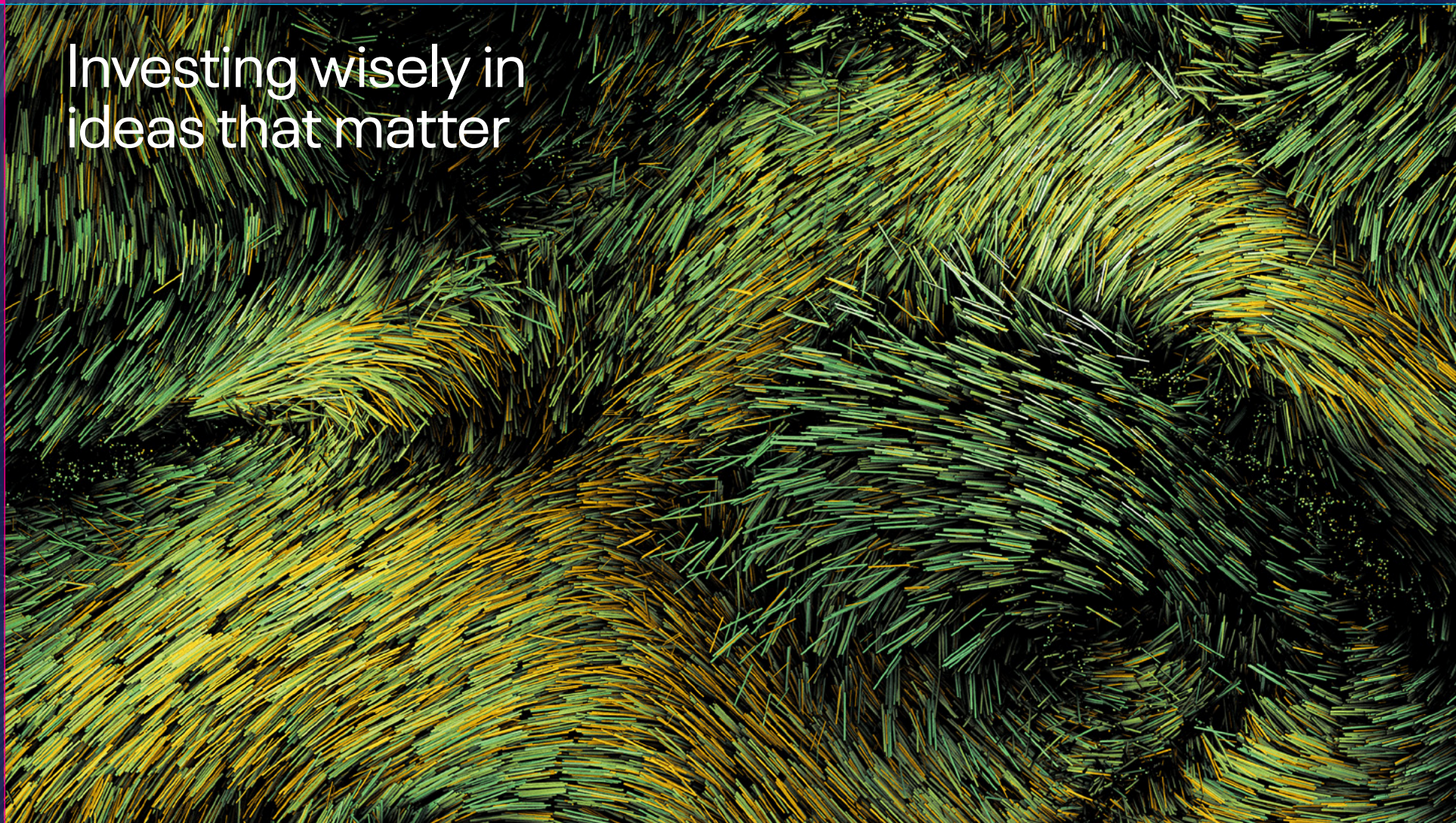




Investing wisely in  
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# Disclaimer

Infratil has produced this report voluntarily for FY2023 (1 April 2022 – 31 March 2023).

Infratil is required to produce group climate statements under the Financial Markets Conduct Act 2013 (FMCA) that comply with the Aotearoa NZ Climate Standards from FY2024 (1 April 2023 – 31 March 2024). While Infratil has sought to align with the Climate Standards where possible in this voluntary disclosure, we do not represent that this report complies with them.

This report contains disclosures that rely on early and evolving assessments of current and forward looking information, incomplete and estimated data, and our related judgements, opinions and assumptions. We have sought to provide accurate information in respect of FY2023 as at 21 December 2023, but we caution reliance being placed on representations that are necessarily subject to significant risks, uncertainties and/or assumptions. We rely on information and emissions data from our portfolio companies that may not be complete or accurate given our portfolio companies are also evolving their approach to understanding and reporting on climate-related risks and opportunities. Climate change is an evolving challenge, with high levels of uncertainty, particularly over long term horizons, given the climate is dynamic, involves feedback loops, interdependencies, and tipping points. Descriptions of the current and anticipated impacts of climate change on Infratil and the multiple sectors our business covers, therefore draw on and/or represent estimates only.

In particular, this document contains forward-looking statements and opinions about Infratil, Infratil's portfolio companies and the environment in which the Infratil operates, including climate-related metrics, climate scenarios, targets, estimated climate projections, and statements of

Infratil's future intentions. It also contains forward-looking statements regarding Infratil and our portfolio companies' business operations, market conditions, sustainability objectives or targets and risk management practices. These statements and opinions necessarily involve assumptions, forecasts and projections about our present and future strategies and the environment in which we will operate in the future, which are inherently uncertain and subject to contingencies outside of Infratil's control and limitations, particularly as to inputs, available data and information which is likely to change.

We base those statements and opinions on reasonable information we know at the date of publication. We do not:

- represent those statements and opinions will not change or will remain correct after publishing this report, or
- promise to revise or update those statements and opinions if events or circumstances change or unanticipated events happen after publishing this report.

The risks and opportunities described in this report, and our strategies to achieve our targets, may not eventuate or may be more or less significant than anticipated. There are many factors that could cause Infratil's actual results, performance or achievement of climate-related metrics (including targets) to differ materially from that described, including economic and technological viability, climatic, government, consumer, and market factors outside of Infratil's control. Infratil is committed to progressing our response to climate-related risks and opportunities over time but is constrained by the novel and developing nature of this subject matter. We caution reliance on climate-related forward-looking statements that

are necessarily less reliable than other statements Infratil may make in its annual reporting. Infratil gives no representation, warranty or assurance that actual outcomes or performance will not materially differ from the forward-looking statements. We do not accept any liability whatsoever for any loss arising directly or indirectly from any use of the information contained in this report, whether in respect of Infratil and/or its portfolio companies.

This disclaimer should be read along with the limitations on page 10.

This report is not an offer document and does not constitute an offer or invitation or investment recommendation to distribute or purchase securities, shares, or other interests. Nothing in this report should be interpreted as capital growth, earnings or any other legal, financial tax or other advice or guidance. For detailed information on our financial performance, please refer to our FY2023 disclosures and Annual Report, available [here](#).

# Contents

**Front cover: Rivers of Wind**

The artwork featured on the front cover is from Rivers of Wind, a digital artwork by Delainy Jamahl.

Bringing data to life in this mesmerising digital artwork, Delainy Jamahl's Rivers of Wind uses 8 years of historic weather data from the Wellington Airport weather station to produce its flowing visuals. Visualising the invisible force that moves us and is often heard howling through our city, Rivers of Wind explores the intersection of technology and nature and their effect on the human experience.

We are delighted to showcase this local artistic talent, especially because it can be interpreted to represent many of the characteristics of Infratil's portfolio through the intersection of climate, renewable energy, digital technology, and of course, Wellington Airport.



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# Introduction

Climate change is a serious issue for the global economy and will have a significant impact across many sectors and businesses. It is therefore increasingly important for organisations to understand and disclose their climate-related risks and opportunities to allow stakeholders to make informed decisions.

Recognising this, in 2021, the New Zealand Government enacted legislation<sup>1</sup> to require mandatory climate-related disclosures for certain companies, known as Climate Reporting Entities ('CRE'). After a period of consultation, the External Reporting Board ('XRB') issued the Aotearoa New Zealand Climate Standards ('NZ Climate Standards')<sup>2</sup>: These mandatory standards provide a framework to consider climate-related risks and opportunities broadly in line with the Taskforce on Climate-related Financial Disclosures ('TCFD') framework, covering Governance, Strategy, Risk Management, Metrics and Targets.

The aim of these Standards is to support the allocation of capital towards activities that are consistent with a transition to a low-emissions, climate resilient future. As a large NZX-listed company, Infratil Limited ('Infratil') is deemed to be a CRE and expects to be required to report in line with the NZ Climate Standards from FY2024.

1. The Financial Sector (Climate-related Disclosures and Other Matters) Amendment Act 2021

2. Aotearoa New Zealand Climate Standards » XRB



# Investing wisely in ideas that matter



# Introduction

## About Infratil

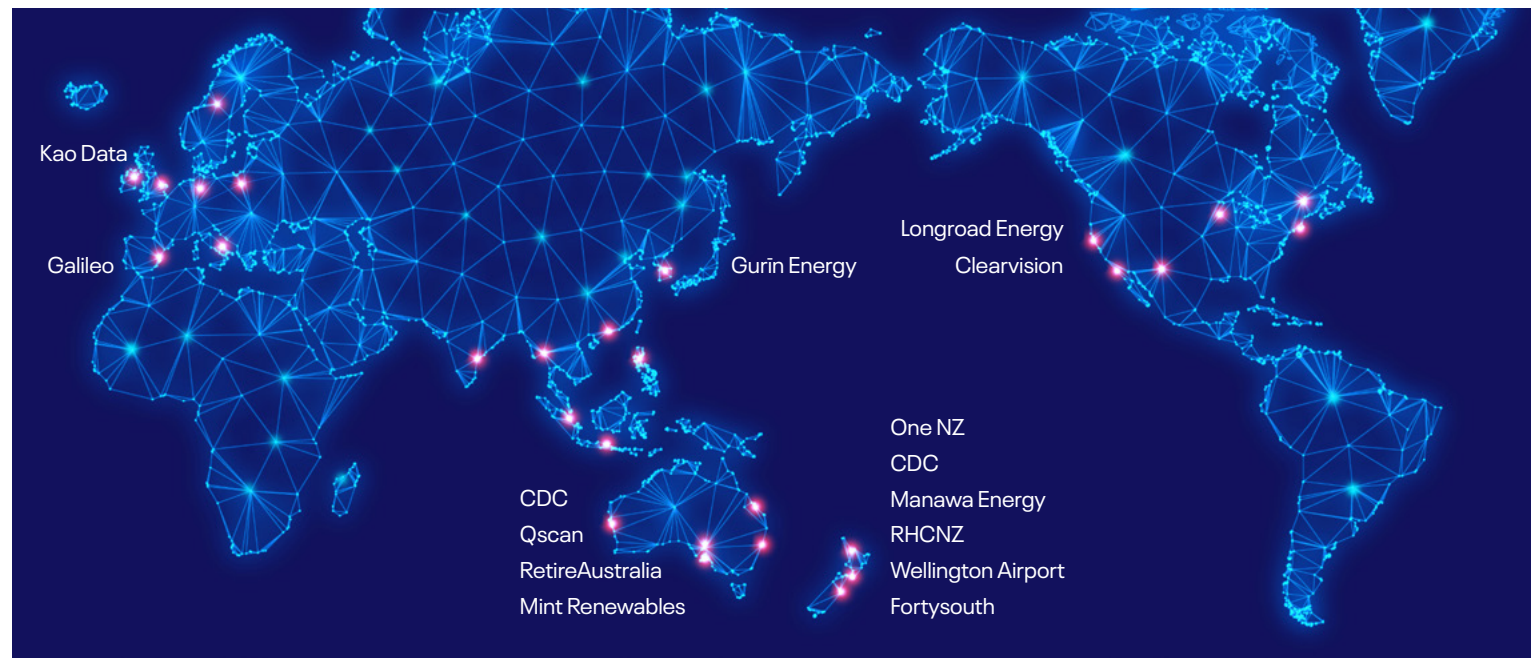
Infratil is an infrastructure investment company that invests wisely in **ideas that matter**; in things that societies need now and will need more of in the future such as renewable electricity, data centres, telecommunications networks, and healthcare.

Infratil's portfolio has incorporated sustainability characteristics since its inception in 1994, with our initial investments including renewable energy company, Trustring (now Manawa Energy). Infratil views decarbonisation as a macro-trend tailwind that forms a key part of the rationale behind our renewable energy platform. Infratil's deepening conviction in this macro-trend is reflected in our investment in renewable generation development companies in the US (Longroad Energy, 2016), in New Zealand and Australia with the establishment of Tilt Renewables in 2016 (sold in 2021) and now Mint Renewables (2022), and further afield in Europe (Galileo, 2020) and in Asia (Gurin Energy, 2021).

Infratil's portfolio diversity is an important attribute that we take into consideration when assessing our climate risks and opportunities. Infratil's portfolio is diversified both geographically, with a presence across 17 countries, and across sectors. Most of Infratil's portfolio companies have assets that are geographically spread across the jurisdictions in which they operate. This diversification increases our resilience to climate-related physical risks and emerging transition risks, as well as providing exposure to climate-related opportunities, such as opportunities created by regulatory changes to support renewable energy investments.

Infratil has its own Board, but no directly employed staff – instead it contracts to Morrison & Co ('Morrison') for its day-to-day activities, including investment management. This provides Infratil with greater access to expertise, flexible resource, and broader networks than we could probably achieve

## Infratil now has a presence across 17 countries



as a conventionally resourced company. With the support of Morrison, Infratil seeks to integrate material Environmental, Social and Governance ('ESG') issues, including those relating to climate change, through the investment process. Further details regarding Infratil's Manager, and its approach to ESG integration are set out on page 6 of Infratil's inaugural [Sustainability Report](#), which was published in August 2023. Around the same time, Infratil also released its updated [Climate Statement](#) and refreshed its investment [Exclusion Policy](#).

The evolution of our approach to climate change and climate-related risks continues, and in January 2023 both Morrison and Infratil committed to set near-term emissions reduction targets in line with

climate science with the Science Based Targets initiative ('SBTi'). The SBTi has since approved Infratil's operational and portfolio emissions reduction targets, the first Financial Institution in New Zealand to achieve this status. Details are set out on page 30 of this report.

## About this report

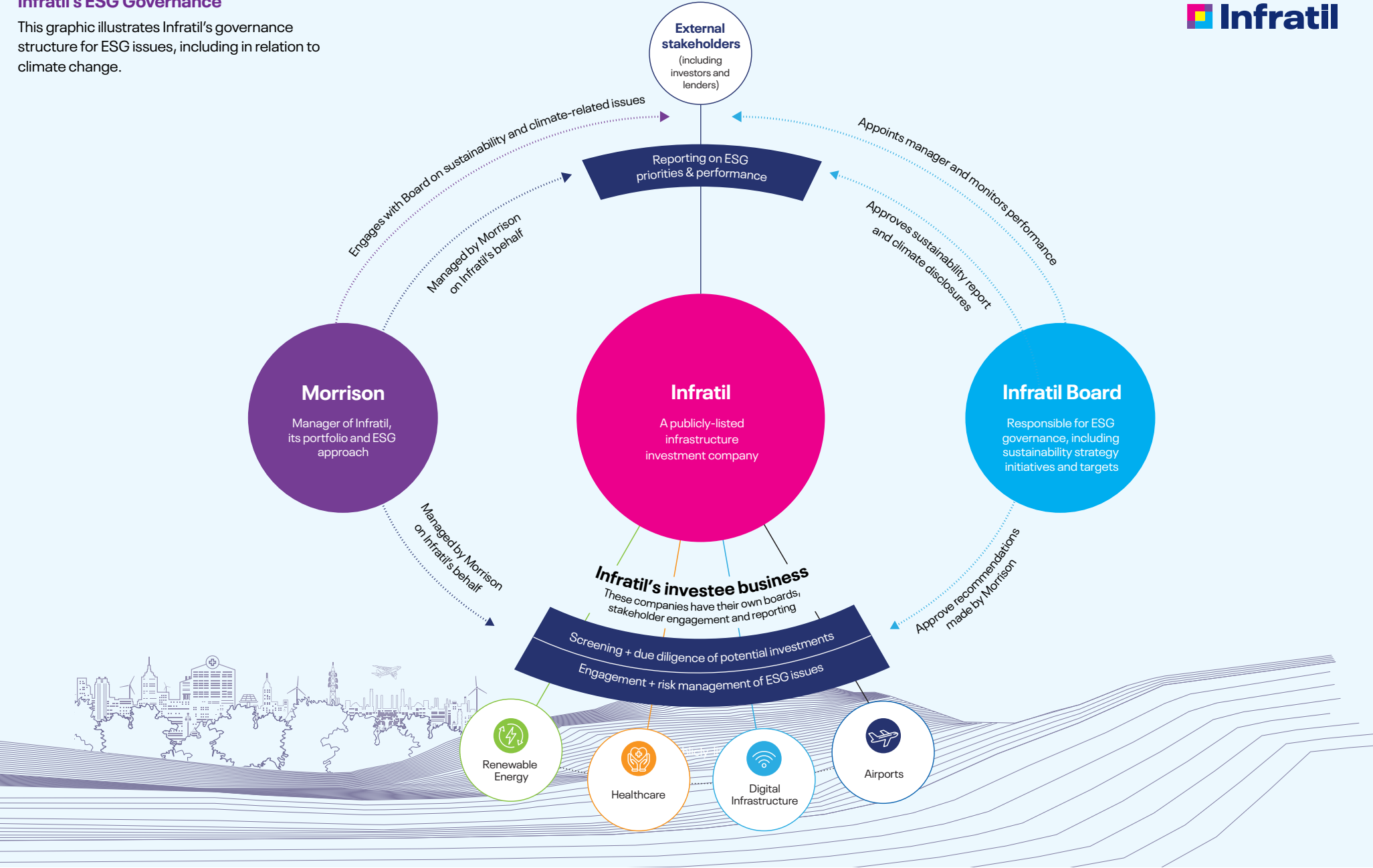
Set out in this report are Infratil's FY2023 climate-related disclosures, covering Governance, Strategy, Risk Management, and Metrics & Targets. This is our inaugural climate-related disclosures report, and we are continuing to develop and evolve our approach to assessing the impacts of climate change on Infratil's portfolio. We will seek to build on the information provided in this report

in our anticipated annual mandatory climate disclosures. This report seeks to align where possible with the NZ Climate Standards that will be mandatory from FY2024.

This report covers the twelve months to 31 March 2023 and should be read in conjunction with Infratil's 2023 Sustainability Report and Annual Report. The reporting boundary for this report is the same as set out on page 4 of our Sustainability Report. In addition, we have also now released the Greenhouse Gas ('GHG') Emissions Basis of Preparation document ('Basis of Preparation') for Infratil's emissions reporting, alongside this report.

Infratil's ESG Governance

This graphic illustrates Infratil's governance structure for ESG issues, including in relation to climate change.



# Governance

## The role of Infratil's Board

Infratil's Board has overall responsibility for ESG governance. The different aspects of governance of climate-related issues set out here may be discussed across the approximately eight scheduled meetings each year and at ad hoc meetings as required.

<b>Strategy:</b>	Infratil's Board has responsibility for approving and monitoring Infratil's strategic direction and investment strategy. Infratil's Board regularly reviews the Company's strategy in light of the latest view on megatrends, macroeconomic outlook, and industry tailwinds, including those related to climate. For example, Infratil has invested in renewable energy, identified as a growth sector in the context of broader decarbonisation of the energy system.
<b>Screening and investment:</b>	Infratil's Board reviews and approves the Company's Exclusion Policy <sup>3</sup> . For potential investments in a new portfolio company that meets the screening criteria in this policy, Infratil seeks to identify and consider material ESG issues, including in relation to climate, as part of the due diligence process, with reference to Morrison's sustainability framework (set out on its website <a href="#">here</a> ). As part of any future ESG due diligence, Infratil will also be cognisant of our recently refreshed sustainability strategy and objectives, set out on page 10 of our Sustainability Report. Relevant, material findings from any ESG due diligence process can be presented to the Board as part of the overall investment analysis and can inform any investment recommendations ultimately approved by the Board.
<b>Asset management and portfolio company engagement:</b>	Infratil's Board has contracted Morrison to undertake the day-to-day management of Infratil's investment portfolio, with ESG and climate considerations increasingly integrated into the investment management process. The Infratil Board also engages directly with most portfolio companies, including, as relevant, on climate-related issues – for example the opportunities presented by the transition to low carbon electricity generation is an area of focus for companies in Infratil's renewable energy platform.
<b>Formal risk governance:</b>	The Board has responsibility for ensuring that Infratil has appropriate risk management and regulatory compliance policies in place and for monitoring the integrity of those policies as risk management controls. Infratil's Audit and Risk Committee ('ARC'), a sub-committee of the Board, has delegated responsibility for Infratil's Enterprise Risk Management ('ERM') system. The ERM risk register includes several climate-related risks, such as transition risk, physical risk, greenwashing and litigation risk, regulatory risk, and carbon prices. The ARC receives approximately semi-annual reporting on Infratil's risks, including climate risks.
<b>Reporting:</b>	Infratil's ARC reviews and reports to the Board on the preparation, review, verification, and assurance processes in relation to sustainability reporting and climate-related disclosures. The Board is responsible for approving these reports. Infratil's approach to emissions measurement and reporting is set out on pages 28 and 29 of Infratil's Sustainability Report.
<b>Sustainability strategy and initiatives:</b>	Infratil's Board is responsible for approving Infratil's sustainability strategy, which incorporates a focus on climate and nature – details are set out on page 10 of Infratil's Sustainability Report. The Board is also responsible for approving sustainability initiatives, including those relating to climate – for example, the Board reviewed and approved Infratil's recently announced emissions reduction targets, which were subsequently validated by the SBTi. The Board will receive updates regarding Infratil's progress against its operational and portfolio SBTi emissions reduction targets.

All Infratil's directors are members of Chapter Zero (or its equivalent in another jurisdiction), the New Zealand chapter of a global network of board directors committed to taking action on climate change. Chapter Zero is hosted by the New Zealand Institute of Directors and supports directors with climate awareness, skills, and tools to steward their companies through the challenges presented by climate change.

Various other sources of expertise and assistance are also available to Infratil's directors that help to keep them informed on climate-related matters, including:

- Morrison staff and external parties provide expertise in climate change, decarbonisation, and renewable energy and changes to the regulatory landscape, including in relation to climate change.
- Infratil's investment in Clearvision Ventures ('Clearvision') provides insights on the latest international developments in technology, including climate tech.

Given we have no directly employed staff, ESG-linked remuneration is not relevant for Infratil. The Management agreement with Morrison does not have remuneration specifically linked to ESG or climate-related KPIs, but these factors are seen as being fundamental to long-term investment performance. At the portfolio company level, Infratil seeks to support alignment of objectives by increasingly incorporating explicit ESG targets and commitments, including in relation to climate, in new investments. Refer to page 16 of Infratil's Sustainability Report.

3. [Infratil's approach to responsible investment](#)

## Investment strategy

Infratil is a high conviction infrastructure investor focused on investing wisely in ideas that matter. This means identifying and delivering the essential services that society needs today and will continue to require in the future. Our investment strategy is to focus on sectors and businesses that:

- have strong defensive characteristics, resilient to a range of economic and financial conditions;
- operate sustainably and support their communities;
- offer growth opportunities supported by macro or industry tailwinds; and
- provide opportunities to reinvest and build large-scale infrastructure.

Our portfolio currently comprises investments in renewable energy, digital infrastructure, healthcare and airports.

Infratil has an important role to play to help businesses, households and communities decarbonise, while also managing the impacts of climate change. In particular, our renewable energy platform presents a material investment opportunity for Infratil. This segment of our portfolio includes investment in early stage through to mature renewable energy development companies, with current and pipeline generation projects across four continents and 29 markets. These companies are quite deliberately exposed to the growth opportunities associated with the global focus on decarbonisation through increasing the proportion of clean energy generation, as well as through electrification of transport, heat, and industrial processes. As at 31 March 2023, the fair value of Infratil's investment in this segment was \$2,063 million, an increase of \$682 million or 49% since 2022. We cover this in some detail in our FY2023 Annual Report (pages 46-57).

## Sustainability strategy

Our recently refreshed sustainability strategy (set out on page 10 of our Sustainability Report) has a 'Climate & Nature' pillar, recognising that Infratil and its portfolio companies collectively have a role to play to catalyse a rapid and efficient transition to a low-carbon, resilient future, whilst protecting and restoring nature. The three areas of focus to achieve that objective are:

- investing to enable the transition, in a way that builds resilience. Examples include decarbonisation of energy systems through renewable generation development, supporting the transition to sustainable aviation, enabling remote working through our digital infrastructure platform, and supporting connectivity during crises.
- understanding, managing, and reporting on impacts to nature. Recognising that supply chains can have environmental and social impacts, Infratil has established a supplier code of conduct, and we encourage our portfolio companies to do the same. Through GRESB<sup>4</sup>, we encourage our portfolio companies to measure and disclose their biodiversity impacts where this is a material issue for them.
- setting SBTi-validated emissions reduction targets. The SBTi has approved Infratil's operational and portfolio emissions reduction targets, the first financial institution in New Zealand to achieve that status. Details are set out on page 30.

## Current impacts

Here we set out some observed recent transition and physical climate-related impacts on Infratil and its portfolio companies. We have provided quantification where possible, noting some financial impacts are commercially sensitive, not yet completely known or complex to quantify.

### a) Physical impacts:

Climate change is already impacting the frequency and severity of extreme weather events in the regions in which Infratil's portfolio companies operate. In the last two years, some assets owned by Infratil's portfolio companies have been negatively impacted by extreme rainfall, floods and hail. However, Infratil's assets are geographically diverse both at the portfolio level and, with the exception of Wellington Airport, at the company level. This provides a mitigant against material physical damage from any single climate-related event.

None of the climate-related physical impacts experienced by our portfolio companies set out below have had a material financial impact for Infratil<sup>5</sup>.

**Manawa Energy:** In March 2023, Cyclone Gabrielle caused flooding across the North Island of New Zealand, causing physical damage to the infrastructure supporting two of Manawa's small hydro stations in Esk Valley. Whilst most of the generation equipment survived intact, the surrounding damage means the plant will be offline until repairs are completed. Manawa's hydro generation is dispersed across the country, providing a mitigant to a material impact to its generation from any one event. The Esk Scheme stations have a combined generation capacity of 3.8MW, less than 1% of Manawa's total generation capacity of 510MW.

**One NZ:** While One NZ also suffered some impacts from Cyclone Gabrielle, the company demonstrated both its own operational resilience as well as the key role it has to play to support communities in becoming more resilient. Read more in the case study on page 32 of Infratil's Sustainability Report.

**Qscan:** In early 2022, an extreme rainfall event in Queensland and New South Wales in Australia forced some of Qscan's clinics to temporarily close, while the Windsor (Brisbane) clinic suffered significant damage. This clinic has been refitted and was re-opened in February 2023 as an all-new state-of-the-art clinic, with flood mitigation measures providing a greater level of resilience against similar events in the future. Like Manawa Energy and One NZ, Qscan has geographically dispersed sites, mitigating the impact to its operations from any one event.

**Longroad Energy:** In June 2022, Longroad's Prospero I & II solar generation plants in Texas were struck by a hailstorm. Although the solar panels were able to rotate to a more vertical position to reduce impact, some panels were damaged. While 'hail stow mode' can minimise or mitigate against hail damage, and reduce insurance premiums, panels are still exposed to some level of risk, though manufacturers are developing higher tilt angle options that can be deployed in hail regions. In this regard, Longroad recently announced that it is piloting NEXTracker's 'Hail Pro' option.

Whilst insurance can provide a cushion to the financial impacts of extreme weather events as described above, climate change will cause premiums to rise, and access to comprehensive cover may become challenging or economically unattractive in some circumstances. This means that exploring other resilience and technology measures will become increasingly important over time, as highlighted in a recent quote from Longroad COO and co-founder, Michael Alvarez: "Getting insurance in hail prone geographies like Texas is an increasingly challenging issue solar project developers and owners face today. Advanced technology like NEXTracker's new Hail Pro suite is directionally where our industry needs to be going."

4. GRESB Infrastructure Asset Assessments provide the basis for systematic reporting, objective scoring and peer benchmarking of ESG management and performance of infrastructure assets

5 We define material financial impact using the same test applied under the NZX Listing Rules dated 1 April 2023 for the disclosure of material information.

Infratil made no disclosures regarding the outlined physical impacts as they did not exceed the materiality threshold.



## b) Transition impacts

**Policy & Legal:** We are already observing a shift in the policy and legal landscape that presents both opportunities (e.g. government climate policies in a number of jurisdictions are incentivising greater renewable generation development) and risks (e.g. regulations requiring increased climate-related disclosures and increased carbon prices) for Infratil and its portfolio companies, which we discuss in our Sustainability Report (pages 19-23).

There is an increasing number of jurisdictions in which Infratil's portfolio companies operate that have enacted or are considering climate disclosure legislation. Australia is currently considering introducing mandatory climate reporting legislation (see insert), which might mean CDC, Qscan and RetireAustralia are required to produce climate disclosures in the coming years. Infratil is supportive of the greater transparency that these regulations provide, though we also acknowledge that fulfilling these reporting requirements means exposure to compliance risk, involves some cost, and requires resourcing.

**Market:** The most material aspect of climate transition impacting Infratil today is the abovementioned global shift to decarbonisation of electricity generation, and the opportunity that creates for investment in our global renewable energy platform.

Infratil and its portfolio companies are also experiencing increasing scrutiny and engagement on ESG issues, including in relation to climate change, from lenders, investors, and customers. The direction of travel is clear – stakeholders are requiring greater disclosures and expect companies to credibly demonstrate they are

managing their ESG issues well. Evidencing deeper engagement on ESG from lenders, Wellington Airport recently integrated sustainability into its debt funding through the use of sustainable finance (refer page 24 of Infratil's Sustainability Report), with the focus areas of the targets all having links to emissions reduction.

As a listed entity, a growing proportion of our equity investors use ESG ratings as an input into their investment decisions – these ratings invariably include climate considerations. Infratil has commenced engagement with a range of ESG rating agencies, with the aim of securing appropriate industry classifications and ultimately more accurate and improved ESG ratings for Infratil. This is important to Infratil as equity markets and ESG indices continue to evolve and mature, and as we look to secure appropriately priced, long-term capital for growth.

**Reputation:** In our sustainability strategy, we recognise that in order to have a reputation as an ESG leader, we need to be transparent, collaborative, follow credible ESG (and climate) standards and frameworks, and set ambitious targets. Our SBTi emissions reductions targets are one example of how we are seeking to achieve that objective; another example is the reporting standards and frameworks that we follow, as set out on page 23 of our Sustainability Report.

**Technology:** Infratil has a lens into the technology opportunities presented by climate change through our US\$100 million commitment to Clearvision, which we refer to on page 25 of our Sustainability Report. Climate-change related technology developments present new investment opportunities for Infratil and its portfolio companies

– for example next generation energy and storage technology as discussed on page 49 of our 2023 Annual Report, energy efficient building technology utilised by RetireAustralia in its Green Star rated village, The Verge (see page 20 of Infratil's Sustainability Report) and climate-resilient product developments such as One NZ's SpaceX collaboration (see page 32 of the Sustainability Report).

The Australian Government is planning to [implement mandatory climate-related financial disclosure requirements for companies and financial institutions](#), according to a new [consultation paper](#) launched by the Australian Treasury. Reporting requirements are planned to be phased in from 2024 for large businesses, with smaller entities to be covered by the rules over the following three years.

The paper also proposes a phased-in approach to the new climate-related reporting requirements, recognising some disclosure requirements will require time to build capabilities and expertise.

Larger entities, such as those that fulfill two of the three thresholds (over 500 employees, revenues over \$500 million and assets over \$1 billion) would be covered by the new rules beginning in 2024-2025, with medium-sized companies (250+ employees, \$200 million+ revenue, \$500 million+ assets) in 2026-2027, and smaller entities (100+ employees, \$50 million+ revenue, \$25 million+ assets) in 2027-2028.

The proposal also has phased-in requirements for reporting of Scope 3 emissions, scenario analysis and transition plans and mandatory assurance.

# Scenario analysis

## Risks

In preparation for the NZ Climate Standards' requirements, we have sought to evolve our approach to incorporate tools that will, in time, enable us to make more quantitative disclosures on the resilience of our portfolio companies and their assets to climate change.

We also expect to integrate the insights from this work into our business processes (risk reviews, valuation processes, investment and asset management processes and portfolio company engagement) as we continue to refine our approach.

Climate change presents transition and physical risks, as well as a range of opportunities, as described in the adjacent table.

Climate change impact	
Transition Risk	Definition Transitioning to a lower-carbon economy may entail extensive policy, legal, technology, and market changes to address mitigation and adaptation requirements related to climate change. Depending on the nature, speed, and focus of these changes, transition risks potentially pose varying levels of financial and reputational impacts.
Physical Risk	In the context of this report, physical risk is the risk of damage to the buildings, sites, and operations of assets because of greater exposure to the physical impacts of climate change. These might be acute risks, like the risk to damage from increasingly frequent or severe extreme weather events, or chronic risks, such as the risk of temperatures and sea levels continuing to gradually rise over time. Physical risks may have financial implications arising from direct impacts to assets or indirect impacts from disruption to supply chains and supporting infrastructure. Physical risks can also impact a company's financial performance via changes in water availability, extreme temperatures affecting operation of a site, or disruption to transport for staff, customers, and suppliers.
Opportunities	The transition to a low carbon economy can also present opportunities for organisations, for example the opportunity to invest in renewable energy generation development, cost savings from energy efficiency initiatives, and new digital services and products.



# Summary of scenarios and approach

## Climate scenario selection

As part of analysing our risks and opportunities, we have undertaken a range of scenario analyses to examine the impact of climate change on our businesses. To do so, we have conducted separate analyses of our climate-related physical risks and our climate-related transition risks and opportunities.

We have chosen to use climate scenarios developed by Oxford Economics for our analysis of transition risks and opportunities, and a broadly aligned suite of scenarios underpin the Jupiter Intelligence ('Jupiter') platform that we are using for our analysis of physical climate risks. Both sets of scenarios are subject to limitations and assumptions explained here and below under 'Challenges and uncertainties'

**Oxford Economics' Global Climate Service** adds climate factors from recognised sources<sup>6</sup> as well as its own bespoke modelling to its existing Global Economic Model. This allows us to ascertain key macroeconomic inputs for our valuation models under different climate scenarios. Inherent in the Oxford Economics models are a suite of assumptions around the macroeconomic impacts of climate policy responses.

A key challenge with using the outputs from these models is determining how to incorporate the long-term macro-economic factors into the terminal value<sup>7</sup> in our valuation models; another is determining the implications for each scenario on company-specific factors e.g. how a certain scenario might influence changes to specific maintenance and capex cost assumptions. Also, as we note in our healthcare platform analysis, the model outputs do not perfectly correlate with our valuation model inputs e.g. Oxford Economics do not provide any country-specific or global

population assumptions associated with each scenario.

**Jupiter Intelligence's ClimateScore Global** platform uses climate scenarios and data from the Intergovernmental Panel on Climate Change Sixth Assessment Report ('IPCC AR6') and the most recent Coupled Model Intercomparison Project ('CMIP6'). Whilst the Jupiter platform is sophisticated, it nonetheless faces known limitations inherent to any global climate model, the principal one being that weather is difficult to model – and this is particularly so for some 'perils' such as hail. Whilst the platform has a much higher degree of resolution than alternative models, there are still areas where Jupiter is working to refine its modelling, for example to get higher resolution elevation data. The Jupiter assessment of physical risk can take some resilience features into account, such as existing or proposed flood levees, but it cannot yet take into account other relevant infrastructure factors such as the quality or scale of stormwater infrastructure.

Both Oxford Economics and Jupiter's scenarios can be mapped to the IPCC AR6 Shared Socioeconomic Pathways ('SSPs') and the associated warming in degrees Celsius by 2100.

The SSPs build on the Representative Concentration Pathways ('RCPs') used in the previous IPCC report, which focused on the physical impacts by describing the radiative forcings (watts per m<sup>2</sup>) that occur under the different scenarios by 2100. The SSPs augment the physical impacts with narratives that outline societal choices under each scenario, such as policies, energy use and social cohesion. Further details on the climate scenarios specific to transition and physical risk analyses are set out in each of those sections.

The criteria underlying our choice of climate scenarios (for both the physical and transition components of our analysis) was that the scenarios need to be from credible sources that are appropriate for a global portfolio.

We have also considered the need to choose a range of scenarios that meet the regulatory reporting requirements (NZ CS1 clause 13 requires at least three scenarios, including a 1.5°C-aligned<sup>8</sup> and ≥3,0°C scenario). The scenarios are not intended to predict the future or be perceived as 'most likely' outcomes, rather they were selected to help us explore the resilience of our strategy and portfolio of investments to the impacts of climate change and any potential actions that could alleviate risks, take advantage of opportunities, or help to further our understanding of the potential impacts of climate change.

## Challenges and uncertainties

Our statements and conclusions reflect our current understanding as at December 2023 in respect of the twelve month period to 31 March 2023. We acknowledge that this will evolve over time and we believe it is important to communicate the challenges and uncertainties with the climate scenario analysis we have undertaken.

The most material uncertainty is the physical change to the climate itself, particularly over long-term horizons, given the climate is dynamic, involves feedback loops, interdependencies, and tipping points. The manifestation of different climate scenarios in terms of economic impacts, and physical impacts at specific locations involves complex modelling, with inherent uncertainties.

On top of this, our financial models involve inputs and assumptions and have limited time horizons – even our longest horizon valuation models do not

extend out as far as our longest climate scenario timeframe, other than through the terminal value.

Our other challenge is that Infratil's business covers multiple sectors – renewable energy, digital infrastructure, healthcare, an airport – that each face different climate-related risks and opportunities. Given this, we focused on each platform separately for our analysis on transition risks and opportunities. We have endeavoured to distil our findings into content that is readily digestible, while retaining a meaningful level of detail.

For physical impacts, we have chosen the use of software technology to analyse risks at the asset level, and graphical outputs to convey the insights. We want to emphasise to the reader that our physical climate risk assessment in this report is based on the level of exposure by number of sites, not on the financial impacts. We will look to incorporate a more value-based assessment as our engagement on the issue matures.

Finally, our representation of risk bands for physical and transition risks masks some of the nuances underlying the data. We have endeavoured to address this by providing some written context and will consider adding greater level of detail where appropriate in future reporting.

6. Including: [International Energy Agency Net Zero by 2050 Roadmap](#), [IPCC AR6](#) and [1.5°C Special Report](#) and [Network for Greening the Financial System scenarios](#).

7. This is an input into the model that reflects the value of the company beyond the forecasted period when future cash flows can be estimated.

8. We note that the Jupiter SPI1-2.6 scenario (shown on the next page) covers pathways which yield a temperature range of 1.4°C to 2.5°C, and a midpoint of 1.8°C which incorporates a 1.5°C aligned outcome.

# Potential future impacts:

## Physical risk assessment

### Introduction and context

Infratil has subscribed to a platform developed by Jupiter Intelligence ('Jupiter'), a Clearvision investee company, to assist with analysing physical climate risk for the assets in our portfolio. Jupiter was selected by Infratil for its global capability, flexibility, credibility, and high resolution – the software can provide insights down to a 90m<sup>2</sup> resolution, with each of those points in the model having over 11,700 associated pieces of climate data.

In June 2023, we collected geolocation data from each portfolio company to upload into the Jupiter ClimateScore Global platform, which allows us to extract insights on the exposure to various climate events ('perils') under various climate scenarios over a range of time periods for each site. The platform also enables analysis at a portfolio level, as well as having the flexibility to classify each geolocation by portfolio company and by sector to perform more segmented risk assessments.

We have input just over 300 geolocations into the Jupiter platform – this includes all the physical assets from across our portfolio businesses, except Galileo and Gurin (as they had no material assets as at 31 March 2023), as well as some sites in the companies' value chains.

The categories of sites included in the assessment are:

- (i) Owned assets. About 115 sites relate to owned assets such as data centres (one site per campus), owned generation sites, owned properties and retirement villages.
- (ii) Leased assets that house expensive 'owned' equipment e.g. there are about 160 diagnostic imaging clinics.
- (iii) Assets that are leased such as offices and call centres.
- (iv) Assets that are not owned or leased, that are part of a portfolio company's value chain eg: managed generation site, key access road, fibre access points.

The outputs of our assessment in this report are focused on the **number of sites** with various levels of exposure to each climate peril. This is not as significant as the assessment of the financial impacts (which is not yet complete), which would be determined by overlaying the vulnerability to the exposure and the value of the site to the business. We will seek to enrich our analysis with a greater level of quantification of **value at risk** in future climate reports

We intend to use the outputs we have obtained from the Jupiter modelling to inform discussions with our portfolio companies, to support better understanding of the physical risks from climate change for Infratil and its portfolio companies, including any existing or potential mitigants and controls, and any implications for business planning and/or strategy.

### Scenario analysis and timeframes for physical risk assessment

The Jupiter ClimateScore Global platform has the following attributes:

#### Scenarios

- (i) SSP1-2.6: this represents midpoint warming of ~1.8°C by 2100 (broadly aligns with our **Organised & Decisive** scenario<sup>9</sup> and a Paris-aligned trajectory)
- (ii) SSP2-4.5: this represents midpoint warming of ~2.7°C by 2100 (broadly aligns with current global climate commitments by governments<sup>10</sup>)
- (iii) SSP5-8.5: this represents midpoint warming of ~4.4°C by 2100 (broadly aligns with our **Too Little, Too Late** scenario<sup>9</sup>)

We note that as well as broadly meeting the NZ Climate Standards' criteria for at least three scenarios, the above also aligns with [Aotearoa New Zealand's first national adaptation plan](#) which recommends using scenarios (ii) and (iii) for hazard and risk assessments. An overview of the SSPs shown above is summarised in Appendix 1.

For internal purposes, we have undertaken modelling of all the above climate scenarios using the Jupiter platform. In this report, we detail the impacts from climate change observed between a SSP1-2.6 baseline (2020) and Jupiter's 'worst case' SSP5-8.5 scenario (in 2050) as this effectively 'book ends' the scenarios (and timeframes) from a physical climate risk perspective. In other words, the SSP5-8.5 scenario presents the most challenging set of results from the scenarios available in the Jupiter platform.

### Timeframes

The baseline year is 2020, which we have chosen to best reflect the present-day position. Jupiter can support analysis in future years on a 5-year incremental time scale out to 2100.

For internal purposes, we have undertaken modelling of the above climate scenarios across a range of timeframes from 2020 through to 2030 and out to 2050 using the Jupiter platform. However, for the purposes of this report, we have chosen to publish the impacts of the 'worst case' climate scenario (SSP5-8.5) modelled out to 2050 and compared the findings to the baseline (SSP1-2.6 in 2020). Selecting the furthest point of our long-term horizon (2050) for our analysis allows for a reasonable period of time for climate-related impacts to manifest, so presents the most extreme set of results of all the timeframes identified from a physical climate risk perspective.

### Return period

We have tested the resilience of the assets and sites associated with our portfolio companies on a 1/100-year basis for the acute perils i.e. looking at the extent of the exposure to a climate peril that currently has a 1% per annum chance of occurrence.

9. Used for the analysis of climate-related transition risks and opportunities covered in the next section starting on page 16

10. [Temperatures | Climate Action Tracker](#)



## Climate perils

We have explored the impact of eight climate perils on our portfolio company assets and operations, set out in the table below. In selecting these perils, we considered the options available in the Jupiter platform and the desire to present a broad suite of commonly referenced climate perils, particularly as these are our first climate disclosures.

In the future, as we refine our approach, we may narrow our focus to the most relevant perils for our businesses.

The Jupiter platform allows users to select different parameters e.g. a maximum temperature above 35°C or 38°C, but for our first scenario analysis, we have elected to use Jupiter's default settings as they reflect commonly used parameters.

The Jupiter platform assesses exposure in quintile bands, with 'Lowest' (dark blue) representing the bottom 20% of exposure and 'Highest' (purple) representing the top 20% of exposure.

The climate perils can be grouped into two types, chronic (gradual, long-term shifts) and acute (event driven).

Peril Type	Climate Peril	Description	Highest Exposure	High Exposure	Medium Exposure
Chronic	Extreme Heat	Mean days per annum where maximum temperature > 35°C	>30 days	20-30 days	10-20 days
	Extreme Cold	Mean days per annum where minimum temperature < 0°C	>100 days	60-100 days	15-60 days
	Water stress	Annual human water demand/water supply	>0.8	0.6-0.8	0.4-0.6
Acute	Fire	Number of wildfires expected in a 1km <sup>2</sup> grid cell per 100 years	>2 fires	0.8-2 fires	0.4-0.8 fires
	Flood <sup>11</sup>	1 in 100 year chance of experiencing a flood with a depth in metres	>3m	2-3m	1-2m
	Wind	1 in 100 year chance of experiencing a maximum 1-minute sustained wind speed (km/h)	>178km/h	119-178km/h	90-119km/h
	Precipitation	1 in 100 year chance of maximum daily rain (mm)	>250mm	200-250mm	150-200mm
	Hail	The number of days in a year where large hail (>5cm diameter) is possible	>3 days	2-3 days	1-2 days

The above exposure bands apply across all scenarios, but the proportion of sites in the bands will change under different scenarios and timeframes. For example, there will likely be fewer sites in the highest exposure band for extreme heat in 2020 under a SSP1-2.6 scenario than there is in 2050 under a SSP5-8.5 scenario.

Note, we are exploring **exposure** of our portfolio company assets and sites to the above climate perils. The **risks** that arise from these exposures will depend on the **vulnerability** of those assets and sites, which is something we intend to explore as a next step as part of the assessment of impact on value.

For example, a data centre might be exposed to extreme cold, but has low vulnerability to this peril, so the associated risk to the business is low. Conversely, a ground floor clinic might have a high exposure to rainfall, and if it is also vulnerable (for example, the stormwater infrastructure and flood resilience characteristics of the building are weak), that presents a high risk for that clinic (but a lower risk to the overall business, given it is one clinic of many).



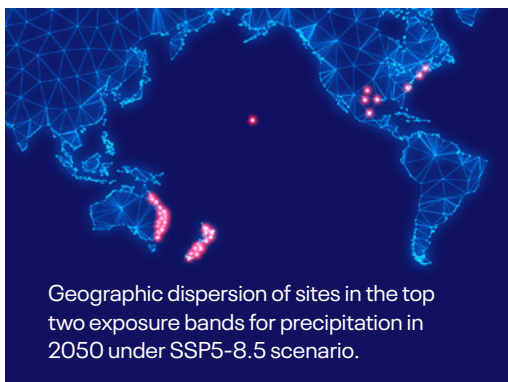
$$\text{Risk} = \text{Hazard} \times \text{Exposure} \times \text{Vulnerability}$$

11. This includes coastal flooding (from sea level rise, tides, and storm surge) and fluvial flooding (from and along rivers due to rainfall and severe storms)

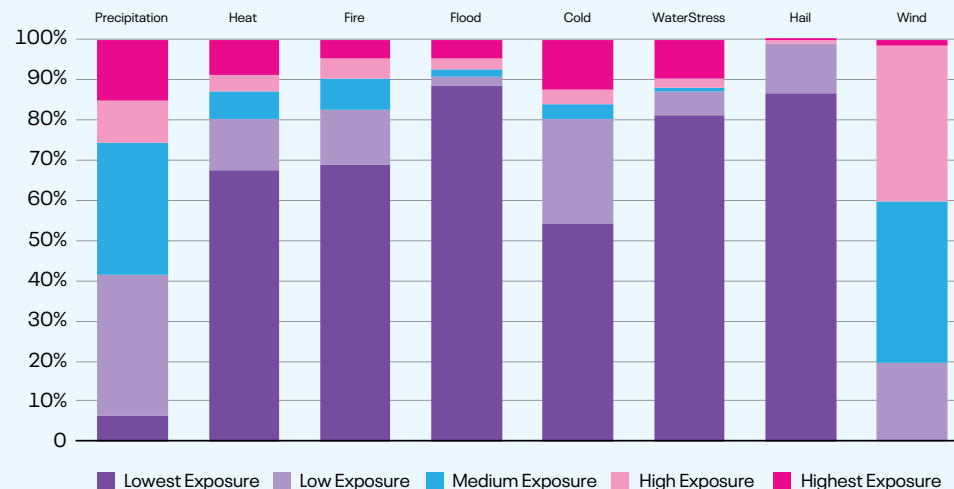
First, we explore physical climate risk at a portfolio level – again we note we have focused on the **number or proportion of sites in each exposure band** for each peril, rather than implying a value impact. The Jupiter ClimateScore Global platform has generated the graph (shown right) showing the projected proportion of sites that fall within each exposure band for the eight climate perils as at the baseline year, 2020:

Whilst these exposures remain relatively constant over time and across scenarios, we note that of the sites in the top two exposure bands for:

- **Wind:** most are buildings, hydro power stations and data centres, which are expected to be generally resilient to this risk
- **Fire:** over half relate to generation sites, many of which are in arid regions with little vegetation to create fire risk. Nonetheless, this is a risk that will need increasing focus to manage and mitigate. The balance of sites in the top exposure bands for fire are predominantly radiology clinics in Australia.
- **Flood:** most are hydro stations, and are designed to be resilient to this risk, though it is worth considering impacts to access and surrounding infrastructure.

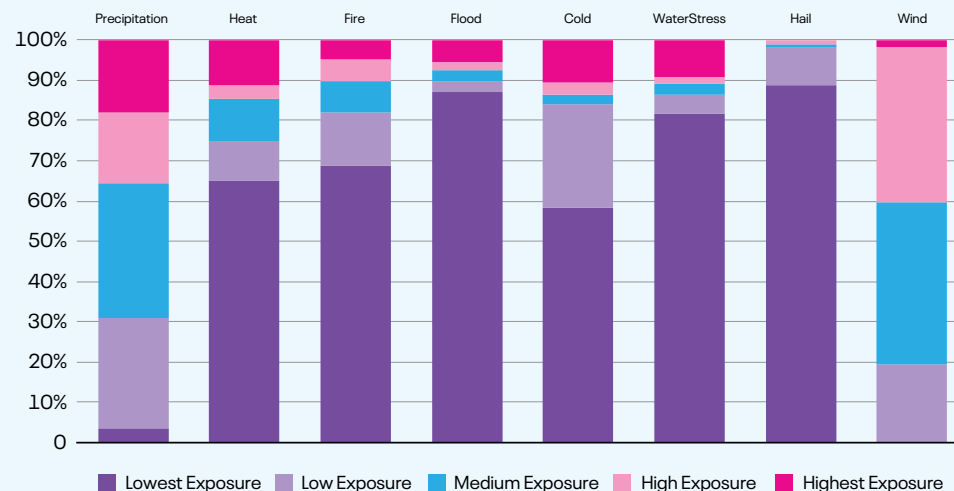


Proportion of assets/sites in each exposure band in 2020 (under SSP1-2.6 scenario)



Rolling forward to 2050 under a Too Little, Too Late scenario, the same set of sites is exposed to the eight climate perils as follows:

Proportion of assets/sites in each exposure band in 2050 (under SSP5-8.5 scenario)



## How does climate change impact the portfolio assets' exposure to the perils?

The charts show that the main modelled climate change impacts in the SSP5-8.5 scenario are likely to be an increased exposure to precipitation and extreme heat. Conversely, some sites are assessed as being less exposed to extreme cold and, to a lesser extent, hail.

- **Precipitation:** Exposure to this peril is forecast to increase by 2050, with an additional 30 sites moving into the top two bands. Whilst the resilience of these assets to this peril is worthy of further investigation, we note the broad dispersion across a range of locations (refer map), which provides a mitigation against the operational and financial impact of any one event.
- **Heat:** The number of assets in the top two bands increases from 37 in 2020 to 42 by 2050 – around half are solar sites, deliberately sited for sun, though extreme heat days may impact the ability of operations and maintenance work outside. The balance of sites in the top bands are predominantly healthcare assets, which may require greater air conditioning use, but are otherwise reasonably resilient to this peril; however heat stress is a relevant consideration for the three retirement villages in these bands.
- **Cold and hail:** Exposure to these perils reduces slightly by 2050. Assets in the top bands for these perils that see some reduction in exposure include clinics and hydropower stations in the South Island of New Zealand and some US solar and wind assets.



Another perspective is provided by Jupiter's 'Overall Hazard Score' graph.

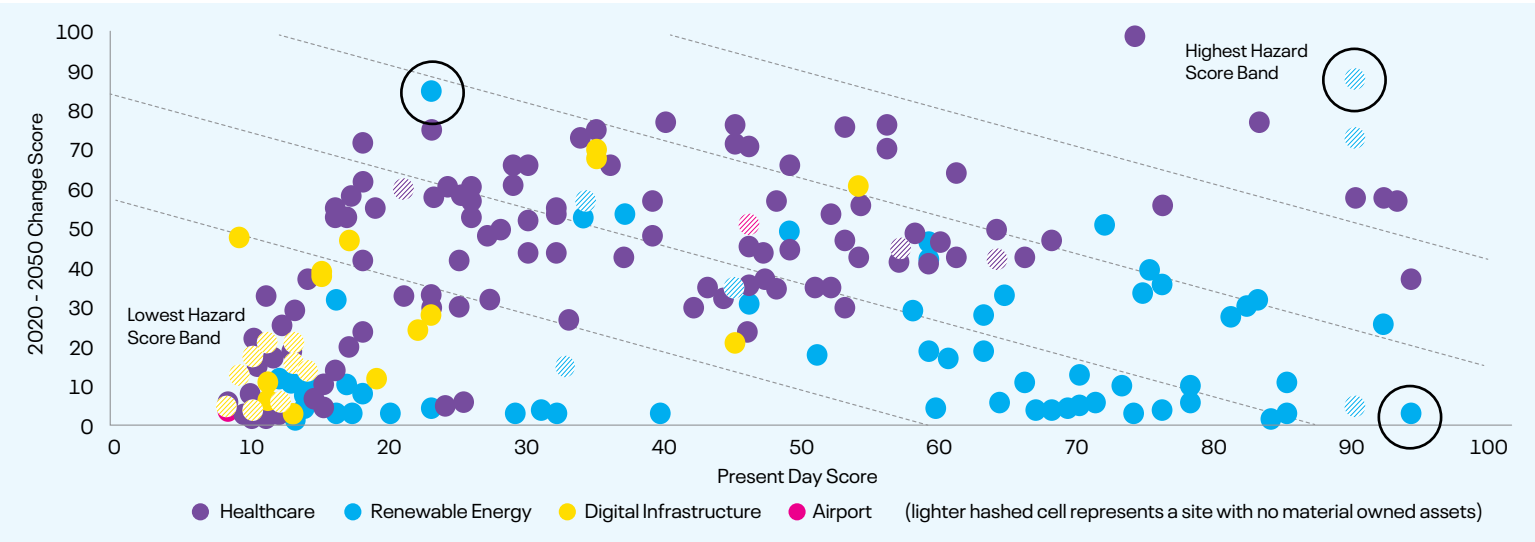
**The horizontal axis Present Day Score** is a score that, for each site, represents Jupiter's calculation for that site's weighted average exposure to all eight climate perils as at 2020 (a proxy for the Present Day). So, the blue dot sitting on the axis at the right-hand side of the graph, with a score of around 94 (circled), is highly exposed to climate perils today.

**The vertical axis 2020-2050 Change Score** is a score that, for each site, shows how much that site's exposure to climate perils changes between now and 2050 under the SSP5-8.5 scenario. So, the blue dot in the top right-hand corner of the graph is both highly exposed to climate perils today (with a Present Day Score of about 90), and the exposure is expected to change (increase) materially by 2050, with a Change Score of around 88 (as an aside, this is a leased office). The top left blue dot has a relatively low Present Day Score (23), but its exposure to climate perils is assessed by Jupiter as being very high (85), and at 55, its Overall Hazard Score is rated medium risk.

For each site, Jupiter calculates an **Overall Hazard Score** which reflects the combined risk factor presented by both its Present Day Score and its Change Score. The Overall Hazard Scores are not shown on the graph axes, instead we have divided the sites into risk bands, delineated by the light grey dashed lines. The sites with the top 20% of Overall Hazard Scores are in the highest risk band (in the top right-hand segment of the graph), and the sites with the lowest 20% of Overall Hazard Scores are in the lowest risk band (in the bottom left-hand segment of the graph).

The purpose of these scores is to provide insights for Infratil and its portfolio companies as to which sites are most worthy of further investigation – in and of themselves, the Risk, Change and Overall

Jupiter Overall Hazard Score : Infratil portfolio assets and sites by sector



Hazard Scores do not paint the full picture. We need to drill down to understand which peril(s) and what change(s) are driving the high score, how vulnerable the asset or business is to those perils or changes, the financial materiality of that impact, and identify any current or potential mitigants. Nonetheless, we can make a few initial observations and comments in relation to the Jupiter analysis shown above:

- Renewable assets** (blue) are deliberately sited for wind and sun, so we would expect to see some with a higher Present Day Score. Sites with a higher Change Score are predominantly solar assets. Six of the 71 sites (8%) are in the top two Overall Hazard Score bands, two of which are not owned. We note that the First Solar Series 6 panels have an operating temperature range of -40 to +85°C and at 35°C (the Jupiter threshold for extreme heat), the panels operate at about 3% below maximum efficiency.

- Digital assets** (yellow) largely have low-moderate Present Day and Change Scores, and only one site is in the top two Overall Hazard Score bands. Of the assets with a slightly higher Overall Hazard Score, we can see that four assets in Australia and New Zealand have some increased exposure to high rainfall events by 2050, and two sites in New Zealand have an increase in flood risk under the SSP5-8.5 scenario.
- Healthcare assets** (purple) show the greatest dispersion. These are largely clinics across New Zealand and Australia – any physical impacts from climate change on any individual clinic would not be expected to be material from a portfolio perspective. The main exposures (and perils that drive the Change Score) in this platform are precipitation (with about a 25% increase in the number of sites in the top exposure bands), followed by heat and water stress. Of the 17 healthcare assets in the top two Overall Hazard Score bands, one is a retirement village and the other 16 are clinics in Australia.

- Wellington Airport:** the most exposed site (pink stripes) is the northern access road, which is vulnerable to coastal flooding. Whilst important for passenger access, this road is not owned by the airport, it is the responsibility of local and central Government. Wellington Airport is engaging with the relevant agencies on resilience upgrades.

Overall Hazard Score		
Risk Band	Score	% Sites
Highest	80-100	2
High	60-79	6
Medium	40-59	21
Low	20-39	22
Lowest	0-19	49



CDC's Silverdale data centre, Auckland

### Mitigating physical climate risk

For Infratil, one of the key mitigants to risk, including risks associated with the physical impacts from climate change events, is diversification. Not only are Infratil's portfolio companies geographically and sector diverse, but the physical assets within the portfolio companies are also geographically diverse across the jurisdictions in which they operate, except for Wellington Airport.

Whilst a pervasive, systemic risk such as the exposure to the physical impacts from climate change cannot be avoided altogether, this diversification by geography, sector and asset type is expected to limit the financial impact from climate events in any one year.

Many of our portfolio companies are increasingly undertaking work on identifying, mitigating, and reducing risks to their assets from the physical impacts of climate change. In doing so, they deploy a range of mitigation strategies including insurance and incorporating resilience into design and construction.

Some examples include:

- Wellington Airport is investing in adaptive capacity of its assets by upgrading marine defences and stormwater infrastructure.
- As noted on page 7, Qscan rebuilt the flood-damaged Windsor clinic with a number of design features to improve resilience against any future rainfall events.
- CDC's data centres incorporate a range of design characteristics that support resilience against a range of risks, including physical climate risks.
- As noted on page 7, Longroad is trialling solar trackers that have special features to protect the solar panels from hail.



# Potential future impacts: transition risks and opportunities

To assess the potential transition impacts of climate change on our four platforms we took a dual approach utilising both qualitative and quantitative analysis.

Whilst Infratil's enterprise risk management system focuses on risks at the portfolio level, for the purposes of assessing transition risks and opportunities, we considered each platform separately, as we expect that they will each experience different impacts due to the varying nature of each sector.

Our analysis explored the climate-related transition risks and opportunities for each platform across short, medium, and long-term horizons under three climate scenarios as set out below.

## Summary of time horizons

As part of the analysis of Infratil's climate-related transition risks and opportunities, we have identified the time horizons over which to examine the impacts of climate change. In doing so, we considered our businesses' regular planning cycles, valuation horizons, risk criteria and long-term planning and investment time frames.

**Short-term time horizon** is defined as zero to three years (i.e. from 2023 to 2026), this broadly aligns to the budget cycle of Infratil and its businesses.

**Medium-term time horizon** is defined as three to ten years (i.e. from 2026 to 2033). As part of the process of undertaking valuations for each

portfolio company, we look to build a detailed financial forecast for up to 10 years covering operational expenditure, capital investment and potential regulatory outcomes. Infratil's target investment return is set over a 10 year horizon as set out on our website [here](#). Our SBTi targets have a time horizon in this band (2028 and 2030).

**Long-term time horizon** is defined 10 years out to 2050, which aligns to our strategic investment horizon – we have owned Manawa Energy since 1994 (29 years) – as well as reflecting the long-term nature of our infrastructure assets, many of which are built to last for decades. Our businesses often need to plan and contract for decades ahead, for example One NZ's contract with

Fortysouth is for 20 years with the option of two 10 year extensions, renewable energy generation consents and offtake agreements are often for tenors of a decade or longer, and the current Wellington Airport Masterplan goes out to 2040.

## Summary of scenarios explored

Below is a summary of the three scenarios which we have selected for climate change transition assessment. Further information on these scenarios and the assumptions behind them are outlined in Appendix 2.

Scenario	Organised & Decisive	Delayed & Disorganised	Too Little, Too Late
Temperature above pre-industrial levels (1850-1900)	2050 – 1.5°C 2100 – 1.5°C	2050 – 1.7°C 2100 – 1.7°C	2050 – 2.2°C 2100 – 5.0°C
Summary of Oxford Economics' Scenario Description	Immediate and coordinated global action by all stakeholders is undertaken to meet mitigation goals, this allows for a phased and moderate economic response with short-term economic pain inflicted as immediate steps are undertaken to reduce emissions for a long-term benefit.	Delayed and disorganised global action which requires a severe response by stakeholders to meet mitigation goals. This scenario is characterised by a delayed implementation of climate policies with significant action not implemented until 2030 though in the long run the economy benefits from the severe actions undertaken.	Limited climate action and failure in meeting Nationally Determined Contributions. <sup>12</sup> This scenario is characterised by little to no action towards climate policies and with increasingly severe economic impacts resulting from climate inaction as we move through the timeline with the long run outcome being significant impacts on day-to-day life and significant economic pain.

Oversight of the scenario modelling exercise has been provided by Morrison employees and Infratil representatives who sit on the boards of our portfolio companies and other sector experts.

12. [All About the NDCs | United Nations](#)

# Potential future impacts: transition risks and opportunities

## Quantitative assessment

In our quantitative modelling exercise, we used the valuation models that support the independent valuations of each of our portfolio companies to test the impact of different climate change scenarios on the valuation outputs. The main focus of this quantitative assessment was the 10 years to 2033 which aligns to the time period underlying our valuation models.

We adjusted our terminal value estimates to capture the impact of climate scenarios out to 2050. To model the financial impact of our chosen climate change scenarios, we used the Oxford Economics climate model scenario outputs to provide the macroeconomic scenario inputs into our valuation models. We also made assumptions about company-specific, non-macroeconomic variables that are expected to be impacted by the different climate change scenarios.

In the next sections we set out the initial findings from our quantitative and qualitative assessment for each platform. We have not provided specific details at this stage, given the uncertainties referred to earlier, and that we are relatively early-on in our assessment. We will continue to evolve our disclosures over time and, where possible, we will seek to provide greater clarity and quantification in future reports.

## Qualitative assessment

In our qualitative analysis we undertook an exercise with input from sector experts within Morrison to identify the potential climate-related risks faced by each of our platforms. We considered how each of our sector platforms are expected to perform in times of climate change related economic stress, and we considered how markets, governments, businesses and society might respond under each climate change scenario.

As part of the qualitative assessment, we identified a number of transition risks and opportunities that might be faced by each of our platforms. We explored how these might impact financial performance, for example, either through revenue gains or losses, increasing operational expenditure or capital expenditure, and we estimated the severity of the impacts under each scenario and over time.

As we worked through this assessment, we considered how our platforms may seek to mitigate the impacts of the identified transition risks or take advantage of identified opportunities. We also considered risks that relate to policy changes, technology, shifting market and consumer preferences and reputation.



CDC's Eastern Creek data centre, Sydney

## Summary of quantitative assessment

We assessed the climate transition impacts to the digital infrastructure platform from our three selected climate change scenarios using our internal valuation models.

Under the Too Little, Too Late scenario over the next ten years, we see the largest divergence in value for our digital infrastructure platform, with long-term global GDP growth declining towards zero as the impacts of climate change start to dramatically impact the macro-economy. We also anticipate higher maintenance costs and capex for our digital assets under this scenario as businesses respond to the physical impacts of climate change and seek to further enhance resilience, for example greater investment in initiatives to support security of supply for electricity. These factors present a drag on cashflows into the future, given the ability to pass through cost increases is likely to be more challenging in this scenario. Together these impacts – lower growth and higher costs – are shown by our modelling to result in a negative and growing deviation from our baseline valuations over the next ten years.

The modelled impact of the Delayed & Disorganised scenario shows relatively low deviation from baseline, given the countervailing forces – stronger growth in the short to medium term, but fewer transition opportunities than in the Organised and Decisive scenario.

The opportunities under an Organised & Decisive scenario (refer qualitative analysis) lead to value growth in the platform compared to our baseline valuations, particularly towards the end of the modelled ten year period, as economic growth strengthens.



# Digital infrastructure

## Risk/opportunity rating key



Horizon: Short (S), Medium (M), Long (L) term

## Qualitative analysis

Risks	Relevant Horizon	Organised & Decisive	Delayed & Disorganised	Too Little, Too Late	Comments/Mitigants
<b>Policy</b> changes lift requirements for building standards, putting upwards pressure on construction costs and/or requiring retrofits.	S-M				Over time, where relevant, we will engage with our portfolio companies to encourage them to 'stay ahead of the curve' on energy efficiency and building standards. Infratil and its portfolio companies aim to stay abreast of and engage in policy and regulatory developments. Risk impact will depend on the ability to pass through any increased costs.
New <b>technologies</b> required (e.g. low-carbon construction materials) which are more expensive and/or in scarce supply due to high demand.	M-L				Over time, where relevant, we will encourage our portfolio companies to: <ul style="list-style-type: none"> <li>- develop/maintain strong relationships with relevant suppliers</li> <li>- stay abreast of technology developments and explore the use of latest energy efficient technology in new builds/upgrades.</li> </ul>
Higher <b>market</b> cost of electricity due to:	higher carbon prices.	S-M			Over time, where relevant, we will encourage our portfolio companies to: <ul style="list-style-type: none"> <li>- implement energy efficiency measures to mitigate rising costs, particularly in relation to cooling systems and equipment.</li> <li>- work with customers and suppliers to encourage them to upgrade to energy efficient technology in a timely way.</li> </ul> For data centres, long-term contracts and pass-through of some electricity costs are risk mitigant.
	greater cooling demand and cost of physical climate impacts on electricity infrastructure.	M-L			
<b>Market</b> prices, terms and conditions for insurance becomes less attractive (and/or insurance availability declines).	M-L				Some of our portfolio companies are already starting to: <ul style="list-style-type: none"> <li>- engage with insurers on the risk profile for significant assets to improve pricing.</li> <li>- investigate and deploy measures to improve resilience to physical risks.</li> </ul> Risk impact will depend on the ability to pass through any increased costs.
<b>Market</b> preferences shift towards lower data usage, or lower-emissions options for digital/data needs.	S-M				Infratil encourages and supports its portfolio companies to take credible action to reduce emissions, and set SBTi targets.
<b>Reputational</b> considerations for lenders limit financial appetite/increase pricing for companies that are high emissions and/or not reducing emissions sufficiently.	S-M				

## Opportunities

Reduce costs and/or exposure to energy and carbon price volatility through energy efficiency initiatives and/or reducing carbon footprint.	S-M				Infratil supports and encourages its portfolio companies to understand, measure and reduce their emissions footprints, using recognised frameworks such as GRESB and SBTi. Blank cells in the Too Little, Too Late column reflect that the opportunity is not relevant or that stakeholders are expected to have ambivalent attitudes towards sustainability and climate initiatives in this scenario.
<b>Reputation:</b> Leverage strong sustainability and climate credentials to attract customers, capital and community support.	S-M-L				
Develop new <b>products/services</b> to support the transition to a low emission, climate resilient future.	S-M-L				For example, One NZ's SpaceX proposed offering is expected to support continued connectivity in face of disasters arising from the impacts of climate change.
Greater <b>market</b> demand for digital services e.g. for working from home/virtual meetings, technology infrastructure to support innovative climate solutions.	S-M-L				This demand may arise from a desire to reduce emissions (e.g. from commuting/travel, energy efficiency or grid optimisation) or it may be due to greater climate-related disruption (e.g. increased extreme weather events making commuting/travel difficult).

# Renewable energy platform



Longroad Energy El Campo wind farm, Texas

## Summary of quantitative assessment

We assessed the climate transition impacts to the renewable energy platform from our three selected climate change scenarios. Two of the key factors underpinning our modelling in each of the three climate change scenarios are the forecast energy demand and proportion of renewables in global energy supply.

Under the Organised & Decisive scenario, total global energy demand declines into the 2030s as consumers and businesses aggressively seek to reduce consumption through energy efficiency and other measures – against this, the proportion of renewable electricity grows.

Conversely, the Too Little, Too Late scenario sees a continued rise in global energy demand, but the proportion of renewables remains constant around today's levels. The Delayed & Disorganised energy profile sits between these two scenarios.

This presents opportunities for Infratil's renewable energy platform to grow across all scenarios and timeframes, albeit limited in the Organised & Decisive and Delayed & Disorganised scenarios by the large build-out of competing renewable energy generation assumed under those scenarios.

With the strongest suite of supportive policies and incentives, the modelled impact under the Organised & Decisive scenario presents an overall modest upside to baseline.

# Renewable energy platform



### Qualitative analysis

Risks	Relevant Horizon	Organised & Decisive	Delayed & Disorganised	Too Little, Too Late	Comments/Mitigants
<b>Market</b> demand for renewables decreases – either as a result of overall energy demand decreasing and/or as a result of apathy towards decarbonisation of the energy system.	M-L				As covered above, our models suggest Infratil's renewable energy platform has opportunities for growth under all scenarios, though energy demand and the rate of energy transition are factors worth continuously monitoring. Having a portfolio that is diversified across geographies and jurisdictions that may diverge in this regard is expected to act as a mitigant to this risk, whilst also providing broad-based exposure to opportunities.
<b>Policy</b> changes increase consenting and compliance costs and/or reducing incentives for new and existing developments.	S-M				Infratil and its portfolio companies aim to stay abreast of and engage in proposed changes to regulatory/consenting rules. Governments and regulators are aware of the need for new renewable generation, which limits the risk of burdensome changes under Organised & Decisive and Delayed & Disorganised scenarios. Risk impact will depend on the ability to pass through any increased costs.
Competitors might more rapidly deploy new energy <b>technologies</b> which might emerge that are more cost effective, efficient or have other features more attractive than current renewable energy technology.	M-L				Infratil and its portfolio companies aim to stay abreast of emerging technology developments, including through engaging with experts, in industry forums and (for portfolio companies) suppliers. Morrison's global energy expertise is helpful in this regard. Through Infratil-nominated board positions, we will support exploring, where appropriate, deployment of the latest generation technology in new builds/upgrades.
Grid access and capacity become further constrained as <b>market</b> demand for connections grows and 'must run' renewable generation increases creating peaks in market supply which increase the risk of curtailment.	S-M				Where feasible, and practicable, Infratil's renewable energy portfolio companies seek: <ul style="list-style-type: none"><li>- geographical diversity of generation to avoid too much supply in any given location</li><li>- to investigate/deploy storage options for grid excess either through battery technology or other types of grid scale storage.</li><li>- to secure sites with the ability to sell into multiple markets and/or manage via offtake contract terms.</li></ul> A related opportunity associated with this risk is that existing generation sites and secured development opportunities with good grid connectivity characteristics may become more valuable.
Intense <b>market</b> competition for new project sites as capital flows into renewable energy development.	S-M				To mitigate this risk, where feasible and practicable, Infratil's renewable portfolio companies could seek to: <ul style="list-style-type: none"><li>- enter into contracting arrangements to secure revenue for generation projects.</li><li>- secure options/sites for future development projects where appropriate.</li></ul>
Supply chain constraints arise from high <b>market</b> demand for components for renewable energy generation. Additional pressure on the supply chain may arise from raw material shortages, political instability, or <b>regulatory changes</b> .	S-M-L				We encourage our portfolio companies to develop/maintain strong supplier relationships. Longroad's relationship with First Solar is a good example of this. Additionally, our portfolio companies can leverage the Infratil group 'buying power' to support supply chain access. A related opportunity associated with this risk is that existing generation sites and secured development opportunities with good grid connectivity characteristics may become more valuable.
<b>Market</b> prices, terms and conditions for insurance becomes less attractive (and/or insurance availability declines).	S-M-L				Some of our portfolio companies are already starting to: <ul style="list-style-type: none"><li>- engage with insurers on the risk profile for significant assets to improve pricing.</li><li>- investigate and deploy measures to improve resilience to physical risks.</li></ul> Risk impact will depend on the ability to pass through any increased costs.
Increasing focus on reducing embodied carbon in generation equipment (and/or costs increase due to higher <b>market</b> prices for carbon).	M				Over time, where relevant, we will encourage our portfolio companies to: <ul style="list-style-type: none"><li>- develop/maintain strong relationships with relevant suppliers</li><li>- stay abreast of technology developments &amp; deploy low carbon technology in new builds/upgrades where feasible</li></ul> Risk impact will depend on the ability to pass through any increased costs.

### Opportunities

Climate-friendly <b>regulations/policy</b> provide incentives to develop renewable energy generation and/or increase demand for clean energy.	S-M				Infratil and its portfolio companies are focused on staying abreast of, and engaging in, regulatory developments in relation to clean energy. Diversity across a range of jurisdictions increases the likelihood of being exposed to positive policy changes. This is not seen as an opportunity under the Too Little, Too Late scenario, as there are unlikely to be climate-friendly regulations.
New renewable energy generation, storage and transmission <b>technologies</b> might emerge that reduce costs, increase generation, or have other attractive features.	S-M				Infratil and its portfolio companies aim to stay abreast of emerging technology developments, including through engaging with experts in industry forums and (for portfolio companies) suppliers. Morrison's global energy expertise is helpful in this regard.
The drive to decarbonise increases <b>market</b> demand for renewable energy from existing and novel/emerging technologies (e.g. sustainable aviation, green hydrogen, ammonia), which presents new investment opportunities.	M-L				Whilst technology developments might emerge under the Too Little, Too Late scenario, they are somewhat less likely – and the imperative for novel/more challenging innovations such as green hydrogen is a low probability under this scenario (hence this cell is blank).
<b>Reputation:</b> Leverage strong sustainability, climate, and resilience credentials to attract customers/contracts, capital, and community support.	S-M-L				Infratil supports and encourages its portfolio companies to understand, measure and reduce their emissions footprints, using credible frameworks such as GRESB and SBTi. The blank cell in the Too Little, Too Late column reflects that stakeholders are expected to have ambivalent attitudes towards sustainability and climate initiatives in this scenario.



# Healthcare platform



As a preamble to the next two sections, it is worth noting that our quantitative and qualitative assessments of the healthcare and airport platforms need to be taken in context of their scale relative to the wider portfolio.

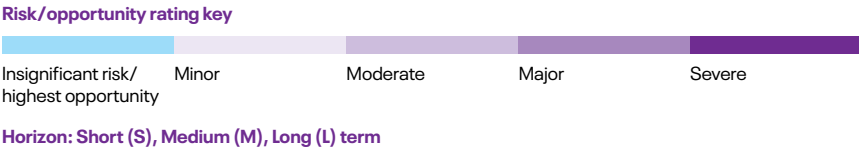
As at 31 March 2023, the healthcare and airport platforms made up about 14% and 7% of the fair value of Infratil's total investment portfolio respectively, compared to digital (57%) and renewables (21%). Whilst we have endeavoured to use the rating key to consistently reflect the financial impact at the portfolio level, we also needed to show sufficient nuance for the smaller platforms to distinguish where risks are relevant or not. So, a 'minor' risk for the healthcare or airport platforms is likely to have a lower dollar impact than the same grade risk for digital or renewables.

## Summary of quantitative assessment

We assessed the climate transition impacts to the healthcare platform from our three selected climate change scenarios. Our modelling for our healthcare platform shows that over the next ten years under all three scenarios, the impact to Infratil is expected to be less significant than the corresponding impacts from the other portfolios. There is an expectation that healthcare businesses such as diagnostic imaging will continue to grow under all climate scenarios.

Oxford Economics assumptions did not provide a forecast for population growth, as an alternative we estimate GDP growth is a reasonable proxy for population growth and have used this assumption to estimate demand for healthcare services. As a result, scanning volumes continue to grow under all climate scenarios, albeit at a slower rate in the Too Little, Too Late scenario which assumes macro-economic growth slows and unemployment increases.

Under the Delayed & Disorganised scenario, property valuations are set on a lower trajectory in response to the sudden and severe impact to the economy as governments and businesses eventually take swift action to address climate change, which sees a negative impact to value compared to baseline slightly higher than that modelled under the Too Little, Too Late scenario.



Qualitative analysis

Risks		Relevant Horizon	Organised & Decisive	Delayed & Disorganised	Too Little, Too Late	Comments/Mitigants
<b>Market</b> values for property respond negatively to economic conditions resulting from policy responses to address climate change.		M-L				This risk relates to RetireAustralia, currently the only portfolio company whose valuation is highly correlated to general property prices. As at 31 March 2023, RetireAustralia made up less than 5% of Infratil's overall investment portfolio (by fair value).
<b>Policy changes</b> lift requirements for building standards, putting upwards pressure on construction costs or requiring retrofits (impacting retirement village sector more than diagnostic imaging).		S-M				Over time, where relevant, we will engage with our portfolio companies to encourage them to 'stay ahead of the curve' on energy efficiency and building standards. Infratil and its portfolio companies aim to stay abreast of and engage in policy and regulatory developments. Risk impact will depend on the ability to pass through any increased costs to portfolio company customers.
New <b>technologies</b> required (e.g. low-carbon construction materials, energy efficient diagnostic equipment) which are more expensive and/or in scarce supply due to high demand.		M-L				Over time, where relevant, we will encourage our portfolio companies to: - develop/maintain strong relationships with relevant suppliers. - stay abreast of technology developments and explore the use of latest energy efficient technology in new builds/upgrades.
Higher <b>market</b> cost of electricity due to:	higher carbon prices.	S-M				Our healthcare companies have already started implement energy efficiency measures to mitigate rising costs, particularly in relation to heating, ventilation and air conditioning systems and diagnostic equipment. Page 38 of Infratil's Sustainability Report sets out some information of how RHCNZ is selecting and deploying energy efficient equipment. For retirement villages, deploying distributed renewable energy solutions such as rooftop solar will reduce carbon emissions and may improve security of supply/resilience. Page 20 of Infratil's Sustainability Report sets out an example of how RetireAustralia is focusing on these issues at The Verge retirement village. Risk impact will depend on the ability to pass through any increased costs.
	greater cooling demand and cost of physical climate impacts on electricity infrastructure.	M-L				
<b>Market</b> prices, terms and conditions for insurance becomes less attractive (and/or insurance availability declines).		M-L				Some of our portfolio companies are already starting to: - engage with insurers on the risk profile for significant assets to improve pricing. - investigate options to reduce insurance costs, measures to improve resilience to climate impacts. Risk impact will depend on the ability to pass through any increased costs.
<b>Reputational</b> considerations for lenders limit financial appetite/increase pricing for companies that are high emissions and/or not reducing emissions sufficiently.		S-M				Infratil encourages and supports its portfolio companies to take credible action to reduce emissions and set SBTi targets.

Opportunities

Reduce costs and/or exposure to energy and carbon price volatility through energy efficiency initiatives and/or reducing carbon footprint.	S-M				Infratil supports and encourages its portfolio companies to understand, measure and reduce their emissions footprints, using credible frameworks such as GRESB and SBTi.
<b>Reputation:</b> Leverage strong sustainability and climate credentials to attract customers, capital and community support.	S-M-L				Blank cells in the Too Little, Too Late column reflect that the opportunity is not relevant or that stakeholders are expected to have ambivalent attitudes towards sustainability and climate initiatives in this scenario.



# Airport platform



Wellington Airport

## Summary of quantitative assessment

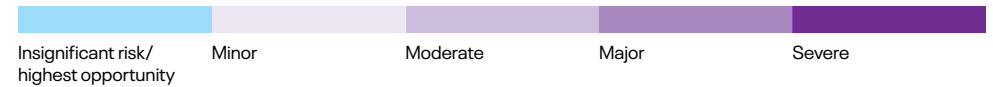
Due to our airport platform consisting solely of Wellington Airport, the risks and opportunities faced by this platform are those faced by Wellington Airport. We have leveraged the work already done by Wellington Airport to inform our own qualitative analysis of transition risks and the impact of climate scenarios on the platform. Wellington Airport is undergoing its own exercise to examine the impacts of climate risks on the business, and we continue to work with them to inform our collective view of climate impacts.

Wellington Airport recently released its first climate-related disclosures, available [here](#).



# Airport platform

## Risk/opportunity rating key



## Qualitative analysis

Risks		Relevant Horizon	Organised & Decisive	Delayed & Disorganised	Too Little, Too Late	Comments/Mitigants
Government <b>regulation/policy</b> results in:	increased costs (e.g. from higher carbon prices)	S-M				Wellington Airport is working to reduce its operational emissions footprint. The company engages with Government on regulatory and legislative changes and is working to provide infrastructure to support a shift to more sustainable aviation.
	a cap or reduction in passenger numbers or increase in opex/capex	M				Wellington Airport has started to incorporate assessment of infrastructure required for novel aircraft into its forecasting.
New <b>technologies</b> deployed by airlines (Sustainable Aviation Fuel, electrification of aircraft) which are more expensive and reduce passenger demand.		M-L				Airlines have strong incentives to drive a commercially viable transition to sustainable aviation. Wellington Airport is working alongside the aviation sector to achieve this outcome.
<b>Reputational</b> considerations e.g. if the airport fails to make credible progress on targets; or lenders limit financial appetite/increase pricing for companies that are high emissions and/or not reducing emissions sufficiently.		S-M				Wellington Airport regularly engages with its stakeholders, is working on emissions reduction initiatives, is seeking to improve its Airport Carbon Accreditation rating and has committed to set a SBTi validated target. Sustainable finance can act as a mitigant to this risk - targets relating to the abovementioned initiatives have recently been embedded in some of Wellington Airport's funding through <a href="#">sustainability linked loans</a> .

## Opportunities

Introduction of low-carbon flights provides a <b>market</b> opportunity for a low emissions service that competes with alternative carbon-dependent transport options.	S-M-L				For example, electric aircraft on short-haul routes might become an attractive, sustainable transport option compared to car or ferry. Wellington Airport is currently engaged in initiatives to support low/zero emissions flights - refer pages 16-23 of its <a href="#">2023 Kaitiakitanga Report</a> .  The blank cell in the Too Little, Too Late column reflects that stakeholders are expected to have ambivalent attitudes towards sustainable aviation initiatives in this scenario.
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# Summary – transition scenario analysis

In summary, the key findings from our transition related scenario analysis are:

- **In the short term**, the greatest impacts on the world economy would occur under an Organised & Decisive transition, where we might see immediate pro-climate legislative change and rapid shifts in consumer sentiment towards climate friendly choices. Under this scenario, our quantitative analysis shows our platforms would generally perform well with low expected negative impacts from potential transition risks.
- **In the medium term**, our portfolio is expected to face greater transition risk under the Organised & Decisive and Delayed & Disorganised transition scenarios, as decarbonisation policies and consumer preferences get embedded into the economy. This points to a need to keep exploring mitigation strategies in our platforms, such as setting emissions reduction targets and securing key supply chain inputs, with an emphasis on their sustainability characteristics.
- **In the long term**, our quantitative analysis shows the greatest negative impact to value of the portfolio from a Too Little, Too Late scenario. This is because in that scenario economic growth is severely impacted by climactic conditions; inputs, capex, and maintenance costs increase, and limited consumer discretionary income makes pass through of costs more challenging.

- **Opportunities:** Each platform faces varying levels of opportunity under a transition towards a low carbon economy, with the Organised & Decisive and Delayed & Disorganised scenarios presenting the greatest potential for positive impacts to valuation relative to baseline.

For example, under these scenarios our renewable energy platform is expected to present a better than baseline investment opportunity, and Wellington Airport is expected to have an opportunity to enable electric regional flights by providing suitable charging facilities.

To fully embrace our identified opportunities, we would need to continually assess new technologies as they are developed, explore the adjacent products and services our portfolio companies might provide to support the transition and meet customer demands for low emissions, sustainable products and services.

We believe our portfolio companies can play a critical role in the transition towards a low carbon economy, whether through enabling the transition to a low-emissions energy system via our renewable energy platform, or by providing the technology infrastructure required to support breakthroughs and innovations to accelerate decarbonisation.

## Embedding the findings in our strategy and next steps

The findings from our assessment, and the tools that we have developed in the process, build on Infratil's knowledge of climate-related risks and opportunities in relation to our portfolio. Going forward, we aim to:

- engage with Morrison's asset managers and sector experts on continued identification of risks, as well as opportunities that are likely to be faced by Infratil's platforms.
- continue the assessment of physical and transition climate risks as a component of our investment criteria and due diligence process, using the more sophisticated tools and modelling approaches that we have recently adopted.
- engage with our portfolio companies to explore the assets and sites that are assessed as being in the top categories exposure to climate perils. We will seek to understand the vulnerability to those perils, the financial impacts of any material risks, and to identify existing and potential mitigants.
- leverage insights on the transition risks and opportunities identified within this report to inform our conversations with our portfolio companies and support discussions on how they might influence strategies and actions.
- build on our initial quantitative assessment by increasing the sophistication of our modelling, especially in relation to our assumptions as to how assets respond under different climate scenarios. For example, how our capital expenditure might differ between an Organised & Decisive scenario and the Too Little, Too Late scenario.

We expect to continue to build on the analysis outlined in this report with iterative updates to both our qualitative and quantitative assessment processes, which we expect we will revisit at least annually to inform future climate disclosures. Our regular risk processes, covered in the next section, will incorporate findings from our climate risk analysis.

# Risk Management

Managing risks, including climate risks, and integrating ESG and climate considerations throughout the investment lifecycle are key factors that support the long-term success and resilience of our business, and that of our portfolio companies. There are three approaches with Infratil's portfolio that, in combination, act as key mitigants to the impact of climate-related physical and transition risks:

- Diversification:** Infratil's investments are diverse by sector, geography, and asset type. Most of Infratil's portfolio companies also have a broad geographic distribution of their own assets across the jurisdictions in which they operate, which provides protection against a range of climate-related risks.
- Exclusion:** Infratil's Exclusion Policy, summarised below, limits Infratil's exposure to businesses that are likely to be materially impacted under the Organised & Decisive or Delayed & Disorganised scenarios.
- Engagement:** Infratil engages with its portfolio companies on ESG matters, including in relation

to climate-related risks and opportunities, and is seeking to improve and mature our approach to assessing these risks and opportunities.

### Risk Management processes

Infratil includes assessment of climate risk as part of its broader approach to risk management through its enterprise risk management system, which is summarised in the diagram on the right. Infratil commenced a refresh of its risk framework and risk register in 2023, which is planned to be finalised in 2024. Workshops were held with sector teams to identify principal risks, including, where relevant, climate-related risks that are material to Infratil. These risks were then assigned to one of Infratil's four principal risk categories: portfolio; operational; stakeholder management; and regulatory and compliance; with climate-related risks appearing in each category. In many cases, climate-related risks are an aspect of a broader risk, for example, the risk 'attracting and retaining talent' makes specific reference to having sufficient climate expertise within the business.

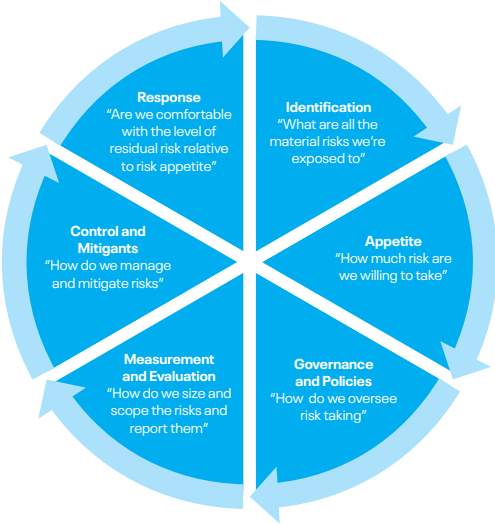
More recently, Infratil's sustainability and climate-related risk assessments have been able to draw on insights from Infratil's 2023 ESG materiality assessment, our Jupiter climate physical risk assessment (see page 11) and our climate transition risk modelling (see page 16).

All risks, including climate-related risks, undergo the same risk assessment process, though the approach may differ depending on the nature of the risk. Infratil applies a '5 x 5' risk matrix and assessment methodology for assessing each risk; assigning a likelihood rating (from rare over a long-term 10-year horizon, through to almost certain in the next six months) and impact rating (from no impact through to severe impact), producing an overall risk score which is plotted on a risk 'heat map'.

When preparing the heat map, the likelihood and impact for some climate risks, such as ESG litigation and stakeholder activism, are quantified using subjective judgement, informed by market precedents and adjusted for the nature of Infratil's portfolio. We are starting to quantify other climate-related risks, such as physical and transition risks using available tools and technology – further details on Infratil's approach and the time horizons considered are set out in the Strategy section of this report.

Morrison, on behalf of Infratil, provides regular reporting to the ARC, approximately every six months. All risks in the register are assessed and reported via the heatmaps, along with the controls and treatments for those risks, and commentary on those risks with the highest residual risk rating. Under the recently refreshed risk framework, if a risk has crystallised, or is assessed as being outside defined risk appetite levels, this is to be escalated to the Board. Particular attention is given to strategic risks that have the potential to materially impact the overall performance of the Infratil portfolio.

### Infratil's approach to risk management



### Portfolio companies

Through our asset management processes and board representation, Infratil looks to the board and management teams of each portfolio company to have robust governance and risk management processes in place to effectively identify, assess and monitor the operational and strategic risks relevant to each individual business, including in relation to climate change.

As part of our approach to responsible investment, Infratil will not invest in organisations that derive material earnings directly from activities that, in our view can harm the environment, such as:

Extracting, processing and transportation of thermal coal

Oil exploration and production

Generating electricity using fossil fuels\*

\* Unless we are satisfied the entity has or can feasibly develop a credible 1.5°C aligned transition plan and will commit to setting emissions reduction targets that are validated by the Science Based Targets initiative (SBTi).



# Metrics and Targets



Longroad Energy's Sun Streams 2, solar farm, Arizona

13. The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2018) (the GHG Protocol)

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

## Operational boundary

Infratil is an infrastructure investor with no directly employed staff, offices, facilities or direct products or services. The management of Infratil's investments is undertaken by its Manager, Morrison. Infratil owns no material assets other than its portfolio investments and cash deposits from time to time. Infratil therefore has no Scope 1 or 2 emissions. The material sources of emissions for Infratil are therefore all Scope 3 emissions.

The dominant source of Infratil's Scope 3 emissions is from emissions associated with our investment portfolio. We also report emissions associated with Infratil Board travel. Infratil measures and reports emissions in line with the GHG Protocol<sup>13</sup>, PCAF<sup>14</sup> and its Basis of Preparation.

In accordance with PCAF, Infratil reports its share of emissions from each portfolio company in proportion to Infratil's share of total capital associated with that company (including both debt and equity).

By way of example, for an entity with \$1 million of debt and \$5 million of equity, if Infratil owns a 40% stake in the equity (\$2 million), it will report  $2/(1+5) = 33\%$  of the entity's emissions as being attributable to its investment. The proportion of emissions allocated, here 33%, is known as the **attribution factor**.

Infratil has adopted the operational control approach, with all portfolio companies treated as investments and therefore emissions from the portfolio companies reported in Scope 3 Category 15 (investments). Further rationale and details can be found in Infratil's Basis of Preparation. Infratil has sought independent, expert advice that supports this approach. KPMG undertook a review of Infratil's FY2022 GHG emissions data and provided limited assurance over Infratil's FY2023 GHG emissions data.

When reporting its own Scope 3 Category 15 (investments) emissions, i.e. the attribution of the emissions of its portfolio companies, Infratil includes its portfolio companies' Scope 1 and 2 emissions. Although Infratil has also obtained some Scope 3 emissions data from some of its portfolio companies (i.e. the upstream and downstream emissions of the portfolio company itself), these Scope 3 emissions are not included in Infratil's reporting. Further work needs to be done to expand the scope and quality of this data, which will be increasingly included over time.

## Organisational boundary

As set out in Infratil's Basis of Preparation document, and in line with the GHG Protocol, Infratil has set organisational boundaries that capture the most material emissions, while endeavouring to optimise consistency, transparency, and relevance.

For the purposes of emissions reporting in this report, companies included in the emissions reporting boundary are as per the Sustainability Report (page 4).

## Climate metrics

Measuring the emissions performance of Infratil's investment portfolio through market-standard metrics provides stakeholders with information to understand the emissions and climate-related characteristics of Infratil's portfolio, and how they compare with recognised market benchmarks. As well as reporting operational and financed emissions, on the next page we provide additional climate metrics relevant to Infratil, including some of those referenced in NZ CS1.

# Metrics and Targets

Metrics		
Metric	FY2023	Comment
Weighted Average Carbon Intensity – portfolio company Scope 1 & 2 emissions	57.9tCO <sub>2</sub> e/US\$million revenue 36.3tCO <sub>2</sub> e/NZ\$million revenue	The Weighted Average Carbon Intensity (‘WACI’) of Infratil’s portfolio reflects the carbon emissions associated with Infratil’s portfolio company investments per million dollars of each portfolio company’s revenue. Individual company WACI is aggregated on a weighted basis, according to the company’s fair value compared to the portfolio fair value. WACI provides insight into emissions intensity on an activity basis and is useful for comparison within sectors, to gain an understanding of each company’s ‘carbon efficiency’ relative to its industry peers.
Economic Emissions Intensity – portfolio company Scope 1 & 2 emissions	3.4 tCO <sub>2</sub> e/US\$million invested 2.1 tCO <sub>2</sub> e/NZ\$million invested	Economic Emissions Intensity (‘EEI’) is an alternative measure of emissions intensity to WACI. It reflects the carbon emissions associated with Infratil’s portfolio company investments against every million dollars of money invested by Infratil. EEI provides insight into the emissions relative to the value invested and allows for normalisation of emissions intensity where portfolio value is growing over time. It is useful for comparison of Infratil’s portfolio against other portfolios or funds.
Portfolio coverage – validated SBTi targets	0% of portfolio companies (by value) have validated SBTi emissions reduction targets in place	Infratil plans to monitor the SBTi portfolio coverage metric and include reporting of progress against the target in future reporting.  We note that subsequent to the FY2023 reporting period, Wellington Airport has committed to setting a SBTi emissions reduction target.
Portfolio coverage – commitment to SBTi targets	0% of portfolio companies (by value) have committed to setting SBTi emissions reduction targets	
Portfolio Temperature Rating (‘PTR’)	The default rating with no SBTi targets in place across the portfolio is 3.2°C	PTR is the implied temperature increase associated with the investments in Infratil’s portfolio. If 100% of companies in a portfolio have 1.5°C aligned emissions reduction targets, then the PTR is 1.5°C; if no companies in the portfolio have an emissions reduction target, the PTR is the ‘default rating’ temperature rise of 3.2°C under the SBTi methodology. When one or more of Infratil’s portfolio companies have emissions reduction targets validated by the SBTi, we will consider reporting the PTR for our portfolio.
Amount or percentage of revenue, assets, or other business activities aligned with climate-related opportunities	\$2.1 billion	Fair value of Infratil’s investment in our renewable energy platform as per page 31 of Infratil’s FY2023 Annual Report. We have not yet quantified the value or percentage of other climate-related opportunities in the other platforms.
Amount of investment deployed toward climate-related risks and opportunities	\$0.5 billion (does not include Wellington Airport capital deployment referred to in the commentary)	The value of Infratil’s proportionate capital expenditure and investment relating to portfolio companies in its renewable energy platform as per page 30 of Infratil’s FY2023 Annual Report. In its recently released climate disclosures, Wellington Airport outlines \$1.8 million capital deployment on climate-related initiatives for FY2024 and \$129.2 million out to FY2034. We have not yet quantified the value of other climate-related capital contributions.
Installed renewable electricity generation capacity (owned)	2.1GW	Total renewable electricity generation capacity of the portfolio companies in Infratil’s renewable energy platform*.
Renewable electricity generation (owned)	5.8GWh	Total renewable electricity generation of the portfolio companies in Infratil’s renewable energy platform*.
Renewable electricity generation pipeline	Over 30GW	FY2023 renewable energy platform development pipeline as per page 49 of Infratil’s FY2023 Annual Report*.
Internal emissions price	n/a	Infratil does not have a formal internal emissions price embedded in its processes, other than the carbon price observed through trading in the New Zealand Emissions Trading Scheme (‘ETS’), which averaged over NZ\$75 per tonne of CO <sub>2</sub> e in FY2023 (about US\$47). This carbon cost impacts Infratil’s New Zealand-based portfolio companies (One NZ, Manawa Energy, Wellington Airport and RHCNZ) through a range of mechanisms: direct costs for any required purchases under the scheme and indirectly through fuel costs, electricity prices (to the extent any supply is not renewable) and value chains. The point of obligation under the ETS – where emissions are reported and priced – is generally set as far up the supply chain as possible, so carbon price impacts are predominantly indirect.
Management remuneration linked to climate-related risks or opportunities	n/a	With no directly employed staff, Infratil does not set any remuneration linked to climate risks and opportunities, however some of our portfolio companies have such pay structures in place.
Amount or percentage of assets or business activities vulnerable to transition risks	n/a	We have started the process of assessing the impact of transition risk under various climate change scenarios on each of Infratil’s platforms but given the early stage of developing our approach and inherent uncertainties, we have not as yet disclosed any quantification of these risks.
Amount or percentage of assets or business activities vulnerable to physical risks	n/a	To date our processes have identified the assets and sites that are exposed to physical risk under different climate change scenarios, we have not yet determined vulnerability to the climate perils, nor have we yet quantified the financial impacts for assets and sites that are highly exposed and vulnerable to one or more climate perils.

\* Not adjusted for Infratil’s proportionate shareholding

# Metrics and Targets

## Targets

### a) Investment portfolio target

Infratil's target set out below has been validated as meeting the SBTi's requirements under a portfolio coverage approach, meaning it is aligned with limiting global warming to 1.5°C:

#### Infratil commits to:

- **60% of its portfolio by fair value setting SBTi validated targets by FY2028 and**
- **100% by FY2030, from a FY2023 base year.**

In January 2023, Infratil announced that it was committed to setting near-term emissions reduction targets that extend across our portfolio and operational activities, in line with the climate science with the SBTi framework for Financial Institutions.

The SBTi is a global body enabling businesses to set ambitious emissions reductions targets in line with the latest climate science. Aligning with the SBTi framework is intended to give Infratil's stakeholders confidence that the emissions reduction targets are credible, comprehensive and in alignment with the science to support meeting the goals of the Paris Agreement.

Infratil has since had its emissions reduction targets approved by the SBTi. There are two limbs to Infratil's SBTi target – one is focused on emissions reduction in Infratil's investment portfolio (Scope 3, category 15), the other is focused on maintaining zero Scope 1 and 2 emissions and reducing emissions from board travel (Scope 3, category 6). Our plans to achieve the targets do not include the use of any offsets (i.e. carbon credits). The boundaries for the targets align with Infratil's emissions reporting boundaries – further details can be found in Infratil's Basis of Preparation.

Further details of Infratil's target can be found on the [SBTi website](#) and in Infratil's Basis of Preparation document. As at 31 March 2023, there were no companies in Infratil's portfolio with SBTi targets. In August 2023, Wellington Airport announced that it was committing to set a science-based emissions reduction target that would be submitted to the SBTi for validation.

Infratil aims to achieve 100% portfolio coverage by 2030, 10 years ahead of the timeframe required by SBTi. Infratil plans to review this target every 5 years, or if there is a material change to the portfolio, in line with SBTi requirements. We also plan to review and update the target if we are confident it will be met earlier. Any new companies to Infratil's portfolio that don't have a SBTi target will have a grace period of up to two years before they must be included in the portfolio coverage calculation.

Infratil's strategy to achieve the portfolio coverage target is to leverage our influence and engagement with the portfolio companies through Morrison. This can be done at a number of levels: asset managers engaging with the portfolio company management teams; Morrison sustainability executives engaging with and supporting the businesses; and Infratil's board appointees providing constructive oversight. Working in collaboration with the co-investment partners will also be an important limb of the strategy. In addition, Infratil intends to continue to target sectors, such as renewable energy, that support decarbonisation and uphold our investment screening on high emissions intensity sectors.

All portfolio companies have been made aware of Infratil's intention to set a SBTi target. Many entities already have work underway to understand their emissions profile, measure, and report emissions

and to establish SBTi targets (albeit over a range of timeframes). Under the SBTi sector frameworks, each portfolio company can set targets that are relevant and appropriate to their sector, and some of the smaller companies will be able to set targets under the [SME Framework](#).

We intend to regularly report progress against the target publicly, as part of the asset management process and to the Infratil Board. When material portfolio changes occur (for example, as a result of a new investment or divestment), Infratil plans to undertake modelling to understand the implications for Infratil's progress against the target.

Infratil intends to make our expectations clear from the outset with newly acquired or established portfolio companies through our asset management and portfolio company engagement processes. Infratil selected these actions because they best suit Infratil's approach to engagement on material issues with its portfolio companies, it provides clarity of expectations and progress for all stakeholders and allows for flexibility across different sectors and company sizes.

### b) Operational targets

In addition to the portfolio coverage target, Infratil has also set the following operational emission reduction targets that have been validated by SBTi. The Scope 1 and 2 targets, being zero absolute emissions, are aligned with limiting warming to 1.5°C and the scope 3 component for business travel is in line with the SBTi requirements for this source of emissions, meaning it is aligned with limiting global warming to well below 2°C:

#### Infratil commits to:

- **maintain zero absolute scope 1 and 2 GHG emissions through FY2030 from a FY2023 base year.**
- **reduce absolute scope 3 GHG emissions from business travel 25% by FY2030 from a FY2023 base year.**

The baseline year was selected as being representative for travel, being a period that was not impacted by Covid disruption and at a stage where Infratil had established a globally diversified portfolio.

Infratil's strategy to achieve this target is to restrict travel by directors where appropriate, particularly international travel; to increasingly consider alternatives to travelling using digital solutions and to adopt lower emissions transport options where available e.g. train travel in Europe.



# Appendix 1

## Physical climate risk scenarios

Scenario Global warming by 2050 Global warming by 2100	SSP1-2.6 Midpoint ~1.7°C Midpoint ~1.8°C	SSP2-4.5 Midpoint ~2.0°C Midpoint ~2.7°C	SSP5-8.5 Midpoint ~2.4°C Midpoint ~4.4°C
	<p>Global CO<sub>2</sub> emissions are cut rapidly reaching net zero around 2070 and become negative after that. Societies switch to more sustainable practices, with focus shifting from economic growth to overall well-being.</p> <p>Moderate development trends leave the world, on average, facing moderate challenges to mitigation and adaptation, but with significant divergence across and within countries.</p> <p>This is the 'Paris Pathway' which is only possible if countries deliver on COP26 pledges.</p>	<p>CO<sub>2</sub> emissions rise slightly from current levels before starting to fall around mid-century, but do not reach net-zero by 2100. Socioeconomic factors follow their historic trends, with no notable shifts. Progress towards sustainability is slow, with development and income growing unevenly.</p> <p>Limited progress on development, slow income growth, and lack of effective institutions, especially those that can act across regions, implies high challenges to adaptation for many groups in all regions.</p> <p>Moderate development trends leave the world, on average, facing moderate challenges to mitigation and adaptation, but with significant divergence across and within countries. This is the pathway we are on if countries follow current policy settings.</p>	<p>Current CO<sub>2</sub> emissions levels roughly double by 2050 and triple by the end of the century. The global economy grows quickly, but this growth is fuelled by exploiting fossil fuels and energy-intensive lifestyles.</p> <p>This high emissions scenario is often referred to as 'business as usual', suggesting it is a likely outcome if society does not make concerted efforts to cut GHG emissions.</p>

Appendix 2

Transition risk: Oxford Economics (‘OE’) climate scenarios

	Organised & Decisive	Delayed & Disorganised	Too Little, Too Late
OE Global Economic Model Global warming:	Net Zero 1.5°C 2050; 1.5°C 2100	Delayed Transition 1.7°C 2050; 1.7°C 2100	Climate Catastrophe 2.2°C 2050; 5.0°C 2100
	Immediate and coordinated global action by all stakeholders to meet mitigation goals, allowing for phased and moderate economic responses.	Delayed and disorganized global action requires eventual severe response to meet mitigation goals.	Limited climate action results in failure to meet current nationally determined contributions.
Assumptions	Net zero carbon emissions are achieved in 2050 through early policy action, technological advances, and global coordination. Global warming is limited to around 1.5°C. The impact on the economy is modest with higher investment helping to offset carbon taxes.	Climate policies are introduced relatively late, from the 2030s, requiring governments to eventually implement stronger policy action to achieve ambitious climate goals. Difficulties decarbonising and aggressive carbon taxes create substantial inflationary pressure prompting greater, more rapid investment in energy efficient technologies.	Governments fail to meet their policy pledges and the concentration of greenhouse gases in the atmosphere intensifies. Rising global temperatures result in severe physical damage that accelerates over time. High risk that climate systems reach tipping points.
Key implications:			
Physical:	Low physical risk	Low to moderate physical risk	Very high physical risk
Frequency and severity of climate events	Some increase to impact and frequency of extreme weather events.	Moderate increase to impact and frequency of extreme weather events.	Large increase in the frequency and strength of extreme weather events which are expected to have a dramatic impact on the built and natural environment.
Level of mitigation	Physical damage mitigated.	Physical damage largely mitigated.	Severe irreversible physical damage.
Transition Risks:	Highest level of transition risks	High level of transition risks, but delayed to 2030	Little to no transition risks compared to other scenarios
Government regulation	Governments implement stringent policies to limit global warming to 1.5°C, and global net zero CO <sub>2</sub> emissions in 2050. Aggressive, globally-coordinated carbon pricing and technological investment support a move to cleaner, more efficient energy consumption.	Governments do not ramp up efforts to limit global warming until 2030. Therefore, more stringent policy is required to achieve similar climate outcomes by 2050, resulting in greater economic impacts.	Governments fail to meet their nationally determined contributions. Carbon prices remain low or non-existent, and governments make no investment towards climate resilience.
Energy transition and energy markets	Significant reduction in energy consumption and carbon intensity of generation as the world shifts towards cleaner electricity. By 2035 demand for coal and gas halves and is almost zero by 2050.  Electricity prices rise significantly at the start of the scenarios when there is still dependence on taxed fossil fuel inputs, but as cheaper renewables and nuclear technologies are adopted, prices start to fall.	There are significant reductions in energy consumption and the carbon intensity of energy generation with the transition towards cleaner electricity from 2030 to 2050.  Because the Delayed Transition starts later, the energy mix is not quite as clean as the Organised & Decisive scenario.	Overall energy demand grows beyond baseline levels, with a greater reliance on carbon-intensive fossil fuels. Fossil fuels with higher marginal costs are required to supply increased demand, leading to higher overall energy prices than under the Organised & Decisive and Delayed & Disorganised scenarios.
Technology progression	Technological innovation occurs with the main focus on carbon sequestration technologies, energy efficiency and renewable capacity.	Technological innovation occurs, though delayed to the 2030s due to the delay in government policy, with the main focus on carbon sequestration technologies, energy efficiency and renewable capacity.	Low levels of technological innovation occur with little to no new carbon sequestration technologies and only token investments into energy efficiency or renewable energy.
Carbon Price	Rapid increase to 2030 then price caps out at a lower level than under the Delayed & Disorganised scenario, reaching US\$677/tCO <sub>2</sub> e by 2050.	Carbon prices are finally implemented in 2030, and at this point is instituted quickly and prices move higher aggressively, reaching US\$705/tCO <sub>2</sub> e by 2050.	Carbon prices languish at current levels and only apply in jurisdictions with existing legislation resulting in a price of ~US\$37/tCO <sub>2</sub> e in 2050.
Inflation	Higher taxes and carbon prices, initially inelastic demand for fossil products and the associated sharp rise electricity prices lead to significant inflationary pressures, which slowly fade as economies transition away from taxed products.  Inflation peaks early at ~5% in 2026 as carbon prices have their greatest impact. As the economy adjusts, inflation declines towards long-term baseline by the 2040s.  Central banks look through the inflation impacts, managing inflation expectations through communication instead of rate hikes.	The peak in inflation is delayed compared to the Organised & Decisive scenario due to the lag around ramping up climate policy from global governments which does not occur until 2030.  Inflation peaks at ~4% around 2032 before declining back to ~3% by c2037.  Central banks look through the inflationary impacts, managing inflation expectations through communication rather than direct rate hikes.	Rising prices for key production inputs and food (higher temperatures and extreme weather events damage crop yields) cause a prolonged increase in global inflation versus baseline levels.  Inflation, and to a lesser extent interest rates, are permanently elevated compared to baseline. By 2050, the absolute inflation index value is more than 19% higher than the baseline inflation index.  Central banks hike policy rates to endeavour to manage inflation expectations and to help bring demand more in line with supply.
GDP	From now till 2050, real GDP declines compared to baseline as inflation from carbon prices eats away at real incomes, this impact is strongest up until the mid-2030s where global GDP growth is expected to be 2.5% below the baseline forecast on an absolute basis.  Once the world has adapted to a low carbon economy, the benefits of higher investment in the early years of the transition and lower relative temperatures is expected to benefit GDP growth, with GDP growing faster than baseline through to 2050. The EBITDA Cumulative Average Growth Rate (‘CAGR’) from 2035 to 2050 is 1.9% compared to baseline of 1.8%.  In the second half of the century GDP is expected to grow above the baseline forecast due to mitigated climate risks and as benefits of higher investment and moderate temperatures are realised.	Under this scenario, real GDP is expected to experience a sharp decline in growth from 2030 as decisive government policy action impacts investment decisions.  Until 2030 global GDP growth is expected to remain at baseline levels, but by 2045 global GDP growth is 3.2% below the baseline forecast as policies impact economic growth. GDP growth will recover above baseline growth by the end of the 2040s with the net result that GDP is 3.0% below the baseline forecast by 2050. EBITDA growth CAGR from 2035 to 2050 is 1.7% compared to baseline of 1.8%.  Eventually, the low-carbon economy settles at a new equilibrium and overall GDP ultimately increases above baseline.	In this scenario global productivity and output decline as the impacts of climate increase and the costs and impacts of physical damage materialise.  GDP growth CAGR from 2035 to 2050 is 0.8% compared to baseline GDP growth of 1.8%  By 2050, Global GDP is 15% below the baseline (in absolute dollar terms) as physical risks start to impact on business performance.  This scenario leads to 'economic annihilation' (in Oxford Economics' words) by 2100 as temperature increase to 5°C above preindustrial levels which is estimated as the threshold for mass extinction.
Consumer Preferences	Consumers move rapidly and decisively to low emissions products and services from circa 2025 onwards. Discretionary spending levels are lower initially, then increases from c2030 onwards.	Consumers eventually move to low emissions products and services from 2030-35 onwards. Discretionary spending levels are lower from 2030 due to more persistent high inflation.	Consumers are apathetic towards climate change initiatives and are slow to adopt new technologies and ways of living.  Little to no demand for sustainable and climate friendly products and services. Low discretionary spending due to persistent high inflation, high remediation costs (and high insurance costs or no/limited availability).



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