

Climate Resilience

FY18

Why this is important to Stockland

Climate change presents risks and opportunities for our business, and we are committed to identifying, assessing, and managing these risks and opportunities to support the resilience of our business, assets, and communities. 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 risk, we acknowledge that Australia and nearly 200 other nations have agreed to the objective of limiting global warming to below 2°C (the Paris Agreement¹). 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 [Carbon and Energy Deep Dive](#) reports on how we leverage these opportunities through our focus on energy efficiency and renewable energy.

With regard to physical risk, we are already experiencing physical impacts of climate change in the form of gradual changes to climate variables 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.

This Deep Dive document is a component of our FY18 sustainability reporting suite, which is publicly available on our [website](#). Our sustainability reporting is third-party assured and drafted in accordance with the GRI Standards.² The material in this Deep Dive is supported by a wider collection of performance metrics contained in our [Environmental Data Pack](#).

This Deep Dive is to be read in conjunction with our published approach to climate resilience, available as part of our sustainability reporting suite at [Our Management Approach to Climate Resilience](#).



Our key achievements

- Completed 10 climate and community resilience assessments in our Retirement Living and Residential portfolios.
- Completed five climate resilience assessments and four community resilience assessments across our Commercial Property portfolio.
- Completed climate scenario analysis including scenarios limiting global warming to below 2°C to enhance our understanding of risks and opportunities associated with the transition to a low carbon economy, which complements our existing scenario analysis focused on physical risk.

¹ 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>).

² The GRI Standards are global standards for sustainability reporting published by the Global Reporting Initiative (<https://www.globalreporting.org/standards/>)

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FY18 priorities and progress

Commercial Property

FY18 PRIORITIES	STATUS	FY18 PROGRESS
Conduct national mapping exercise of all Commercial Property assets (including Retail Town Centres, Workplace and Logistics) to determine climate change vulnerability and exposure	Achieved	We completed a national mapping exercise for our Commercial Property assets, including Retail Town Centres, Workplace and Logistics to update the climate change projections used in our resilience assessments.
Undertake climate and community resilience assessments in two new locations during FY18	Achieved	Focusing on priority areas identified in our FY18 review (above), we completed climate resilience assessments at 601 Pacific Highway (NSW), Triniti Business Campus (NSW) and 32 Toll Drive Altona (Vic). We completed community resilience assessments at Stockland Townsville (Qld), Stockland Nowra (NSW), Stockland Traralgon (Vic) and Stockland Bundaberg (Qld).

Communities

Residential

FY18 PRIORITIES	STATUS	FY18 PROGRESS
Complete a climate resilience assessment for all new active Residential projects in priority locations	Achieved	We completed climate resilience assessments at all residential projects commencing masterplanning in FY18, as well as projects in priority high risk locations, including Kalina (Qld), Paradise Waters (Qld), Mount Atkinson (Vic), Altona North (Vic), Minta Farm (Vic), Edgebrook (Vic), Braybrook (Vic).
Continue to rollout delivery of Resident Emergency Checklists to new projects	Achieved	Resident emergency checklists have been developed for all projects for which climate adaptation plans have been prepared (listed above) as well as Cloverton (Vic), Willowdale (NSW) and Waterlea (Vic).

Retirement Living

FY18 PRIORITIES	STATUS	FY18 PROGRESS
Undertake climate and community resilience assessments in three locations during FY18	Achieved	We completed climate and community resilience assessments at Bellevue Gardens (NSW), Golden Ponds (NSW) and Wamberal Gardens (NSW).
Develop best practice guidelines to be implemented across the Retirement Living portfolio, particularly villages in low to medium climate risk locations	In progress	Best practice guidelines are currently in development and will be finalised in FY19.

Future priorities

Commercial Property

- Complete climate resilience assessments in operational assets in priority locations across our portfolio, including our retail town centres at Stockland Cleveland (Qld), Burleigh Heads (Qld), and Caloundra (Qld), and Shellharbour (NSW) and our Logistics assets at Yennora (NSW), Hendra (Qld), and Port Adelaide (SA).
- Continue to undertake climate adaptation and resilience assessments in future development projects including Whiteman Edge (WA).

Communities

Residential

- Undertake a formal review of resilience assessment framework approach against industry best practice.
- Complete climate resilience assessments on new communities in priority locations that commence masterplanning during FY19.

Retirement Living

- Implement the resilience best practice guidelines across five low-medium priority villages which have not had a formal climate and community resilience assessment completed.
- Undertake a formal review of resilience assessment framework approach against industry best practice.
- Complete two assessments in medium priority locations as determined through the national mapping review.

FY18 performance and case studies

Over the past year, we evolved our approach to climate risk disclosure by aligning it with the recommendations of the Task Force on Climate-related Financial Disclosures (Task Force). We lodged “Stockland’s Climate-related Financial Disclosures” on the Australian Securities Exchange (ASX) in February 2018 as part of our half-year reporting suite, making us the first Australian property company to disclose its climate risks and opportunities to the ASX with our financial filings in accordance with the Task Force recommendations. We integrated our climate-related financial disclosures into our [FY18 Annual Report](#), acknowledging the importance of climate-related risk management for our long-term performance as a business.

Physical risk

Commercial Property

Climate resilience in operations

We reviewed our Commercial Property assets to identify exposure to physical risk using updated RCP 8.5 projections from the IPCC (refer to [Our Management Approach to Climate Resilience](#) for more information on our use of IPCC RCP scenarios). Our review was used to inform climate resilience assessments undertaken on two of our Workplace and Business Parks assets in Sydney (601 Pacific Highway and Triniti Business Campus) and one Logistics asset in Melbourne (32 Toll Drive). We developed action plans for each location using the new climate scenarios to assist in understanding the future impacts of climate change and the most appropriate responses to implement to improve resilience over time.

Our review also informed desktop assessments on two previously assessed retail town centres at Stockland Townsville (Qld) and Stockland Nowra (NSW), to update the resilience assessment using the new climate projections. At Stockland Townsville there was a slight decrease in vulnerability due to the implementation of initiatives to improve resilience. At Stockland Nowra there was a minor increase in vulnerability due to updated hazard mapping and changes to the assessment criteria through revisions over time. While the results do not impact the resilience action planning at these assets, we will continue to review climate science and assessment criteria to monitor any further changes to the resilience of these assets and our portfolio more broadly.

Climate resilience in developments

At our active Retail Town Centre developments we completed climate resilience assessments at Elara (NSW), Birtinya (Qld) and Baringa (Qld). The assessments inform design in new constructions so that our new projects are not being delivered with inherent vulnerabilities to future climate impacts.

Community resilience

We completed community resilience assessments at four of our retail town centres and the surrounding community, including Stockland Townsville (Qld), Stockland Bundaberg (Qld), Stockland Nowra (NSW), and Stockland Traralgon (Vic). The purpose of the assessments was to understand underlying issues in communities around social cohesion, economic viability and connectivity and to identify opportunities to contribute further to community resilience through our community development planning process. Examples of themes identified in our FY18 assessments include low education levels, unemployment, disability and obesity. The insights and learnings from the assessments undertaken are communicated to the business and centre teams are encouraged to focus community development initiatives on community needs in alignment with our key focus areas of education, health and wellbeing and community connection (see [Our Management Approach to Community Investment and Development](#) and our [Community Deep Dive](#)).



Research collaborations for resilience

We remain involved in the Microclimate and Urban Heat Island Mitigation Decision Support Tool Project, part of the Collaborative Research Centre for Low Carbon Living. In FY18, we assisted the project by providing access to three of our retail town centres (Stockland Nowra (NSW), Stockland Shellharbour (NSW) and Stockland Wetherill Park (NSW)) and one of our residential communities (Willowdale) for scenario analysis and to set up monitoring stations to collect climate data. The data collected will be used to characterise the microclimate of selected regions to study urban heat mitigation strategies that support planning decisions and drive increased utilisation of cool roofs on large footprint buildings.

Industry engagement

We are regularly invited to present at industry forums, conferences and master classes and to participate in task groups and workshops to share our climate resilience expertise and to help shape an industry approach to resilience. In FY18 we presented our work on resilience at several industry forums including Green Building Day, Air Conditioning, Refrigeration and Building Services (ARBS) Exhibition, Green Star Resilience Master Class, Western Sydney Turn Down the Heat Forum, Cooling Cities National Forum, Investor Group on Climate Change Investing in Resilience Workshop, and the Property Council of Australia (PCA)/Facility Management Association (FMA) Defining Resilience Forum.

Communities

Residential

In FY18, we assessed the climate resilience of seven residential communities, including Kalina (Qld), Paradise Waters (Qld), Mount Atkinson (Vic), Altona North (Vic), Minta Farm (Vic), Edgebrook (Vic), and Braybrook (Vic). These communities were prioritised for assessment because they were either mapped in priority locations or are new projects. Typical climate related impacts on residential communities arise from potential for bushfire or reduced access resulting from flooding, changes in extreme heat conditions, and intense rainfall events.

We prepared online resident emergency checklists for our residential community at Cloverton (Vic). We have also prepared resident emergency checklists for Kalina (Qld), Paradise Waters (Qld), Mount Atkinson (Vic), Altona North (Vic), Minta Farm (Vic), Edgebrook (Vic), and Braybrook (Vic). The checklists respond to the outcomes of resilience assessment undertaken at each community, and provide residents with a guide in the event of extreme weather or fire events. The checklist uses the four phases of emergency management – prevention, preparedness, response, and recovery – to structure actions that enable community self-reliance in the event of an emergency.

We applied our first cool roof covenant to homes in our Bells Reach (Qld) project in 2012. We have since continued to apply these covenants at Aura (Qld) on the Sunshine Coast and North Shore (Qld) in Townsville. We have found that the benefits of cool roofs, including improved thermal performance, reduced heating and cooling costs, and reduced urban heat island effect come at no additional cost to build. Further, since applying the initiative we have worked with suppliers to increase the variety of “cool roof” options available to the market. We have now standardised cool roofs with a maximum of 50 per cent solar absorbency as a covenant requirement across our new Sunshine Coast projects.

We are also working to embed climate and community resilience assessments into our project lifecycle process for Communities developments (D-Life) and will continue to formalise the process in FY19.

Retirement Living

We regularly update our national mapping schedule to identify those individual villages and developments that have the greatest exposure to climate extremes including heat waves, drought, flooding, storms, cyclones, coastal inundation and bushfires. This approach allows us to prioritise those villages over a staged program to conduct detailed climate and community resilience assessments. One of the key challenges facing all of our villages is the frequency and intensity of extreme heat events, which increase energy demand for cooling and the need for areas of respite for residents.

In FY18, we prioritised three operational retirement living villages for climate resilience assessments based on their climate risk exposure, including Bellevue Gardens (NSW), Golden Ponds (NSW) and Wamberal Gardens (NSW). As part of the ongoing development of our approach to community resilience, these three considered the sensitivity and adaptive capacity of village residents in determining community resilience actions to be included in the action plans for each village.

We undertook a series of resilience assessment debriefs at several retirement living villages, including Birtinya (Qld), Pine Lake (Qld), Cardinal Freeman (NSW), Willowdale (NSW), Calleya Aspire (WA), The Village Swansea (NSW), Oak Grange (Vic), Farrington Grove (Qld), and The Pines (Vic). These debriefs focused on embedding identified opportunities to improve the resilience of the existing operational villages and the future village developments.



Transition risk

The global transition to a low carbon economy as envisioned by the Paris Agreement and the Task Force presents risks and opportunities for our business. Carbon emission regulation, for example, may impact the pricing of energy required to develop and operate our assets. Our [Carbon and Energy Deep Dive](#) presents progress in our energy efficiency and renewable energy activities, in which we continue to invest to seize transition opportunities and minimise transition risks.

Earlier this year, we enhanced our approach to climate-related transition risk management by incorporating 2°C scenarios³ into our corporate climate scenario analysis framework. Our 2°C scenario analysis confirmed that our existing commitments to energy efficiency and renewable energy are appropriate for leveraging low carbon opportunities. It also raised the profile of risks associated with land development regulation and climate risk disclosure. More information on our 2°C scenario analysis is provided in the case study on the next page.

We continue to collaborate with our peers to understand how the property industry can manage the risks and leverage the opportunities presented by a transition to a low carbon economy. Following on from the 2016 publication of *Low Carbon, High Performance*⁴ by the Australian Sustainable Built Environment Council (ASBEC), we worked with ASBEC on *Built to Perform: An industry led pathway to a zero carbon ready building code*. *Built to Perform* shows how stronger energy standards for new buildings in the National Construction Code could reduce energy bills and deliver emissions savings.

We also worked with the Green Building Council of Australia as a strategic supporter of its *Carbon Positive Roadmap for the built environment*. The roadmap establishes the steps required for commercial, institutional and government buildings and fitouts to decarbonise and contribute to global climate targets.

³ A 2°C scenario lays out a pathway and an emissions trajectory consistent with limiting the average global temperature increase to a temperature range around 2°C.

⁴ The full report title is *Low Carbon, High Performance: How buildings can make a major contribution to Australia's emissions and productivity goals* by ASBEC (www.asbec.asn.au).



CASE STUDY

What does net zero emissions by 2050 look like for Stockland?

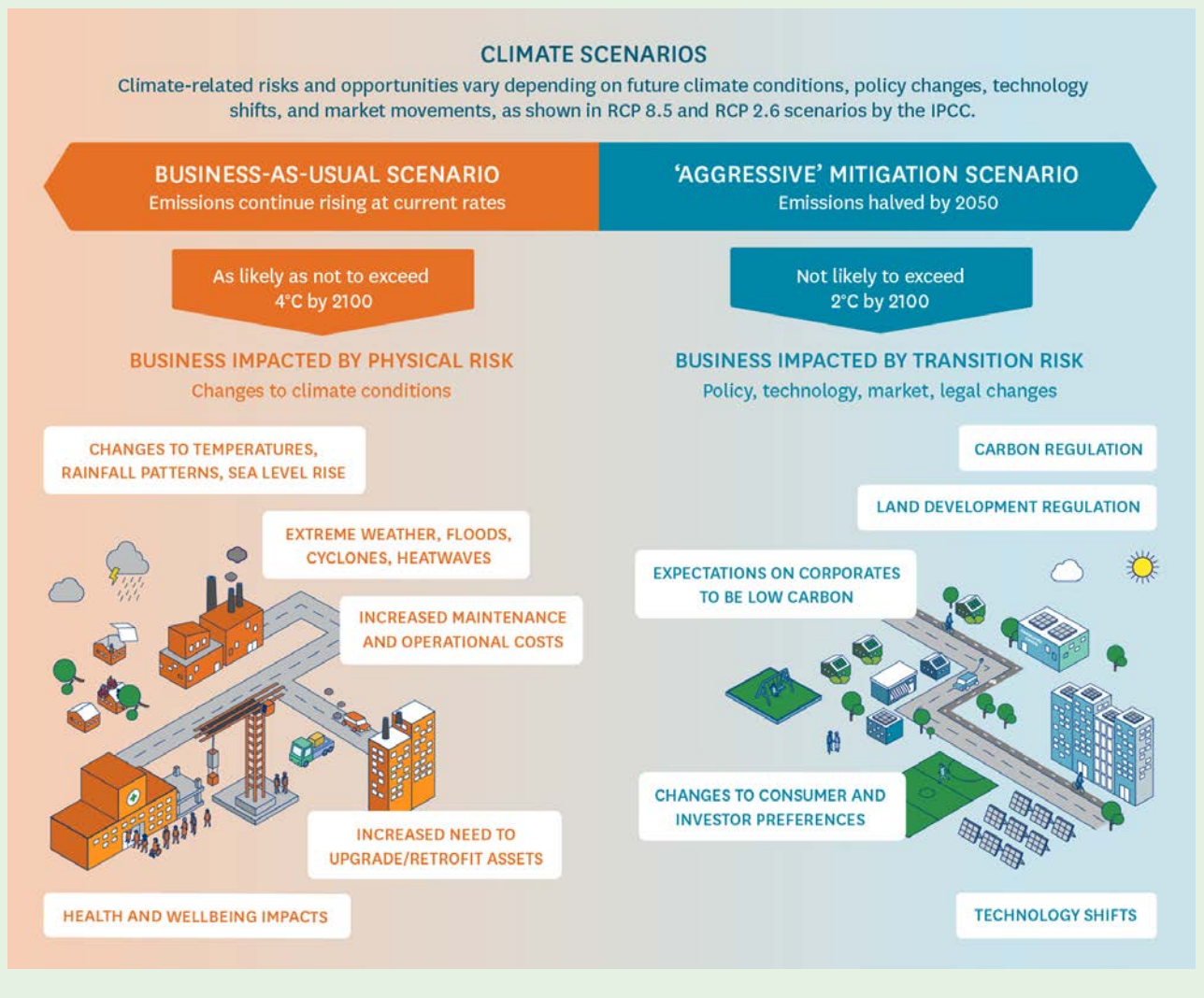
We completed a scenario analysis to understand risks and opportunities presented by a low carbon future, leveraging 2°C scenarios from both the Intergovernmental Panel on Climate Change (RCP2.6⁵) and the Australian contribution to the Deep Decarbonization Pathways Project.⁶ Our scenario analysis using 2°C scenarios builds upon our existing scenario analysis that we have used for several years to understand the distribution of physical risks across our portfolio.⁷ The analysis involved many teams within our business, such as Development, Project Management, Asset Operations, Group Risk, Group Sustainability, Group Legal, and Stakeholder Relations.

The scenario analysis incorporated the key assumption that Australia would be carbon neutral by 2050 as a means of contributing to the global objective of limiting warming to 2°C compared to a pre-industrial baseline. The analysis included changes to energy networks, climate policy, customer preferences, and investment flows that would plausibly lead to carbon neutrality by 2050.

Our analysis confirmed the importance of policy and legal issues such as carbon pricing and climate risk disclosure, technological issues such as automation and electrification, market issues such as customer and investor preferences for low-

carbon solutions, and reputational issues such as the willingness for governments or employees to work with us if we are seen as a climate laggard. Our industry-leading investment in renewable energy and our continued dedication to energy efficiency position us well to take advantage of opportunities associated with the transition to a low carbon economy.

We have integrated the outcomes of our scenario analysis into our corporate risk register and will continue to use the approach to understand how to remain a climate leader into the future.



⁵ RCP 2.6 is one of four Representative Concentration Pathways published by the Intergovernmental Panel on Climate Change, and is the only RCP likely to limit warming to below 2°C.

⁶ The Deep Decarbonization Pathways Project (DDPP) is a global collaboration of scientific research teams that have developed country-specific pathways to reduce emissions consistent with the 2°C objective. The DDPP publication relevant to Australia is ClimateWorks Australia (2014) *Pathways to Deep Decarbonisation: How Australia Can Prosper in a Low Carbon World*.

⁷ In previous scenario analysis we have undertaken, we have used the Intergovernmental Panel on Climate Change RCP8.5 scenario, which assumed minimal effort to reduce emissions and thus results in a global temperature increase of 3.2-5.4°C by 2100. We have used RCP8.5 to understand our exposure to physical risk, as the scenario results in stronger impacts from extreme weather and other climate effects.

