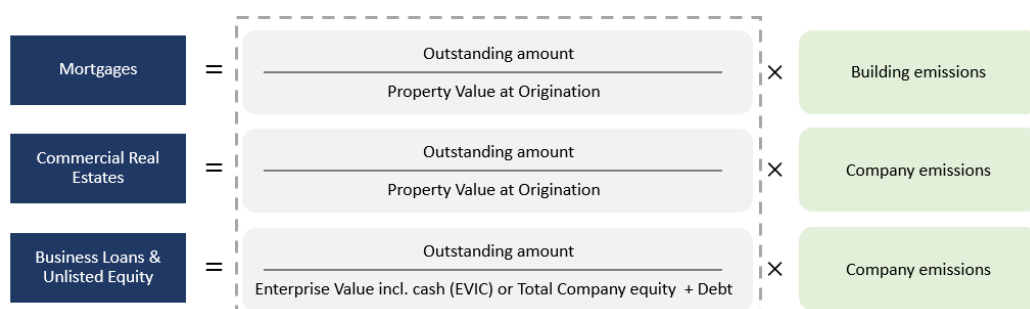

Figure18: Calculation method for financed emissions

PCAF's methodologies are dependent on the asset class of the lending, and the level of client-specific emissions and financial data available. Key considerations for the banking sector when accounting for financed emissions are:

- Data quality and reliance of sector-level emission factors: Data quality is a major limitation for organisations wanting to calculate their financed emissions, as client-specific data is often not easily accessible. PCAF endorses the use of certain sector-level emissions factors. However, these emission factors are calculated at a global level, leading to potential impact on their accuracy due to New Zealand's unique emissions profile and a large proportional use of renewable electricity. Consequently, the use of these global emissions factors may skew calculations of financed emissions. To date, there are no publicly available sources of revenue-based, sector-level emission factors for New Zealand, however organisations might choose to develop emission factors based on Stats NZ's publicly available data.
- Embedding financed emissions into internal systems: Embedding financed emissions data into internal systems will be pivotal to enable organisations to more accurately monitor year on year change in their total financed emissions, and to support more accurate calculations. Organisations should consider carefully how to best support the capture, storage and extraction of client-specific emissions and financial data within its systems.
- Due to the complexity of the accounting approaches, required data sources and the range of impacted stakeholders, strong governance is key to developing robust financed emissions accounting processes, ensuring clear accountability of financed emissions calculations, and minimising risk of calculation errors and misinterpretation of data.

05. Metrics & targets

We calculate the combined financed emissions (Scope 3) across these three asset classes to be around 53.3ktCO2e. The first two asset classes, Residential Mortgages and Commercial Real Estate, represent over half of the Bank's exposure by drawn amount but only account for 1.6% of the Bank's financed emissions. Conversely, the two sectors with the highest emissions intensity, Agriculture and Electricity, account for 82% of the Bank's financed emissions but only represent 10.9% of the Bank's exposure by drawn amount.

Asset Class	Financed Emissions : Attributed Scope 3 Emissions (tCO2e)	% Total CCBNZ Scope 3 Emissions	Emissions Intensity (tCO2e/$m Lent)	% of CCB Lending (by drawn $ amount)	PCAF Data Quality Score
1. Residential Mortgages	**494.40**	**0.93%**	**0.63**	**45.46%**	**4.00**
2. Commercial Real Estate	**364.46**	**0.68%**	**2.66**	**7.87%**	**4.50**
3. Business Lending	**52,505.73**	**98.39%**	**64.69**	**46.66%**	**4.43**
3.1 Agriculture, forestry, and fishing	9,090.84	17.04%	365.25	1.43%	4.00
3.2 Manufacturing	3,257.43	6.10%	37.98	4.93%	4.00
3.3 Electricity, gas, water, and waste services	34,678.09	64.98%	210.42	9.47%	4.37
3.4 Construction	4,888.08	9.16%	23.90	11.76%	4.49
3.5 Retail trade	18.80	0.04%	5.08	0.21%	4.00
3.6 Accommodation and food services	11.63	0.02%	0.79	0.85%	4.00
3.7 Information media and telecommunications	491.19	0.92%	3.32	8.51%	4.34
3.8 Rental, hiring, and real estate services	69.68	0.13%	0.42	9.49%	4.82
Total Attributed Financed Emissions:	**53,364.60**			**Average PCAF Score:**	**4.24**

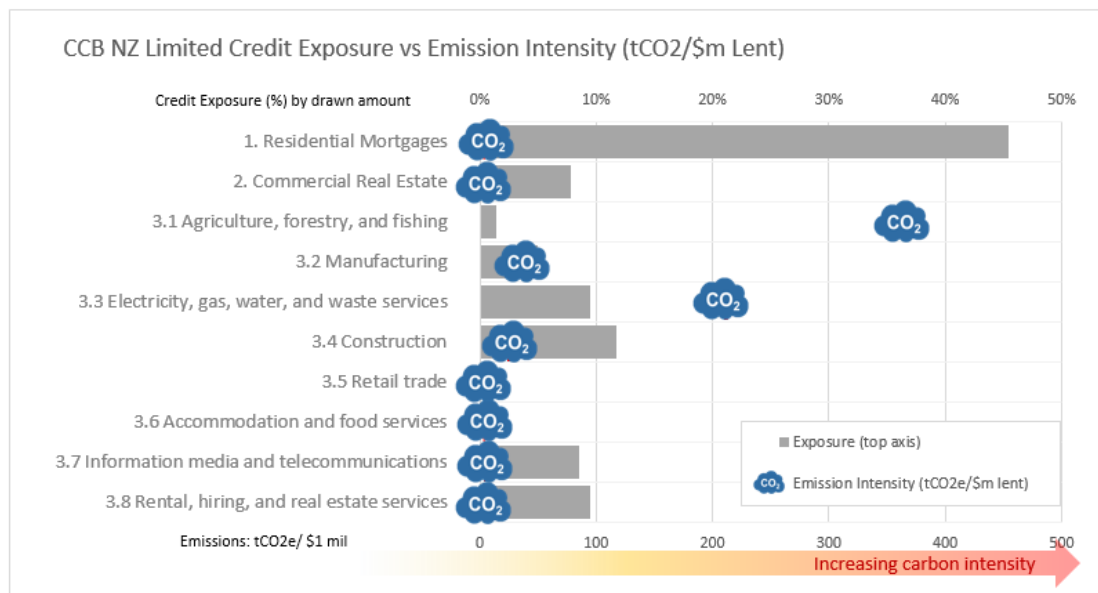*Table 8: Financed Emission Summary*

Figure 19: Credit Exposure vs Emission Intensity

The Bank also follows the PCAF guidance for estimating the emissions data quality we used for calculating financed emissions. A score of one is best and reflects verified and disclosed emissions. This is our first disclosed measurement of our financed emissions. Whilst our current PCAF data quality score is high (averaging 4.24), the reporting of our financed emissions provides a step forward for the Bank to better identify and manage its climate-related risks and emissions, outside of our direct operational emissions.
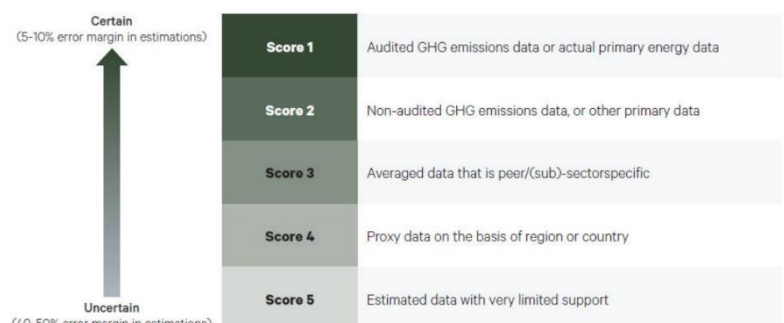

Figure 20: General description for the data quality score

Emissions data, calculation methodologies and disclosure standards are evolving rapidly. CCB NZL will keep abreast of key developments and work with its selected data partners to ensure it can evolve its approach as new requirements and better fitting methodologies emerge.

Refer to *Appendix A2* for a more detailed overview of the methodologies for the three asset classes.

Milford Sound
New Zealand

Appendix

- **A1. Physical risk analysis methodologies overview**
- **A2. Financed emissions methodologies overview**
- **A3. Managing residual emissions**
- **A4. Developments at CCB Corporation Group Level**

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A1. Physical risk analysis methodologies overview

Flood is the second highest insured loss in New Zealand, and the Insurance Council of New Zealand (ICNZ) data shows that since 1968 flood accounted for more than 50 percent of all loss events, and damage from heavy precipitation or river flooding represented 60 percent of weather related losses.

In the North Island (where CCB NZL's exposures are predominantly located), flooding is often triggered by heavy rainfall brought by transitioned tropical cyclones. Prominent examples are Tropical Cyclone Debbie in 2017 and Tropical Cyclone Gabrielle in 2023. The El Niño Southern Oscillation (ENSO) markedly influences precipitation patterns across the country.

These extreme weather patterns are expected to become more frequent and intense as the climate changes.

CCB NZ has partnered with third party vendors, Valocity and Moody's RMS, to obtain better modelling of the flood risk on its real estate collaterals.   The Moody's RMS Inland Flood Model is a fully probabilistic flood model built with data obtained from local organisations and instituions, including the National Institute of Water and Atmospheric Research (NIWA), Land Information New Zealand (LINZ), local regional councils and ICNZ. The model is based on 50,000 years of continuous simulation of the entire precipitation cycle capturing the spatial and temporal correlations of flood risk, and all sources of flood (pluvial and fluvial), resulting in a catalog of 350,000 simulated events[11].

The analysis obtained covered earthquake, flood and other property risk under current climatic conditions, and flood climate risk conditioned for future climate scenarios based on the scenarios dimensions and time horizons used in the Bank's scenario analysis.
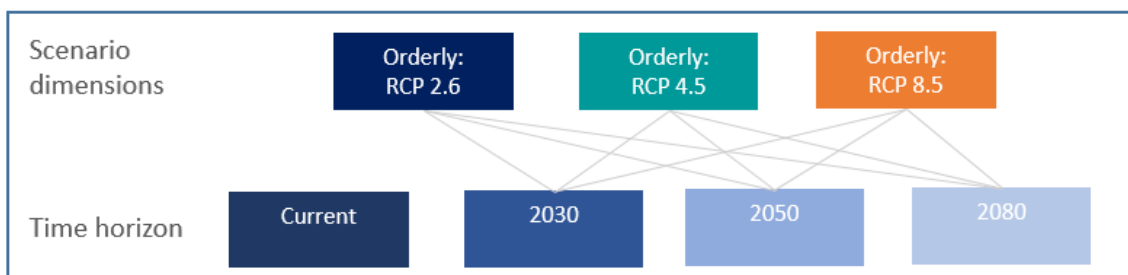

Figure 21: Scenario Dimensions

More specifically, the flood data contains a series of flood risk indicators including flood depth, elevation and distance to the coast against a 100, 250 and 500 years return events probability, conditioned by the time and scenario dimensions mentioned above.

Flood risk gradings are further derived for all real estate collaterals based on these risk indicators. The risk grading in the raw flood data are grouped by the different level of risk severity. Below are the further groupings that CCB NZL utilised in the Physical Risk summary in this report.

Raw Data Rating	Rating Used in the Physical Risk Summary in this report	Expected Mean Damage Ratio
Extremely Low Risk	Low Risk	0 - 10%
Very Low Risk		
Low Risk		
Low to Moderate Risk		
Moderate Risk	Medium Risk	10 - 20%
Moderate to High Risk		
High Risk	High Risk	20 - 100%
High to Very High Risk		
Very High Risk		
Extremely High Risk		

Table 9: Physical risk rating used in this report

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[11] Source: https://www.rms.com/blog/2021/05/04/rms-launches-new-zealand-inland-flood-hd-model-a-new-era-for-catastrophe-modeling

APPENDIX

A2. Financed emissions methodologies overview

Financed emissions are indirect greenhouse gas emissions attributed to the Bank's lending activity. These emissions are categorised by the GHG Protocol as Scope 3, Category 15: Investments. Whilst not a member of PCAF (Partnership for Carbon Accounting Financials), CCB NZL uses the PCAF guidance to calculate its financed emissions. (Refer to Section 5 of this report)

The PCAF methodology prescribes specific asset classes for inclusion as appropriate in financed emission estimations made by financial institutions. In 2022, CCB NZL partnered with third party vendors, Generate Zero and Data Insight, to begin modelling the financed emissions in its business lending portfolio, covering the carbon emissions associated with Scope 3 financed emissions of the top three asset classes in its portfolio, namely:

- Residential mortgage loans
- Commercial real estate loans
- Business lending

Relevant asset classes specified in the PCAF standard that are excluded from the Bank's financed emissions estimations due to data availability limitations are sovereign debt, and listed equity and corporate bonds. The Bank does not offer motor vehicle loans and project finance is included in business lending.

Detailed Methodologies

Residential Mortgages

All residential mortgages on-balance sheet loans for the financing of residential property are included in the financed emissions calculation of the residential mortgages asset class.

The financed emission is calculated by multiplying the attribution factor by the emissions of the building as follows:

$$Financed\ emissions = \sum_{b} Attribution\ factor_b \times Building\ emissions_b$$

(with b = building)

PCAF (2022). The Global GHG Accounting and Reporting Standard Part A: Financed Emissions. Second Edition. (p.96)

The emissions of buildings are calculated as the product of a building's energy consumption and specific emission factors for each source of energy consumed. The total energy use of the building includes the energy consumed by the building's occupants. The equation below is the result.

$$Financed\ emissions = \sum_{b,e} \frac{Outstanding\ amount_b}{Property\ value\ at\ origination_b} \times Energy\ consumption_{b,e} \times Emission\ factor_e$$

(with b = building and e = energy source)

PCAF (2022). The Global GHG Accounting and Reporting Standard Part A: Financed Emissions. Second Edition. (p.96)

Data required: Actual building energy consumption is preferred but are not widely available. In the absence of metered data, energy use can be estimated based on building characteristics and publicly available data. The PCAF data quality, using the different options, are ranked from actual reported consumption (highest quality), energy labels data (mid-high quality), regional / floor area data (mid-lower quality) to regional / building number data (lowest quality).

(score 1 = highest data quality; score 5 = lowest data quality)

Data Quality	Options to estimate the financed emissions		When to use each option
Score 1	Option 1: Actual building emissions	1a	Primary data on **actual building energy consumption** (i.e., metered data) is available. Emissions are calculated using actual building energy consumption and **supplier-specific emission factors**[144] specific to the respective energy source.
Score 2		1b	Primary data on **actual building energy consumption** (i.e., metered data) is available. Emissions are calculated using actual building energy consumption and **average emission factors** specific to the respective energy source.
Score 3	Option 2: Estimated building emissions based on floor area	2a	**Estimated building energy consumption per floor area based on official building energy labels AND the floor area** are available. Emissions are calculated using estimated building energy consumption and **average emission factors** specific to the respective energy source.
Score 4		2b	**Estimated building energy consumption per floor area based on building type and location-specific statistical data AND the floor area** are available. Emissions are calculated using estimated building energy consumption and **average emission factors** specific to the respective energy source.
Score 5	Option 3: Estimated building emissions based on number of buildings	3	**Estimated building energy consumption per building based on building type and location-specific statistical data AND the number of buildings** are available. Emissions are calculated using estimated building energy consumption and **average emission factors** specific to the respective energy source.

Table 10: General description of the data quality score for the Residential Mortgages asset class

PCAF (2022). The Global GHG Accounting and Reporting Standard Part A: Financed Emissions. Second Edition. (p.98)

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The Bank adopts **option *2b: Estimated building energy consumption per floor area based on building type and location specific statistical data and the floor area,*** in its emission calculation, where floor area information is available; and ***option 3: Estimated building energy consumption per building based on building type and location specific statistical data*** where floor area information is available.

For both options, the emissions are calculated using estimated building energy consumption and average emission factors specific to the respective energy source. Key external data sources relied upon for these options are:

- Electricity authority regional electricity consumption data
- Stats NZ heating and cooling data by region
- Property floor area data

The Bank has been able to predominantly adopt option 2b for its calculation given the availability of the floor area information for the majority of the Bank's residential mortgage exposures. The PCAF data quality score, as a result, is 4.00.

Commercial Real Estate

All commercial real estate on-balance sheet lendings are included in the financed emissions calculation for the Commercial Real Estate asset class.

Similar to the Residential Mortgages asset class, the PCAF model for the Commercial Real Estate asset class is calculated by multiplying the attribution factor by the emissions of the building as follows:

$$Financed\ emissions = \sum_{b} Attribution\ factor_b \times Building\ emissions_b$$

$$(with\ b = building)$$

PCAF (2022). The Global GHG Accounting and Reporting Standard Part A: Financed Emissions. Second Edition. (p.91)

The emissions of buildings are calculated as the product of a building's energy consumption and specific emission factors for each source of energy consumed. The total energy use of the building includes the energy consumed by the occupants of the building. The equation below is the result.

$$Financed\ emissions = \sum_{b,e} \frac{Outstanding\ amount_b}{Property\ value\ at\ origination_b} \times Energy\ consumption_{b,e} \times Emission\ factor_e$$

$$(with\ b = building\ and\ e = energy\ source)$$

Data required: Similar to the Residential Mortgages asset class, actual building energy consumption is preferred but data is not widely available. In the absence of metered data, energy use can be estimated based on building characteristics and publicly available data. The PCAF data quality using the different options are ranked from actual reported consumption (highest quality), energy labels data (mid-high quality), regional / floor area data (mid-lower quality) to regional / building number data (lowest quality).

(score 1 = highest data quality; score 5 = lowest data quality)

Data Quality	Options to estimate the financed emissions		When to use each option
Score 1	Option 1: Actual building emissions	1a	Primary data on **actual building energy consumption** (i.e., metered data) is available. Emissions are calculated using actual building energy consumption and **supplier-specific emission factors**[144] specific to the respective energy source.
Score 2		1b	Primary data on **actual building energy consumption** (i.e., metered data) is available. Emissions are calculated using actual building energy consumption and **average emission factors** specific to the respective energy source.
Score 3	Option 2: Estimated building emissions based on floor area	2a	**Estimated building energy consumption per floor area based on official building energy labels AND the floor area** are available. Emissions are calculated using estimated building energy consumption and **average emission factors** specific to the respective energy source.
Score 4		2b	**Estimated building energy consumption per floor area based on building type and location-specific statistical data AND the floor area** are available. Emissions are calculated using estimated building energy consumption and **average emission factors** specific to the respective energy source.
Score 5	Option 3: Estimated building emissions based on number of buildings	3	**Estimated building energy consumption per building based on building type and location-specific statistical data AND the number of buildings** are available. Emissions are calculated using estimated building energy consumption and **average emission factors** specific to the respective energy source.

Table 11: General description of the data quality score for the Commercial Real Estate asset class

PCAF (2022). The Global GHG Accounting and Reporting Standard Part A: Financed Emissions. Second Edition. (p.92)

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No suitable New Zealand data sources were identified that could accurately estimate regional emissions associated with the running of Commercial Buildings in recent years. Industry-based emission sources (such as NZ Stats, Emissions by Industry) are typically associated with the activities of those industries (e.g. emissions associated with manufacturing of goods) and could potentially overestimate the emissions for the mortgaged building.

Due to data availability limitations, the Australian Department of Climate Change, Energy, the Environment and Water Commercial Building Baseline Study released in 2022, which included both electricity and gas outputs per m² based on the commercial use type (Space Use Type), are used in conjunction with customers/NZ data (e.g. industry type, location, floor size) in the calculations for this asset class.

Table 12: Average Electricity Intensity (MJ/m2.a) Trends over Time by Space Use Type, FY2012 - FY2021, Australia
Source: Commercial Building Baseline Study (2022). The Australian Department of Climate Change, Energy, the Environment and Water. (p.31)

Space Use Type	Average Annual % Change	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Health facilities	-2.15%	983.6	948.4	923.8	904.9	895.4	882.7	867.6	849.1	819.6	809.2
Aged care facilities (including nursing homes)	-2.16%	904.1	870.8	848.3	831.4	822.9	810.9	796.9	779.6	752.4	742.7
Short term accommodation buildings	-1.88%	807.3	784.6	765.4	752.3	745.8	736.8	725.4	712.3	688.1	680.3
Retail and wholesale trade buildings	-2.12%	617.9	596.1	580.8	569.2	563.3	555.3	545.9	534.6	516.0	509.5
Offices	-2.20%	450.8	434.4	423.1	413.7	409.2	403.6	396.3	387.1	373.9	369.0
Non-residential buildings nec	-1.73%	419.4	408.3	398.8	393.4	391.0	387.2	381.5	375.3	362.4	358.4
Entertainment and recreation buildings	-2.06%	367.6	355.5	346.5	339.9	336.6	332.2	326.6	319.9	308.7	304.9
Commercial buildings nec	-2.15%	260.1	251.6	245.2	239.7	237.0	233.9	229.6	224.3	216.6	213.8
Religion buildings	-2.00%	201.7	195.0	190.2	186.9	185.3	182.9	179.9	176.3	170.2	168.2
Education buildings	-2.09%	150.1	145.0	141.4	138.7	137.4	135.6	133.2	130.4	125.8	124.2
Agricultural and aquacultural buildings	-1.80%	143.8	139.2	136.2	134.3	133.4	131.9	129.9	127.8	123.4	122.1
Factories and other secondary production buildings	-1.85%	126.5	122.7	119.9	118.1	117.3	115.9	114.1	112.0	108.2	107.0
Warehouses	-2.13%	117.3	113.2	110.3	108.1	106.9	105.4	103.6	101.3	97.9	96.7
Transport buildings	-2.24%	82.3	79.3	77.2	75.4	74.6	73.5	72.1	70.4	68.0	67.1
Other industrial buildings nec	-1.74%	79.2	77.0	75.2	74.2	73.8	73.0	71.9	70.8	68.3	67.6
Simple Averages	-2.02%	380.8	368.1	358.8	352.0	348.6	344.1	338.3	331.4	320.0	316.0

Table 13: Average Gas Intensity (MJ/m2.a) Trends over Time by Space Use Type, FY2012 - FY2021, Australia
Source: Commercial Building Baseline Study (2022). The Australian Department of Climate Change, Energy, the Environment and Water. (p.32)

Space Use Type	Average Annual % Change	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Health facilities	-1.04%	158.4	157.3	157.4	157.1	156.9	157.3	154.3	152.8	147.9	144.2
Aged care facilities (including nursing homes)	-0.99%	142.7	141.9	142.1	142.0	141.9	142.0	139.5	138.4	133.9	130.5
Short term accommodation buildings	-1.02%	125.1	124.4	124.5	124.2	124.3	125.1	122.5	120.9	117.0	114.1
Retail and wholesale trade buildings	-1.01%	97.5	96.9	97.0	96.8	96.8	96.9	95.2	94.3	91.2	89.0
Offices	-1.04%	72.9	72.4	72.3	72.1	71.9	72.1	70.7	70.2	68.0	66.3
Non-residential buildings nec	-1.02%	61.6	61.3	61.6	61.4	61.6	62.0	60.7	59.7	57.7	56.2
Entertainment and recreation buildings	-1.07%	57.5	57.1	57.2	57.0	56.9	57.1	56.0	55.4	53.6	52.2
Commercial buildings nec	-1.14%	42.7	42.4	42.2	42.1	41.9	42.1	41.2	40.8	39.5	38.5
Religion buildings	-0.97%	31.3	31.2	31.2	31.2	31.2	31.3	30.7	30.4	29.4	28.7
Education buildings	-1.08%	22.9	22.8	22.8	22.8	22.7	22.8	22.4	22.1	21.4	20.8
Agricultural and aquacultural buildings	-0.97%	20.3	20.2	20.3	20.3	20.3	20.4	20.0	19.8	19.1	18.6
Factories and other secondary production buildings	-0.97%	19.3	19.2	19.2	19.2	19.1	19.2	18.8	18.7	18.1	17.7
Warehouses	-0.95%	18.6	18.5	18.5	18.5	18.5	18.6	18.3	18.0	17.5	17.0
Transport buildings	-1.10%	13.5	13.4	13.3	13.3	13.2	13.3	13.0	12.9	12.5	12.2
Other industrial buildings nec	-0.94%	11.3	11.3	11.3	11.3	11.3	11.4	11.2	11.0	10.7	10.4
Simple Averages	-1.02%	59.7	59.4	59.4	59.3	59.2	59.4	58.3	57.7	55.8	54.4

The Bank adopts **option 2b: Estimated building energy consumption per floor area based on building type and location-specific statistical data AND the floor area** (table 11). Emissions factors were calculated by multiplying the average electricity (Table 12) and average gas consumption (Table 13) (MJ./m²) by the appropriate New Zealand Emissions Factors to get estimated emissions per m². Emissions are then computed using the acquired average emissions factors in conjunction with the corresponding floor area.

$$Financed\ emissions = \sum_{b,e} \frac{Outstanding\ amount_b}{Property\ value\ at\ origination_b} \times Estimated\ energy\ consumption\ from\ statistics_{b,e}$$
$$\times\ Floor\ area_b \times Average\ emission\ factor_e$$

(with b = building and e = energy source)

Key external data sources relied upon for this option are:
- Australian Government Department of Agriculture, Water and the Environment & Australian Bureau of Statistics – Emissions data
- Property floor area data

Option 2b attracts a potential data quality score 4.00 at best. The actual average PCAF score comes in at 4.50. The

score acknowledges the added accuracy of basing the estimation on actual floor area, but with the limitation of not having location-specific emissions statistics.

Business Lending

All on-balance sheet business lending is included in the calculation of the business lending asset class except:

- residential mortgages
- business lending that meets the definition of the Commercial Real Estate asset class (covered in the previous section)
- lending to Government and Sovereign debt
- corporate bonds
- intra-group lending between CCB entities
- lending (including nostro account balances) to other financial institutions for Treasury management purposes

The following classification has been used to map business records to the respective industries:

Industry	Industry ANZSIC Short Code
Agriculture, forestry, and fishing	A
Mining	B
Manufacturing	C
Electricity, gas, water, and waste services	D
Construction	E
Wholesale trade	F
Retail trade	G
Accommodation and food services	H
Transport, postal, and warehousing	I
Information media and telecommunications	J
Financial and insurance services	K
Rental, hiring, and real estate services	L
Professional, scientific, and technical services	M
Administrative and support services	N
Public administration and safety	O
Education and training	P
Health care and social assistance	Q
Arts and recreation services	R
Other services	S
Not Elsewhere Included	T

Table 14: Industry mapping against 2024 ANZSIC classifications

The financed emissions from business loans and unlisted equity are calculated by multiplying the attribution factor by the emissions of the borrower or investee company and then taking the sum of these emissions:

$$Financed\ emissions = \sum \frac{Outstanding\ amount_c}{Total\ equity + debt_c} \times Company\ emissions_c$$

PCAF (2022). The Global GHG Accounting and Reporting Standard Part A: Financed Emissions. Second Edition. (p.71)

The financed emissions from business loans and unlisted equity can be calculated in different ways depending on the availability of financial and emissions data specific to the borrower or investee. Overall, PCAF distinguishes three different options to calculate the financed emissions from business loans and unlisted equity depending on the emissions data used.

(score 1 = highest data quality; score 5 = lowest data quality)

Data Quality	Options to estimate the financed emissions		When to use each option
Score 1	Option 1: Reported emissions	1a	Outstanding amount in the company and total company equity plus debt are known. **Verified emissions** of the company are available.
		1b	Outstanding amount in the company and total company equity plus debt are known. **Unverified emissions** calculated by the company are available.
Score 2	Option 2: Physical activity-based emissions	2a[102]	Outstanding amount in the company and total company equity plus debt are known. Reported company emissions are not known. Emissions are calculated using primary physical activity data for the company's energy **consumption** and emission factors[103] specific to that primary data. Relevant process emissions are added.
Score 3		2b	Outstanding amount in the company and total company equity plus debt are known. Reported company emissions are not known. Emissions are calculated using primary physical activity data for the company's **production** and emission factors specific to that primary data.
Score 4	Option 3: Economic activity-based emissions	3a	Outstanding amount in the company, total company equity plus debt, and the **company's revenue**[104] are known. Emission factors for the sector per unit of revenue are known (e.g., tCO₂e per euro or dollar of revenue earned in a sector).
Score 5		3b	Outstanding amount in the company is known. Emission factors for the sector per unit of asset (e.g., tCO₂e per euro or dollar of asset in a sector) are known.
		3c	Outstanding amount in the company is known. Emission factors for the sector per unit of revenue (e.g., tCO₂e per euro or dollar of revenue earned in a sector) and **asset turnover ratios** for the sector are known.

Table 15: General description of the data quality score for the Business Lending asset class PCAF (2022). The Global GHG Accounting and Reporting Standard Part A: Financed Emissions. Second Edition. (p.73)

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The Bank adopts **option 3: Economic activity-based emissions** in calculating its emissions for business lending.

Where the information on total company equity plus debt, and the company's revenue are known, the Bank adopts **option 3a**.

$$Financed\ emissions = \sum_c \frac{Outstanding\ amount_c}{Total\ equity + debt_c} \times Revenue_c \times \frac{GHG\ emissions_s}{Revenue_s}$$

(with c = company and s = sector)

Where the company's revenue and total company equity plus debt information are not available or incomplete, the Bank adopts **option 3b**.

$$Financed\ emissions = \sum_c Outstanding\ Amount_c \times \frac{GHG\ emissions_s}{Assets_s}$$

(with c = company and s = sector)

Calculation results under option 3a attract a PCAF quality score of 4.00 whilst option 3b attracts a score of 5.00. Considering the variance in data quality across the different sectors within this specific asset class, the data quality score is calculated using the weighted average by outstanding loan value for each sector within the asset class using the following equation:

$$PCAF\ quality\ score = \frac{\sum_c Outstanding\ Amount_c \times Data\ Quality\ Score_c}{\sum_c Outstanding\ Amount_c}$$

(with c = company)

The percentage of business lending (by on-balance sheet outstanding loan value) calculated using the two sub-options are as follows. This has resulted in an average PCAF data quality score of 4.43 for the business lending asset class.

Key external data sources relied upon for this option are:
- Stats NZ industry data (Emissions, Financials)

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A3. Managing residual emissions

Source: part of the information adapted from Toitū Envirocare Carbon Programmes & Certification webpage: *https://www.toitu.co.nz/what-we-offer/carbon-management/mitigate*

The use of carbon credits also plays a key role in the transition to a low carbon economy. On the path to better measurement and reduction of its carbon footprint under the Toitū Envirocare net carbonzero certification, the Bank is committed to offsetting the remaining unavoidable emissions with high quality carbon credits[12].

Carbon credits are awarded to defined projects that **store**, **avoid** or **reduce** greenhouse gas (GHG) emissions in the atmosphere.
- Store: These are usually forestry projects – land specifically set aside for reforestation with strict covenants to ensure the forest remains permanent and is not harvested.
- Avoid: These are usually energy generation projects that use renewable energy instead of fossil-fuels, such as wind farms.
- Reduce: These are usually a form of technology that reduces the usual amount of emissions produced, for example efficient solar cook stoves that replace inefficient fossil-fuel burning stoves.

Carbon credits are issued by an appropriate authority that has confirmed the project meets the requirements of their standard. Examples of common requirements, or principles, of the standards include additionality, permanence, verification, and leakage. It is important to ensure that good quality credits are used as claims of carbon neutrality based on offsets that do not meet the requirements of recognised standards may be subject to investigation by regulators of advertising standards or consumer protection laws.

All credits used by Toitū Envirocare carbonzero programme members must meet the following sets of principles[13]:
- Issued under a voluntary or compliance standard recognised by the programme
- Generated by a project that has been assessed and approved as being suitable for offsetting by the programme
- Issued in a recognised registry
- Retired, cancelled or otherwise taken out of circulation in the programme's account in the relevant registry

Toitū Envirocare carbonzero programme members can purchase carbon credits from a portfolio sourced by Toitū Envirocare from:
- a range of compliance and voluntary standards including Gold Standard (and Fair Trade Gold Standard), Clean Development Mechanism (CDM), and New Zealand's Permanent Forest Sink Initiative (PFSI)[14]
- a range of countries including New Zealand, China, Thailand, India, Chile, and others
- a range of project types (e.g. renewable energy generation, forest sequestration, landfill methane capture)

In 2022 and 2023[15], the Bank has purchased carbon credits sourced from the following projects:

2022 (weighted average cost per unit: NZ$33.69)
- *[Toitū Envirocare's International Portfolio]* Wenchang Rural Methane Digesters Project in Hainan Province, China
- *[Toitū Envirocare's NZ Permanent Forest Sink Initiative Porftolio]* Coatbridge

2023 (weighted average cost per unit: NZ$16.78)
- *[Toitū Envirocare's International Portfolio]* Wenchang Rural Methane Digesters Project in Hainan Province, China
- *[Toitū Envirocare's NZ Permanent Forest Sink Initiative Portfolio]* Spraypoint

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[12] A carbon credit is a financial instrument that represents a unit of greenhouse gases (measured in carbon dioxide equivalents or CO2e). One carbon credit is equal to 1 tonne of CO2e.

[13] Toitū Envirocare consider a range of international regulations, recognised standards, and the best practice principles of International Carbon Reduction and Offset Alliance (ICROA), in the development of its assessment process.

[14] In November 2023, Toitū Envirocare has announced a move away from accepting carbon credits from New Zealand forests under its programme, citing a shift to better align with global standards. Going forward, only credits that are certified by the Integrity Council of the Voluntary Carbon Market, will be recognized under the programme.

[15] The purchases are to offset the remaining unavoidable emission from the year before (e.g. the purchase in 2023 is to offset the remaining unavoidable emission from 2022).

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A4. Developments at CCB Corporation Group Level

In September 2020, China announced the goal to peak carbon dioxide (CO2) emissions before the year 2030 and achieve carbon neutrality by 2060. Given China's scale, and the need to balance economic development and emission reductions, the transition to net zero faces significant challenges. Although being a late starter, China has adopted serious environmental and climate policies.

In February 2012, the China Banking Regulatory Commission (now, the National Administration of Financial Regulation, NAFR) issued the Guidelines on Green Credit, which provides specific requirements on the environmental and social risk management of financial institutions' green credit operations. In August 2016, the People's Bank of China (PBOC), Ministry of Finance, National Development and Reform Commission (NDRC), Ministry of Environmental Protection (now, Ministry of Ecology and Environment), CBIRC (now, NAFR) and the China Securities Regulatory Commission (CSRC) jointly issued the Guidance Opinions on Building a Green Financial System, taking the lead in building the green financial system.

In July 2021, the PBOC, based on the experience of the pilot institutions, and drawing on the international mainstream methodology for climate and environmental information disclosure and in light of the characteristics of Chinese financial institutions, issued the Guidelines on Environmental Information Disclosure of Financial Institutions, which requires financial institutions to disclose their own environmental information, both quantitative and qualitative. According to the Guidelines on Environmental Information Disclosure of Financial Institutions, qualitative information includes environmental strategy, governance structure, environmental risk management strategy, and identification of major issues; and quantitative environmental information includes environmental benefits and environmental stress tests of their own operations and investment and financing activities.

It is CCB's vision to become a world-leading sustainable development bank. As such it has continued to strengthen its governance and delivered the necessary operating model to intensify its effort to manage and explore climate-related risks and opportunities.

In May 2021, CCB became a supporter of the TCFD. This demonstrated CCB's commitment to continuously improve its governance and disclosure quality of environmental and climate-related information according to the common TCFD information disclosure framework, so as to better align itself with the information disclosure systems of international financial enterprises and investment institutions and enhance capital markets' and rating agencies' understanding and recognition of CCB's efforts in ESG and green finance.

A high level summary of CCB Group's Governance can be found in the Governance Section of the 2023 CCB NZ Banking Group Climate Report.

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A5. Adoption Provisions

In recognition that it may take time to develop the capability to produce high-quality climate-related disclosures, and that some disclosure requirements, by their nature, may require an exemption, NZ CS 2 Adoption of Aotearoa New Zealand Climate Standards provides a limited number of adoption provisions from the disclosure requirements in Aotearoa New Zealand Climate Standards.

The Bank has elected to use Adoption provision 1, 2, 6 and 7.

Name	Standard, section, and paragraph	Applicable Reporting Period of the Adoption Provision contained in NZ CS2	CCB NZL's Commentary
Adoption provision 1: Current financial impacts	NZ CS 1 Strategy [Paragraph 12(b)] [Paragraph 12(c)]	Exemption available for the first reporting period	Exemption adopted. Current impacts are assessed to be minimal and are disclosed in the report. Further work is required to better quantify them into financial impacts (if any).
Adoption provision 2: Anticipated financial impacts	NZ CS 1 Strategy [Paragraph 15(b)] [Paragraph 15(c)] [Paragraph 15(d)]	Exemption available for the first reporting period	Exemption adopted. Anticipated impacts are assessed to be non-material and are disclosed in the report. Further work is required to better quantify them into financial impacts (if any).
Adoption provision 6: Comparatives for metrics (for the immediately preceding two reporting periods)	NZ CS 3 Comparatives for metrics [Paragraph 40]	Exemption available for the first reporting period. Entity required to have at least one year of comparative information in the second reporting period.	Exemption adopted. Comparatives are made in this report where prior year/s data are available.
Adoption provision 7: Analysis of trends	NZ CS 3 Comparatives for metrics Paragraph 42	Exemption provided for the first and second reporting periods.	Exemption adopted. Analysis of trends are made in this report where prior year/s data are available.

Disclaimer

This report contains CCB NZL's current assessment of the future climate-related risks and opportunities affecting parts of its business, as well as its current planning to address these risks. This process necessarily involves estimates, projections and assumptions about the future, which are inherently uncertain and are not forecasts of future performance. Forward-looking statements and commitments are based on CCB NZL's reasonable understanding as at 31 December 2023 but incorporate limitations and assumptions that mean that future performance and actions may differ materially from this report. If CCB NZL changes its assessment of the future climate-related risks and opportunities, it will not update this report, but will instead incorporate updates in future reports. This is CCB NZL's first report and provides early and indicative assessments that will improve over time as relevant data, including greenhouse gas emissions data, climate risk data, and customer data becomes available. Similarly, climate-related risk modelling and metrics are subject to a number of methodological and data-related limitations. As a result, readers should make their own assessments and not place undue reliance on this report. While CCB NZL has taken all due care in preparing this report, it is necessarily limited in coverage and a summary only.

China Construction Bank (New Zealand) Ltd.