



# The futures of retail

Integrated Climate Change  
Scenarios for New Zealand's  
Retail Sector

September 2023

**EXECUTIVE SUMMARY**



GLASSONS



Dear Reader,

The 'Retail Sector Shared Scenarios Project' is a collaboration between major Aotearoa New Zealand-based retailers and KPMG New Zealand, initiated in response to new mandatory requirements for public companies to detail their preparations for climate change-related risks and opportunities.

Together, our businesses touch the lives of most, if not all, New Zealanders. This gives us a level of influence that few other sectors can match - but it is therefore also our responsibility to lead in adapting, transitioning and transforming our sector to a low-carbon and resilient future.

Retail is engaged in every aspect of global value chains and their associated carbon emissions. From sourcing and production - including raw materials, manufacturing processes and supply chains - to transport and logistics, retail operations, and ultimately the end of life of products. Through our consumer interactions, we also directly influence the lifestyles and behaviours that can contribute to meaningful emissions reductions.

The climate scenarios we are sharing in this report are asking us to confront a new reality where finite planetary boundaries and climate change are impacting the abundance and convenience we have enjoyed freely over the past decades. They set out the potential risks and opportunities arising from climate change today and into the future. They are a catalyst for us to reimagine how we, and our value chains, operate.

The message we want to share with you is the following:

**We are deeply concerned about the impacts of climate change** on our country, our customers, and our team members. We believe that addressing climate change is about protecting the quality of life of all people and places touched by our businesses. It is not just a 'nice to have', it is connected to our purpose as businesses that seek to generate long-term value.

**We need to face the new reality in which we operate.** The three scenarios examined in this report offer reference points that will inform how we prepare our businesses for climate change. They are not static scenarios with absolute trajectories; rather, they are potential outcomes which will inform our thinking and planning. In addition, they also present opportunities to harness the capacity - inherent in retailing - to change and innovate.

**We must rapidly take action** to reimagine and reengineer our value chains. From the way we design and source products, to how we package, ship, store, and sell them to our customers. We must also consider product use by customers and the imperative to move from linear to circular systems. We are already undertaking actions and initiatives to achieve these outcomes, but we need to extend beyond our direct sphere of influence and take a leadership role in proportion to our impact.

This work is just the beginning. These scenarios can be used by any retailer, whether public or private, large or small, and we hope to see our sector, and adjacent sectors, collaborate pre-competitively to meet the challenges ahead. There is a significant opportunity for all of us to be part of a retail sector which contributes to the long-term resilience and prosperity of Aotearoa New Zealand.

## Te toto o te tangata, kai, te oranga o te tangata, he whenua

While food provides the blood in our veins,  
our health is drawn from the land

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# Context



**The choices and actions implemented in this decade will have impacts now and for thousands of years. For any given future warming level, many climate-related risks are higher than (previously) assessed.**

Continued emissions will further affect all major climate system components, and many changes will be irreversible on centennial to millennial time scales.

In the near-term, global warming is more likely than not to reach 1.5°C even under a very low emission scenario.

Without a strengthening of policies, global warming of 3.2°C is projected by 2100.

Adverse impacts and related losses and damages from climate change will escalate with every increment of global warming.

AR6 Synthesis Report: Climate Change 2023, Intergovernmental Panel on Climate Change.<sup>1</sup>



## Aotearoa New Zealand’s climate-related disclosures regime

New Zealand’s Financial Sector (Climate-related Disclosures and Other Matters) Amendment Act 2021 introduced mandatory climate-related disclosure (CRD) requirements for approximately 200 of New Zealand’s largest businesses.<sup>2, 3</sup> While aligning with the Task Force on Climate-related Financial Disclosures (TCFD) recommended framework,<sup>4</sup> the External Reporting Board (XRB) has developed New Zealand-specific disclosure standards and guidance.

The aim of New Zealand’s CRD regime is to provide markets with the information required to understand how large organisations are managing their climate-related risks. Towards this end, the XRB’s Climate Standard (NZ CS 1) requires covered entities to undertake scenario analysis and disclose how the process was conducted. To support this disclosure, paragraph 13 of NZ CS 1 states:

*“An entity must describe the scenario analysis it has undertaken to help identify its climate-related risks and opportunities and better understand the resilience of its business model and strategy. This must include a description of how an entity has analysed, at a minimum, a 1.5 degrees Celsius climate-related scenario, a 3 degrees Celsius or greater climate related scenario and a third climate related scenario.”<sup>5</sup>*

The XRB recommends that sectors collaborate to develop shared, qualitative scenarios to help achieve consistency and comparability between organisation that will be analysing, improving, and reporting on the resilience of their respective organisations.<sup>6</sup> This collaborative approach to scenario development offers several advantages in addition to more rigorous, coherent, and comparable analysis, including cost savings, and the potential to significantly accelerate sectors’ adaptation to climate change.

## Shared scenarios for Aotearoa New Zealand’s Retail Sector

Over the past 50 years, economic activities including the consumption of fossil fuels, industrial processes, and deforestation have released greenhouse gasses responsible for trapping an explosive amount of heat energy in Earth’s atmosphere - the equivalent of about 25 billion atomic bombs.<sup>7</sup> As a result, the average air temperature at the planet’s surface is at least 1.15°C hotter than in the pre-industrial era<sup>8</sup> and could exceed 3°C heating by the end of this century if we fail to slash greenhouse gas emissions.

In order to meet the Paris Agreement’s goal of limiting global warming to well below 2°C, and preferably 1.5°C, the United Nations recently concluded that we need to reduce emissions 45% (compared with projections based on current policies) by 2030.<sup>9</sup> Achieving this scale and speed of emissions reductions will require system-wide transformation. Because we continue to procrastinate making real changes, the sudden re-calibration required of our society and economy is likely to be jarring and profoundly disruptive.

The integrated scenarios presented in this report were developed by a consortium of major Aotearoa New Zealand-based retailers and KPMG New Zealand. The scenarios’ primary purpose is to support strategic decision-making by the leadership teams of New Zealand retail businesses and their value chain partners. The scenarios reflect sector-level guidance<sup>10</sup> from the XRB and, as such, provide a solid foundation for the further work required at the entity level to enable entities to communicate clear, consistent, and comparable assessments of their climate-related risks, opportunities, and strategic response in-line with the mandatory climate disclosure regime in Aotearoa.

## An integrated approach

Integrated scenarios are projections of future climate conditions that take into account various factors such as greenhouse gas emissions, regulatory change, land use change, population growth, technological advancements, and evolving mental modals. This approach considers the physical and societal impacts of climate change, as well as how diverse factors might interact with each other to trigger a cascade of compounding risks or unlock new opportunities for value creation.

## Scenario analysis

The anticipated impacts of climate change are deeply uncertain due to the indeterminacy of future greenhouse gas emissions, ambiguity of decarbonisation pathways, complexity of the Earth system, unpredictability of socio-political choices, and limited historical data. Scenario analysis helps businesses understand and make decisions about how best to prepare for the impacts of climate change despite such deep and dynamic uncertainty.

Scenario analysis is a common tool for businesses to explore the limits of “what could happen?” in order to be better prepared for whatever does happen. In the context of climate change, scenario analysis involves:

1. Creating different scenarios based on factors such as greenhouse gas emissions, temperature increases, sea level rise, extreme weather events, policy-response, and socio-economic consequences.
2. Analysing how resilient an organisation’s current business model and strategy are to these scenarios.

## Key takeaways

Individual retailers need to interrogate the scenarios through the lens of their unique business models, strategies, and value chains to assess anticipated impacts.

However, the scenarios suggest a number of cross-cutting takeaways:

- The physical impacts of climate change present real and growing challenges to domestic and regional retailers under all plausible scenarios. These impacts include operational and supply-chain disruptions as well as macroeconomic headwinds and may progress in a non-linear manner. Every 0.1°C increase in global heating matters, and retailers should prepare for the physical impacts of a >1.5°C future.
- The world has already begun transitioning to a lower-emissions economy.<sup>11</sup> The magnitude of transition-related impacts, which include changing consumer preferences/prejudices, are likely to grow under all plausible scenarios. Under a ‘Net Zero 2050’ scenario, these impacts immediately accelerate, reach a relatively moderate crescendo around 2030, and then subside. Under a ‘Delayed Transition’ scenario, these impacts grow slowly until 2030, at which point they spike upwards, reaching high magnitude within just a few years and potentially remaining greater than under a ‘Net Zero 2050’ scenario through mid-century. Under a ‘Current Policies’ scenario, transition-related impacts continue growing slowly until they are driven inextricably upwards by the mounting physical impacts of climate change.
- Under all plausible scenarios, climate change triggers and/or amplifies pressure across New Zealand’s retail sector to address broader environmental and social sustainability challenges.
- Under all plausible scenarios, the direct and indirect impacts of climate change are poised to radically disrupt the businesses of retailers and their value chain partners. This disruption may be sudden and non-linear. The key questions for leaders in the retail sector are how soon and what can be done to convert current and imminent threats into opportunities for long-term value.



The XRB defines a climate-related scenario as:

**...a plausible, challenging description of how the future may develop based on a coherent and internally consistent set of assumptions about key driving forces and relationships covering both physical and transition risks in an integrated manner.<sup>12</sup>**

And scenario analysis as:

**A process for systematically exploring the effects of a range of plausible future events under conditions of uncertainty. Engaging in this process helps an entity to identify its climate-related risks and opportunities and develop a better understanding of the resilience of its business model and strategy.<sup>13</sup>**



# Scenario architecture

Three integrated scenarios were developed that explored both the physical and transition-related impacts of climate change, as well as their potential interactions.

The overarching architecture and underlying assumptions within the three scenarios have been purposefully chosen to facilitate critical conversations with value chain partners – especially in the financial services. Though informed by a wide range of publicly available climate, macroeconomic, demographic, and sector-specific data, it is important to note that the future is highly unpredictable and is unlikely to unfold exactly as described by any single scenario.

The scenarios have, therefore, been developed as a complementary set wherein:

- **The first – Net Zero 2050** – is designed to explore retailers' readiness to rapidly transform their businesses in the short-term (2023-2030).
- **The second – Delayed Transition** – is designed to explore retailers' resilience to an especially condensed and disruptive transition in the medium term (2031-2040).
- **The third – Current Policies** – is designed to explore how the collective failure to slash emissions might steadily erode value in the long-term (2041-2050).

Table 1: Scenario architecture

Category	Orderly 	Disorderly 	Hot House 
Scenario	Net Zero 2050	Delayed Transition	Current Policies
<b>Summary</b>	An ambitious and coordinated transition to a low-emissions, climate-resilient future. Stringent climate policies, innovation, ambitious investment, and medium-to-high deployment of carbon removal solutions limit global warming to 1.6°C in 2050 and 1.4°C by 2100.	Ambitious action is delayed to 2030, followed by sudden and uncoordinated economic transformation. Extensive, stringent and punitive but late government intervention, in combination with some deployment of carbon removal solutions, limits global warming to 1.7°C in 2050 and 1.67°C by 2100.	Current emissions reduction policies are implemented. Current socio-economic trends continue, resulting in 2°C global warming by 2050 and more than 3°C by 2100.
Risk of surpassing critical tipping points in Earth's climate system	Low	Moderate	Very high
Severity of physical climate impacts	Lowest	Low to moderate	Highest
Severity of transition-related impacts	Moderate (greatest in short-term)	Highest (greatest in medium-term)	Lowest (steadily increasing, but also giving businesses more time to adapt)
Consumer sentiment	Rapid re-orientation towards sustainable lifestyles, as characterised by a focus on wellbeing and conscious consumption.	Current trends continue to 2030, then abruptly transition towards sustainable lifestyles as the physical impacts of climate change (and biodiversity loss) hit home.	Current consumption trends continue, including the adoption of more sustainable lifestyles by successive generations.
Macro-economic conditions	Immediate, orderly transition generates short-term economic turbulence but pronounced benefits in the medium and long-term. Physical impacts of climate change exert measurable but limited downward pressure on economy.	Delayed and disorderly transition generates sharp economic downturn but eventually supports economic stability. Physical impacts of climate change exert moderate downward pressure on economy.	No 'green bump' from the transition to a low-emissions economy. Physical impacts of climate change exert increasingly significant downward pressure on economy, potentially growing to destabilise financial institutions and systems by mid-century.
Financial impact of supply chain disruptions	Lowest	Low to moderate	Highest
Policy reaction to climate change	Immediate and smooth	Delayed	Current policies only
Regional policy variation	Medium	High	Low
Speed of technology change	Fast	Slow, then fast	Slow



# Orderly Scenario - Net Zero 2050

## The Retail Sector in 2050

**Key characteristics:** New Zealand's retail sector is nearly unrecognisable from what it had been a mere thirty years ago. Retail business models based on the rapid churn of soft and hard consumer goods are long dead. Retailers have transformed their role in the economy from pushing conspicuous consumption to business models that purposefully promote and support conscious consumption. They are at the heart of New Zealand's rich shared economy, enabling households to easily access and use many high-quality goods without the environmental cost or financial burden of individual ownership.

**Structural forces:** Data is omni-present throughout retail value chains, from sourcing, to point of sharing and/or sale, to end-of-life. This enables retailers, their partners, and customers to make informed decisions about what they buy, how they buy, and from whom in order to minimise their carbon footprint. Legislative frameworks have been established in New Zealand, as in all other OECD countries, to prevent the externalisation of environmental and social costs while supporting the environmentally sound management of retail products and materials over their life. New Zealand's early investment in regenerative agriculture and irrigation has safeguarded domestic food production and affordability despite increasingly unreliable weather.

**Mental models:** As the proportion of New Zealand's Māori and Pasifika population grows – and as generations that have grown up within the context of an interwoven climate and biodiversity crisis gain political, economic and cultural power – Aotearoa undergoes a seismic shift in dominant worldview. A long-term, interconnected view of the world that considers the wider social, cultural, and environmental impacts of all we do has become the norm.

**Key outcomes:** Most of New Zealand's domestic and regional retailers have kept pace with rapidly evolving market imperatives and customer expectations. Major brands that couldn't interpret and respond in time failed to survive. Brands that adapted 'ahead of the curve' built customer and employee loyalty, triggering a virtuous spiral that attracted the top talent required to succeed in a complex, non-linear, and extremely fast-moving world.

Under this scenarios, retailers' operating environment is characterised by seven pervasive trends





# Disorderly Scenario - Delayed Transition

## The Retail Sector in 2050

**Key characteristics:** Most large New Zealand-based retailers have been displaced or bought-out by quicker-to-act international competitors. Those that remain have transformed their role in the economy from pushing conspicuous consumption to purposefully promoting and enabling conscious consumption.

**Structural forces:** In order to compensate for yet another lost decade, government regulation is far more extensive, invasive, and punitive than under a Net Zero 2050 scenario. New Zealand's late investment in regenerative agriculture and irrigation has had limited success in safeguarding domestic food production and affordability. Materials and energy are increasingly expensive worldwide, but particularly in New Zealand and other small countries - driving up the cost of goods and services while the economy is only beginning to recover from a sudden and uncoordinated economic transformation that significantly eroded most households' spending power.

**Mental models:** A 'long-term, interconnected view of the world that considers the wider social, cultural, and environmental impacts of all we do' has become the norm. However, New Zealand's delayed, abrupt, and highly disruptive transformation has taken a heavy toll on people's mental wellbeing. Anxiety is both acute and chronic across most social groups.

**Key outcomes:** New Zealand's sudden and uncoordinated transition to a low-emissions, climate-resilient economy has placed retailers in the limelight. Since the 2030s, consumption has become an increasingly political activity, with activists targeting the directors and officers of slow-moving retailers. As a result, Kiwi retailers had to make faster, riskier decisions whilst losing market share to larger, greener, and more advanced global companies who had begun their decarbonisation journey earlier.

Under this scenarios, retailers' operating environment is characterised by seven + two pervasive trends





# Hot House Scenario - Current Policies

## The Retail Sector in 2050

**Key characteristics:** New Zealand's retail sector has made steady but only incremental improvements in its environmental and social sustainability. Despite financial constraints driving significant growth in New Zealand's shared economy, individual ownership is still the predominant model – exacting a heavy toll on the environment and household finances. Consumers can access detailed information about products' environmental and social footprint, but most don't. Instead, price, social status, and point of origin are primary purchase considerations.

**Structural forces:** Aotearoa New Zealand's degraded soils, limited investment in irrigation, and increasingly chaotic weather are placing significant strain on domestic food production and affordability. As the volume of New Zealand's agricultural exports has declined and global supply chains become brittle, the complexity and cost of importing retail goods has risen – posing particularly significant challenges to the importers of fast moving consumer goods.

**Mental models:** Amidst all the evidence of accelerating environmental and societal decay, the majority of Kiwis persist in closing their eyes and telling themselves, 'She'll be right.'

**Key outcomes:** The physical impacts of climate change have destroyed significant economic value and are injecting ever more uncertainty into the global economy. These economic headwinds are exacerbated by the continuing degradation of nature and international competition for resources. The energy and transport infrastructure systems underpinning New Zealand's retail sector value chain were not designed to withstand the increasingly extreme realities of climate change and are beginning to buckle under extreme heat, wildfires, and floods. Investments in resilience – both within New Zealand and abroad – were too little and too late.

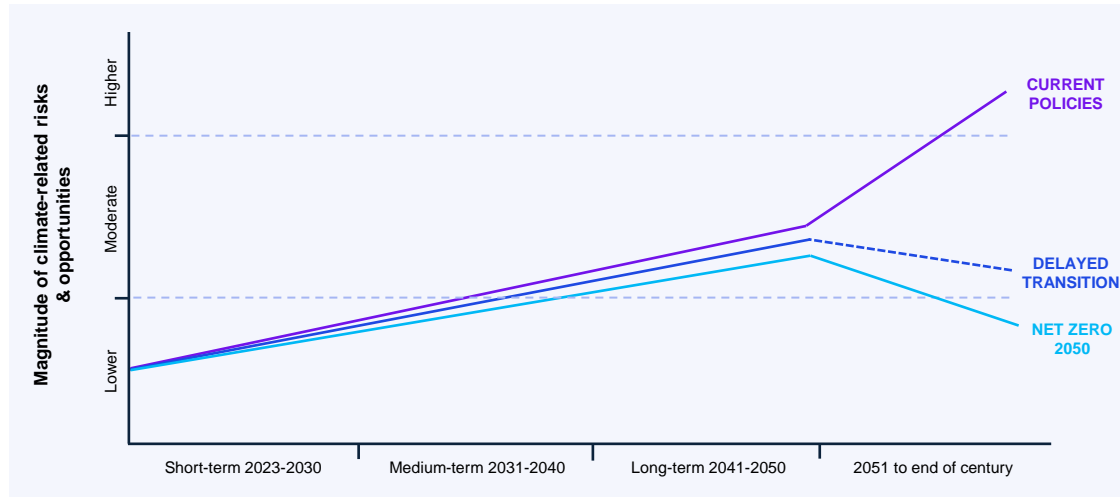
Retailers around the world are contending with increasingly disrupted and costly supply chains, but New Zealand is disproportionately affected due to its geographic location and small market size. Relative to their European peers, Kiwi politicians and retail brands were slow to address the interwoven challenges posed by climate change and the destruction of nature. As a result, many local retailers have been bought out or displaced by international retail groups that were early movers in reducing energy/material intensity and building supply chain resilience. Still-independent national and regional retailers have incorporated low-input sourcing, design and manufacturing, distribution, point of sale, and waste solutions...but not as well as global brands.

Under this scenarios, retailers' operating environment is characterised by five pervasive trends



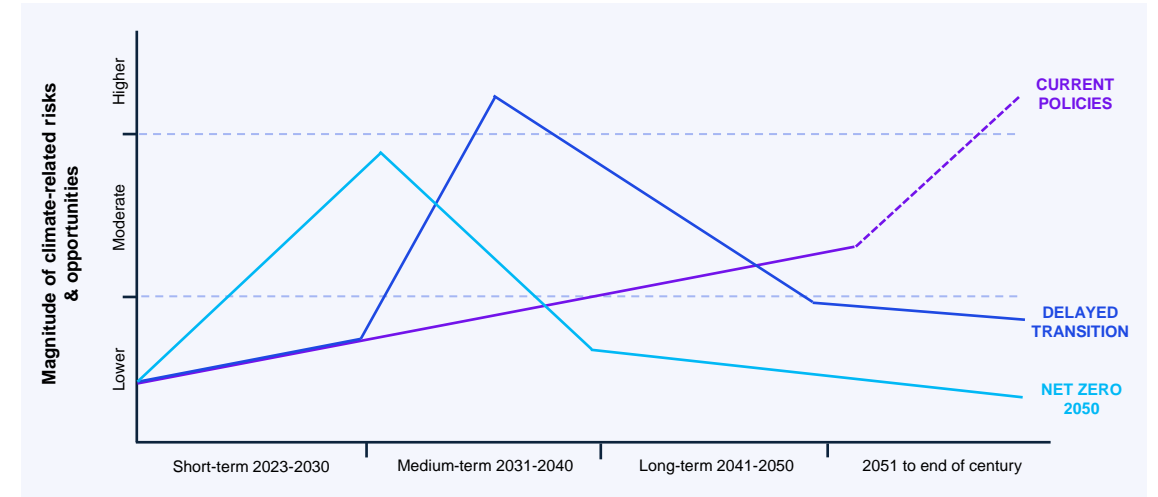
# Impact profiles

Figures 1 and 2 illustrate the distinct and complementary impact profiles of physical and transition-related risks over the short, medium, and long term for the Scenarios Net Zero 2050, Delayed Transition, and Current Policies scenarios.



**Figure 1:** Indicative profile of physical risks

The physical impacts of climate change include increasingly intense and/or frequent acute events (e.g. hurricanes, floods, and wildfires) as well as chronic, gradual and long-term sea level rise, rising temperatures, shifting seasons and changing precipitation patterns. Anthropogenic greenhouse gas emissions have already warmed the Earth by about 1.15°C above pre-industrial levels. Additional warming over the next 20-30 years is largely 'locked-in' by legacy emissions.<sup>14,15</sup> As a result, the physical impacts of climate change are broadly similar through mid-century under Net Zero 2050, Delayed Transition, and Current Policies scenarios. What matters, is what happens next: emissions over the next 20-30 years will determine whether we surpass critical tipping points in the Earth system and whether the severity of physical risks spikes upwards or slowly diminishes in the second half of this century.



**Figure 2:** Indicative profile of transition-related risks

Transition-related risks stem from the speed and scale of New Zealand's transformation to a low-emissions, climate-resilient economy. They include risks and opportunities arising, inter alia, from new public policies, regulations, market preferences, technology changes and climate adaptation interventions. Under a Net Zero 2050 scenario, an orderly and rapid transition results in moderate impact levels peaking in the late 2020s/early 2030s. Under a Delayed Transition scenario, transition-related impacts peak later, higher, and subside more slowly. Under a Current Policies scenario, transition-related impacts increase slowly but steadily through mid-century. In the latter half of the century, some transition-related risks could accelerate in response to the mounting impacts of physical change and social backlash against high emissions sectors.



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