

Our Management Approach to Climate Resilience

A. Purpose

This document sets out our approach to identifying, assessing and managing risks and opportunities to our business resulting from climate change. It should be read in conjunction with our annual Climate Resilience Deep Dive (available on our [website](#)). Together, our management approach documents and deep dive reports comprise our sustainability reporting suite, which is prepared in accordance with the GRI Standards¹ and is third-party assured.

Climate change has implications for the condition, maintenance, and design of our assets, and influences how we procure and use energy required for our operations. Climate-related risks and opportunities can be divided into two categories: risks or opportunities associated with the transition to a low-carbon economy (transition risks) and risks or opportunities associated with physical impacts from changes to climatic conditions, including extreme events (physical risks).

With regard to transition risks, we acknowledge that Australia and nearly 200 other nations have agreed to the objective of limiting global warming to below 2°C (the Paris Agreement²). Pursuing this objective implies a general movement away from fossil fuel energy and increased deployment of low/zero carbon energy sources and energy-efficient technology. While changes associated with the transition to a low-carbon economy present risks across most industries, they also create substantial opportunities for organisations focused on climate change mitigation and adaptation solutions. [Our Management Approach to Carbon and Energy](#) provides more information on how we leverage these opportunities through our focus on energy efficiency and renewable energy.

With regard to physical risks, we are already experiencing the physical impacts of climate change in the form of gradual changes to climate conditions and an increased frequency and severity of extreme weather events. Extreme weather and other climate change related events have the potential to damage our assets, disrupt operations and impact the health and wellbeing of our customers and communities. For the benefit of our stakeholders, and society more broadly, we are committed to creating climate resilient assets that operate with minimal disruption, as well as building strong communities that are equipped to adapt to climate change risks and opportunities.



B. Management approach

B.1 Management approach overview

To complement our Group sustainability strategy, in 2006 we developed a Climate Change Action Plan to guide and integrate efforts across our business units. Our Climate Change Action Plan is regularly reviewed and refreshed to maintain our leadership in this space. This management approach document focuses on the key priorities within our Climate Change Action Plan to research, assess, and adapt to risks associated with climate change. Our priorities to reduce our emissions and integrate innovative climate change solutions into our projects are described in [Our Management Approach to Carbon and Energy](#) and [Our Management Approach to Supply Chain](#).

¹ The GRI Standards are global standards for sustainability reporting published by the Global Reporting Initiative (<https://www.globalreporting.org/standards/>). The relevant standard for this management approach document is contained within [GRI 103: Management Approach](#).

² The Paris Agreement's central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius (<http://bigpicture.unfccc.int/#content-the-paris-agreement>).

Our management approach to climate-related risks and opportunities is integrated into our corporate governance and risk management frameworks. More information on these frameworks is provided in [Our Management Approach to Governance and Risk](#).

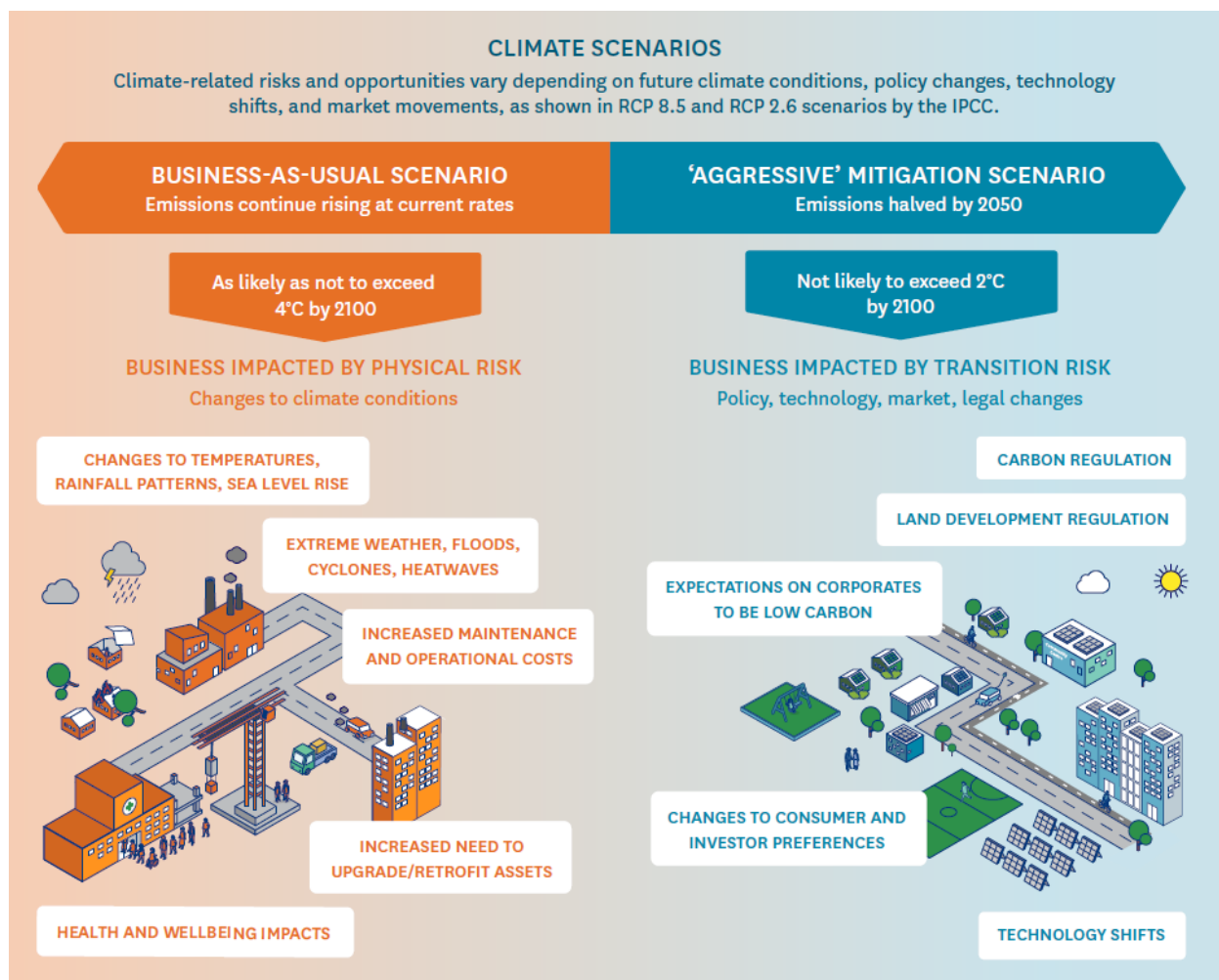
B.2 Identifying and assessing climate-related risks and opportunities

For over a decade, we have identified risks and opportunities related to both the physical impacts of climate change and a global transition to lower-carbon energy sources. Our response to these risks and opportunities has been guided by our Climate Change Action Plan (commenced in 2006), our detailed Climate Adaptation Strategy (commenced in 2011), and our business unit sustainability strategies.

(a) Our approach to scenario analysis

We understand that climate-related risks will persist for the foreseeable future. The precise nature of these risks, however, is uncertain as it depends on complex factors such as policy change, technology development, market forces, and the links between these factors and climatic conditions. To accommodate this uncertainty, we incorporate scenario analysis into our climate risk assessment process to understand how climate-related risks and opportunities may evolve and impact the business over time. Scenario analysis is a well-established method for enhancing resilience to a range of future conditions and is a key recommendation of the Task Force on Climate-related Financial Disclosures (Task Force).

Our scenario analysis process aligns with Task Force recommendations by incorporating publicly available scenarios issued by an independent body. We use the Intergovernmental Panel on Climate Change (IPCC) Representative Concentration Pathway (RCP) scenarios to explore both physical and transition risk. The nature of climate-related risk changes according to varied assumptions about future policy, technology, and climate changes incorporated into each IPCC RCP scenario. In the business-as-usual scenario where emissions continue rising at current rates (known as RCP 8.5), business is exposed to increasing levels of physical risk from changing climatic conditions. In the 'aggressive' mitigation scenario where global emissions are halved by 2050 (known as RCP 2.6), business would experience less risk from changing climatic conditions, yet would be exposed to transition risks related to policy change.



The Task Force recommends that organisations select scenarios that present challenges for the business and contest conventional wisdom about the future. IPCC RCP 8.5 is the most challenging IPCC scenario regarding physical risk, as it assumes climate change continues largely unabated through 2100. We incorporate IPCC RCP 8.5 into our scenario analysis for physical risk, supported by research specific to Australia provided by the Commonwealth Scientific and Industrial research Organisation (CSIRO) and the Australian Bureau of Meteorology.

IPCC RCP 2.6 is the most challenging IPCC scenario regarding transition risk, as it assumes aggressive policy measures and technological advances are realised in order to limit warming to below 2°C through 2100. We incorporate IPCC RCP 2.6 into our scenario analysis for transition risk, supported by research specific to Australia published as part of the global Deep Decarbonization Pathways Project.³

(b) Identifying and assessing physical risks

We acknowledge that physical risks associated with climate change can result in negative financial impacts, such as through increased maintenance costs or decreased revenues from disrupted operations. In recognition of these potential impacts, we are committed to creating climate resilient assets and communities with a greater ability to endure severe weather impacts and operate with minimal disruption.

Since 2011 we have been using IPCC climate scenarios to understand the exposure of our portfolio to physical risks. IPCC RCP 8.5 provides projections of changes to climate variables such as temperature, rainfall, and extreme weather risk through to 2030 and 2090.

In 2012 we developed a methodology which sets out the criteria to assess the resilience of individual properties and their communities. The assessment methodology has been designed to cover all types of properties within Stockland's portfolio across the development life cycle, including existing and planned properties across all business units. As a result, each Commercial, Residential, and Retirement Living asset has been in the process of being assessed for their design and initiatives in place to increase the resilience of the communities and understand risks for the community associated with climate change. We conduct a national mapping exercise based on the projections of changes to climate variables to identify the level of exposure for all assets in our portfolio (including those under development). We prioritise assets for further assessment based on their level of exposure and any insights on an asset's vulnerability gained from recent experiences.

Where assets are prioritised for further assessment, we complete climate resilience assessments at each asset. We use climate resilience assessments to understand how to minimise negative impacts and create opportunities from building and maintaining resilient assets in the long term. Opportunities associated with prioritising the development of resilient assets include decreased operational costs (e.g. maintenance, insurance premiums, exposure to litigation) and increased revenues from increasing consumer preferences for climate-resilient products.

These assessments set out an approach to assist in embedding adaptation into the corporate governance framework and process and operations. The benefits gained from proactively adapting to a changing climate can provide an incentive for all Stockland property and development managers to take reasonable steps to increase the resilience of property assets and community stakeholders, and so reduce their vulnerability to the potential impacts of climate change.

Physical risk assessment tool

In 2019 we updated our methodology to bring together all of our climate resilience work to date, by developing a tool that centralises all existing assessments to understand climate risk at a portfolio level. This tool provides a framework which aligns with our enterprise risk management system for undertaking climate risk assessments for Stockland's assets, and encourages a systematic, objective, and standardised process for ongoing management. This tool will provide results that are comparable and can be benchmarked across Stockland's assets and portfolios in a centralised system. The tool enables Stockland staff to monitor and evaluate adaptation actions over time, ensuring proactive design is prioritised from the earliest stages.

Climate resilience assessment methodology

Our climate resilience assessment methodology focuses on the vulnerability of an asset to climate change, particularly its ability to endure severe weather impacts and operate without disruption. As outlined in the figure below, the methodology defines key resilience criteria, with a particular focus on location and design, structure, operation and maintenance, utilities and services, and stakeholders. These attributes are assessed for their exposure to:

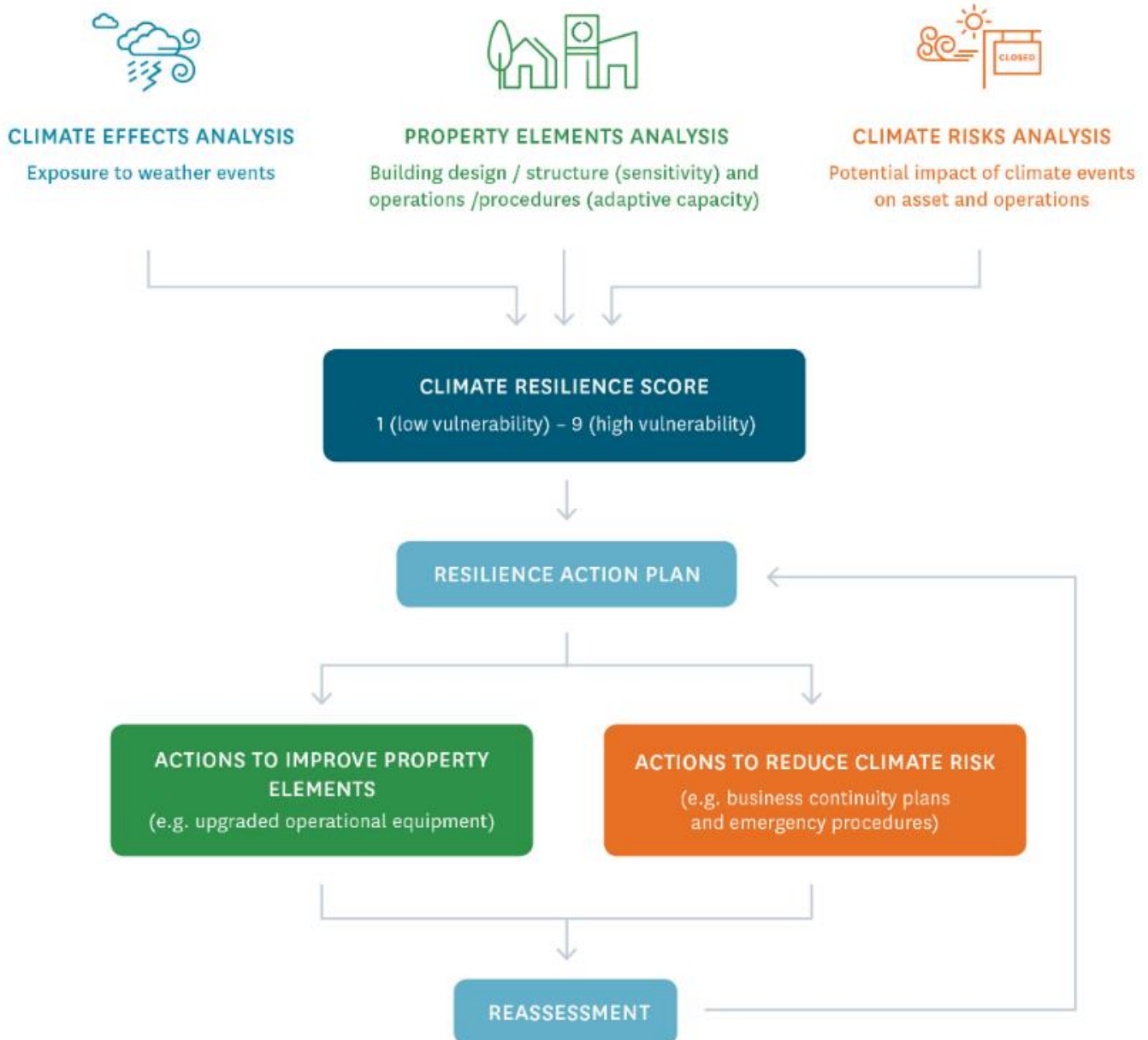
- climate effects, which relates to the degree of exposure a building has to weather events based on its geographic location, such as North Queensland where there is a high exposure to cyclones

³ The Deep Decarbonization Pathways Project is a global collaboration of energy research teams charting practical pathways to deeply reducing greenhouse gas emissions in their own countries (deepdecarbonization.org). The research specific to Australia, *Pathways to Deep Decarbonization in Australia*, is published by ClimateWorks Australia and the Australian National University (deepdecarbonization.org/countries/#australia).

- property elements, which are the physical and operational attributes of a building that make it vulnerable or resilient to those climate effects, such as condition of box gutters expected to cope with high volumes of stormwater
- climate risks, which are the potential impacts of weather related events on a building based on its location and attributes, such as loss of trade due to local flooding or air conditioning failure on hot days.

The assessments of each component are combined to provide an overall climate resilience score within a range of 1 (low vulnerability, more resilient) through 9 (high vulnerability, less resilient). We then develop resilience action plans that integrate resilience-building initiatives into asset management plans, with a view to improving the resilience of the assets over time.

CLIMATE RESILIENCE ASSESSMENT METHODOLOGY



We are committed to conducting a deeper level of climate resilience assessments on our retail town centres in North Queensland, where there is a high exposure to extreme weather events. These assessments take a more detailed look at the roof structure and building envelope of a centre to identify vulnerability to damage from cyclonic wind events.

Community resilience assessment methodology

We developed a community resilience assessment methodology, building on our extensive work on the climate resilience of our retail buildings and infrastructure. The purpose of the community resilience assessment is to consider known factors of community resilience such as social cohesion, economic viability and connectivity. The assessment process identifies how our community development planning can contribute to community resilience at our assets. Key components of the assessment include:

- measuring the resilience of the asset against key features of a resilient community
- identifying the features of the community that may or may not contribute towards being resilient
- informing areas of improvement for community resilience to be implemented as part of community initiatives within the development.

For our Retail Town Centre assets, community resilience assessments are undertaken separately to the climate resilience assessment. For Communities assets, because the community exists within the assets themselves, climate and community resilience assessments are integrated. Resilience assessments have been integrated into the sustainability policies and targets for our Communities business. Assessing both climate and community resilience allows us to plan for the resilience of buildings and infrastructure as well as our residents' ability to respond to significant climatic events. The assessment is also used for residential and retirement living developments seeking Green Star – Communities and Green Star – Design and As Built certifications.

COMMUNITY RESILIENCE ASSESSMENT METHODOLOGY



(c) Identifying and assessing transition risks

We have known carbon emissions regulation and climate-related land development regulations to be important considerations for our business. These are examples of transition risks that may impact our business through the pricing of energy required to develop and operate our assets and through influencing the revenue we are able to obtain from land that we develop. We use scenario analysis to explore how transition risks may evolve over time, leveraging publicly available scenarios published by the IPCC (RCP2.6) and the Deep Decarbonization Pathways Project. Each of these scenarios offers a unique vision of how policies, technologies, and economic outcomes evolve through 2050 as the world pursues the objective of limiting global warming to 2C. Each scenario includes transition risks and opportunities that fall into four categories:

- **policy and legal** issues that lead to financial impacts through taxes or subsidies, through mandating capital improvements that require additional investment, or through increased liability risk
- **technology** issues that lead to financial impacts through changes to how we procure and use energy in development, operations, and transport
- **market** considerations that lead to financial impacts through changes to consumer preferences and prices of goods and services
- **reputational** issues that lead to financial impacts through affecting stakeholder willingness to transact or partner with us.

B.3 Key categories of climate-related risks and opportunities

The table below describes key categories of climate-related risks and opportunities that we have identified for our business. While we have identified the potential for negative financial impacts arising from each category of climate-related risk, in all cases there is the opportunity for positive financial impact for our business as a result of proactive risk management.

CLIMATE-RELATED RISK	POTENTIAL IMPACT ON STOCKLAND
Acute physical risks including heatwaves, cyclones, floods and bushfires.	Negative financial impacts from increased expenditure on repairs, loss of business continuity. Positive financial impacts from building resilient assets that can withstand acute physical risks, promote business continuity, attract tenants/customers, and receive insurance benefits.
Chronic physical risks including increases to mean temperatures, long term changes to rainfall patterns and sea level rise.	Negative financial impacts from expenditure required to upgrade facilities to cope with changed climatic conditions (e.g. early upgrades of air conditioning units to manage warming temperatures), and from an inability to develop on land that we own because of flooding or sea level rise concerns. Positive financial impacts from designing and constructing 'futureproof' assets and communities that accommodate future climate changes and thus prevent the need for expensive retrofits. Positive financial impacts from further integrating climate risk into the due diligence process for acquisitions to minimise the risk of acquiring land or assets that may become impaired in the future.
Policy-related transition risks including carbon pricing, incentives for low/zero carbon energy production, land development regulations and changes to building standards.	Negative financial impacts resulting from increased cost of energy, goods, and services; from increased development and operational costs associated with enhanced building standards; and from lost revenue associated with regulation that limits the development capacity of land that we own or acquire. Positive financial impacts resulting from on-site generation and sale of low/zero carbon energy, from proactively upgrading assets to enhance efficiency and avoid cost increases, and from proactively assessing the resilience of land that we own and acquire to maximise development opportunities into the future.
Legal transition risks including liability surrounding climate risk disclosure and changes to insurability of assets.	Negative financial impacts resulting from judgements against us for inadequate disclosure of climate-related risks, and from an inability to insure our assets. Positive financial impacts resulting from efficiency and resilience initiatives that reduce our insurance costs, and resulting from enhanced climate risk disclosure that minimises likelihood of fines and judgements against us.
Technology-related transition risks including decarbonisation of Australia's National Electricity Market, electrification, advances in battery storage, and energy efficiency.	Negative financial impacts resulting from the need to invest in low-carbon technology and if technological disruption leads to energy pricing variability, difficulty in planning capital expenditure, and/or a need to upgrade our assets in a short timeframe. Positive financial impacts resulting from the opportunity to leverage technological advances to reduce costs through energy efficiency and renewable energy, and to more readily meet climate-related regulatory requirements.
Market-related transition risks including investors and lending institutions favouring low carbon investments and consumers demanding low carbon products.	Negative financial impacts resulting from attractiveness of our assets and our business from an investment perspective if we fail to manage climate risk appropriately. Positive financial impacts resulting from our continued leadership in climate risk management, in the form of enhanced revenues from customers who prefer low-carbon products, as well as enhanced capacity to attract investment from investors favouring companies with strong climate risk management.



CLIMATE-RELATED RISK

POTENTIAL IMPACT ON STOCKLAND

Reputational transition risks including failing to attract funding, employees, and project approvals because of a perceived lack of action on climate change.

Negative financial impacts resulting from a perception that we are not contributing to the low carbon transition as much as our peers and competitors, for example, reduced revenues if customers prefer competitor products, or increased hiring costs as prospective employees prefer to work for peers.

Positive financial impacts resulting from continued leadership in energy efficiency, renewable energy, and climate resilience, for example, increased revenues if we can remain a preferred development partner for governments interested in low carbon solution, and decreased costs associated with lower employee turnover because employees feel their work is contributing to the low carbon transition.

B.4 Managing climate-related risks and opportunities

Physical risk management

Given the potential for climate-related physical risks to damage assets and bring about potential losses, we have included these risks and the potential financial implications in our enterprise risk framework. We implement initiatives that improve the resilience of our assets, and thereby reduce the risk of business disruption to our customers and residents. Improving resilience also mitigates potential future costs associated with maintenance, upgrade and emergency response initiatives. This contributes to our competitive position as a leading creator of places that meet the needs of our customers

Managing physical risks identified during resilience assessments

Physical risks and opportunities identified within our climate and community resilience assessments are prioritised for action based on:

- impact on communities and the environment in which the asset is operating
- overall potential impact on asset performance
- financial impact to the business in managing the risk or opportunity

Across our portfolio, physical risks and opportunities are prioritised for action based on:

- geographical areas of highest risk
- impact on local communities and environment (relative to where we operate)
- design attributes of the asset which affect climate resilience
- climate change scenarios for the medium- and long-term
- overall impact on business-wide emissions reductions and
- overall risk to portfolio value and revenue.

Recommendations for minimising impacts of physical risks may include the implementation of operational responses, maintenance regimes, emergency response plans and community development programs that focus on improving the health and wellbeing of our communities. Key recommendations identified during the risk management process are included in a resilience action plan that is integrated with annual sustainability and asset/business planning processes.

We acknowledge that while managing climate change risk involves additional costs, such as costs associated with employees, external consultants and capital expenditure supporting climate change programs, management of climate risks is an opportunity to develop resilient, future-proof assets. Our approach to physical risk and investment in the resilience of our assets has been acknowledged by our insurers through a reduction in our premiums at certain locations.

Considering physical risks and opportunities in asset design and ongoing operations

Our project teams consider climate-related risks and opportunities in the design of our assets by including principles-based criteria in our design guidelines and minimum standards. We integrate the outcomes of our climate scenario analysis into the designs of our assets in development so that they consider how physical risks may impact stormwater drainage, roofing, and air conditioning systems, as well as how the asset can take advantage of low/zero carbon energy solutions.

We develop emergency management plans for all our assets and update them as required. In addition to using a traditional risk matrix for climate vulnerability, we also use an opportunities matrix to identify the value of discretionary climate resilience initiatives such as shade sails in our carparks and cool roof covenants in our Queensland residential projects such as North Shore and Aura. These initiatives are prioritised based on their ability to reduce the asset's vulnerability to physical risk.

Our climate resilience approach has been recognised by the Green Building Council of Australia's Green Star rating tools as meeting the aim of their Adaptation and Resilience credit. New Retail Town Centre, Workplace and Retirement Living developments implement our approach to climate and community resilience and aim for recognition as Green Star rated

facilities.⁴ For our residential communities rated under Green Star – Communities, we have climate adaptation and resilience plans for project teams on how to create resilient communities throughout the life of the development.

Transition risk management

Key regulatory transition risks identified in our scenario analysis are incorporated into overall risk management and into our enterprise risk register, and all other transition risks identified will be reviewed, prioritised, and incorporated as appropriate. Our Group Risk team is responsible for developing our risk management framework and adapting it to accommodate physical and regulatory changes. Our Stakeholder Relations, Risk, Legal and Sustainability teams keep the Executive Committee and Board informed on existing or emerging climate-related issues that may impact on the business.

We participate in industry-wide collaborations (Property Council of Australia, Green Building Council of Australia, Australian Sustainable Built Environment Council, Investor Group on Climate Change) that focus on how the property industry can lead the transition to a low carbon economy. Through these collaborations we have developed and published pathways and standards for how the built environment can reduce emissions and ultimately become zero carbon. [Our Management Approach to Carbon and Energy](#) describes how we manage risks associated with carbon emissions regulation through focusing on energy efficiency and renewable energy.

C. Review and evaluation of the management approach

We review and report on our progress against our climate resilience priorities in our annual [Climate Resilience Deep Dive](#). In this reporting, we include:

- identification of priority actions and progress against these actions
- the identification of future priorities
- highlights of initiatives implemented over the reporting period
- case studies that explore key achievements, usually at particular locations.

Across our Commercial Property business, we review climate resilience action plans to track progress on the implementation of initiatives following the initial assessment. Reassessment of the assets reviewed to date will be conducted over time to measure the improvements in resilience against the actions that were recommended at the time of the original assessment. In our Communities business, we track and evaluate the implementation of recommendations in our asset-specific sustainability plans. This provides us with the ability to measure the success of the initiatives and articulate the value of undertaking the climate and community resilience assessments. Assets are prioritised for reassessment based on their status as high-risk assets and based on whether they have been subject to resilience investments.

D. Responsibilities

The table below describes key roles and responsibilities associated with our approach to climate and community resilience.

ROLE	RESPONSIBILITIES
Board Sustainability Committee	Oversight of approach to climate resilience, including targets and performance tracking
Chief Financial Officer (CFO)	Responsibility for climate resilience at a Group level Reports directly to Managing Director and CEO
Group Executive and CEO Commercial Property Group Executive and CEO Communities	Ultimate accountability for delivery of climate resilience within respective portfolios
National Manager – Group Sustainability	Effective implementation and evaluation of our approach to climate resilience
National Sustainability Managers	Guidance of asset teams in effective delivery of our sustainability policy and supporting toolkits

⁴ All new retail town centre and office developments must achieve a Green Star rating (as per our policy). Retail town centre extensions or redevelopment projects must achieve a Green Star rating where a project is larger than 8,000 m².



ROLE

RESPONSIBILITIES

Development and Operations teams

Effective management of a climate resilience approach at the project and asset level through the implementation of identified resilience actions

E. Version control

REVISION	DATE	OWNER(S)	CHANGES
1	September 2018	General Manager – Sustainability and Corporate Procurement	
2	August 2019	National Manager – Group Sustainability	