First Mortgage PIE Trust

Climate Statements 2024

For the year ended
31 March 2024

first mortgage trust

Summary

First Mortgage Managers Limited ("FMML") is a climate reporting entity ("CRE") under the Financial Markets Conduct Act 2013 ("FMCA") in respect of the registered scheme First Mortgage PIE Trust ("FM PIE Trust", "Fund"). FMML is the Manager of the FM PIE Trust and is required to prepare climate statements in relation to the FM PIE Trust under s 461ZC of the FMCA.

These climate statements are for the financial reporting period of the FM PIE Trust commencing 1 April 2023 and ending 31 March 2024 ("FY24").

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DISCLAIMER

These climate statements contain current and forward-looking information that is based on estimated and/or incomplete data, and FMML's opinions, judgements and assumptions relating to climate change and the impact of it on the FM PIE Trust. Both climate change and the global and domestic response to it are subject to significant uncertainties and data limitations. In turn, this gives rise to uncertainties about the way that climate change will impact the FM PIE Trust and the steps that FMML will need to take in respect of the FM PIE Trust to respond to those impacts. FMML cautions reliance being placed on information that is subject to significant uncertainties.

These climate statements include forward-looking information, including in relation to goals, assumptions, scenarios, risks, anticipated impacts and strategies. This information should not be interpreted as fact or a guarantee of future performance, but as estimates, goals and judgements based on FMML's understanding of matters relating to climate change and its impact on the FM PIE Trust at the time of publishing these climate statements. Forward-looking information involves risks, uncertainties and other factors that are, in many cases, beyond FMML's control, and/or which are likely to change over time. The future performance of the FM PIE Trust may differ materially from the goals and strategies outlined in these climate statements. In addition, the risks described in these climate statements may not eventuate or may be more or less significant than anticipated, and/or new risks or opportunities may emerge over time. As such, the information in these climate statements (including assumptions made) may be subject to change without notice.

FMML anticipates that some forward-looking information in these climate statements could be amended or restated in future disclosures as the effects of climate change continue to evolve, and methodologies, data and strategies improve. FMML does not represent that such information will not change following publication of these climate statements, and gives no undertaking to update such information over time (subject to legal or regulatory requirements, including requirements to produce climate statements under the FMCA in future years).

These climate statements are not an offer document and do not constitute an offer or recommendation to invest in, distribute or purchase financial products. Nothing in these climate statements should be taken as investment, capital growth, earnings or any other legal, financial, tax or other advice or guidance.

Statement of compliance and adoption provisions

These climate statements comply with Aotearoa New Zealand Climate Standards ("NZ CSs") issued by the External Reporting Board. The following adoption provisions were applied in preparing these climate statements:

Adoption Provision Applied	Description
Adoption provision 2: Anticipated financial impacts	This provides an exemption from the requirements to disclose anticipated financial impacts of climate-related risks and opportunities reasonably expected, and a description of the time horizons over which these could reasonably be expected to occur.
Adoption provision 3: Transition planning	This provides an exemption from the requirements to disclose the transition plan aspects of the strategy, including how the FM PIE Trust's business model and strategy might change to address climate-related risks and opportunities; and the extent to which transition plan aspects of the FM PIE Trust's strategy are aligned with internal capital deployment and funding decision-making processes in respect of the FM PIE Trust.
Adoption provision 4: Scope 3 GHG emissions	This provides an exemption from the requirements to disclose greenhouse gas (GHG) emissions: gross emissions in metric tonnes of carbon dioxide equivalent (CO_2e) classified as Scope 3.
Adoption provision 6: Comparatives for metrics	This provides an exemption from the requirements to disclose comparative information for each metric disclosed for the immediately preceding two reporting periods.
Adoption provision 7: Analysis of trends	This provides an exemption from the requirements to disclose an analysis of the main trends evident from a comparison of each metric from previous reporting periods to the current reporting period.

first mortgage managers

Approved on behalf of the Board of First Mortgage Managers Limited:

Director
Simon Cotter

Director
Greig Allison

Date: 29 July 2024

Description of current business model and strategy

The FM PIE Trust is a managed investment scheme registered under the FMCA that enables retail investors to invest in property lending. Retail investor funds are pooled together and invested solely in the First Mortgage Trust Group Investment Fund ("FMT GIF"), which invests in a portfolio of loans secured by registered first mortgages over land and buildings in New Zealand. In addition, the FMT GIF invests in bank deposits. The investment strategy of the FM PIE Trust is governed by a Statement of Investment Policies and Objectives ("SIPO"), dated 23 December 2021. FMML (the Manager of both the FMT GIF and FM PIE Trust) invests the FM PIE Trust's assets solely in the FMT GIF, and actively manages the investment and lending activity of the FMT GIF. The FMT GIF investment strategy is to establish and maintain a range of loans secured by first mortgages over residential, commercial, and rural property. Loan terms are generally for one to two years.

The SIPO provides benchmark asset allocations, which are FMML's target allocation of FMT GIF funds for each asset class. In addition, FMML uses benchmark allocation ranges for the FMT GIF, which are the minimum and maximum limits for each asset class.

Benchmark asset allocations are as follows:

Asset class	Benchmark Asset Allocation (%)	Ranges (%)
Cash[1]	10	5-20
Term Deposit[2]	5	2.5-10
Loans secured over residential property[3]	50	40-75
Loans secured over commercial property[3]	30	15-45
Loans secured over rural property[3]	5	0-20

[1] Cash held on-call or term deposits with a remaining term to maturity of three months or less.
[2] Term deposits with a remaining term to maturity of greater than three months but less than twelve months.
[3] Proportion of total loan values relative to the value of Fund's authorised investments. Loans are allocated a property type based on the key features of the principal secured property (including zoning, end use and value) that is set in the relevant local council's district plan.

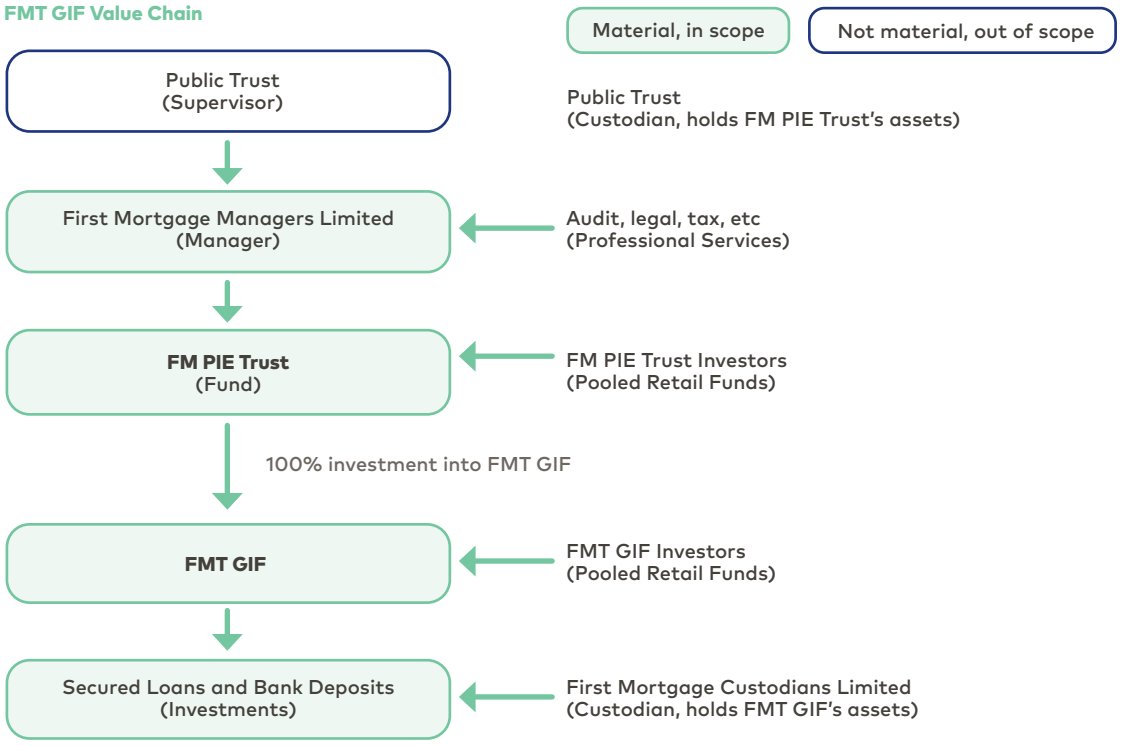
The FMT GIF's loans are provided for a range of purposes including (but not limited to):

- buying or refinancing residential, commercial, and rural property;
- working capital for business purposes; and
- property development (land subdivision and construction of residential and commercial property).

The FMT GIF's portfolio is concentrated in the main urban centres with a particular emphasis in Auckland, Wellington, Canterbury, the Bay of Plenty, and Waikato. In addition, investments are made in deposits with registered banks to have a mixture of on-call deposits and term deposits (with maturities of up to 12 months).

Scope of operations covered by these climate statements

The below diagram shows the FM PIE Trust's value chain, illustrating the role of FMML as Manager and the FM PIE Trust's 100% asset allocation to the FMT GIF (which invests in secured loans and bank deposits), together forming the scope of operations covered for the purpose of these climate statements.



Governance

This section describes the role of FMML's Board of Directors ("Board") in overseeing climate-related risks of the FM PIE Trust, and the role of management in assessing and managing the FM PIE Trust's climate-related risks. Because FMML has not to date identified any climate-related opportunities for the FM PIE Trust, this section primarily addresses climate-related risks. However, the Board of FMML is also responsible for the strategic oversight of the FM PIE Trust as explained below, including in relation to climate-related opportunities to the extent these are identified in future.

GOVERNANCE BODY OVERSIGHT

The Board is responsible for the governance of the FMML strategy, which includes the FM PIE Trust's response to climate change. This involves overseeing the identification, management and disclosure of climate-related risks affecting the FM PIE Trust.

Governance Framework

The Board is supported in its oversight of climate-related risks by the following sub-committees:

The **Assets and Liabilities Committee** ("ALCO") is responsible for oversight and management of risk in the FM PIE Trust's investment and funding portfolios. This includes oversight of climate-related risks and their impact on the FMT GIF's loan portfolio. This responsibility was held throughout FY24 but not explicitly reflected in the ALCO Charter until after the financial year ended 31 March 2024. A revised ALCO charter dated 18 June 2024 explicitly captures ALCO's responsibility for climate-related risks and their impact on the loan portfolio. Climate-related risks are assessed at individual loan level by FMML's lending and credit teams, with oversight from the ALCO, which constitutes the full Board.

The **Compliance Committee** is responsible for assisting the Board in the conduct of its responsibilities relating to risk management. The Compliance Committee meets quarterly to assess and prioritise all business (FMML) and investment (FM PIE Trust and FMT GIF) risks, and review how they are being managed, in accordance with the Risk Management Framework (RMF). The Head of Compliance updates the Board on the top 10 material risks on a bi-monthly basis. Refer to the Risk Management section on page 10 for more information on investment specific climate-related risks to the FM PIE Trust's whole investment in the FMT GIF, and how they are assessed and ranked within the RMF.

In FY24, the Board was informed about climate-related risks in the following ways:

- The Audit Committee (explained further below) oversaw the scenario analysis process (refer to the Strategy section on page 5), including by reviewing the scenarios and climate-related risks within the December 2023 Audit Committee meeting.
- The ALCO discusses current market conditions relative to the FMT GIF's portfolio mix monthly and reviews the FMT GIF's portfolio mix quarterly. ALCO is cognisant of environmental, social and governance ("ESG") obligations, and considers climate risk factors as part of these obligations. ALCO supports the consideration of environmental risk factors ahead of loan origination.

The Board has delegated responsibility for oversight of the FM PIE Trust's climate statements and compliance with NZ CS to the Audit Committee. This delegated responsibility is reflected in the Audit Committee Charter, which took effect from 24 July 2023. The Audit Committee meets bi-annually and provides updates to the Board following meetings, or more frequently if required.

Skills and Competencies

The Board is comprised of directors with a variety of skills, experience, and competencies. FMML uses a Board Skills Matrix to assess the competencies of the Board and identify areas where further expertise or training may be required. The Board Skills Matrix includes ESG Knowledge and Capability as a core competency. Each year, Board members review the Skills Matrix and identify those areas in which they consider they have relevant expertise. In May 2023, five out of six directors (at the date of these climate statements, there are seven directors) identified themselves as having a basic level of skill in ESG Knowledge and Capability (a rating of two on a scale of one to five, five being expert). The Board has also undertaken climate-related training. In the financial year ended 31 March 2024, this included a training session on climate-related disclosures, hosted by an independent professional services firm. Additional climate-related training was made available to directors on the Audit Committee, by way of online training offered by an independent professional services firm.

Climate Risk and Strategy Setting

To date, climate-related risks and opportunities have not been specifically considered by FMML as part of strategy development for the Fund. Instead, climate-related risks have been considered separately from the core strategy. For example, in mid-FY24 FMML undertook scenario analysis in respect of the Fund, and this was reviewed by the Audit Committee in December 2023 (refer to the Strategy section on page 5). Climate-related opportunities have not yet been identified.

Metrics and Targets

FMML does not presently use any targets (as defined in the NZ CS) to manage climate-related risks and opportunities. Management is responsible for updating the Board on performance against the goals that FMML has set for FY25 (outlined in the Metrics and Targets section on page 11), and these will be made via Board reports. Performance metrics in relation to climate-related risks and opportunities are not currently incorporated into remuneration policies for FMML.

MANAGEMENT'S ROLE

Under FMML's RMF, the Leadership Team are responsible for day-to-day management of climate-related risks in relation to the Fund, including the identification and management of the Fund's climate-related risks. In FY24, a key method by which management was informed about climate-related risks was the scenario analysis process, described further on page 5.

The Head of Lending and the Head of Credit manage FMML's Lending and Credit teams, who consider a range of risks ahead of loan origination (by the FMT GIF) on an ongoing basis. Any factor that may have a detrimental effect on the value or saleability of a property, and/or ability to insure the property, forms a credit consideration, including climate-related factors.

MANAGEMENT'S ROLE (continued)

The Leadership Team engages with the governance body in relation to climate-related risks in the following ways:

- The Head of Lending and Head of Credit sit on monthly ALCO meetings. The ALCO formally reviews the FMT GIF's portfolio mix quarterly using reports prepared by the Head of Lending and Head of Credit, meaning actual investment concentration against targeted benchmark ranges is reviewed against limits set out in the SIPO. This includes a focus on spread of geographical location, to mitigate risks associated with geographic concentration. For example, this could include the risk that an adverse weather event would impact a material portion of the loan portfolio.
- The Head of Compliance and Quality Assurance sits on quarterly Compliance Committee meetings, where business and investment risks (including ranking and management of these) is reviewed (refer to Risk Management on page 10 for more detail).

To date, FMML has not identified any climate-related opportunities for the FM PIE Trust and as such has not put in place processes by which management is informed about, makes decisions on, and monitors, climate-related opportunities.

FMML's Organisational Structure Regarding Climate-Related Matters

Board of Directors

Ensures FMML's purpose, values and goals are clearly established and strategies are in place for achieving them.
Approves FMML's Risk Management Framework (RMF), and associated systems and processes.
Monitors the management of identified material risks, including those related to climate change.

Board

Assets and Liabilities Committee
Responsible for oversight of the FM PIE Trust's climate-related risks and their impact on the FMT GIF loan portfolio (which the FM PIE Trust is wholly invested in).

Audit Committee
Responsible for oversight of the FM PIE Trust's climate statements and compliance with NZ CS.

Compliance Committee
Assists the Board in fulfilling its responsibilities relating to risk management practices of FMML. Responsible for oversight of the RMF, including the Risk Matrix, which rates all risks including ESG risk.

Executive Leadership Team

Accountable to the Board for the achievement of FMML's strategic goals.
Responsible for the identification, assessment and management of the FM PIE Trust's climate-related risks.
This includes the Chief Executive Officer, Chief Financial Officer, Head of Lending, Head of Marketing & PR, Head of Compliance and Quality Assurance, Head of Credit, Chief Technology Officer and Head of People and Culture.

Business Level Management

Day-to-day business management of the FM PIE Trust's climate-related risks.
FMML's Lending and Credit teams consider climate-related risks ahead of loan origination by the FMT GIF, which the FM PIE Trust is wholly invested in.

Strategy

This section describes the current impacts of climate change on the FM PIE Trust, the scenario analysis undertaken for the FM PIE Trust, the climate-related risks identified, and anticipated impacts of climate change.

CURRENT CLIMATE-RELATED IMPACTS

Climate change impacts to the FM PIE Trust include both physical impacts such as adverse weather, and transitional impacts associated with the transition to a low-emissions, climate-resilient global and domestic economy. The following table provides an illustration of how climate change has impacted the FM PIE Trust (by way of being wholly invested in the FMT GIF) in the current reporting period.

Type	Climate-Related Impact	Description	Financial Impacts
Physical	Adverse weather	Extreme weather events in NZ (storms/heavy rain) throughout 2023 impacted some property values. Weather events also slowed progress of some development projects. FMML consider the impacts of extreme weather events are captured in current Expected Credit Loss (ECL) levels and that no adjustments are required to the allowance for ECL as of year-end, while noting that the future impact of risks associated with extreme weather remains uncertain.	No material financial impact on investments.
	Increased weather-related considerations in credit risk assessments	Credit risk assessments undertaken ahead of lending routinely consider whether securities have certain weather-related considerations e.g., are in a flood zone, or are susceptible to drought or tidal surges. While such assessments are routine practice, following early-2023 flooding events and Cyclone Gabrielle causing widespread damage across NZ, there was an increased focus on credit screening properties located in low-lying and/or coastal areas throughout FY24.	No material financial impact on investments.

SCENARIO ANALYSIS PROCESS UNDERTAKEN

Scenario analysis is a process for systematically exploring the effects of a range of plausible future events under conditions of uncertainty. In the climate change context, this process helps entities to identify their climate-related risks and opportunities and develop a better understanding of the resilience of their business models and strategies.

To improve understanding of the FM PIE Trust's climate-related risks over the short, medium, and long-term, FMML undertook scenario analysis for the first time in FY24. 'Sector level' scenarios from the banking sector were adopted and tailored to reach 'entity level' scenarios appropriate for the FM PIE Trust, to better understand how climate change could plausibly affect the Fund's business model and investment strategy in the future. FMML was not involved in the construction of the sector-level scenarios but took them at face value.

The Fund's scenario analysis included material upstream (the Manager) and downstream (FM PIE Trust's 100% investment in the FMT GIF, and the FMT GIF's investments in the loan portfolio) components of the value chain (refer to 'Scope of Operations Covered' on page 2).

FMML relied on sector level scenarios published by the NZ Bankers' Association (NZBA) and adapted these to the FMT GIF's loan portfolio by removing reference to sectors that the FMT GIF does not lend to (for example transport and manufacturing) and focusing only on the sectors that FMT GIF does lend to (for example construction and property). Three scenarios and their associated pathways were chosen and analysed in line with NZ CS 1 requirements – one where global temperature increase is limited to 1.4˚C ("Orderly"), another where global temperature increase is limited to 2.7˚C ("Too Little Too Late") and a third scenario where the temperature rise is greater than 4˚C ("Hot House"). It should be noted that, due to the limited number of scenarios available and the nature of temperature projections being based on probabilities and ranges, this has led to our 1.5ºC scenario having a projected temperature in 2100 of 1.4ºC (which is the closest available IPCC scenario to 1.5ºC).

Once the scenarios were established for the FM PIE Trust, FMML analysed them to assess the strategic resilience of the Fund, and help identify climate-related risks.

Management was responsible for the scenario analysis process. The Audit Committee provided governance oversight which included a review of the selected scenarios and material climate-related risks at the December 2023 Audit Committee meeting, where feedback was given to management on the process and results.

During FY24, scenario analysis was conducted as a standalone exercise (rather than being integrated within the FM PIE Trust's strategy setting process). The FM PIE Trust did not undertake its own modelling in the construction of its scenarios, and no external partners or stakeholders were involved in the scenario analysis process. Scenario analysis was primarily a qualitative exercise in FY24, and modelling of specific climate-related risks to each property has not yet been undertaken.

Justification for Scenarios Chosen

FMML considers that the scenarios chosen are relevant and appropriate for assessing the resilience of the FM PIE Trust's business model and strategy to climate-related risks because:

- They are based on the sector-level scenarios prepared for the banking sector, enabling investors to make reasonable comparisons against banks (given the lending component of the Fund's strategy).
- They are closely aligned with the FM PIE Trust's investment strategy to wholly invest in the FMT GIF (the FMT GIF's investment strategy being to establish and maintain a range of loans secured by first mortgages over residential, commercial and rural property, similar to a bank).
- All three scenarios present challenging but plausible futures for New Zealand, but each demonstrates a different series of issues the Fund would have to navigate. For example, the Hot House scenario is designed to test the FM PIE Trust's resilience to physical risk, while the Disorderly scenario is designed to explore a high transition risk world where policies are fragmented or delayed.

Scenario and Risk Time Horizons

The time horizons defined below have been used both for the purposes of the scenario analysis undertaken and for identifying the time periods relevant to our climate-related risks. These time horizons have been adapted from those defined in the NZBA scenarios, justification for which is provided in the table below.

Type	Short Term	Medium Term	Long Term
Time Horizon	1-3 Years	5-10 Years	>30 Years
Endpoint (year)	2027	2030	2050+
Justification	Provides a current state assessment. Aligned with FMML's strategic planning cycle of three years, and the FMT GIF's average loan term.	Aligned with New Zealand's interim emissions reductions targets. Captures intermediary exposure to carbon price.	Aligned with international emissions reduction targets. Aligned with further materialisation of physical risks, as climate-related issues often manifest themselves over the medium and longer terms.

Overview of Scenarios

The table below sets out a brief description of each scenario narrative, along with key assumptions underlying emissions pathway development over time. Nature-based solutions are deemed not material in the context of the FM PIE Trust's scenarios and are therefore excluded. Further detail in relation to the emissions reduction pathways and assumptions underlying pathway development over time is set out in Appendices 1 and 2.

Climate Scenarios		
Orderly Scenario (average global temperature increase **+1.4°C**)	**Too Little Too Late Scenario** (average global temperature increase **+2.7°C**)	**Hot House Scenario** (average global temperature increase **+4.4°C**)
The Orderly scenario represents a future world where collective action is taken towards a low carbon global economy. In this scenario, there are steady and constant societal changes related to technology, policy and behaviour, supporting the transition to a lower emissions economy. This is matched by an increasing carbon price incentivising low carbon behaviour change. The global coordinated and timely action to curb GHG emissions which occurs within this scenario prevents the worst predicted impacts of climate change. The long-term chronic physical impacts from historic GHG emissions are still likely to occur, though not as severely as with the other scenarios. This scenario represents a medium level of transition risk and a low level of physical risk.	The Too Little Too Late scenario represents a fragmented and delayed transition to a low carbon economy between New Zealand and the rest of the world. In this scenario, New Zealand is an early mover on the transition to a low emissions economy, introducing policy that brings about net zero emissions by 2050. Globally, however, there is less action to shape a low emissions future, with fossil fuel development continuing throughout much of the remaining first half of the century. From mid-century, 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. This shift is partly driven by the increasing evidence and awareness of the social, economic, and environmental degradation caused by a continued increase in fossil fuel development. Despite making a concerted effort to reduce emissions and move to a low emissions economy at mid-century, the changes come too late to prevent wide ranging acute and chronic physical climate impacts. This scenario represents a high level of transition risk and a medium level of physical risk.	This 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. Under this scenario, the second half of this century is characterised by high physical risk due to extreme weather events, exacerbated by rising sea levels. The Hot House scenario aims to capture impacts associated with high physical risk and low transition risk.

Emissions Pathways		
Orderly Scenario (average global temperature increase **+1.4°C**)	**Too Little Too Late Scenario** (average global temperature increase **+2.7°C**)	**Hot House Scenario** (average global temperature increase **+4.4°C**)
Proactive and collective action sees New Zealand reach net zero long-lived emissions in 2040, followed by the rest of the world around 2050.	Global emissions continue to increase in the immediate and short term and only begin to reduce in the medium term. Despite global hesitancy, New Zealand takes a proactive approach to climate change in the short term that enables the country to reach net zero long-lived emissions by 2048.	A lack of action towards climate change allows greenhouse gas emissions to continue rising unabated. New Zealand's approach to climate change in the immediate and short term enables a limited amount of emissions reduction out to 2050. Both long-lived greenhouse gas emissions and biogenic methane emissions fall, however, not sufficiently to meet the 2030 and 2050 targets laid out in the Zero Carbon amendment of the Climate Change Response Act.

Overview of Scenarios (continued)

Climate Outcomes		
Orderly Scenario (average global temperature increase **+1.4°C**)	**Too Little Too Late Scenario** (average global temperature increase **+2.7°C**)	**Hot House Scenario** (average global temperature increase **+4.4°C**)
The most significant physical impacts of climate change are curbed through collective action taken towards a low-carbon global economy. Limiting the increase in global temperatures helps to minimise the increase in severity of extreme weather. New Zealand still faces the impacts of sea level rise, particularly in the second half of the century.	The most significant physical impacts of climate change are curbed through collective action taken towards a low-carbon global economy. Limiting the increase in global temperatures helps to minimise the increase in severity of extreme weather. NZ still faces the impacts of sea level rise, particularly in the second half of the century.	There is a high increase in global average temperature. The unpredictability of weather patterns and frequency of extreme weather events becomes a significant threat to business-as-usual operations across the country. Significant coastal erosion driven by sea level rise results in coastal retreat around the country as some areas become permanently inundated.

Policy Outcomes		
Orderly Scenario (average global temperature increase **+1.4°C**)	**Too Little Too Late Scenario** (average global temperature increase **+2.7°C**)	**Hot House Scenario** (average global temperature increase **+4.4°C**)
Progressive policy activity and an increasing carbon price occurs in the immediate and short term, which helps to incentivise the adoption of low emissions technologies across several areas of the economy.	Despite global hesitancy, New Zealand takes a proactive approach to climate change in the short term (for example through large increases in carbon prices) that enables the country to reach net zero long-lived emissions by 2048.	New Zealand's approach to climate change in the immediate and short term enables a limited amount of emissions reduction out to 2050. Under these existing policies, both long-lived greenhouse gas emissions and biogenic methane emissions fall. However, a lack of further policy intervention sees little support provided for any form of adaptation or mitigation actions across the economy.

Socio-economic and Technology Outcomes		
Orderly Scenario (average global temperature increase **+1.4°C**)	**Too Little Too Late Scenario** (average global temperature increase **+2.7°C**)	**Hot House Scenario** (average global temperature increase **+4.4°C**)
The removal of barriers to technology adoption and extensive behaviour change across the population support the achievement of net zero by 2040 in New Zealand.	Delayed development of low emissions technologies combined with slow behaviour change restrict New Zealand's decarbonisation options until closer to the medium term, when global efforts to decarbonise begin to align to those of New Zealand. The transition to net zero emissions proves challenging as the limited development and availability of low emissions technology, combined with a reluctance to reduce emissions in some sectors, drives up the cost of emissions reductions.	With insufficient global efforts to limit climate change, New Zealand faces insufficient technological and behavioural changes to support substantial emissions reductions. By the medium term, fossil fuels continue to be the dominant source of primary energy, even after accounting for current technology trends. The focus on global growth by any means necessary drives higher rates of economic inequality, increasing political instability and geopolitical tensions around the world.

Macroeconomic trends		
Orderly Scenario (average global temperature increase **+1.4°C**)	**Too Little Too Late Scenario** (average global temperature increase **+2.7°C**)	**Hot House Scenario** (average global temperature increase **+4.4°C**)
Throughout the medium term, the global economy benefits from the stable transition to a low carbon economy. The continued improvement in human quality of life sees overall population growth slow in the medium term, with the global population hitting 8.5 billion. The concerted global effort to combat climate change helps to reduce any disparity of impact that climate change brings to developed and developing nations. All countries face internal challenges brought by transformational change to their economies, including job losses and skill shortages. However, these issues are managed effectively with the help of a stable climate, economy and international relations.	The sharp change in approach towards climate change action in the medium term adversely impacts global economic growth compared to an Orderly scenario. On the other hand, global population growth exceeds that of an Orderly scenario, with a global population of 9.2 billion people resulting in a lower standard of living for many across the globe as a smaller GDP is shared amongst a greater population. Lower GDP growth together with higher population estimates and transition costs suggests greater polarisation, as the world's more marginalised nations are exposed to higher rates of poverty, political and economic instability and more severe physical climate change impacts.	GDP is adversely affected by the medium term under this scenario, due to chronic physical risk, when compared to an Orderly scenario. Acute physical risk events are known to be highly destructive and have the potential to result in widespread displacement, reduced productivity due to temporary closure and income losses from damage to assets at a high level. Global population growth exceeds that of the Orderly scenario, with a total of 8.6 billion people in the medium term. The focus on global growth by any means necessary drives higher rates of economic inequality, increasing political instability and geopolitical tensions around the world.

Energy Pathways		
Orderly Scenario (average global temperature increase **+1.4°C**)	**Too Little Too Late Scenario** (average global temperature increase **+2.7°C**)	**Hot House Scenario** (average global temperature increase **+4.4°C**)
There is a transition to a renewable electricity generation system. Foresight by the government and energy companies in the short term works to address whether sufficient capacity is added to the grid, largely through the expansion of wind, solar, geothermal and some distributed generation and storage.	There is continued expansion of New Zealand's renewable electricity network, especially through wind, solar and geothermal. However, a lack of viable renewable energy storage technology prevents a 100% renewable electricity generation rate.	An increase in drought in the South Island combined with hydro lakes reaching critically low levels, threatens the reliability of New Zealand's electricity supply. No investments have been made in grid storage infrastructure, leading to continued reliance on gas to provide baseload and peaking electricity generation, particularly during dry hydro years.

Carbon Sequestration from Afforestation		
Orderly Scenario (average global temperature increase **+1.4°C**)	**Too Little Too Late Scenario** (average global temperature increase **+2.7°C**)	**Hot House Scenario** (average global temperature increase **+4.4°C**)
Widespread policy support for low emissions technologies reduces reliance on afforestation to absorb residual emissions, allowing for greater rates of native afforestation.	With limited availability of low emissions technology in New Zealand, afforestation becomes a key tool to achieve net zero by 2050. Exotic forestry is heavily relied upon to help bring down net GHG emissions. Due to its slower growth and carbon absorption rate, native forestry is relied upon less to meet 2050 emissions targets. Greater global support for low emissions technology from the medium term helps to reduce the reliance on forestry somewhat. However, the lag in leveraging this technology sees forestry rates continue to climb.	The retention of the New Zealand Emissions Trading Scheme and the high carbon price in the mid-2020s continues to generate a financial incentive to plant forests. Global growth demands help to provide incentives to expand forests around New Zealand for logging purposes.

Data sources used to construct each scenario

The data sources that were used to create the scenarios for the FM PIE Trust are consistent with those used in the NZBA scenarios and are detailed in Appendix 1.

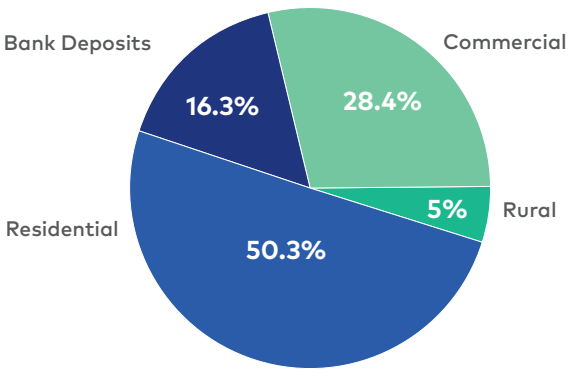
Climate-Related Risks

This section details climate-related risks to the FMT GIF's assets, which the FM PIE Trust wholly invests in. The FMT GIF's assets are primarily invested in loans backed by first mortgages over residential, commercial, and rural land and buildings. The effects of climate change, such as an increase in natural disasters, may result in more defaults by borrowers, and/or cause a drop in the value of mortgaged residential, commercial, and rural property. For example, where a loan is secured against a tenanted commercial property, a natural disaster could mean the tenant(s) in that secured property are unable to meet rental payments, increasing the chance of borrower default.

This graph depicts the FMT GIF's key investment exposures at year end (31 March 2024). **Residential and commercial lending** comprises more than 75% of the FMT GIF's lending portfolio, presenting the largest exposure group. A subset of these residential and commercial loans are **development loans**, constituting 17.8% of the loan portfolio at 31 March 2024, presenting unique climate-related risks (versus 'standard' loans).

The exact investment mix at any point in time is subject to change because the FMT GIF is regularly providing new loans or making other changes to its investments. FMML uses a benchmark allocation approach to guide investments, however actual asset allocations will vary from the benchmark asset allocations as market conditions change (benchmark asset allocations and acceptable ranges of the FMT GIF, being the minimum and maximum limits for each asset class, are detailed under "Current business model and strategy" on page 2).

Investments by Type



Climate-Related Risk (continued)

Risk	Risk Type	Time Horizon	Assessment
Heightened credit risk to loan portfolio resulting from an increase in extreme weather events (storms, floods, heatwaves, drought)	Physical	Short, medium, and long-term	**Implications:** Extreme weather events may cause damage to residential, commercial, and rural properties. In turn, this damage may require costly repairs and, in some cases, limit access. As a result, rental properties may not remain suitable for tenants. For commercial properties, disrupted operations of tenants may push staff towards working from home, impacting revenue by decreasing occupation rates and rental income. Owners (borrowers) may risk loss of rental payments in the interim. Extreme weather events could exacerbate development lending risks, by increasing construction costs and delaying project completion, impacting the profitability of developers. An increase in extreme weather events may impact the cost and availability of insurance cover. Flooding can cause delays to construction, damage materials, equipment and disrupt logistics for delivery of supplies and removal of waste. Heat stress, particularly during heatwaves, can have detrimental effects on the health and wellbeing of workers required to work outdoors. Properties located in high-risk areas such as coastal zones and floodplains are most likely to be affected by extreme weather events and would likely experience a drop in value if impacted by extreme weather events. **Anticipated impacts:** Increased risk of arrears and defaults, and possible decline in security property values meaning the value of the security may not be sufficient to meet the borrower's obligations to repay. **Mitigations and management actions:** • FMML's Lending and Credit Teams consider a range of risks ahead of loan origination. Any factor that may have a detrimental effect on the value or saleability of a property, and/or ability to insure the property, forms a credit consideration, including climate-related factors. Climate-related factors could include whether the property is located on the coast, cliff-tops, very steep slopes or in a floodplain. • Loans are originated in accordance with FMML's Lending Policy and Procedures Manual, as well as FMML's Transactional Guidance. These provide direction on preferred property types and locations, and state FMML's risk appetite around lending against properties with an unacceptably high level of risk, including flood- or slip-prone properties. • FMML's Lending Team inspects all properties prior to lending, and assessment of certain climate-related risks (such as properties situated in overland flow-paths or that may be prone to coastal erosion) forms part of the inspection process. • Insurance risk is also considered prior to loan origination, in particular the continued availability of natural disaster cover for properties in areas that have been materially impacted by flooding or other weather events. • Development loans undergo additional climate risk assessment in that FMML would normally receive engineering assessments confirming (or otherwise) land as being suitable for development. • Enquiries are made at loan origination to ensure the risks associated with new securities are considered acceptable. • While the above steps are taken to mitigate potential adverse impacts of climate-related risks on the loan portfolio, climate change is, by definition, unpredictable and it is not possible to eliminate the risk that security properties will be affected by extreme weather events. • In the event of losses following arrears and/or default, losses can be off-set against the reserve fund (but the reserve fund may not be sufficient, or available, to off-set losses in all situations).

Risk	Risk Type	Time Horizon	Assessment
Heightened credit risk to loan portfolio resulting from regulatory change impacting developers	Transition	Short, medium, and long-term	**Implications:** The impact of regulation on emissions pricing may increase overall operational and supply chain costs. Emissions reduction policies may drive up the costs of raw materials such as concrete and steel due to the high level of emissions associated with their manufacturing. Regulatory requirements to use low emissions technologies in new builds may increase the overall cost of construction. This could lead to increased operational and supply chain costs to developers. Continued changes in local council policies such as zoning, land use and building regulations could add cost, time, and complexity to projects. Developers who do not act early to decarbonise may face an increase in costs and an increased risk of stranded assets as more consumers prefer buildings with lower GHG emissions and sustainable design features. **Anticipated impacts:** Decreased profitability to developers may cause an inability to meet loan repayments. Increased risk of arrears and defaults, and possible decline in security property values meaning the value of the security may not be sufficient to meet the developer's obligations to repay. **Mitigations and management actions:** • FMML Transactional Guidance outlines key project metrics that must be considered by the Lending and Credit Teams, including Development Profit Margin and Maximum Loan to Cost ratio. • FMML also ensure that there is allowance for unexpected additional costs within the loan facility, including additional costs that may arise from changes in regulation described above.

Organisational Risks

FMML recognise that physical and transition risks threatening disruption to FMML as Manager of the FM PIE Trust, could cause disruption to the smooth running of the Fund. The Manager is responsible for managing the FM PIE Trust's investment in the FMT GIF, including the nature or type of any investment made by the FMT GIF, by undertaking a thorough loan approval process including credit decisioning, and actively managing loans throughout their lifecycle. Therefore, the success of the FM PIE Trust's investment in the FMT GIF (and the FMT GIF's investments in property loans) is somewhat dependent on the Manager's operational stability. Physical risks such as extreme weather events over the short, medium, and long-term may see offices closed or inaccessible, and travelling staff stranded away from work. Transition risks such as a decline in FMML's reputation because of misalignment with investor expectations on climate-related issues could result in an increase in funding costs, or loss in overall ability to raise capital, though this is only considered a medium and long-term risk. FMML manage and mitigate organisational risks, including these, in line with the RMF described in the Risk Management section of these climate statements (page 10).

Climate Risk, Capital Deployment and Funding Decision-Making

Climate-related risks serve as an input to capital deployment and funding decision-making processes of the FMT GIF (which the FM PIE Trust wholly invests in), in that FMML's screening process for loans considers climate-related risks as outlined in the "mitigations and management actions" in the table above. However, FMML recognises that there is further opportunity to fully integrate climate-related risks into the decisions made to invest the assets of the FMT GIF.

Climate-Related Opportunities

To date FMML has not identified any climate-related opportunities in respect of the FM PIE Trust.

Transition Plan Aspects of Strategy

FMML is relying on adoption provision 3, which provides an exemption from the requirement to disclose the transition plan aspects of the strategy in relation to the FM PIE Trust, including how the business model and strategy might change to address climate-related risks and opportunities; and the extent to which transition plan aspects of the strategy are aligned with capital deployment and funding decision-making processes for the FMT GIF.

FMML has not yet started the preparation of the transition plan aspects of the Fund's strategy but anticipates this will be a focus in FY25 given the requirement to report on this in the climate statements for the FY25 year. FMML has put in place a number of goals as outlined in the Metrics and Targets section of these climate statements on page 11 and is implementing management responses to its identified climate-related risks as outlined on pages 8 to 9.

Risk Management

Risk management is an integral part of FMML's business. This section describes FMML's processes for identifying, assessing, and managing climate-related risks to the FMT GIF and how these processes are integrated into the Fund's overall risk management processes.

Risk Management Framework

FMML identifies, assesses, and manages all risks (both to FMML's business and to investments in the FM PIE Trust) in accordance with the RMF. The RMF provides the basis for the development and maintenance of a coordinated set of activities to ensure FMML complies with obligations created by various laws, regulations, and FMML's own policies ('business' risks). The RMF also aims to ensure risks to the FM PIE Trust's 100% investment into the FMT GIF is appropriately identified and managed ('investment' risks).

Risk Management Methodology

FMML's Leadership Team works with the Board to identify risks relevant to the business (FMML), and risks relevant to the investment portfolio (of the FM PIE Trust and the FMT GIF). The Risk Matrix currently contains 27 risks in total, each of which are labelled as business or investment risks accordingly.

Once identified, risks are assessed through a combination of two components being (1) consequence, and (2) likelihood, and assigned an 'inherent' risk rating using a risk rating model. Controls for each risk are recorded within the risk matrix, where an assessment of the effectiveness of each control is undertaken. The overall control effectiveness against each risk is the primary factor in determining an adjusted 'residual' risk rating. Risk ratings are used to rank and prioritise management of identified risks.

Climate risk to the FMT GIF's underlying investments is not specifically included as a risk within the RMF, although ESG risk to FMML as an entity is included. Climate risk to underlying investments is accounted for at an operational level through FMML's Lending and Credit Teams, who consider a range of risks ahead of loan origination as detailed in 'mitigations and management actions' to the risks described in the Strategy section on page 5. This is reflected in the risk matrix through the following risks:

- **Specific Investment Risk:** This is the risk that an individual investment of the FMT GIF may face an unforeseen adverse event which affects the value of the underlying property/investment. While not explicitly detailed in the risk description, an unforeseen adverse event could include a climate-related event, such as an extreme weather event. A key control associated with this risk is that there are exposure and loan-to-value limits included within the FMT GIF's SIPO, providing a buffer to withstand changes in the values of underlying securities, as well as to provide sufficient diversification of underlying securities (this helps to minimise any impact to the portfolio if, for example, an adverse weather event severely impacted one region).
- **Credit Risk:** This is the risk that financial loss may result if the counterparty to a loan fails to meet its contractual obligations (defaults). Default can occur for a number of reasons, including climate-related reasons, as identified in the 'climate-related risks' table of the Strategy section on page 5. The key control associated with this risk is the credit assessment process carried out by FMML's credit team ahead of loan origination. Both FMML's Lending and Credit Teams are trained to assess various risks before originating loans, including those related to property value, saleability, and insurability. New loan origination is guided by FMML's Lending Policy and Procedures Manual and Transactional Guidance, which outline preferred property types and locations, while delineating FMML's risk tolerance for properties with elevated climate-related risks, like flooding or landslide. Prior to lending, FMML's Lending Team conducts property inspections, during which climate-related risks such as overland flow-paths or coastal erosion susceptibility are evaluated.

All risks within the Risk Matrix are assigned to Leadership Team members, who are responsible for their ongoing management. Leaders consider their internal and external operating context when considering key risks that they are responsible for. This includes their key activities/processes, systems, people, and relationships with all key stakeholders.

Risk Management Methodology (continued)

The review of key risks is a regular agenda item within quarterly Compliance Committee meetings, and the top 10 risks within the Risk Register are reviewed by the Board at least six times annually. If there has been a change to the operating environment, the Compliance Committee will review and discuss whether changes to a risk's rating are warranted and should be recommended to the Board.

Scenario Analysis

FMML undertook climate change related scenario analysis for the first time in FY24 (detailed in the Strategy section of these climate statements on page 5), which helped to identify and assess potential impacts of climate change, and informed the identification and assessment of climate-related risks to the FM PIE Trust. This included considering the scope, size and impact of the identified climate-related risks. In terms of the frequency of assessment, this was a one-off process in FY24. The climate-related risks included in this year's climate statement have been identified by considering our three climate change scenarios over a 30-year time horizon, with short-term, medium-term and long-term time horizons considered being those outlined on page 6. In doing so, we considered material parts of our value chain, as detailed on page 2.

Risk Appetite Statement

FMML's Risk Appetite Statement (RAS) sets out the Board's expectations for the types and level of risks that FMML is prepared to pursue or accept in day-to-day activities as it delivers on both FMML's strategy and the FM PIE Trust's investment strategy. All strategic plans and business plans for functional areas must be consistent with this Statement. Risk tolerances are reviewed annually or where there are any material environmental or operational changes. Per the RAS, FMML has a low appetite for Credit Risk.

Metrics and Targets

This section describes the metrics used to measure and manage the FM PIE Trust's climate-related risks, along with its climate-related goals.

METRICS

Greenhouse gas emissions

The FM PIE Trust's value chain (depicted on page 2) illustrates that investor funds sit in the FM PIE Trust, but are actively managed by FMML (through the FM PIE Trust's whole investment in the FMT GIF, which is also managed by FMML). As a registered investment scheme, the FM PIE Trust is not an operational entity, but relies on entities such as the Manager, Trustee, Supervisor, Auditor and various other 'suppliers' to carry out activities required for the running of the Fund. NZ CS 1 requires Scope 1, 2 and 3 greenhouse gas ("GHG") emissions to be measured and reported in respect of the FM PIE Trust. Accordingly, the FM PIE Trust does not own or control sources of direct GHG emissions, or have indirect GHG emissions from the generation of purchased or acquired electricity (Scope 1 and 2, or 'operational' emissions), as activities causing these emissions are not carried out by the Fund.

The greatest source of GHG emissions in the FM PIE Trust's value chain is expected to be Scope 3 financed emissions, attributed to the FMT GIF's lending activities (described on page 2). These emissions are categorised by the Greenhouse Gas Protocol: Corporate Value Chain (Scope 3) Accounting and Reporting Standard as Scope 3, Category 15: Investments. For FY24, Adoption Provision 4 has been applied to the FM PIE Trust meaning that Scope 3 GHG emissions will be disclosed from FY25 onwards. FMML is presently excluding disclosure of all of the FM PIE Trust's Scope 3 emissions sources.

Given FMML has not identified any material Scope 1 or 2 (operational) GHG emissions sources in respect of the FM PIE Trust, and is not disclosing scope 3 emissions in FY24, it has not applied an emissions consolidation approach, measurement standard, emissions factors or GWP rates and accordingly is not disclosing these.

GHG emissions intensity

The FM PIE Trust does not have material scope 1 or 2 emissions and it is accordingly not possible to calculate an emissions intensity metric for these emissions scopes.

FMML has not yet measured scope 3 emissions in respect of the FM PIE Trust and is relying on adoption relief in relation to the disclosure of these emissions in the current reporting period. In those circumstances, FMML is unable to calculate a GHG emissions intensity metric that would provide material information to primary users in the current reporting period.

Quantification of assets vulnerable to physical and transition risks

- **Loan portfolio as percentage of total assets of the FM PIE Trust (by way of its whole investment in the FMT GIF):** In circumstances where the loans that the FMT GIF makes are secured against residential, commercial and rural properties located around New Zealand, FMML considers that the entire loan portfolio, i.e. 83.7% of the assets of the FMT GIF (and therefore of the FM PIE Trust) at 31 March 2024 is vulnerable to some extent to the physical risks of climate change disclosed earlier in the Strategy section on page 5 of these climate statements.
- **Development lending as percentage of total assets of the FM PIE Trust (by way of its whole investment in the FMT GIF):** FMML considers that development lending as a percentage of total assets of the FMT GIF is a useful metric for assessing the vulnerability of the FMT GIF to transition risk, given the climate-related transition risk that FMML has identified in relation to the FMT GIF relates predominantly to development lending. Development lending comprised 17.8% of the assets of the FMT GIF (and therefore of the FM PIE Trust) at 31 March 2024.
- **Investments in cash and term deposits as percentage of total assets of the FM PIE Trust (by way of its whole investment in the FMT GIF):** 16.3% of FMT GIF (and therefore of FM PIE Trust) assets were invested in cash and term deposits as at 31 March 2024. The primary focus of the scenario analysis process we undertook in FY24 was our lending activities (which is where we consider our most material climate-related risks are likely to arise), and therefore FMML has not to date undertaken a detailed assessment of the exposure of cash and term deposits to climate-related risks.

The exact investment mix at any point in time is subject to change because the FMT GIF is regularly providing new loans or making other changes to its investments. For more detail on benchmark asset allocation, refer to page 2 of these climate statements.

These figures involve a high level of estimation uncertainty. The assumption that the entire loan portfolio is vulnerable to the physical risks of climate change and the assumption that the entire development lending portion of the loan portfolio is vulnerable to the transition risks of climate change are conservative estimates, given that full modelling of risk underlying the loan portfolio has not been undertaken.

Assets or business activities aligned with climate-related opportunities

To date, FMML has not sought to align the assets or business activities of the FM PIE Trust with climate-related opportunities, as these have not yet been identified. As such, FMML considers that none of the assets or business activities of the Fund are aligned with climate-related opportunities.

Capital deployment toward climate-related risks and opportunities

No capital investment or business activities were deployed towards climate-related risks or opportunities in FY24. While climate-related risks factor into our screening processes for loans as described on page 10, we do not currently consider that this amounts to a quantifiable deployment of capital investment or business activities towards climate-related risks or opportunities.

Internal emissions price

The FM PIE Trust does not currently use an internal emissions price for its business activities.

Management remuneration

No management remuneration is currently linked to climate-related risks or opportunities.

Industry-based metrics

FMML does not currently use any industry-based metrics to measure and manage climate-relate risks for the FM PIE Trust. FMML is aiming to identify industry-based metrics relevant to the FM PIE Trust in FY25.

Other key performance indicators

FMML does not currently use any other key performance indicators to measure and manage climate-related risks and opportunities for the FM PIE Trust.

TARGETS

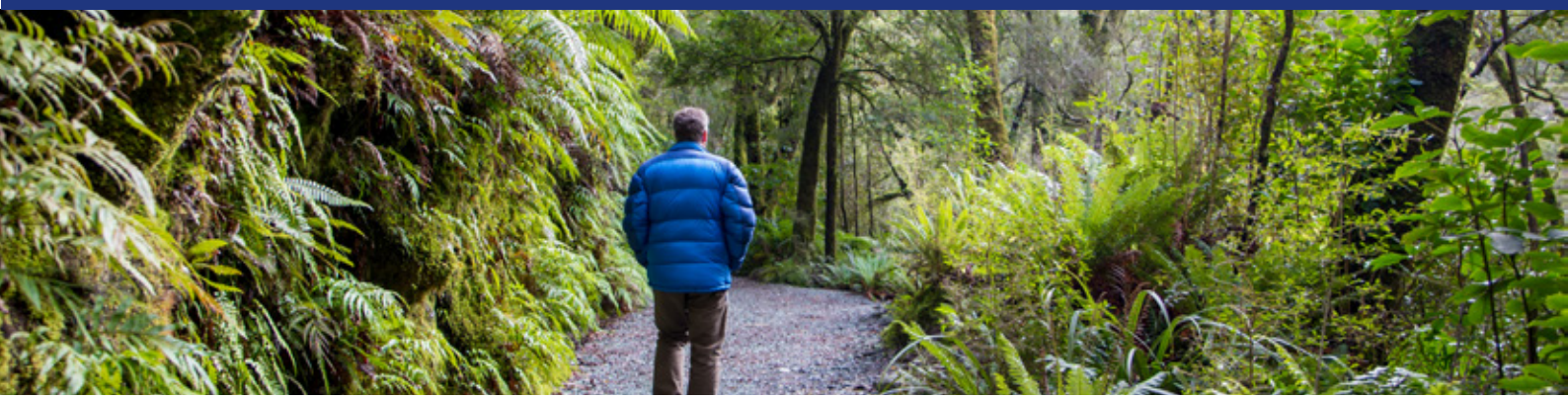
The NZ CS define "target" as a "specific level, threshold, or quantity of a metric that an entity wishes to meet over a defined time horizon in order to achieve an entity's overall climate-related ambition and strategy". On the basis of that definition, FMML has not set any targets to manage climate-related risks and opportunities, including any GHG emissions targets.

FMML has, however, set a number of qualitative goals that relate to the management of climate-related risks, and the XRB's staff guidance for MIS Managers appears to consider that climate-related targets include qualitative goals. FMML is accordingly disclosing these qualitative goals in this section, despite these not falling within the definition of "target" as defined in the NZ CS.

The FM PIE Trust has the following qualitative goals for FY25:

- Develop the FM PIE Trust's approach to transition planning.
- Measure the FM PIE Trust's base year (FY25) absolute Scope 3 financed GHG emissions, GHG emissions intensity and corresponding data quality score.
- Determine industry-based metrics relevant to the FM PIE Trust's business model, to measure and manage climate-related risks.
- Expand the scope of the annual climate statements to include disclosures required by the NZ CS that are not required to be reported in the first year where adoption relief is applied.

FMML is aiming to achieve these goals by the end of FY25, noting that some of these matters are required by the NZ CS to be completed by that time. Because these are qualitative goals rather than targets as defined in the NZ CS, FMML's progress against them will not be measured against a specified base year and it does not have interim targets or goals. FMML has not yet commenced work towards meeting these qualitative goals.



APPENDICES

1. Datasets aligned with scenario dimensions

	Scenario Dimensions		
Category	**Orderly Scenario**	**Too Little Too Late Scenario**	**Hot House Scenario**
Global climate & socio-economic parameters	IPCC SSP1-1.9*	IPCC SSP2-4.5*	IPCC SSP5-8.5
	SSP1-1.9 is the sustainability path scenario and represents the world shifting gradually, but persuasively, towards a more sustainable future, emphasising more inclusive development that respects perceived environmental boundaries. Increasing evidence of, and accounting for, the social, cultural, and economic costs of environmental degradation and inequality drive this shift. Emissions in this scenario decline rapidly, achieving net zero by 2050 and limiting global warming to 1.5oC relative to 1850-1900. The second half of the century is characterised by net negative CO2 e emissions, implying the use of carbon dioxide removals ("CDR").	SSP2-4.5 is the middle of the road scenario and represents a moderate approach to transitioning towards a low carbon future. With a disjointed global approach, policies shift over time to become increasingly oriented toward national and regional issues, at the expense of broader-based development. Strong environmental degradation is experienced in some areas due to a low international priority for addressing environmental concerns. Lack of international cooperation increases challenges to mitigation. The use of carbon dioxide removals ("CDR") is limited to its direct application to the exhaust streams of point-source facilities such as power plants or factories.	SSP5 is the fossil-fuelled development path scenario. This scenario sees a focus on immediate economic growth, with strong GDP growth, increases in materialism and meat consumption, and minimal environmental policy. In response, the emissions are forecast to be the highest, with the greatest climate variability across all climate variables expected. The lack of focus on emissions reductions means carbon dioxide removals ("CDR") see little to no deployment across the globe.
Global energy and emissions 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)*
	The Net Zero 2050 scenario limits global warming to 1.5°C relative to 1850-1900 through stringent climate policies and innovation, reaching global net zero CO2 emissions around 2050. This scenario sees strong climate policy, technological advances and behavioural change. While CDR is used to accelerate even further decarbonisation, its use is minimised wherever possible.	NDC scenario projects 2.6oC average global temperature rise relative to pre-industrial levels, associated with moderate to high physical risk exposure. This scenario is also characterised by a slower uptake in technology in the first half of the century, accompanied by less transition risk on a global scale in the medium term.	SSP5 is the fossil-fuelled development path scenario. This scenario sees a focus on immediate economic growth, with strong GDP growth, increases in materialism and meat consumption, and minimal environmental policy. In response, the emissions are forecast to be the highest, with the greatest climate variability across all climate variables expected. The lack of focus on emissions reductions means carbon dioxide removals ("CDR") see little to no deployment across the globe.
New Zealand-specific climate parameters	NIWA RCP2.6*	NIWA RCP4.5*	NIWA RCP8.5*
	The NIWA scenarios leverage the IPCC's RCP modelling of varying levels of GHG concentrations on the earth's climate system. NIWA downscales the global models to study how these different atmospheric concentrations of GHGs might influence the New Zealand climate. As with RCP 2.6, NIWA RCP2.6 represents a world where carbon dioxide (CO2 e) emissions start declining in the 2020s and get to zero by 2100. Average temperature increases under the NIWA scenarios are relative to a 1986-2005 baseline, which differs from the IPCC baseline of 1850-1900. As such, the stated warming at various future points in time is lower in NIWA's scenarios than in the IPCC scenarios.	The NIWA scenarios leverage the IPCC's RCP modelling of varying levels of GHG concentrations on the earth's climate system. NIWA downscales the global models in order to study how these different atmospheric concentrations of GHGs might influence the New Zealand climate. As with RCP 4.5, NIWA RCP4.5 represents a world where carbon dioxide (CO2 e) emissions start declining by approximately 2045 to reach roughly half of the levels of 2050 by 2100. Average temperature increases under the NIWA scenarios are relative to a 1986-2005 baseline which differs from the IPCC baseline of 1850-1900. As such, the stated warming at various future points in time are lower in NIWA's scenarios than they are in the IPCC scenarios.	The NIWA scenarios leverage the IPCC's RCP modelling of varying levels of GHG concentrations on the earth's climate system. NIWA downscales the global models in order to study how these different atmospheric concentrations of GHGs might influence the New Zealand climate. As with RCP 8.5, NIWA RCP 8.5 represents a world where carbon dioxide (CO2 e) emissions continue to rise throughout the 21st century. RCP 8.5 is the worst-case climate change scenario and assumes a world that continues to be fuelled by fossil fuel energy. Average temperature increases under the NIWA scenarios are relative to a 1986-2005 baseline, which differs from the IPCC baseline of 1850-1900. As such, the stated warming at various future points in time are lower in NIWA's scenarios than they are in the IPCC scenarios.
New Zealand-specific climate parameters	CCC 'Tailwinds'*	CCC 'Headwinds'*	CCC 'Current Policy Reference'*
	The tailwinds scenario combines further technology and further behaviour change assumptions to provide a potential upper bound for how far and how quickly emissions could be reduced based on current evidence and judgements. This scenario assumes both strong behaviour and technology change across all sectors.	In this scenario, there are higher barriers to uptake of both technology and behaviour changes across key measures. It assumes conservative improvements in technology relative to the Current Policy Reference case. This scenario also assumes a modest change from existing behaviour trends among people and businesses.	An estimation of NZ's emission profile if we carry on our current trajectory from a behavioural, technology, and policy perspective.

* Refer to Appendix 2 for descriptions of domestic and international climate scenarios.

APPENDICES

2. Description of domestic and international climate scenarios

Acronym	Description
Intergovernmental Panel on Climate Change (IPCC)	IPCC scenarios are a combination of Representative Concentration Pathways (RCP) and Shared Socioeconomic Pathways (SSPs). The time horizon associated with these scenarios is 2100, and there is no carbon price explicitly given. The x-y combination accounts for the different socio-economic development assumptions. X represents the SSP scenario outlined, and Y is the radiative forcing level. IPCC use CMIP6 which runs 100 different climate models across the world.
Network for Greening the Financial Systems (NFGS)	NFGS scenarios use Integrated Assessment Models (IAMs) and do not have a detailed representation of economic sectors beyond energy and land use. Carbon price is an endogenous variable and has strong carbon dioxide technology assumptions to reduce emissions. As of September 2022, scenarios have been updated to incorporate a range of data on transition risks, physical risks and economic impacts at a higher sectoral and regional resolution. These have been included to reflect greater regional granularity and capture chronic physical risk in GDP projections for each scenario.
International Energy Agency (IEA)	The IEA has provided medium to long-term energy projections using the World Energy Model (WEM) which is a large-scale simulation model designed to replicate how energy markets function. The WEM is the principal tool used to generate detailed sector-by-sector and region-by-region projections for the WEO/IEA scenarios.
National Institute of Water and Atmospheric Research (NIWA)	Statistical downscaling of IPCC RCP models was used to develop temperature and precipitation projections for New Zealand climate change for up to 41 different global climate models (GCMs).
Climate Change Commission (CCC)	The Climate Change Commission (CCC) modelled long-term scenarios to 2050 and beyond. This involved tailoring different assumptions under Transport, Energy, Industry and Buildings, Land and the Waste sectors specific to New Zealand and focuses on domestic emissions projections. They incorporated a range of technology, behaviour, and policy assumptions in each scenario.

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