

Stockland - Climate Change 2018

C0. Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

Stockland has a long and proud history of creating places that meet the needs of our customers and communities. We were founded in 1952 with the vision to "not merely achieve growth and profits but to make a worthwhile contribution to the development of our cities and great country." Pursuing that vision has seen us grow to become one of Australia's leading diversified property groups - developing, owning and managing a large portfolio of retail town centres, logistics and business parks, office buildings, residential communities and retirement living villages. We operate across most parts of the property value chain. However, we engage others to carry out building works, to deliver services such as security and cleaning, and to provide audit and consultancy services.

This survey discloses information regarding our climate change management approach and greenhouse gas emissions performance for the 2016 financial year, ending 30 June 2017. We publish independently assured data, commitments and commentary as part of our Annual Review, our sustainability reporting and our requirements under the Australian Government's National Greenhouse and Energy Reporting Act. Our Annual Review is publicly available at <https://www.stockland.com.au/~media/corporate/pdf/investor-centre/reports-and-presentations/reports/stockland-2017-annual-review.ashx> and our sustainability reporting and previous CDP Climate Change submissions can be found at <https://www.stockland.com.au/about-stockland/sustainability/downloads>

Our portfolio is spread over three business units – Commercial Property, Residential and Retirement Living. An overview of the portfolio, as at 30 June 2017, is provided below. Our property portfolio can also be found in detail online at <https://www.stockland.com.au/investor-centre/our-portfolio>

COMMERCIAL PROPERTY - Our Commercial Property business accounts for approximately 70% of our asset mix and comprises three asset types:

- Retail - we are one of the largest retail property owners, developers and managers in Australia. As at 30 June 2017, the portfolio comprised 41 retail centres, with Stockland's ownership interests valued at \$7.1 billion and gross book value of \$7.6 billion. These properties accommodate more than 3,500 tenants and generate in excess \$6.7 billion of retail sales per annum.
- Logistics and Business Parks - as at 30 June 2017, our logistics and business parks portfolio comprised 27 properties encompassing over 1.3 million square metres of building area, with Stockland's ownership interests valued at \$2.0 billion and a gross book value of \$2.3 billion.
- Office - as at 30 June 2017, our office portfolio comprised 8 properties with Stockland's ownership interests valued at \$0.8 billion and gross book value of \$1.2 billion.

RESIDENTIAL – We are the leading residential developer in Australia, focused on delivering a range of masterplanned communities and medium density housing in growth areas across the country. We have over 80,400 lots remaining in our portfolio, with a total end value of approximately \$21.1 billion (excluding value in projects identified for disposal).

RETIREMENT LIVING - We are a top three retirement living operator within Australia, with over 9,600 established units across 65 established villages and a short- to medium-term development pipeline of over 2,900 units.

We have long recognised that climate change presents risks and opportunities for our organisation. Along with risks and opportunities associated with mitigating carbon emissions and enhancing the energy efficiency of our portfolio, we are taking active steps to enhance the resilience of our assets and reduce their potential vulnerability by proactively adapting to a changing climate. Our Commercial Property business is the largest contributor to greenhouse gas emissions in the Group and presents the greatest opportunity for emissions reduction. As it is our most established asset class, and the one over which we have the greatest degree of control, we used the Commercial Property business to develop our methods for climate resilience assessment and management. The majority of our initiatives and achievements to date relate to our Commercial Property business, and we have used our successes in Commercial Property to inform climate risk management activities in other business areas over the past few years.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Row 1	July 1 2016	June 30 2017	No	<Not Applicable>
Row 2	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Row 3	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Row 4	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>

C0.3

(C0.3) Select the countries/regions for which you will be supplying data.

Australia

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.

AUD

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your consolidation approach to your Scope 1 and Scope 2 greenhouse gas inventory.

Operational control

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

C1.1a

(C1.1a) Identify the position(s) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual(s)	Please explain
Board Chair	Our Chairman has oversight of climate-related issues as chair of our Board Sustainability Committee, which is composed of all directors of the board. Its purpose is to consider sustainability impacts of Stockland's business activities, consider major corporate responsibility and sustainability initiatives, approve sustainability-related external communications, approve external sustainability policies, and approve publicly disclosed targets and policies. Given the interaction between climate-related issues and our sustainability strategy, the Sustainability Committee responsibilities (in its charter) include "considering reports from management outlining the social, environmental and ethical impact of Stockland's business activities and future plans on the legitimate interests of our stakeholders including climate change.
Board/Executive board	The Risk Committee consists of at least three independent non-executive directors, and has responsibility for establishing a framework of risk management across Stockland. The Risk Committee has responsibility for climate-related issues as per its responsibility (as stated in its charter) to "review Group Risk's annual program of work to assess material risks that may affect Stockland's ability to achieve its corporate objectives." Climate-related issues have been integrated into this annual program of work for over a decade and have thus fallen under the oversight of our Risk Committee.

C1.1b

(C1.1b) Provide further details on the board's oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – some meetings	<ul style="list-style-type: none"> Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding annual budgets Reviewing and guiding business plans Setting performance objectives Monitoring implementation and performance of objectives Overseeing major capital expenditures, acquisitions and divestitures Monitoring and overseeing progress against goals and targets for addressing climate-related issues 	Climate-related issues are reported to the Board Sustainability Committee, which comprises all directors of the board. The General Manager Sustainability and Corporate Procurement reports to the board Sustainability Committee on items of strategy and targets, including our key climate-related targets. These targets are then integrated into the business unit sustainability policies and key elements including climate form part of employees key performance objectives and performance reviews. These key performance elements form part of the Group's Corporate Scorecard. The targets are achieved through a series of actions and strategies by business unit areas, which form part of the annual budgeting process. The budgets are ultimately board-approved.

C1.2

(C1.2) Below board-level, provide the highest-level management position(s) or committee(s) with responsibility for climate-related issues.

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Chief Operating Officer (COO)	Both assessing and managing climate-related risks and opportunities	More frequently than quarterly

C1.2a

(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored.

Our Chief Operating Officer (COO) has responsibility for both our Group Sustainability and Group Risk teams, both of which work together to identify, assess, and manage climate-related issues. The COO directly reports to our Managing Director and CEO. The COO reports to the board on a monthly basis about the sustainability strategy, including key updates on climate related issues.

The COO also convenes our internal Sustainability Steering Committee, which shapes and monitors our sustainability approach and strategy. The Sustainability Steering Committee is chaired by the COO and is composed of senior management from various organisational teams including Strategy and Stakeholder Relations, Project Management, Supply Chain, Human Resources, Risk, Development and Sustainability. The Steering Committee meets three times each year, or more frequently as circumstances dictate, and invites other key internal and external stakeholders to attend meetings as required.

The Committee's key responsibilities include:

- informing our sustainability strategy
- sharing knowledge and reporting on the environmental, social and governance (ESG) risks and opportunities across our current and planned operations
- supporting delivery of sustainability targets
- guiding business/functional compliance with our environmental and social policies, guidelines and agreed initiatives
- providing input to external reporting on major sustainability targets, policies, principles and initiatives, including our annual integrated reporting
- acting as a first point of reference for significant ESG risks, opportunities and initiatives.

Climate-related risks and opportunities have been included within our sustainability strategy and corporate risk matrix for over a decade and so are routinely included in the above responsibilities and outputs.

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

Yes

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues.

Who is entitled to benefit from these incentives?

Corporate executive team

Types of incentives

Monetary reward

Activity incentivized

Emissions reduction target

Comment

The Executive team has performance indicators linked to our greenhouse gas emission targets.

Who is entitled to benefit from these incentives?

Facilities manager

Types of incentives

Monetary reward

Activity incentivized

Emissions reduction target

Comment

Facility managers have incentivised performance indicators linked to greenhouse gas emissions targets for assets and greenhouse gas emissions project level reporting.

Who is entitled to benefit from these incentives?

Environment/Sustainability manager

Types of incentives

Monetary reward

Activity incentivized

Emissions reduction project

Comment

Environment/Sustainability managers have incentivised performance indicators linked to greenhouse gas emission targets and climate change mitigation and adaptation actions.

Who is entitled to benefit from these incentives?

All employees

Types of incentives

Monetary reward

Activity incentivized

Other, please specify (Varies depending on employee)

Comment

All employees have incentivised performance indicators linked to sustainability performance as part of our balanced scorecard performance assessment approach. These differ in accordance with the roles and responsibilities of the individual employee (e.g. consideration of climate change risks/opportunities, achievement of emissions reduction targets, promotion of energy efficiency initiatives with suppliers/customers etc).

C2. Risks and opportunities

C2.1

(C2.1) Describe what your organization considers to be short-, medium- and long-term horizons.

	From (years)	To (years)	Comment
Short-term	0	3	This designation is aligned with our corporate risk management framework.
Medium-term	3	6	This designation is aligned with our corporate risk management framework.
Long-term	6	10	This designation is aligned with our corporate risk management framework.

C2.2

(C2.2) Select the option that best describes how your organization's processes for identifying, assessing, and managing climate-related issues are integrated into your overall risk management.

Integrated into multi-disciplinary company-wide risk identification, assessment, and management processes

C2.2a

(C2.2a) Select the options that best describe your organization's frequency and time horizon for identifying and assessing climate-related risks.

	Frequency of monitoring	How far into the future are risks considered?	Comment
Row 1	Six-monthly or more frequently	>6 years	All functions (Business Units and Group, including the Executive Committee) are responsible for the identification, assessment and management of risks. We identify climate-related risks using scenario analysis and include them in our Group Risk matrix. The key climate-related risks identified by Stockland are around large scale weather events that impact our assets. We have also identified climate-related opportunities in energy efficiency and solar photovoltaics. Each Business Unit has developed sustainability policies which outline performance standards and requirements relating to energy efficiency and climate change adaptation to be considered in the design, construction and operation of projects and assets. The Sustainability team provide the Executive team and the Board with updates on progress towards emission reduction targets, adaptation and resilience initiatives and any identified climate change related risks and opportunities identified at the asset and/or Group level.

C2.2b

(C2.2b) Provide further details on your organization's process(es) for identifying and assessing climate-related risks.

To identify climate-related risks, we undertake climate scenario analysis using IPCC RCP 2.6 and the Deep Decarbonisation Pathways Project to identify transition risks and IPCC RCP 8.5 to identify physical risks. We use the scenario analysis to explore short-, medium-, and long-term climate-related risks that may impact our business based on the political, legal, technological, market, reputational, and physical risks included in these scenarios. At a company level, these climate-related risks are integrated into our multi-disciplinary, company-wide risk identification, assessment, and management process. This process includes formal risk workshops carried out on an annual basis with leaders from across the business. The workshops are used to identify emerging risks, including climate risks. Identified risks are analysed and evaluated at a company level and consolidated into a risk profile for each Business Unit. A Group Risk matrix is also produced including items that have a company-wide impact, such as climate change. Associated risk plans are monitored and reported quarterly.

Stockland has a diversified property portfolio that is actively managed in terms of portfolio composition and performance. With regard to asset-level risk identification and assessment, the portfolio for each asset class is assessed annually for financial and non-financial risks and opportunities, including climate-related issues identified in our scenario analysis. Regarding climate-related physical risks at our assets, we conduct climate resilience assessments at locations of elevated risk as identified in our scenario analysis. These assessments focus on the vulnerability of the asset to climate and its ability to endure severe weather impacts and operate without disruption. Resilience Action Plans are then developed for assets and include operational responses, maintenance regimes and business continuity plans.

Our approach to corporate risk management is guided by Australia/New Zealand Risk Management Standard (AS/NZS) ISO 31000:2009, the Australian Securities Exchange Corporate Governance Principles and other applicable regulatory standards. We have used scenario analysis since 2011 to understand our exposure to climate risks, and we have leveraged the Task Force on Climate-related Financial Disclosures *Technical Supplement: The Use of Scenario Analysis in Disclosure of Climate-Related Risks and Opportunities* to enhance our scenario analysis in recent years. Our scenario analyses are based on publicly-available, research-based investigations from organisations such as IPCC, Deep Decarbonisation Pathways Project, the Commonwealth Scientific and Industrial Research Organisation, and the Australian Bureau of Meteorology.

We define substantive financial or strategic impact on our business in accordance with "Major" or "Severe" designations on our consequence assessment within our Stockland Risk Management Procedure. An example of a substantive financial impact on our business would be a loss of greater than \$1 million at any individual operational asset. We consider a substantive operational impact to be at least a reduced ability to achieve objectives or key operational deliverables, where continued function of operations is threatened.

C2.2c

(C2.2c) Which of the following risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Property development in Australia is governed by regulations at the federal, state, and local levels of government. Regulations limit the development capacity of land at particular locations because of climate-related risks such as flooding and bushfire. These risks from current regulation are included in Stockland's risk assessment because they directly impact on the costs incurred during development or the expected revenues of a development.
Emerging regulation	Relevant, always included	For many years, Stockland has recognised emerging regulation and regulatory change as a key risk for our business. We have explicitly noted the risks and opportunities associated with regulatory changes focused on reducing carbon emissions, particularly in the context of Australia's ratification of the Paris Agreement. For example, regulation that puts a price on carbon would impact our Commercial Property business unit by increasing the cost of energy for its operations (estimated at approximately 10% increase when the now-repealed carbon price was in effect in Australia).
Technology	Relevant, always included	Stockland recognises that technological advances have the potential to increase the pace of decarbonisation, with broader impacts on Australia's economy. We understand these technological advances to pose risks and opportunities for our business, and we incorporate these considerations into how we design and construct new properties and how we source energy for our operational assets. Risks include designing our retail town centres with car parks that do not allow for electric vehicle charging or have other infrastructure that quickly becomes obsolete and requires us to spend on capital improvements to remain competitive. Opportunities include the installation of high-efficiency solar photovoltaic panels at our retail town centres in order to generate our own electricity and sell it to tenants, as we have done at centres such as Stockland Wetherill Park, Stockland Green Hills, Stockland Nowra, and Stockland Shellharbour.
Legal	Relevant, always included	Stockland recognises that current and emerging regulation on climate-related issues come with legal risks associated with compliance, fines, and judgements. For example, we have considered the increased liability associated with disclosure of climate risk and continue to evolve our leading reporting to protect against liability concerns.
Market	Relevant, always included	Stockland recognises that financial and commercial markets have the potential to drive the shift to a low carbon economy at a similar rate to changes in policy or technology alone. Examples of market risks included in our assessment are: - lending institutions requiring carbon reductions or not supporting perceived high carbon investments - customer demand for low carbon operations and assets impact design of our assets and property values.
Reputation	Relevant, always included	Stockland recognises several climate-related risks to its reputation. We have for many years enjoyed a strong reputation as a leader in climate risk management resulting from our innovative climate resilience assessment process and our Australian industry-leading portfolio of solar photovoltaic installations across the portfolio of our Commercial Property business unit. Losing this strong reputation as a result of poor climate risk management would have a negative impact on stakeholders desire to collaborate and transact with us.
Acute physical	Relevant, always included	Stockland has conducted portfolio mapping to understand the acute physical risks that impact on our assets. Specific examples include impacts from cyclones, flooding, and bushfire on our assets, customers, and communities. For example, our retail town centres in North Queensland, such as Stockland Cairns, are known to be at higher risk of cyclone impacts than assets in other states. These impacts include physical damage to our assets as well as potential temporary closure of our centres which can impact on provision of community services and local business continuity.
Chronic physical	Relevant, always included	Stockland has conducted a portfolio mapping exercise to understand the chronic physical risks that impact on our assets. Specific examples include increases to average temperatures that impact on the energy requirements of our assets and the wellbeing of our communities. For example, Stockland Wetherill Park is in Western Sydney which is expected to have an increase in very hot days in the summer, which could increase the load on our air conditioning infrastructure and peak energy demand. We have participated in resilience research led by the Cooperative Research Centre for Low Carbon Living using Stockland Wetherill Park as a case study as a means of understanding approaches to mitigating heatwave risks.
Upstream	Relevant, always included	Stockland considers the carbon impact of waste generated as part of its operations, its business travel, as well as other fuel- and energy-related activities by suppliers. For example, at the development of our residential community in Newport, Queensland, we partnered with our principal contractor on a waste and emissions reduction strategy that saved the project over \$135,000 (using 2016 average Queensland diesel fuel price of \$1.192 per litre) and over 305,000 kg CO2-e of greenhouse gas emissions avoided. Stockland has also considered the risk of carbon pricing, for example, on the price of goods and services sourced from its supply chain.
Downstream	Relevant, always included	Stockland has considered the impacts of the transition to a low-carbon economy on the demand for our assets. For example, there may be difficulty leasing energy inefficient assets to consumers among a growing demand for low-carbon products. This risk impacts our office assets as in many cases we are required to disclose the energy efficiency of office space to prospective tenants. Approximately 30 per cent of our tenants are government organisations that require a certain standard of energy efficiency in the office space that they lease, such as 4.5 stars NABERS rating. Should we not maintain the energy efficiency of our office assets to the standard required by these tenants, we risk losing their tenancy and losing revenue because of vacancy or if we must re-lease the space at a discount.

C2.2d

(C2.2d) Describe your process(es) for managing climate-related risks and opportunities.

Management of physical risk

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.

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 and
- 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
- overall risk to portfolio value and revenue.

As an example of how this process is applied to physical risks, a portfolio-scale physical risk mapping exercise identified our assets on North Queensland as a high priority for resilience assessments because of the region's exposure to cyclones and other extreme weather events. We completed resilience assessments of our North Queensland assets in 2014-15 and then set a target to improve the combined resilience score of these assets from 5.9 to 5.5 by 2017 (lower scores equate to better resilience). To achieve the target, we integrated a range of resilience-building initiatives into the annual capital expenditure and risk management plans for our North Queensland assets, such as improvements to roofing, guttering, building services, and emergency procedures. After completion of these initiatives, we found that the resilience of the portfolio had improved to a score of 5.4 - 0.1 better than our target. Several of our assets were in the path of cyclone Debbie in March 2017 yet remained operational during the event and did not sustain damage, an outcome that is testament to our management of physical climate risk through our resilience assessment process.

Effective management of physical risk in our Commercial Property business unit has resulted in a number of opportunities or areas of competitive advantage, such as:

- reduced expenditure on maintenance
- reduced premiums payable by us to our insurers
- enhanced business continuity and relationship with community and our customers (such as provision of services during crisis as occurred during cyclones at Stockland Rockhampton in recent years).

Management of transition risk

Transition risks such as emerging regulatory requirements related to climate change are incorporated into overall risk management and into our risk register as appropriate. Our Group Risk team is responsible for developing our risk management framework and adapting it to accommodate physical and regulatory changes which may impact our social and environmental performance. Our Government Relations, Risk, Legal and Sustainability teams keep the Executive Committee and Board informed on existing or emerging climate regulation that may impact on the business.

We acknowledge carbon emissions regulation and climate-related land development regulations to be important considerations for our business when managing risks from climate-related regulatory requirements. As an example, our business has faced rising energy costs in recent years and has considered that these costs may increase further in the event of carbon regulation to support the transition to a low carbon economy. We incorporated these considerations into our financial planning process for our retail town centre portfolio, and confirmed a capital expenditure of \$23.5 million in 12.3MW of solar photovoltaics to be installed at ten of our centres nationwide. This expenditure allows us to capitalise on the climate-related opportunity of generating our own electricity on site and minimising transition risks associated with carbon regulation. It also provides an opportunity for us to diversify revenue by selling

electricity that we produce using solar to our tenants in our Commercial Property business unit.

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. These collaborations enable us to partner with government more effectively and influence policy reform that opens opportunities for us to lead a transition to low carbon buildings.

C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.3a

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Transition risk

Primary climate-related risk driver

Policy and legal: Mandates on and regulation of existing products and services

Type of financial impact driver

Policy and legal: Write-offs, asset impairment, and early retirement of existing assets due to policy changes

Company- specific description

Changes to planning approval criteria and climate change assessments may reduce the amount of our developable land. This creates the risk of our developments not being approved or approvals being delayed. Changes to planning approvals are increasingly expected as part of the planning approval process for property development in Australia (particularly in relation to floodplain risk management). We regularly scan for opportunities to both achieve operational excellence and meet or exceed changing environmental regulations, such as through our innovative use of reused fill material to meet floodplain risk regulation at our development at Pallara (explained further in 'Management method' below).

Time horizon

Long-term

Likelihood

Unlikely

Magnitude of impact

Medium-low

Potential financial impact

422000000

Explanation of financial impact

The figure could be considerable but varies based on project type and size and the nature of the regulatory change. By way of example, if 2% of Stockland's residential portfolio (end-market value of \$21.1 billion as at 30 June 2017) was deemed not suitable for development, this would lead to up to \$422 million of future revenue lost. As we already have processes in place to assess climate change risks, we anticipate the risk of negative financial impact to be mostly mitigated.

Management method

Climate change considerations are integrated into the due diligence process for potential acquisitions to assess the climate change

risks inherent at each site. This is an integral part of our planning and acquisition process. Our ability to meet the required conditions for approvals is strong given demonstrated climate change adaptation management and performance. We completed Climate Resilience assessments in several development assets in FY17 including at our North Queensland retail town centres (Commercial Property); Birtinya, Foreshore, Toowong, North Shore, Pallara, Sienna Wood, Stamford Park (Residential); Newport, Calleya, Cardinal Freeman, and Birtinya (Retirement Living). An example of where innovative action was taken to improve resilience and also to manage regulatory risks included recycling earthworks material within our development site at Newport. The reuse of this material reduced GHG emissions, diverted material from landfill, and increased the site level above regulatory requirements for flood resilience.

Cost of management

472000

Comment

The cost of management is associated with undertaking and developing the Climate Vulnerability and Resilience Assessments - a process that is either conducted internally by key staff or by external consultants. Costs provided here assume \$8000 per assessment (estimated from external consultant costs). We have conducted a total of 59 assessments at the time of reporting, the estimated cost of management is \$472,000.

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Transition risk

Primary climate-related risk driver

Policy and legal: Increased pricing of GHG emissions

Type of financial impact driver

Policy and legal: Increased operating costs (e.g., higher compliance costs, increased insurance premiums)

Company- specific description

There has been a moderate level of uncertainty regarding environmental regulation in Australia, in particular regarding a price on carbon. This creates uncertainty in the market as it is unclear whether or not a carbon price will be re-instated at a later stage due to international pressures. This uncertainty presents financial risks surrounding our operational costs and the costs of Stockland's future developments.

Time horizon

Medium-term

Likelihood

About as likely as not

Magnitude of impact

Low

Potential financial impact

1490000

Explanation of financial impact

Financial impact would be dependent on the proposed legislative change and the required response. In regard to a price on carbon, this would lead to increased operational costs. As an indication, when a carbon price was introduced in Australia in FY13 (later withdrawn), we estimated that this led to a 10% increase in our annual electricity costs. Our electricity costs in FY17 were approximately \$14.9 million, so the financial impact of the potential regulation is estimated at 10% of this costs, or \$1.49 million.

Management method

We manage the financial impact of policy and legal risks through monitoring of regulation and continued collaboration with industry bodies to influence emerging policy and regulation, and to provide for business preparedness to upcoming regulatory change.

Cost of management

0

Comment

No additional cost, as this is a core responsibility of our Stakeholder Relations team.

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Physical risk

Primary climate-related risk driver

Chronic: Rising sea levels

Type of financial impact driver

Write-offs and early retirement of existing assets (e.g., damage to property and assets in "high-risk" locations)

Company- specific description

In 2011, we commissioned external research on the key climate risks to which we are exposed. This research found that sea level rise presents the risk to which our portfolio has the greatest exposure. The risk analysis investigated impacts from sea level rise, wave run-up and flooding risk. Sea level risk is likely to give rise to indirect impacts on our communities and our assets (and supporting infrastructure). For example, our planned residential community of Stockland Newport may experience risk from sea level rise and we have taken actions to mitigate this risk as described in the 'Management method' section.

Time horizon

Long-term

Likelihood

Unlikely

Magnitude of impact

Medium-low

Potential financial impact

211000000

Explanation of financial impact

Estimated financial implications relate to loss of tracts of development land and the adverse impact on existing assets. The value of this loss would vary depending on the size and nature of the land/assets impacted and the severity of the impact. As an indication, if 1% of Stockland's residential portfolio (ie end-market value of \$21.1 billion as at 30 June 2017) was impacted or deemed not suitable for development, this would result in up to \$211 million of future revenue lost. It would also have indirect financial impacts if communities surrounding our retail centres are impacted and therefore unable to access and shop at our centres due to salt water inundation.

Management method

All projects are required to review sea level rise and flooding risk early in the project development lifecycle. High risk projects (according to location) must conduct a climate resilience assessment. These assessments focus on the vulnerability of assets to climate change and the ability to endure severe weather impacts and operate without disruption. Where specific risks are identified, suitable mitigation or correctional measures are included in capital expenditure and asset maintenance plans as required. During the reporting period we completed resilience assessments across our North Queensland retail portfolio to assess the enhancements to portfolio resilience resulting from our targeted initiatives since 2015. We have managed sea level rise at Stockland Newport through consideration of year 2100 sea level rise scenarios in the design of the development and its integrated water management solution. Furthermore, we have committed to designing the development so it achieves recognition as a Green Star community.

Cost of management

555000

Comment

Cost of management relates to climate resilience assessments, which are estimated at \$8000 per assessment as per external consultant costs. We have conducted a total of 59 assessments at the time of reporting, the estimated cost of management is \$472,000. Cost of management also includes additional costs associated with designing in accordance with Green Star. Consultant costs associated with the Green Star rating for Newport were approximately \$83,000.

Identifier

Risk 4

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Physical risk

Primary climate-related risk driver

Chronic: Rising mean temperatures

Type of financial impact driver

Increased operating costs (e.g., inadequate water supply for hydroelectric plants or to cool nuclear and fossil fuel plants)

Company- specific description

In 2011, Stockland commissioned external research on the key climate risks to which we are exposed. This research found that higher mean temperatures were another climate change risk to our portfolio. More frequent warmer/hotter days will increase demand for ventilation and air conditioning, leading to higher operating costs due to increased maintenance and energy consumption. Changes in mean average temperatures will also impact the health and wellbeing of our residents. Stockland Wetherill Park is an example of an asset potentially impacted by changes in mean temperature, given its location in an area of Western Sydney that experiences higher than average summer temperatures.

Time horizon

Short-term

Likelihood

Very likely

Magnitude of impact

Low

Potential financial impact

335000

Explanation of financial impact

Estimated financial implications include increased operating and maintenance costs for our assets due to increased demand on HVAC systems. It is estimated that this could lead to a 5% increase in the system operating costs. For our Commercial Property business for example, with an annual HVAC operating cost of \$6.7 million, this represents approximately \$335,000 annually.

Management method

Potential at risk projects (based on location) must conduct a Climate Vulnerability and Resilience assessment. These assessments focus on the vulnerability of assets to climate change and the ability to endure severe weather impacts and operate without disruption. Where specific risks are identified, suitable mitigation or correctional measures must be included in asset-specific action plans, with actions implemented and tracked. An example includes the periodic assessment we conduct of our retail portfolio to assess the optimal operating conditions for our HVAC units (i.e. using minimal energy to maintain optimum temperature). At our Green Hills shopping centre for example, we replaced the HVAC system ahead of the end of life at a cost of \$5 million. During the reporting period we completed resilience assessments across our North Queensland retail portfolio to assess the enhancements to portfolio resilience resulting from our targeted initiatives since 2015. These initiatives included upgrades to air conditioning and electrical systems designed to enhance resilience during times of heavy load. Our centre at Wetherill Park is also participating in a study with the Low Carbon Living Cooperative Research Centre on mitigating urban heat island effect.

Cost of management

4572000

Comment

Cost of management includes climate resilience assessments, which are estimated at \$8000 per assessment based on external consultant costs. As we have conducted 59 assessments to date, the estimated cost of management is \$472,000. In addition, we spend approximately \$100,000 per annum assessing the performance of our HVAC systems and in 2017, spent approximately \$4 million upgrading and replacing our HVAC systems at our shopping centres.

Identifier

Risk 5

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Physical risk

Primary climate-related risk driver

Acute: Increased severity of extreme weather events such as cyclones and floods

Type of financial impact driver

Increased operating costs (e.g., inadequate water supply for hydroelectric plants or to cool nuclear and fossil fuel plants)

Company- specific description

In 2011, Stockland commissioned external research on the key climate risks to which we are exposed. This research identified higher maximum daily temperatures as another climate change risk to our portfolio. Heat waves in Australia are likely to increase in frequency and intensity. This would impact our residents, particularly our more vulnerable Retirement Living residents, and increase the demand for air conditioning and overall energy consumption, leading to higher operating costs due to increased maintenance and energy consumption. While heat waves have direct risks to human health, they also increase the chances of bushfires, which pose a further risk to life and property. Stockland Wetherill Park is an example of an asset potentially impacted by changes in temperature extremes, given its location in an area of Western Sydney that is susceptible to heatwave.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

Medium

Potential financial impact

335000

Explanation of financial impact

Estimated financial implications include increased operating and maintenance costs for our assets due to increased demand on HVAC systems. It is estimated that this could lead to a 5% increase in the system operating costs. For our Commercial Property business for example, with an annual HVAC operating cost of \$6.7 million, this represents approximately \$335,000 annually.

Management method

Potential at risk projects (based on location) must conduct a Climate Vulnerability and Resilience assessment. These assessments focus on the vulnerability of assets to climate change and the ability to endure severe weather impacts and operate without disruption. Where specific risks are identified, suitable mitigation or correctional measures must be included in asset-specific action plans, with actions implemented and tracked. An example includes the periodic assessment we conduct of our retail portfolio to assess the optimal operating conditions for our HVAC units (i.e. using minimal energy to maintain optimum temperature). At our Green Hills shopping centre for example, we replaced the HVAC system ahead of the end of life at a cost of \$5 million. During the reporting period we completed resilience assessments across our North Queensland retail portfolio to assess the enhancements to portfolio resilience resulting from our targeted initiatives since 2015. Many of these initiatives were directed at enhancing the resilience of our retail town centres to cyclone impacts, given the elevated cyclone risk in the North Queensland region. Our portfolio-scale solar PV rollout also manages the impact of acute physical risk by providing our assets with on-site power generation capabilities that can be relied upon during periods of peak energy demand (e.g. heatwaves).

Cost of management

6572000

Comment

Cost of management refers to \$472,000 on 59 climate resilience assessments conducted to date, estimated at \$8000 per assessment based on external consultant costs. In addition, we spend approximately \$100,000 per annum assessing the performance of our HVAC systems and in 2017, spent approximately \$4.0 million upgrading and replacing our HVAC systems at our shopping centres. Cost also includes \$2 million spent in FY17 on on-site solar photovoltaics to enhance the resilience of our Wetherill Park centre and reduce its impact on the energy grid during peak demand.

Identifier

Risk 6

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Physical risk

Primary climate-related risk driver

Acute: Increased severity of extreme weather events such as cyclones and floods

Type of financial impact driver

Increased capital costs (e.g., damage to facilities)

Company- specific description

In 2011, Stockland commissioned external research on the key climate risks to which we are exposed. This research found that a risk for our North Queensland assets was an increase in frequency and severity of storms. Intense tropical cyclone activity increases the incidence of flood and high winds. Increased frequency and impact of extreme weather may also lead to increasing

insurance premiums and the possibility of not being able to insure property in vulnerable locations. The unpredictability and extreme nature of these events may lead to structural damage of our assets and the disruption of our operations during and immediately following an event. It also presents an indirect risk via the impact on development sites managed by our supply chain in high risk areas. Stockland's assets in North Queensland, such as Stockland Cairns, experience cyclone activity and thus may be impacted.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

Medium

Potential financial impact

120000

Explanation of financial impact

Estimated financial implications relate to costs associated with potential structural damage to development sites, construction activities or existing assets. Costs may also include the cost of building retuning/repair following a cyclone. As an indication, we incurred a cost of approximately \$120,000 at a shopping centre in Rockhampton following damage to air conditioning equipment due to an extreme weather event.

Management method

We conduct climate resilience assessments, which assess the vulnerability of assets to climate change and the ability to endure severe weather impacts and operate without disruption. The methodology defines key vulnerability and resilience criteria, with a particular focus on location and design, structure, operation and maintenance, utilities and services and stakeholders. Action plans are developed for each asset and include the implementation of operational responses, maintenance regimes, and emergency response plans with a view to improving the resilience score of the asset. As an example, we conducted an assessment of climate change risks at our Rockhampton shopping centre and implemented a plan to improve the cyclone resilience of this centre at an approximate cost of \$700,000. During the reporting period, we reassessed the resilience of our North Queensland centres, including Rockhampton, to understand how our actions have enhanced centre resilience and continue to plan for their resilience into the future. We worked with the Cyclone Testing Station at James Cook University to complete two cyclonic wind vulnerability and emergency assessments at our shopping centres at Bundaberg and Hervey Bay. These assessments take a more detailed look at the roof structure and building envelope of a shopping centre to identify vulnerability to damage from cyclonic wind events.

Cost of management

1207000

Comment

Cost of management includes climate resilience assessments, which are estimated at \$8000 per assessment based on external consultant costs. As we have conducted a total of 59 assessments at the time of reporting, the estimated cost of management is \$472,000. Costs also include additional assessment of climate change risks at our Rockhampton shopping centre and the plan to improve the cyclone resilience of this centre at an approximate cost of \$700,000. Costs also include the cost for the Cyclone Testing Station at James Cook University to complete two cyclonic wind vulnerability assessments at our shopping centres in Bundaberg and Hervey Bay, which was \$35,000.

Identifier

Risk 7

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Physical risk

Primary climate-related risk driver

Chronic: Changes in precipitation patterns and extreme variability in weather patterns

Type of financial impact driver

Increased operating costs (e.g., inadequate water supply for hydroelectric plants or to cool nuclear and fossil fuel plants)

Company- specific description

Australia is the driest inhabited continent on earth, heavily exposed to extreme heat and drought as well as large-scale flooding. These events are influenced by many factors and while their occurrence is difficult to accurately estimate, the trend is towards larger, more intense events. Droughts will see the cost of water utilities increase as water security becomes a more serious issue for Australia. Large scale flooding will impact the operation of our businesses and lead to potential disruption of our services. Stockland Rockhampton is an example of an asset potentially impacted by changes in precipitation extremes, having experienced

several flood events since its redevelopment. We also acknowledge the potential for drought to have negative impact in regional economies of Australia dependent on agriculture. This may have a flow-on impact on Stockland by reducing the incomes of our customer base in regional communities where we operate.

Time horizon

Short-term

Likelihood

About as likely as not

Magnitude of impact

Low

Potential financial impact

430000

Explanation of financial impact

Drought would impact us directly (through increased cost of water to develop/service our assets) and indirectly (through visual amenity and appeal issues linked to drought and through increased cost of water placing additional stress on customers/tenants). As an indication, for our Commercial Property business, with an annual water cost of approximately \$4.3 million in FY17, a 10% increase in water costs would lead to an annual cost increase of approximately \$430,000. Flood would also impact our business due to structural damage to our assets and business continuity impacts for our tenants. It is difficult to estimate costs associated with drought more accurately as it would depend on the location and severity of the drought and our required response. However, as we already focus on climate resilience in the design and site selection of our assets, we do not anticipate any significant additional costs.

Management method

Water efficiency is addressed across our Commercial Property portfolio to ensure effective management and minimal use of the resource. All projects are required to review sea level rise and flooding risks in the acquisition/planning stage. High risk projects must conduct a climate resilience assessment. Where specific risks are identified, suitable mitigation or correctional measures must be included in asset-specific action plans. During the reporting period we reassessed the resilience of our North Queensland retail portfolio, following three years of targeted resilience initiatives at these assets, such as roof enhancements, stormwater improvements, air conditioning and electrical upgrades, and business continuity planning. These resilience-building initiatives were integrated into the annual capital expenditure and risk management plans and our reassessment determined that the initiatives had enhanced the resilience of our centres.

Cost of management

472000

Comment

Cost of management is based on climate resilience assessment costs, which are estimated at \$8000 per assessment based on external consultant costs. As we have conducted a total of 59 assessments at the time of reporting, the estimated cost of management is \$472,000.

Identifier

Risk 8

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Transition risk

Primary climate-related risk driver

Reputation: Increased stakeholder concern or negative stakeholder feedback

Type of financial impact driver

Reputation: Reduction in capital availability

Company- specific description

Stakeholders are increasingly looking to understand what organisations are doing to manage climate change risks. This is particularly important as business partners and investment analysts place increasing value on intangible dimensions such as risk management, brand, reputation and employee engagement. If we were to lower our focus on climate resilience, we would risk damage to our reputation and reduced demand for our assets, adversely impacting revenue, which in turn, would impact on investor confidence and thus our share price. Lowering our focus on climate risk would also impact our standing on indices such as Dow Jones Sustainability Index, which are used by investors to invest in companies with high sustainability credentials. We may also lose the confidence of key decision-making bodies (such as State Government and local Australian Councils) and institutional

investors. This would adversely impact project approvals and access to capital.

Time horizon

Short-term

Likelihood

Unlikely

Magnitude of impact

Medium-low

Potential financial impact

1080000000

Explanation of financial impact

We could be impacted financially if our reputation for climate resilience was damaged and we were therefore no longer considered an investment of choice (therefore impacting access to capital). our share price could also be negatively impacted from damage to our reputation. The extent of impact would be dependent on the nature of the reputation damage. By way of example, a 10% fall in our share price could result in approximately \$1.08 billion in loss of share value for investors (based on a market capitalisation of \$10.8 billion as at 30 June 2017). There would also be financial implications of reduced market share and missed development opportunities if we were not considered a developer or partner of choice by government or other stakeholders. As we already focus on climate resilience in the design and operation of our assets, we do not anticipate any reputational damage or additional costs.

Management method

We manage this risk by continuing to focus on climate resilience of our portfolio. Potential at risk projects (based on location) must conduct a climate risk assessment. These assessments focus on the vulnerability of assets to climate change and the ability to endure severe weather impacts and operate without disruption. Where specific risks are identified, suitable mitigation or correctional measures must be included in asset-specific action plans, with actions implemented and tracked. An example includes the periodic assessment we conduct of our retail portfolio to assess the optimal operating conditions for our heating, ventilation, and air conditioning units (i.e. using minimal energy to maintain optimum temperature). At our Green Hills shopping centre for example, we replaced the heating, ventilation, and air conditioning system ahead of the end of life at a cost of \$5 million. We have an active Stakeholder Relations team which ensures climate change issues remain on the radar and that the company responds to any concerns quickly and effectively to minimise potential damage to our reputation. We also manage our reputation through participation in a range of reporting surveys, such as DJSI, GRESB, and CDP. We report on our sustainability performance annually through our integrated Annual Review and convene regular meetings with institutional investors

Cost of management

5472000

Comment

Cost of management includes climate resilience assessment costs, which are estimated at \$8000 per assessment based on external consultant costs. As we have conducted a total of 59 assessments at the time of reporting, the estimated cost of management is \$472,000. The quoted cost also includes the heating, ventilation, and air conditioning upgrade at Green Hills as an indicative cost of capital expenditure targeted at enhancing resilience.

Identifier

Risk 9

Where in the value chain does the risk driver occur?

Customer

Risk type

Transition risk

Primary climate-related risk driver

Reputation: Shifts in consumer preferences

Type of financial impact driver

Reputation: Reduced revenue from decreased demand for goods/services

Company- specific description

In some facets of our business, customers are increasingly engaged on sustainability issues, with growing expectations around the sustainability performance of assets. Some tenant groups, including government, have stated their intention to only occupy buildings that meet minimum sustainability (energy efficiency) requirements. Our strong positive reputation depends on our consideration of climate risk when developing our assets. This positive reputation enlarges our customer base through recommendations and word of mouth, particularly in residential communities when residents refer friends and family to live in a Stockland development. Thus, we would expect a negative impact on our reputation to flow on to lower demand for our products and less revenue. Any reduction in revenue or failure to meet revenue targets would impact on investor confidence, which could

lead to a reduction in our stock price.

Time horizon

Short-term

Likelihood

Unlikely

Magnitude of impact

Low

Potential financial impact

4970000

Explanation of financial impact

We could be impacted financially if our reputation for climate risk management were damaged and we were unable to attract tenants/customers to our assets. This risk will increase over time as other new buildings are developed with modern and efficient fixtures. By way of example, approximately 30 per cent of our tenants are government organisations that have policies to only occupy office spaces with a NABERS rating of 4.5 stars or higher. Should we not maintain our assets to energy efficiency standard at or above 4.5 stars, then we risk losing at least 30 per cent of our tenants, with resulting revenue losses from vacancy or needing to re-lease the space at a discount. This impact is estimated at 7.5 per cent of our FY17 office rent revenue of \$66.3 million (impact of 7.5 per cent results from the need to re-lease 30 per cent of our portfolio at a 25 per cent discount).

Management method

We manage this risk by providing for a minimum level of sustainability performance at our assets which provides maximum benefit to our customers in terms of reduced operating cost/living costs and improved environmental performance. Continuous improvements and upgrades are undertaken across our assets to maintain high performance, and we set operational performance targets for NABERS and Green Star across our portfolios.

Cost of management

8200000

Comment

Costs involved in design and development of assets in accordance with Green Star, and also costs involved in upgrading and refurbishing existing assets to ensure their enhanced sustainability performance. Consultant costs associated with our only Commercial Property Green Star Design rating (Harrisdale) was approximately \$100,000. Management costs also include the costs of maintaining and upgrading our systems such as LED lighting and HVAC. In FY17, we spent approximately \$3.6 million in HVAC maintenance and \$4.0 million in replacing/upgrading our shopping centre HVAC systems and approximately \$500,000 in upgrading to LED lighting systems.

C2.4

(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.4a

(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Opp1

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Energy source

Primary climate-related opportunity driver

Participation in carbon market

Type of financial impact driver

Other, please specify (Increased revenue from selling credits)

Company- specific description

The Energy saving Scheme (ESS) is governed by NSW legislation. It reduces electricity consumption in NSW by creating financial incentives for organisations to invest in energy saving projects. Energy savings are achieved by installing, improving or replacing energy saving equipment. The ESS has enabled Stockland to accrue credit annually, creating a potential revenue generator for the company. Energy Saving Certificates (ESCs) are created for projects and initiatives that reduce energy consumption. One ESC represents 1 tonne/CO2 and has a dollar value which can be traded in an open market. Buyers are typically energy retailers to meet mandatory energy savings reporting obligations using a NABERS benchmarking method. Stockland Glendale, Stockland Jesmond, Stockland Nowra, and three Stockland office buildings in Sydney have accrued ESCs in the most recent reporting period.

Time horizon

Short-term

Likelihood

Virtually certain

Magnitude of impact

Medium-low

Potential financial impact

632000

Explanation of financial impact

We have traded ESCs in 2012, 2015, and 2017. In 2017, we traded 14,587 ESCs that were created in 2015/2016, earning over \$211,511. To date we have traded over 34,000 ESCs and realised over \$632,000 of income.

Strategy to realize opportunity

As an Accredited Certificate Provider under the ESS, we must ensure we manage all our data/reporting in accordance with the requirements set by the Scheme. As such, the requirements are integrated into our management system and responsibility is assigned to a member of the sustainability team to monitor and maintain the systems and associated processes. We integrate the creation of ESCs into our energy efficiency programs at our assets. For example, at our Green Hills shopping centre, we have upgraded lights to LEDs, replaced all the air conditioning plant and installed smart metering. The cumulative savings are more than 50% and Stockland receives an annual contribution through ESCs in recognition of these savings.

Cost to realize opportunity

10000

Comment

Management costs include consultants fees for the creation of the ESCs and fees for the ESC registration totalling approximately \$10,000. While there are costs associated with the upgrade of assets to generate credits, these costs are not additional as they form part of our ongoing investment in energy efficiency to meet our internal energy targets.

Identifier

Opp2

Where in the value chain does the opportunity occur?

Customer

Opportunity type

Products and services

Primary climate-related opportunity driver

Shift in consumer preferences

Type of financial impact driver

Better competitive position to reflect shifting consumer preferences, resulting in increased revenues

Company- specific description

Higher mean temperatures in our areas of operation will drive greater traffic to our retail centres as people seek cool, public areas in which to spend their time. This will also lead to increased demand from our shopping centre tenants as they seek highly efficient (lower energy cost) premises. Our centres at Merrylands and Wetherill Park, for example, are in areas of Western Sydney that experience warm summer days on a regular basis. Increased prevalence of warm to hot days would lead to increased visitation to these centres as people seek cool refuges. Increased visitation to these centres would result in increased spend within the centres and increased appeal for businesses to locate in the centres.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

Low

Potential financial impact

33740

Explanation of financial impact

Estimated financial implications include Increased revenues for our retail tenants and therefore demand from tenants for our retail space. For example, in January (summer) 2016 the average spend per visitor at Stockland Merrylands was \$33.74 (29,707 visitors per day). So if an extra 1000 visitors seek cool refuge within Stockland Merrylands on a hot day, this increased visitation may be associated with an extra \$33,740 spent within the centre.

Strategy to realize opportunity

We manage this opportunity by focusing on building the resilience of our retail town centres so they remain attractive and enjoyable areas in which the community choose to spend time, and that they are able to operate effectively at high capacity (car parks, lifts etc). An example includes the periodic assessment we conduct of our retail portfolio to assess the optimal operating conditions for our HVAC units (i.e. using minimal energy to maintain optimum temperature). At our Green Hills retail town centre for example, we replaced the HVAC system ahead of the end of life at a cost of \$5 million.

Cost to realize opportunity

5472000

Comment

Cost of management includes climate resilience assessment costs which are estimated at \$8000 per assessment based on external consultant costs. As we have conducted a total of 59 assessments at the time of reporting, the estimated cost of management is \$472,000. There are additional management costs associated with energy efficiency initiatives and building upgrades that vary from year-to-year and across our portfolio. These are factored into annual asset plans and if they meet required return on investment criteria, they are integrated into operational budgets. As an example, the above cost includes the replacement of the Green Hills HVAC system ahead of the end of life at a cost of \$5 million.

Identifier

Opp3

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Type of financial impact driver

Increased revenue through demand for lower emissions products and services

Company- specific description

By focusing on energy efficiency and renewable energy across our portfolio, we can capitalise on increased market demand for more efficient design as potential tenants seek highly efficient (lower energy cost) premises with low carbon footprints. Stockland focuses on this opportunity by committing to Green Star ratings on all new commercial property developments and by setting NABERS energy rating targets for its operational assets. Some of our tenants have already confirmed their demand for energy efficient properties, such as public sector tenants that have policies to only occupy office spaces with NABERS 4.5 Stars or higher rating.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

Medium

Potential financial impact

78000000

Explanation of financial impact

As a result of our focus on energy efficiency and renewable energy, Stockland and its tenants have collectively saved over \$78 million in energy costs since 2006, while nearly halving our carbon footprint. Our focus on energy efficiency also minimises the risk of foregone revenue due to vacancy resulting from a lack of demand for inefficient real estate.

Strategy to realize opportunity

We manage this opportunity by focusing on continuous assessment and upgrades at our assets, focusing on optimising energy efficiency in line with best practice. An example includes the periodic assessment we conduct of our retail portfolio to assess the optimal operating conditions for our HVAC units (i.e. using minimal energy to maintain optimum temperature). At our Green Hills shopping centre for example, we replaced the HVAC system ahead of the end of life at a cost of \$5 million.

Cost to realize opportunity

79800

Comment

Management costs are associated with energy efficiency initiatives and building upgrades. These are factored into annual asset plans and if they meet required return on investment criteria, they are integrated into operational budgets. The cost provided above is an example related to implementing chiller optimisation to improve the efficiency of the chillers at Stockland Rockhampton retail town centre. This improvement required a capital investment of \$79,800 with a return on investment of 34% or a payback within 3 years.

Identifier

Opp4

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Resilience

Primary climate-related opportunity driver

Other

Type of financial impact driver

Other, please specify (Reduced insurance costs)

Company- specific description

Stockland has completed a portfolio-wide review of its exposure to physical climate risk such as increased frequency and severity of extreme weather (e.g. cyclones) and changes to average climate conditions. Our systematic focus on building the resilience of our portfolio has resulted in an opportunity to work with our insurers to have our investment in resilience recognised through reduced insurance premiums.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

Medium

Potential financial impact

150000

Explanation of financial impact

The estimated financial implications are reduced deductibles from insurance claims. Following a cyclone in February 2015, an insurance provider agreed to reduce the insurance deductible for our assets by \$150,000 due to the completion of cyclone vulnerability assessment and resilience works.

Strategy to realize opportunity

Priority assets and projects (based on location and exposure to physical risks) must conduct a climate resilience assessment. These assessments focus on the vulnerability of assets to climate change and the ability to endure severe weather impacts and operate without disruption. Where specific risks are identified, suitable mitigation or correctional measures must be included in asset-specific action plans, with actions implemented and tracked.

Cost to realize opportunity

472000

Comment

Cost of management includes climate resilience assessment costs which are estimated at \$8000 per assessment based on external consultant costs. As we have conducted a total of 59 assessments at the time of reporting, the estimated cost of management is \$472,000.

Identifier

Opp5

Where in the value chain does the opportunity occur?

Customer

Opportunity type

Products and services

Primary climate-related opportunity driver

Shift in consumer preferences

Type of financial impact driver

Better competitive position to reflect shifting consumer preferences, resulting in increased revenues

Company- specific description

Stockland invests in the climate resilience of our developments so that they continue to be great places to live now and into the future. This safeguards our brand and demonstrates the value of our assets. It also promotes trust and customer satisfaction which are key drivers of referrals and ongoing sales and revenue. In addition, sustainability and the climate resilience of our assets is increasingly important to institutional investors and therefore Stockland's access to capital, which allows to Stockland to maintain, expand and grow our assets.

Time horizon

Long-term

Likelihood

Likely

Magnitude of impact

Medium-low

Potential financial impact

1480000

Explanation of financial impact

Positive financial implications may arise from long term brand value and demand for our assets. A strong reputation may lead to greater investor confidence, an increased share price and access to appropriate capital. Our share price could be positively impacted from an enhanced reputation. Further, an enhanced climate resilience reputation may lead to improved sales. For example, if sales of residential assets were to increase by 1% due to our enhanced sustainability reputation, this could lead to an increase in sales revenue of \$14.8 million (based on FY16 residential revenue of \$1,482 million).

Strategy to realize opportunity

Priority assets and projects (based on location and exposure to physical risks must conduct a climate resilience assessment. These assessments focus on the vulnerability of assets to climate change and the ability to endure severe weather impacts and operate without disruption. Where risks are identified that relate to building structures or other infrastructure, suitable mitigation or correctional measures are included in asset-specific action plans, with actions implemented and tracked. Where risks are identified that relate to community health, safety, and other outcomes, suitable resilience-building initiatives are integrated into community development plans.

Cost to realize opportunity

472000

Comment

Cost of management includes climate resilience assessment costs which are estimated at \$8000 per assessment based on external consultant costs. As we have conducted a total of 59 assessments at the time of reporting, the estimated cost of management is \$472,000.

C2.5

(C2.5) Describe where and how the identified risks and opportunities have impacted your business.

	Impact	Description
Products and services	Impacted	Physical risks of climate change as well as opportunities associated with energy efficiency have impacted Stockland's products and services by motivating us to invest in the development of climate-resilient assets and communities, as well as encouraging us to prioritise energy efficiency initiatives at our assets. Given increasing consumer demand for low carbon products that reduce the costs associated with home and/or work life, an estimate of the magnitude of this impact is a one per cent increase in residential revenues (e.g. 17.67 million based on total residential revenue of \$1767 million in FY17).
Supply chain and/or value chain	Impacted for some suppliers, facilities, or product lines	Climate-related risks and opportunities have impacted on our customer base as some of our public sector tenants (around 30 per cent of our office tenant base) have policies of only leasing office space with a NABERS Energy rating of 4.5 Stars or above. Should we not maintain our assets to energy efficiency standard at or above 4.5 stars, then we risk losing at least 30 per cent of our tenants, with resulting revenue losses from vacancy or needing to re-lease the space at a discount. This impact is estimated at 7.5 per cent of our FY17 office rent revenue of \$66.3 million (impact of 7.5 per cent results from the need to re-lease 30 per cent of our portfolio at a 25 per cent discount).
Adaptation and mitigation activities	Impacted	Physical risks have impacted our entire business as we have developed a bespoke climate resilience assessment process to manage physical risks across our portfolio. Recommendations from climate resilience assessments are integrated into asset management plans, community development plans, and development project plans. Transition risks have impacted our entire business as we roll out energy efficiency and renewable energy projects, and engage with our supply chain regarding energy efficiency on our development projects. These projects and engagements manage financial and reputational risks associated with existing and potential future carbon and energy regulations. To date, climate resilience assessments have cost the business \$472,000 however have also led to resilience enhancements that have enabled our centres to remain operational through extreme weather events. We have had an approximate \$100,000 insurance reduction premium per annum based on our work in climate resilience.
Investment in R&D	Impacted for some suppliers, facilities, or product lines	Climate-related opportunities have led to strategic partnerships in research and development for our business. For example, we have partnered with the Australian Commonwealth Scientific and Industry Research Organisation on a project focused on the world's first two-stage solar desiccant cooling system. This aims to bring solar cooling technology to fruition across our portfolio and contributing to emissions reductions. Other research collaborations arising from climate-related opportunities include work with the Collaborative Research Centre for Low Carbon Living, Urban Heat Island. This investment in research has allowed us to move proactively on key capital expenditure opportunities such as our industry-leading solar rollout across our portfolio. The magnitude of the opportunity resulting from the research is our \$23.5 million solar rollout confirmed within the reporting period, estimated to deliver an internal rate of return in excess of 10 per cent per annum.
Operations	Impacted	Climate-related risks and opportunities impact Stockland's business operations across all of its business units. For example, physical climate risk impacts on our operations through potential damage to assets we own as well as disrupting day-to-day trading activities at our retail town centres. We focus on mitigating physical climate risk by undertaking climate resilience assessments for our assets in high priority locations. To date we have spent approximately 472,000 on climate resilience assessments. Another example are transition risk impacts associated with energy cost and availability essential for our operations. We have sought to minimise these impacts through our industry-leading investment in solar photovoltaics across our business. Through our investments in energy efficiency and renewable energy, Stockland has saved over \$78 million in energy costs since 2006.
Other, please specify	Please select	

C2.6

(C2.6) Describe where and how the identified risks and opportunities have factored into your financial planning process.

	Relevance	Description
Revenues	Impacted	Climate-related opportunities have factored into our revenue through revenue we realise by selling electricity that we generate using solar PV installed on our retail town centres. We have installed solar PV on the roofs of Stockland Green Hills, Stockland Wetherill Park, Stockland Nowra, Stockland Shellharbour, and Stockland Caloundra. We manage this opportunity by installing high-efficiency solar PV panels and maintaining embedded networks at these retail town centres that give us the capacity to onsell the electricity we create to tenants. We are further capitalising on this opportunity by investing in a further 12MW of solar PV across retail town centres in New South Wales, Victoria and Queensland. Revenues expected from this further rollout are expected to be around \$3.1 million per annum.
Operating costs	Impacted	As a response to opportunities resulting from existing and emerging climate regulation, our annual operating asset management planning process investigates opportunities for energy efficiency and renewable energy as standard practice. Our investment in energy efficiency upgrades (such as LED lighting at Stockland Merrylands and chiller optimisation at Stockland Rockhampton) and solar PV (installed at Stockland Green Hills, Stockland Wetherill Park, Stockland Shellharbour, Stockland Nowra, and Stockland Caloundra) as a response to climate-related transition risk has saved our Commercial Property business unit over \$78 million in avoided costs since 2006.
Capital expenditures / capital allocation	Impacted	Climate-related risks and opportunities have led to strategic capital expenditure across our business. For example, it is now standard practice for us to integrate capital projects focuses on operational efficiency for each of our asset classes. Projects include LED lighting upgrades, solar PV installations (such as \$2 million for solar PV at Stockland Wetherill Park), and to Green Star rated redevelopments (such as our \$414 redevelopment of our 5 Star Green Star rated Stockland Green Hills) that address energy, water, and waste efficiency holistically. We integrate these climate-related capital projects into the capital expenditure budgets for our assets. FY17 CAPEX budget including \$459,000 for LED lighting upgrades at centres including Stockland Shellharbour, Stockland Tooronga and Stockland Rockhampton - \$4,000,000 on HVAC upgrades, - \$80,000 on chiller optimisation - \$2,000,000 on solar PV at Wetherill Park.
Acquisitions and divestments	Impacted for some suppliers, facilities, or product lines	Physical risks as well as transition risks relating to land development regulations have the capacity to impact the current value and future earning potential of our assets and landbank. Climate-related risks and opportunities, including physical risks such as flooding and bushfire, as well as transition risks such as energy efficiency of existing built form, are integrated into our acquisitions and due diligence review within our development lifecycle process. For example, in our Retirement Living business unit, assessment of climate-related risks and opportunities at the early stages of redevelopment of The Village Swansea Retirement Village in New South Wales strongly contributed to our decision not to proceed with the project. We are further enhancing the consideration of climate-related risks and opportunities in our acquisitions with a particular focus on activities in our Residential business unit in the near future. The impact of climate risks and opportunities on our acquisitions and divestments has been limited to date, however we expect this impact to increase into the future.
Access to capital	Impacted for some suppliers, facilities, or product lines	Our work in climate-related risks and opportunities has enabled us to access capital in the form of green bonds, which is factored into our access to capital considerations. We currently have on issue a seven-year Green Bond worth Euro 300 million focused on assets with enhanced sustainability criteria using the Green Star benchmark. During the reporting period, our Green bond was allocated to the following Green Star projects: - Aura (residential community in Queensland) - Cloverton (residential community in Victoria) - Willowdale (residential community in New South Wales) - Altrove (residential community in New South Wales) - Newport (residential community in Queensland) - Green Hills (retail town centre in New South Wales). The impact of the Green Bond on our overall access to capital is limited, however there is potential for similar climate-related considerations regarding access to capital to increase.
Assets	Impacted	An example of integration of climate-related risks and opportunities into our financial planning process for assets is our portfolio review focused on physical risks of climate change on our assets. The portfolio review is integrated into our management costs and is considered to increase our awareness of physical climate risk and enhance our management of these risks. For example, the portfolio review identified our North Queensland retail town centres as a priority for investment to mitigate impacts from cyclone risks including physical damage to assets and impacts to business continuity. The review aims to mitigate the impact of these risks on the value of our assets and our landbank. As an indication of the potential magnitude of these impacts, if 1% of Stockland's residential portfolio (ie end-market value of \$21.1 billion as at 30 June 2017) was impacted or deemed not suitable for development because of climate risks, this would result in up to \$211 million of future revenue lost.
Liabilities	Impacted	Climate-related risks and opportunities have impacted our liabilities by influencing the type of debt we raise to fund our business activities. We currently have on issue a seven-year Green Bond worth Euro 300 million focused on assets with enhanced sustainability criteria using the Green Star benchmark. During the reporting period, our Green bond was allocated to the following Green Star projects: - Aura (residential community in Queensland) - Cloverton (residential community in Victoria) - Willowdale (residential community in New South Wales) - Altrove (residential community in New South Wales) - Newport (residential community in Queensland) - Green Hills (retail town centre in New South Wales). This Green Bond is a relatively small component of our total debt liability, however we acknowledge the potential for increased influence from climate-related issues on our liabilities.
Other	Please select	

C3. Business Strategy

C3.1

(C3.1) Are climate-related issues integrated into your business strategy?

Yes

C3.1a

(C3.1a) Does your organization use climate-related scenario analysis to inform your business strategy?

Yes, qualitative and quantitative

C3.1c

(C3.1c) Explain how climate-related issues are integrated into your business objectives and strategy.

How business strategy is influenced

Our business strategy has three focus areas that direct how we deliver value for our investors and other stakeholders. These are 'grow asset returns and customer base', 'operational excellence', and 'capital strength'. Operational excellence focuses on improving the way we operate across the Group to drive efficiencies and effectiveness, and mitigate risk. We conduct an annual strategic review of our Group and Business Unit strategies and our Risk team provides advice to management and the Board Risk Committee on strategic risks. This review takes into account risks and opportunities for the business, including climate change risks and opportunities and their potential impact on corporate strategy. Our business strategy is linked to an emissions reduction target (such as a 60% reduction in energy intensity by FY25 in our Commercial Property business based on a 2006 baseline) that help us achieve 'operational excellence'. Further information on our business strategy and integrated sustainability strategy is provided in our publicly available Annual Review (30 June 2017).

Example of how the business strategy has been influenced

Consideration of climate change risks and opportunities has influenced our business strategy through the setting of emissions reduction targets, which in turn has resulted in actions to reduce the emissions intensity of our portfolio. As a response to the need to mitigate carbon emissions, manage energy price fluctuations, and capitalise on opportunities to reduce long-term energy expenditure, we developed a renewable energy strategy in FY15. This strategy led to the completion of solar PV feasibility assessments across a selection of our assets, which led to our FY17 commitment to invest \$23.5 million in 12.3MW of solar PV capacity across ten of our retail town centres (adding to the 2.25MW we had already installed since FY15). This is the most substantial decision made that aligns with our climate change strategy, having resulted from our identification of energy abatement and alternative energy as aspects of climate change that influenced business strategy and decision to invest in solar. We have continued our response to climate change adaptation in FY17 completing climate resilience assessments and action plans over a number of assets such as Cardinal Freeman in Retirement Living, Sienna Wood in Residential and Green Hills within Retail. These assessments build on the success of resilience planning at our retail centre in Rockhampton, which has withstood a number of significant weather events without major damage since our upgrade of the centre to withstand a 1:300 year storm event.

What aspects of climate change have influenced the strategy

Physical risks - managing our assets for resilience to the physical risks of climate change. We conduct climate vulnerability and resilience assessments at projects in high risk locations. These assessments focus on the vulnerability of assets to climate change and the ability to endure severe weather impacts and operate without disruption.

Supply chain risks - considering climate change risks and opportunities when engaging key suppliers. We continue to develop and encourage sustainable procurement practices across our direct and indirect spend.

Regulatory risks - increased costs and/or compliance burden from changing regulation (e.g. carbon pricing/trading schemes)

Opportunities associated with carbon efficiency - potential cost reductions from energy efficiency initiatives (linked to emission reduction targets), as well as the upfront design and build of efficient and resilient assets.

Opportunities associated with alternate energy - we lead the Australian property industry in on-site solar PV capacity installed at our assets, and continue to investigate opportunities to expand this capacity.

How the short-term (1-3 years) strategy has been influenced by climate change

Operational efficiency - the approval and adoption of energy efficiency targets across all assets, and spend on environmental works such as HVAC and LED lighting upgrades and the installation of solar at our shopping centres.

Customer satisfaction/climate resilience - enhancing affordability through improved energy efficiency in the design and operation of assets and guaranteeing business continuity for our tenants through the provision of resilient assets. This may also reduce our maintenance and upgrade costs.

Sustainable development - making our communities and assets stronger, healthier, more connected and more resilient through

environmental and social initiatives, including Green Star ratings.

How the long-term (6-10 years) strategy has been influenced by climate change

Adoption of new business types, models and geographies that are more resilient to climate change and associated risks. For example, we are required to review sea level rise and flooding risk for potential acquisitions.

Minimising our liability – we limit our exposure to legal risk through the delivery of real estate assets that are able to withstand extreme weather events and align with building code standards or better.

How the Paris Agreement has influenced the business strategy

Stockland has considered the Paris agreement in setting carbon strategy as part of our strategy. Our carbon target of a Commercial Property 60% intensity reduction from FY06 exceeds the Australian commitment through the Intended Nationally Determined Contributions (INDCs) process.

How this is gaining a strategic advantage over your competitors

Through energy efficiency programs (such as solar installations, LED lighting, energy efficient air conditioning, provision for future embedded energy network), we are able to improve affordability for residents and retail/office tenants. This may differentiate us from competitors and assist in maintaining existing customers and attracting new customers. Further, by implementing initiatives that improve the resilience of our assets, we reduce the risk of business disruption to our residents and customers, mitigate potential future costs associated with maintenance and emergency response, and reduce insurance costs.

C3.1d

(C3.1d) Provide details of your organization’s use of climate-related scenario analysis.

Climate-related scenarios	Details
RCP 2.6	<p>Stockland's climate-related scenario analysis incorporated RCP2.6 because it is the only IPCC scenario considered to limit warming to two degrees Celsius, and also incorporated the Australia-specific outputs from the Deep Decarbonisation Pathways Project in order to provide insights for our business about how Australia's economy and infrastructure may change to limit warming to two degrees. We incorporated the assumptions of RCP2.6 into our scenario analysis including strong mitigation efforts, with early participation from all emitters followed by active removal of atmospheric carbon dioxide. RCP2.6 anticipates that emissions will peak by approximately 2030 and then reduce resulting in net zero emissions by about 2050. This scenario is marked by a considerable change in technologies predicated on the widespread uptake of renewable energy, energy and emissions capture and storage and changes to transport fuels and modes. We considered timeframes of 2030 and 2050 to be relevant both because of the need to consider longer-term risks and because we develop assets with an expected lifespan of 40 years or more. Our scenario analysis using RCP2.6 and DDPP was applied to all areas of our business and identified several key transition risks and opportunities for Stockland: - Broad policy change - such as regulations limiting the development potential of land that Stockland owns or acquires, the promotion of more sustainable land use practices, and energy efficiency requirements for buildings - Liability risks - including changes to insurability of Stockland's and its customers' assets and commercial liability regarding disclosure of transition and physical risks - Technology shifts - including broad scale changes to how Stockland generates, transmits, and distributes energy, particularly among a shift away from fossil fuels to renewable energy sources - Investment considerations - including the potential for lending institutions to prefer borrowers with strong climate risk management practices and with the capacity to create low carbon solutions - Reputational risks and opportunities - including loss of Stockland's customer base or employee engagement if we are considered a climate laggard, while noting the potential for increased customer satisfaction and engagement if we continue our climate action leadership. The results of our scenario analysis influence our business objectives and strategy through integration with Group and business unit sustainability strategies, and through integration into our enterprise risk management framework. The results have reaffirmed our focus on energy efficiency and renewable energy as appropriate mechanisms for minimising some of the transition risks identified in the scenario analysis. Some of the results were easily integrated into existing risks within our enterprise risk register (such as board policy change), while others have led to new areas of focus within the business (such as enhanced disclosure and liability risks). A case study of how the results of scenario analysis have directly influenced strategy relates to our due diligence strategy for new acquisitions. Following on from the scenario analysis, we engaged our acquisitions team to develop climate risk considerations to include in the due diligence process for new acquisitions. We continue to refine this process with the aim of enhancing our consideration of both physical and transition risk when we bring new assets into our portfolio.</p>

Climate-related scenarios	Details
DDPP	<p>Stockland's climate-related scenario analysis incorporated RCP2.6 because it is the only IPCC scenario considered to limit warming to two degrees Celsius, and also incorporated the Australia-specific outputs from the Deep Decarbonisation Pathways Project in order to provide insights for our business about how Australia's economy and infrastructure may change to limit warming to two degrees. Key assumptions incorporated from the Australian component of the Deep Decarbonisation Pathways Project include a target of net zero emissions by 2050, which is an appropriate timeframe for our business because of both the need to give due consideration to long-term risks and because we develop assets with a lifespan of at least 40 years. Other assumptions within the DDPP scenario that we incorporated are organised around four pillars: - Energy efficiency, such as a halving of energy use per household and per square metre of commercial buildings - Low carbon electricity, such as a 10 to 15 per cent increase in rooftop solar photovoltaics - Electrification - such as an assumed full electrification of buildings energy use to zero carbon sources - Non-energy emissions - such as process enhancements and materials substitutions. Our scenario analysis using RCP2.6 and DDPP was applied to all areas of our business and identified several key transition risks and opportunities for Stockland: - Broad policy change - such as regulations limiting the development potential of land that Stockland owns or acquires, the promotion of more sustainable land use practices, and energy efficiency requirements for buildings - Liability risks - including changes to insurability of Stockland's and its customers' assets and commercial liability regarding disclosure of transition and physical risks - Technology shifts - including broad scale changes to how Stockland generates, transmits, and distributes energy, particularly among a shift away from fossil fuels to renewable energy sources - Investment considerations - including the potential for lending institutions to prefer borrowers with strong climate risk management practices and with the capacity to create low carbon solutions - Reputational risks and opportunities - including loss of Stockland's customer base or employee engagement if we are considered a climate laggard, while noting the potential for increased customer satisfaction and engagement if we continue our climate action leadership. The results of our scenario analysis influence our business objectives and strategy through integration with Group and business unit sustainability strategies, and through integration into our enterprise risk management framework. The results have reaffirmed our focus on energy efficiency and renewable energy as appropriate mechanisms for minimising some of the transition risks identified in the scenario analysis. Some of the results were easily integrated into existing risks within our enterprise risk register (such as board policy change), while others have led to new areas of focus within the business (such as enhanced disclosure and liability risks). A case study of how the results of scenario analysis have directly influenced strategy relates to our due diligence strategy for new acquisitions. Following on from the scenario analysis, we engaged our acquisitions team to develop climate risk considerations to include in the due diligence process for new acquisitions. We continue to refine this process with the aim of enhancing our consideration of both physical and transition risk when we bring new assets into our portfolio.</p>
Other, please specify (RCP 8.5)	<p>Stockland's climate-related scenario analysis has incorporated IPCC RCP8.5 because although it is not a 'two degree' scenario, RCP8.5 presents the most challenging IPCC scenario with regard to physical risk and physical risk is a material consideration for our organisation and the property industry more broadly. The RCP 8.5 scenario is broadly considered the 'no further changes' scenario in which emissions remain high and global temperatures rise 3.2 – 5.4°C by the end of the century (based on an 1850 – 1900 pre-industrial baseline). RCP8.5 is characterised by increasing GHG emissions driven by a lack of policy changes to reduce emissions. We have used RCP8.5 to consider the impacts of increasing severity of acute physical risks (e.g. heatwave, cyclones) and worsening chronic physical risks (e.g. increased warming, changes to rainfall). Our scenario analysis using RCP8.5 was focused on identifying material physical risks across our portfolio of assets nationally. We identified the following climate effects as having the greatest impact on Stockland: - Extreme heat – increase in the intensity and frequency of days when temperatures exceed 35C. - Extreme rainfall – increase in the intensity and frequency of high levels of rainfall within a short time period resulting in high volumes of water causing inland flooding. - Sea level rise – increase in mean sea levels resulting in coastal inundation and erosion. - Cyclones and storms – increase in the intensity and range of cyclone activity and east coast low storm events resulting in storm surges, high winds and hail. - Bushfires – increase in the number of fire weather days and an increased duration of the fire season. The scenario analysis directly impacted our objectives and strategy by encouraging us to develop a climate resilience assessment process and to complete climate resilience assessments at assets identified as high priority through the scenario analysis. The assessments identify opportunities for us to enhance the climate resilience of our assets, and these opportunities are integrated into capital expenditure plans and asset operational plans. A case study of how our scenario analysis and resilience assessment process has influenced our strategy is provided by our focus on the resilience of our North Queensland retail portfolio. In FY15 we undertook climate resilience assessments for the assets in our North Queensland retail portfolio and set a climate resilience target for these assets. Since FY15 we implemented a range of actions and initiatives aimed at improving reliability and resilience to extreme weather events, such as: - fastening roofing systems and roof mounted equipment down to enhance resilience to cyclonic wind - replacing corroded box guttering and installing additional downpipes and overflows - upgrading air conditioning and electrical equipment - replacing ageing roofing materials and using new 'cool roof' technologies to reduce heat loads on plant and equipment - implementing business continuity plans and emergency procedures. On reassessment, the North Queensland retail portfolio achieved an average score of 5.4 from the initial score of 5.9, which is 0.1 better than target. Some assets that were in the high range of vulnerability have had their vulnerabilities measurably reduced due to the implementation of resilience initiatives.</p>

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?

Both absolute and intensity targets

C4.1a

(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.

Target reference number

Abs 1

Scope

Scope 2 (market-based)

% emissions in Scope

27

% reduction from base year

70

Base year

2006

Start year

2006

Base year emissions covered by target (metric tons CO2e)

24679

Target year

2030

Is this a science-based target?

No, but we anticipate setting one in the next 2 years

% achieved (emissions)

89.5

Target status

Underway

Please explain

As part of the Better Buildings Partnership with City of Sydney, we are committed to reducing the emissions of our Sydney CBD office assets by 70% by 2030 using a 2006 base year. Emissions across our Sydney CBD office assets totalled 24,679 tonnes CO2e in 2006. This equates to an absolute reduction of 17,275 tCO2e by 2030.

C4.1b

(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).

Target reference number

Int 1

Scope

Scope 1 +2 (market-based)

% emissions in Scope

100

% reduction from baseline year

10

Metric

Other, please specify (kgCO2-e per square metre)

Base year

2014

Start year

2014

Normalized baseline year emissions covered by target (metric tons CO2e)

61.52

Target year

2017

Is this a science-based target?

No, but we anticipate setting one in the next 2 years

% achieved (emissions)

100

Target status

Expired

Please explain

This target covers our Commercial Property business, where in FY14 we committed to a 10% energy intensity reduction against FY14 by FY17. This target was achieved in FY17 and has been superseded by Int2. Both Int1 and Int2 contribute to the achievement of Int3.

% change anticipated in absolute Scope 1+2 emissions

10

% change anticipated in absolute Scope 3 emissions

0

Target reference number

Int 2

Scope

Scope 1 +2 (market-based)

% emissions in Scope

100

% reduction from baseline year

10

Metric

Other, please specify (kg CO2e per square meter)

Base year

2017

Start year

2017

Normalized baseline year emissions covered by target (metric tons CO2e)

54.94

Target year

2020

Is this a science-based target?

No, but we anticipate setting one in the next 2 years

% achieved (emissions)

0

Target status

New

Please explain

This target covers our Commercial Property business, where in FY17 we committed to a 10% energy intensity reduction against FY17 by FY20. This target follows on from Int1, and both Int1 and Int2 are 'incremental targets' that contribute to the achievement of Int3.

% change anticipated in absolute Scope 1+2 emissions

10

% change anticipated in absolute Scope 3 emissions

0

Target reference number

Int 3

Scope

Scope 2 (market-based)

% emissions in Scope

65.5

% reduction from baseline year

60

Metric

Other, please specify (kgCO₂-e per square metre)

Base year

2006

Start year

2016

Normalized baseline year emissions covered by target (metric tons CO₂e)

88.6

Target year

2025

Is this a science-based target?

No, but we anticipate setting one in the next 2 years

% achieved (emissions)

67

Target status

Underway

Please explain

Applies to our retail assets. This assumes that Stockland can take local generation credits as a renewables incentive and not reduce from carbon savings.

% change anticipated in absolute Scope 1+2 emissions

35

% change anticipated in absolute Scope 3 emissions

0

Target reference number

Int 3

Scope

Scope 2 (market-based)

% emissions in Scope

21.9

% reduction from baseline year

60

Metric

Other, please specify (kgCO₂-e per square metre)

Base year

2006

Start year

2016

Normalized baseline year emissions covered by target (metric tons CO₂e)

136.6

Target year

2025

Is this a science-based target?

No, but we anticipate setting one in the next 2 years

% achieved (emissions)

91

Target status

Underway

Please explain

Applies to our office and business parks assets. This assumes that Stockland can take local generation credits as a renewables incentive and not reduce from carbon savings.

% change anticipated in absolute Scope 1+2 emissions

35

% change anticipated in absolute Scope 3 emissions

0

Target reference number

Int 3

Scope

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2)

% emissions in Scope

37.3

% reduction from baseline year

30

Metric

Other, please specify (kgCO₂-e per square metre)

Base year

2006

Start year

2016

Normalized baseline year emissions covered by target (metric tons CO₂e)

20

Target year

2025

Is this a science-based target?

No, but we anticipate setting one in the next 2 years

% achieved (emissions)

83

Target status

Underway

Please explain

Applies to transmission and production losses (from purchased electricity, gas, and fleet fuel).

% change anticipated in absolute Scope 1+2 emissions

0

% change anticipated in absolute Scope 3 emissions

13

(C4.2) Provide details of other key climate-related targets not already reported in question C4.1/a/b.

Target

Renewable energy production

KPI – Metric numerator

Kilowatt hours of renewable energy generated at our retail assets, expressed as a percentage of FY13 retail energy consumption.

KPI – Metric denominator (intensity targets only)

Base year

2014

Start year

2014

Target year

2017

KPI in baseline year

0.23

KPI in target year

5.37

% achieved in reporting year

100

Target Status

Expired

Please explain

In FY13 we set a target to generate at least three per cent of electricity from on site renewable installations. We exceeded this target in FY17 by producing 5.37% of FY13 electricity use from on-site renewable sources.

Part of emissions target

Our renewable energy installations contribute to Int1, Int2, and Int3 as detailed in C4.1b.

Is this target part of an overarching initiative?

No, it's not part of an overarching initiative

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

C4.3a

(C4.3a) Identify the total number of projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	10	
To be implemented*	1	192
Implementation commenced*	1	130
Implemented*	6	1943
Not to be implemented	2	

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Activity type

Energy efficiency: Building services

Description of activity

HVAC

Estimated annual CO2e savings (metric tonnes CO2e)

430

Scope

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in CC0.4)

80000

Investment required (unit currency – as specified in CC0.4)

7571562

Payback period

>25 years

Estimated lifetime of the initiative

11-15 years

Comment

In FY17 there were numerous packaged air conditioning units and chilled water central plants at the end of their life cycle. Therefore these units were replaced and upgraded to be: 1) More energy efficient 2) to no longer operate on R22 gas. Payback period has been calculated on basis that equipment is being replaced at end of life.

Activity type

Energy efficiency: Building services

Description of activity

Lighting

Estimated annual CO2e savings (metric tonnes CO2e)

720

Scope

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in CC0.4)

137000

Investment required (unit currency – as specified in CC0.4)

459000

Payback period

4 - 10 years

Estimated lifetime of the initiative

3-5 years

Comment

Lighting upgrades using LED lighting technology were completed or underway across 4 Retail centres in FY17 with the actual savings consistently meeting expectations. Additional lighting upgrade opportunities are being investigated for FY18. This was a voluntary initiative implemented to reduce Scope 2 emissions across our retail portfolio and is a contributing factor towards commercial property achieving its FY17 reduction targets.

Activity type

Energy efficiency: Processes

Description of activity

Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)

297

Scope

Scope 1

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in CC0.4)

55000

Investment required (unit currency – as specified in CC0.4)

80000

Payback period

1-3 years

Estimated lifetime of the initiative

11-15 years

Comment

Due to the success of the pilot with chiller optimisation technology at Stockland Rockhampton that continuously tunes the chiller so it is always operating at its most efficient level, we expanded this technology in FY17 to a site in NSW to further investigate its impact in a different climate area. This will be monitored in FY18 to determine whether the savings are in line with feasibility. If this is a success we will look into rolling this across our portfolio. This was a voluntary initiative implemented to reduce scope 2 emissions across our retail portfolio.

Activity type

Low-carbon energy installation

Description of activity

Solar PV

Estimated annual CO2e savings (metric tonnes CO2e)

1092

Scope

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in CC0.4)

273000

Investment required (unit currency – as specified in CC0.4)

2000000

Payback period

4 - 10 years

Estimated lifetime of the initiative

21-30 years

Comment

In FY17 we have continued to increase our solar PV generating capacity with the installation of a 925kW system at Wetherill Park.

(C4.3c) What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Marginal abatement cost curve	At an organisational level, we use carbon abatement cost curves to identify specific abatement opportunities and the costs to implement these measures. The curves enable us to quickly model the costs of reducing emissions across our entire asset portfolio, as well as at the individual asset level. The estimates are based on our carbon abatement data, ensuring a high level of confidence in the results returned. Marginal abatement cost curve is also used within our development master-planning process to identify key infrastructure and programs to reduce emissions. Now that marginal abatement cost curves have been done at a business unit level, these are updated by completing detailed financial analysis at a project level using internal rate of return.
Compliance with regulatory requirements/standards	Compliance with State and Federal regulation on energy efficiency is contributing to investment in more efficient design and better management of our projects. We aim to stretch beyond these increasing compliance requirements.
Dedicated budget for energy efficiency	CAPEX budget - if an energy efficiency project meets our investment hurdle rate and can deliver a return on investment, then it is given approval to proceed to implementation. This can be achieved at an individual site level or at a portfolio level.
Dedicated budget for low-carbon product R&D	We trial new technology and if successful, then it is rolled out across the portfolio, such as our trial of investment in chiller optimisation technology.
Dedicated budget for other emissions reduction activities	We set aside budget for building tuning and maintenance activities that result in improved emission performance.
Employee engagement	We promote staff sustainability awareness, seek innovative ideas from staff and drive energy efficiency across corporate and site offices.
Internal incentives/recognition programs	We develop KPIs for emissions reduction targets for key development and operations staff, senior management, and Executive Committee members. We acknowledge best practice and reward achievement through internal communication and recognition (e.g. intranet stories and values awards).
Other	Development standards/ratings - Green Star as a minimum development standard. Embedding minimum standards for energy efficiency is driving investment in emission reduction activities across our organisation. Our Commercial Property business has minimum Green Star Design & As Built and Performance rating requirements. There are minimum energy efficiency requirements for all Residential and Retirement Living projects, including maximising the solar orientation of sites, providing energy efficient lighting in public spaces and connecting dwellings to reticulated natural gas or LPG where available.
Other	Operational standards/ratings - using the NABERS Energy rating tool to benchmark our building performance, we are improving energy efficiency through capital investment in high-efficiency chillers, building management systems, lighting controls and variable speed drives.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.

Level of aggregation

Group of products

Description of product/Group of products

Green Star certified retail town centres.

Are these low-carbon product(s) or do they enable avoided emissions?

Avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Climate Bonds Taxonomy

% revenue from low carbon product(s) in the reporting year

35

Comment

Assets which form part of the retail centre low carbon products include the following Green Star rated shopping centres: - Townsville (4 star Green Star - Retail Centre v1 Design and As Built ratings) - North Shore (4 star Green Star - Retail Centre v1 Design and As Built ratings) - Highlands (4 star Green Star - Retail Centre v1 As Built rating) - Merrylands (4 star Green Star - Retail Centre v1 Design rating) - Shellharbour (4 star Green Star - Retail Centre v1 Design and As Built ratings) - Hervey Bay (4 star Green Star - Retail Centre v1 Design and As Built ratings) - Baldivis (4 star Green Star - Retail Centre v1 Design rating) - Wetherill Park (5 star Green Star - Retail Centre v1 Design rating) - Harrisdale (4 star Green Star - Retail Centre v1 Design rating).

Level of aggregation

Group of products

Description of product/Group of products

Green Star certified retirement living villages.

Are these low-carbon product(s) or do they enable avoided emissions?

Avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Climate Bonds Taxonomy

% revenue from low carbon product(s) in the reporting year

13

Comment

Assets which form part of the retirement living low carbon products include the following Green Star rated villages: - Selandra Rise Village (4 star Green Star - Custom Design rating) - Mernda Retirement Village (4 star Green Star - Custom Design rating) - Affinity Village (5 star Green Star - Public Building Design and As Built ratings).

Level of aggregation

Group of products

Description of product/Group of products

Green Star rated office buildings.

Are these low-carbon product(s) or do they enable avoided emissions?

Avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Climate Bonds Taxonomy

% revenue from low carbon product(s) in the reporting year

29

Comment

Assets which form part of the office portfolio low carbon products include the following Green Star rated office buildings: Triniti Complex (located in NSW, 5 Star Green Star - As Built Office) and 2 Victoria Avenue (located in WA, 6 Star Green Star - Design and 5 Star Green Star - As Built Office).

C5. Emissions methodology

C5.1

(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).

Scope 1

Base year start

July 1 2008

Base year end

June 30 2009

Base year emissions (metric tons CO2e)

20909

Comment

Scope 2 (location-based)

Base year start

July 1 2008

Base year end

June 30 2009

Base year emissions (metric tons CO2e)

119352

Comment

Scope 2 (market-based)

Base year start

July 1 2008

Base year end

June 30 2009

Base year emissions (metric tons CO2e)

119257

Comment

C5.2

(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions.

Australia - National Greenhouse and Energy Reporting Act

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?

Row 1

Gross global Scope 1 emissions (metric tons CO2e)

26884

End-year of reporting period

<Not Applicable>

Comment

We report our scope 1 and scope 2 emissions according to our operational control boundary under the National Greenhouse and Energy Reporting Act 2007 (NGER Act).

C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

We are reporting a Scope 2, market-based figure

Comment

We have been accounting for our GHG emissions in line with the market-based approach prior to the new distinction between location- and market-based approaches. Our carbon strategy does not involve procuring renewable energy certificates to offset emissions, but rather building low carbon operations into the assets. For example, we report the Scope 2 GHG emissions for the Piccadilly Centre based on emissions factors specific to the natural gas trigeneration plant operated by a third party under a power purchasing agreement. While the PPA operator has no formal certificates available for the trigeneration plant, we calculate an emissions factor specific to this plant in line with the NGER Act. Thus our location-based Scope 2 emissions are different to what is reported in our annual report.

C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?

Row 1

Scope 2, location-based

88239

Scope 2, market-based (if applicable)

87860

End-year of reporting period

<Not Applicable>

Comment

We have been accounting for our GHG emissions in line with the market-based approach prior to the new distinction between location- and market-based approaches. Our carbon strategy does not involve procuring RECs to offset emissions, but rather building low carbon operations into the assets. For example, we report the Scope 2 GHG emissions for the Piccadilly Centre based on emissions factors specific to the natural gas trigeneration plant operated by a third party under a power purchasing agreement. While the PPA operator has no formal certificates available for the trigeneration plant, we calculate an emissions factor specific to this plant in line with the NGER Act. Thus our location-based Scope 2 emissions are different to what is reported in our annual report.

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?

No

C6.5

(C6.5) Account for your organization's Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

Emissions calculation methodology

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Explanation

Emissions data from contractors and suppliers involved in our Residential and Retirement Living developments is captured within our Scope 1 + 2 emissions data, as their activities fall within our operational control boundary. The contractors and suppliers working on our Commercial Property developments do not fall within our operational control boundary and so we do not collect or report data on their emissions -this is managed by the principal contractor/operator on site.

Capital goods

Evaluation status

Not relevant, calculated

Metric tonnes CO2e

21629

Emissions calculation methodology

MLCI assessments undertaken in accordance with EN15978 and ISO14044.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Explanation

As a real estate company, our capital goods primarily consists of buildings. As these buildings have a long life (e.g. 60 years), the embodied emissions become less significant than the operational emissions which are captured as Scope 1 and Scope 2. Capital good emissions are therefore not tracked. In the past we have undertaken an MLCI assessment for one retail centre development which is reported here for example.

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status

Relevant, calculated

Metric tonnes CO2e

14675

Emissions calculation methodology

Total transmission losses from electricity, gas and fleet fuel. Calculated using National Greenhouse Accounts Scope 3 emission factors.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

Relevant as it is information requested under NGERs, and reductions are directly related to our reduction in purchased electricity consumption.

Upstream transportation and distribution

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

Emissions calculation methodology

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Explanation

Not considered material to our overall emissions because we have very minimal upstream transportation and distribution activities hence the amount of carbon emission is negligible. However we do implement specifications to ensure transportation of waste and materials on site is minimised to improve efficiencies and avoid unnecessary fuel consumption

Waste generated in operations

Evaluation status

Relevant, calculated

Metric tonnes CO2e

11990

Emissions calculation methodology

Calculated using the National Greenhouse Accounts Scope 3 emissions factors, based on waste data collected, mass of waste reported and assured in Sustainability Report.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

The reduction of waste to landfill is an ongoing focus for both our development and operational activities. In development: 84% diversion from landfill in our commercial property development construction waste; 97% diversion from landfill for our Residential developments based on reported contractor waste. In operations: 45% diversion from landfill across our retail centre assets; 46% diversion from landfill across our office buildings and business parks assets.

Business travel

Evaluation status

Relevant, calculated

Metric tonnes CO2e

4450

Emissions calculation methodology

These emissions are calculated for car hire and air travel. Air travel is calculated using the United Kingdom Department of Environment, Food & Rural Affairs standard as the Australian National Greenhouse Accounts do not include conversions for air travel. Car hire is calculated using the Australian Government Green Vehicle Guide.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

Given the geographical spread of our assets, business travel is considered a material source of Scope 3 emissions for our business. For FY17, airline travel actually increased by 4% from more movements between the east and west coasts of Australia. (FY15 = 3747, FY16 = 4275. % change = $(FY17 - FY16 / FY16) \times 100$. Carbon emissions appear to not change substantially based on the 2016 DEFRA emission factors updates. This reflects improvements in the airline industry and their carbon accounting methods.

Employee commuting

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

Emissions calculation methodology

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Explanation

While employee commuting does not have a material impact to our total greenhouse gas emissions, due to the nature of Stockland's operations (across majority of states in Australia, employees located at assets as well as employees travelling between assets) this would be challenging to calculate and business travel would account for much of the emissions.

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

Emissions calculation methodology

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Explanation

Not applicable to our business as we generally operate from assets which we own and these emissions are reported as Scope 1 and 2.

Downstream transportation and distribution

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

Emissions calculation methodology

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Explanation

Not applicable to our business as we do not 'transport or distribute' our assets. Any transportation or distribution associated with our tenants' activities is beyond our scope of control.

Processing of sold products

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

Emissions calculation methodology

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Explanation

Not applicable to our business as we do not produce intermediate products.

Use of sold products

Evaluation status

Not relevant, calculated

Metric tonnes CO₂e

98279

Emissions calculation methodology

Calculated using the National Greenhouse Accounts Scope 3 emissions factors, based on energy use of tenants leasing our retail, office, and logistics spaces and where we are the energy provider and thus have access to tenant energy use data.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Explanation

The use of sold products (considered here as the use of assets that we own) is not relevant to our overall emissions performance because such use falls outside operational control as per Australian greenhouse regulations. However, we have access to tenant energy use data in those instances where we have embedded networks at our assets and are thus considered the energy supplier to tenants at these assets. Although their energy use falls outside of our operational control, we report it here as best practice. Furthermore, as a responsible property developer we work to minimise the emissions generated by our Retirement Living and Residential customers. We have processes in place to ensure optimal energy efficiency in lot design and orientation, to maximise energy efficiency of the built environment in retirement living, and to influence the choices of our residential customers with regard to energy efficient home design. We have initiatives in place to encourage energy efficiency and emissions reduction in our residential communities and the emissions generated by our Retirement Living residents are captured as part of our recorded Scope 2 emissions.

End of life treatment of sold products

Evaluation status

Not relevant, explanation provided

Metric tonnes CO₂e

Emissions calculation methodology

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Explanation

Our products are designed for longevity and ongoing upgrade and refurbishment in response to changing climate, operating conditions and/or trends, therefore 'end of life' is not a point of focus for our business.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Metric tonnes CO₂e

Emissions calculation methodology

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Explanation

The energy consumption of our retail centres or industrial estate tenants is outside our scope of control, however we do work to positively influence tenant behaviour. The emissions of our office tenants are captured to inform NABERS (National Australian Built Environment Rating System) ratings across our portfolio of office assets.

Franchises

Evaluation status

Not relevant, explanation provided

Metric tonnes CO₂e

Emissions calculation methodology

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Explanation

Not applicable to our business as we operate zero franchises.

Investments

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

Emissions calculation methodology

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Explanation

Not applicable to our business due to the nature of our investments, which is land or existing assets.

Other (upstream)

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

Emissions calculation methodology

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Explanation

Not applicable to our business due to the nature of our activities ie. development and operations of assets.

Other (downstream)

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

Emissions calculation methodology

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Explanation

Not applicable to our business due to the nature of our activities ie. development and operations of assets.

C6.7

(C6.7) Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?

No

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure

0.0000426

Metric numerator (Gross global combined Scope 1 and 2 emissions)

114743

Metric denominator

unit total revenue

Metric denominator: Unit total

2695000000

Scope 2 figure used

Market-based

% change from previous year

19.6

Direction of change

Decreased

Reason for change

For the FY17 reporting period, our total revenue increased by 14.2% whilst our combined Scope 1 and Scope 2 emissions decreased by 8.1%. This yielded a decrease in tCO₂e/AUD of 19.6%. The overall emissions decreased due to acquisitions, developments (change in output) and divestments. We were able to limit the emission increases through emission reduction activities.

Intensity figure

78

Metric numerator (Gross global combined Scope 1 and 2 emissions)

114743

Metric denominator

full time equivalent (FTE) employee

Metric denominator: Unit total

1472

Scope 2 figure used

Market-based

% change from previous year

13.5

Direction of change

Decreased

Reason for change

For the FY17 reporting period, we had an increase in full time equivalent employees of 6.2%. The increase in FTEs and the decrease in the combined Scope 1 and 2 emissions (8.1%) led to a decrease in this intensity metric (FY17 Intensity / FY16 Intensity - 1). The overall emissions decreased due to acquisitions, developments (change in output) and divestments. We were able to limit the emission increases through emission reduction activities.

Intensity figure

0.00005

Metric numerator (Gross global combined Scope 1 and 2 emissions)

52.92

Metric denominator

square meter

Metric denominator: Unit total

1054234

Scope 2 figure used

Market-based

% change from previous year

7.1

Direction of change

Decreased

Reason for change

For FY17 reporting period, we had an increase in retail area equivalent to 0.7%. Emission reduction activity - the emissions intensity of the retail portfolio component of the commercial property business saw a decrease (52.92 tCO₂e down from 56.58 tCO₂e in FY16) due to the roll out of efficiency upgrades, with an increase in gross floor area (increase in denominator led to the reduction in tCO₂e/Retail Area of 7.1%).

Intensity figure

0.00019

Metric numerator (Gross global combined Scope 1 and 2 emissions)

61.7

Metric denominator

square meter

Metric denominator: Unit total

313830

Scope 2 figure used

Market-based

% change from previous year

2.9

Direction of change

Decreased

Reason for change

The emissions intensity decreased across the office and business park portfolio of the commercial property business. The square metre denominator used here represents net lettable area of this portfolio. Emissions intensity reduced from 64.98 tCO₂e in FY16 to 61.7 tCO₂e in FY17 resulting in a decrease in intensity tCO₂e/office area (m²) of 2.9%.

C7. Emissions breakdowns**C7.1****(C7.1) Does your organization have greenhouse gas emissions other than carbon dioxide?**

Yes

C7.1a**(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).**

Greenhouse gas	Scope 1 emissions (metric tons of CO ₂ e)	GWP Reference
CO ₂	23482	IPCC Fourth Assessment Report (AR4 - 100 year)
CH ₄	6	IPCC Fourth Assessment Report (AR4 - 100 year)
N ₂ O	172	IPCC Fourth Assessment Report (AR4 - 100 year)
HFCs	3224	IPCC Fourth Assessment Report (AR4 - 100 year)

C7.2**(C7.2) Break down your total gross global Scope 1 emissions by country/region.**

Country/Region	Scope 1 emissions (metric tons CO ₂ e)
Australia	26884

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.

By business division

By activity

C7.3a

(C7.3a) Break down your total gross global Scope 1 emissions by business division.

Business division	Scope 1 emissions (metric ton CO2e)
Commercial Property	5686
Retirement Living	784
Residential Communities	20330
Corporate	84

C7.3c

(C7.3c) Break down your total gross global Scope 1 emissions by business activity.

Activity	Scope 1 emissions (metric tons CO2e)
Office and Business Park Operations	1010
Retail Centre Operations	1451
Fleet Vehicles	84
Leaked Refrigerants	3224
Residential Community Sales	54
Residential Community Development	20278
Retirement Living Village Operations	745
Retirement Living Village Development	38

C7.5

(C7.5) Break down your total gross global Scope 2 emissions by country/region.

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
Australia	88239	87860	103242	2392

C7.6

(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.

By business division

By activity

C7.6a

(C7.6a) Break down your total gross global Scope 2 emissions by business division.

Business division	Scope 2, location-based emissions (metric tons CO2e)	Scope 2, market-based emissions (metric tons CO2e)
Commercial Property	77378	76999
Residential Communities	1560	1560
Retirement Living	7882	7882
Corporate	1418	1418

C7.6c

(C7.6c) Break down your total gross global Scope 2 emissions by business activity.

Activity	Scope 2, location-based emissions (metric tons CO2e)	Scope 2, market-based emissions (metric tons CO2e)
Corporate Tenancies	1418	1418
Office and Business Park Operations	18729	18350
Logistic Centres Operations	4321	4321
Retail Centre Operations	54327	54327
Residential Community Sales	1413	1413
Residential Community Development	147	147
Retirement Living Village Operations	7874	7874
Retirement Living Village Development	8	8

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Decreased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined) and for each of them specify how your emissions compare to the previous year.

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	3177	Decreased	2.5	Renewable energy generated using solar power (kWh) in FY17 was 2,376,838 compared to 1,940,689 in FY16. This represents an increase of 446,479kWh solar generation. In FY17 solar was operational at Green Hills, Nowra, Shellharbour and Wetherill Park Shopping centres. The combined reduction in Scope 1 + 2 carbon emissions at these assets was 3,177 tonnes CO2-e. The total Scope 1+2 emissions in FY16 was 124,917 tonnes CO2-e. The calculation is therefore $(-3177/124917) = -2.5\%$.
Other emissions reduction activities	7290	Decreased	5.8	Gross Scope 1+2 emissions decreased by 5.8% because of emissions reduction activities, which primarily take place in our Commercial Property business through efficiency upgrades and diversification of energy sources. The calculation used is consistent with page the guidance, specifically a reduction of 7,290 tCO2e was achieved in FY17 through emissions reduction activities. Total S1+S2 emissions in previous year were 124,917 tCO2e. The calculation is therefore $(-7290 / 124917) = -5.8\%$.
Divestment	1223	Decreased	1	For FY17 we divested a number of Commercial property assets including Garden Square, Jimboomba and Vincentia shopping centre. These divestments decreased our gross emissions from the previous year by 1223 tCO2e in both Scope 1 and 2 emissions. The calculation explained is 1223 tCO2e decrease due to divestment, the total S1+S2 emissions in previous year were 124917 tCO2e, thus $(-1223 / 124917) = 1\%$.
Acquisitions	0	No change	0	Whilst there were a number of acquisitions in the financial year, these did not impact our emissions because they remained outside of our operational control either due to being fully tenanted assets or pipeline developments within design stage where a facility is not present.
Mergers	0	No change	0	We did not undergo any business mergers in the reporting period.
Change in output	7819	Decreased	6.3	Changes in our output relate primarily to change in production of lots and units across the residential and retirement living business units. FY17 also saw an increase in activity at Green Hills retail centre due to the transition of development activities to operation. The change in production and activity saw a decrease of 7819 tCO2e over the previous year. Residential and Retirement Living emissions are predominantly Scope 1 emissions and the retail centres are a mix of Scope 1 and 2. The calculation explained is 7819 tCO2e decrease due to change in output, the total S1+S2 emissions in previous year were 124,917 tCO2e, thus $(-7819 / 124917) = -6.3\%$.
Change in methodology	0	No change	0	There was no change in methodology in FY17 that led to any changes in gross emissions.
Change in boundary	182	Increased	0.1	In FY17 a number of assets across our portfolio transitioned into Stockland operational control. The result is a marginal increase of Scope 1+2 emissions of 182 tonnes CO2-e compared to the previous year. The calculation explained is 182 tCO2e increase, the total S1+S2 emissions in the previous year were 124917 tCO2-e, thus $(182 / 124917) = 0.1\%$.
Change in physical operating conditions	0	No change	0	There was no real change in physical operating conditions which were attributable to changes in gross emissions.
Unidentified	0	No change	0	There were no unidentified reasons for changes to gross emissions.
Other	133	Increased	0.1	We calculate emissions from refrigerant leakage based on the NGER Act. As this methodology is based on the portfolio floor area for commercial property, there has been an increase in leaked refrigerant due to an increase in the portfolio floor area. The other emissions included here in FY17 account for an increase of 133 tCO2e over the previous year. Refrigerants are Scope 1 emissions. The calculation explained is 133 tCO2e increase due to change in output, the total S1+S2 emissions in previous year were 124,917 tCO2e, thus $(133 / 124,917) = 0.1\%$.

C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Market-based

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

More than 0% but less than or equal to 5%

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertakes this energy-related activity
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	0	17823	17823
Consumption of purchased or acquired electricity	<Not Applicable>	5	103242	103247
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	2387	<Not Applicable>	2387
Total energy consumption	<Not Applicable>	2392	121065	123457

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of steam	No
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	No

C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Fuels (excluding feedstocks)

Natural Gas

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

17347

MWh fuel consumed for the self-generation of electricity

0

MWh fuel consumed for self-generation of heat

17347

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Fuels (excluding feedstocks)

Diesel

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

395

MWh fuel consumed for the self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Fuels (excluding feedstocks)

Petrol

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

67

MWh fuel consumed for the self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Fuels (excluding feedstocks)

Biogasoline

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

14

MWh fuel consumed for the self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

C8.2d

(C8.2d) List the average emission factors of the fuels reported in C8.2c.

Biogasoline

Emission factor

2.08228

Unit

kg CO2e per liter

Emission factor source

Australian National Greenhouse Emissions Reporting Technical Guidelines

Comment

Diesel

Emission factor

2.70972

Unit

kg CO2e per liter

Emission factor source

Australian National Greenhouse Emissions Reporting Technical Guidelines

Comment

Natural Gas

Emission factor

51.53

Unit

kg CO2e per GJ

Emission factor source

Australian National Greenhouse Emissions Reporting Technical Guidelines

Comment

Petrol

Emission factor

2.3126

Unit

kg CO2e per liter

Emission factor source

Australian National Greenhouse Emissions Reporting Technical Guidelines

Comment

C8.2e

(C8.2e) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	2387	2387	2387	2387
Heat	0	0	0	0
Steam	0	0	0	0
Cooling	0	0	0	0

C8.2f

(C8.2f) Provide details on the electricity, heat, steam and/or cooling amounts that were accounted for at a low-carbon emission factor in the market-based Scope 2 figure reported in C6.3.

Basis for applying a low-carbon emission factor

Off-grid energy consumption from an on-site installation or through a direct line to an off-site generator owned by another company

Low-carbon technology type

Solar PV

MWh consumed associated with low-carbon electricity, heat, steam or cooling

2387

Emission factor (in units of metric tons CO2e per MWh)

0

Comment

Basis for applying a low-carbon emission factor

Contract with suppliers or utilities (e.g. green tariff), not supported by energy attribute certificates

Low-carbon technology type

Solar PV

Wind

MWh consumed associated with low-carbon electricity, heat, steam or cooling

5

Emission factor (in units of metric tons CO2e per MWh)

0

Comment

Associated with the purchase of 100% GreenPower for signage at our head office location

C9. Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

Description

Waste

Metric value

45

Metric numerator

per cent diverted from landfill

Metric denominator (intensity metric only)

% change from previous year

7

Direction of change

Increased

Please explain

We have a target to divert 45 per cent of our Retail operational waste from landfill and achieved this target in FY17.

Description

Waste

Metric value

46

Metric numerator

per cent diverted from landfill

Metric denominator (intensity metric only)

% change from previous year

4

Direction of change

Increased

Please explain

We have a target to divert 45 per cent of our Office and Business Parks operational waste from landfill and achieved this target in FY17.

C10. Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 and/or Scope 2 emissions and attach the relevant statements.

Scope

Scope 1

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

2017 Stockland Sustainability Assurance Statement_Final_21.09.17.pdf

Page/ section reference

Page 1 shows inclusion of Scope 1 emissions. Page 2 shows ASAE3000 standard.

Relevant standard

ASAE3000

Proportion of reported emissions verified (%)

100

Scope

Scope 2 market-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

2017 Stockland Sustainability Assurance Statement_Final_21.09.17.pdf

Page/ section reference

Page 1 shows inclusion of Scope 2 emissions. Page 2 shows ASAE3000 standard.

Relevant standard

ASAE3000

Proportion of reported emissions verified (%)

100

C10.1b

(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.

Scope

Scope 3- all relevant categories

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Attach the statement

2017 Stockland Sustainability Assurance Statement_Final_21.09.17.pdf

Page/section reference

Page 1 shows inclusion of Scope 3 emissions. Page 2 shows ASAE3000 standard.

Relevant standard

ASAE3000

C10.2

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?

Yes

C10.2a

(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C4. Targets and performance	Year on year change in emissions (Scope 1 and 2)	Limited assurance conclusion, conducted in accordance with the Australian Auditing and Assurance Standards Board Australian Standard on Assurance Engagements Other Than Audits or Reviews of Historical Financial Information ('ASAE 3000') and Assurance Engagements on Greenhouse Gas Statements (ASAE3410)	Data assured as part of our annual sustainability reporting assurance.
C4. Targets and performance	Progress against emissions reduction target	Limited assurance conclusion, conducted in accordance with the Australian Auditing and Assurance Standards Board Australian Standard on Assurance Engagements Other Than Audits or Reviews of Historical Financial Information ('ASAE 3000') and Assurance Engagements on Greenhouse Gas Statements (ASAE3410)	Progress against emissions reductions targets that we have set is assured as part of our annual sustainability reporting assurance.
C8. Energy	Renewable energy products	Reasonable assurance under the National Greenhouse and Energy Reporting Act 2007 (NGER Act)	Assured the figure of 8,611 GJ of energy produced using our solar photovoltaic installations.
C4. Targets and performance	Emissions reduction activities	Limited assurance conclusion, conducted in accordance with the Australian Auditing and Assurance Standards Board Australian Standard on Assurance Engagements Other Than Audits or Reviews of Historical Financial Information ('ASAE 3000') and Assurance Engagements on Greenhouse Gas Statements (ASAE3410)	Sustainability reporting assurance process assures claims made about implementation of emissions reduction activities and associated financial savings.

C11. Carbon pricing

C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?
No, and we do not anticipate being regulated in the next three years

C11.2

(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?
Yes

C11.2a

(C11.2a) Provide details of the project-based carbon credits originated or purchased by your organization in the reporting period.

Credit origination or credit purchase

Credit origination

Project type

Energy efficiency: own generation

Project identification

Operational projects within our Commercial Property division.

Verified to which standard

Other, please specify (NSW Energy Saving Scheme)

Number of credits (metric tonnes CO2e)

4731

Number of credits (metric tonnes CO2e): Risk adjusted volume

4731

Credits cancelled

No

Purpose, e.g. compliance

Voluntary Offsetting

C11.3

(C11.3) Does your organization use an internal price on carbon?
Yes

C11.3a

(C11.3a) Provide details of how your organization uses an internal price on carbon.

Objective for implementing an internal carbon price

Navigate GHG regulations
Stakeholder expectations
Change internal behavior
Drive energy efficiency
Drive low-carbon investment
Stress test investments
Identify and seize low-carbon opportunities
Supplier engagement

GHG Scope

Scope 1
Scope 2

Application

The price is applied to operational and capital expenditure planning in our Commercial Property business for efficiency and renewables projects.

Actual price(s) used (Currency /metric ton)

15

Variance of price(s) used

We use differentiated pricing for different decision types in different locations. For example, we use proxy carbon price from Energy Savings Certificates in New South Wales (price varies from \$15-20/metric ton over the reporting period, and we have provided the lower estimate in the field above). Other examples include Victorian Energy Efficiency Certificates, Large Generation Certificates (national scheme), and Small Technology Certificates (national scheme).

Type of internal carbon price

Shadow price
Implicit price

Impact & implication

In the absence of a national carbon trading scheme, we assess potential carbon pricing internally in a number of ways, which represent a proxy carbon price: For assets, we receive a five year energy forecast that includes a price probability for legislation introducing a carbon price. - In 2011, we assessed the impact of a price on carbon across our operations and through our supply chain. This allows us to understand direct and indirect cost impacts. Our New South Wales business also assesses the energy certificate trading opportunities arising from improvements in our NABERS ratings. The Energy Savings Scheme (ESS) is governed by NSW legislation. It reduces electricity consumption in NSW by creating financial incentives for organisations to invest in energy savings projects. Energy savings are achieved by installing, improving or replacing energy savings equipment. The ESS has enabled us to accrue credits annually, creating a potential revenue generator for the company. Energy Savings Certificates (ESCs) are created for projects and initiatives that reduce energy consumption. One ESC represents 1 tonne/CO2 and has a dollar value which can be traded in an open market. Buyers are typically energy retailers who need to meet mandatory energy savings reporting obligations using a NABERS benchmarking method. We factor in Renewable Energy Certificates in our solar feasibilities.

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?

Yes, our suppliers
Yes, our customers
Yes, other partners in the value chain

C12.1a

(C12.1a) Provide details of your climate-related supplier engagement strategy.

Type of engagement

Compliance & onboarding

Details of engagement

Included climate change in supplier selection / management mechanism
Climate change is integrated into supplier evaluation processes

% of suppliers by number

100

% total procurement spend (direct and indirect)

100

% Scope 3 emissions as reported in C6.5

100

Rationale for the coverage of your engagement

We work with a wide and varied range of suppliers and endeavour to build partnerships with suppliers that operate in a manner that is consistent with our values and standards, including our commitment to climate action. Our guideline 'What Stockland Expects from its Suppliers' is provided to all suppliers on their registration with us, and is available via our website. Energy efficiency is explicitly mentioned within the guideline. For suppliers who respond to our tender requests, As part of the tender process we engage with potential suppliers and request detailed outlines of activities underpinning their scope of work. This enables us to identify those contractors who will complete the work with the least amount of material/waste relocation/transportation, ensuring that we are immediately selecting less emission-intensive contractors. We review environmental management credentials of contractors. As part of the design phase, we engage with suppliers to ensure they understand the technical and environmental requirements of the project and work with them to meet these standards. This engagement is critical for achieving our Green Star certifications. Throughout construction, we meet with suppliers at regular intervals to report on progress, achievements, and challenges.

Impact of engagement, including measures of success

We measure success in our engagement with suppliers through successful achievement of Green Star certifications, especially those Green Star credits relating to issues where suppliers have influence, such as materials. Success is also measured through reduced supplier emissions indicated through emissions data we collect. Our collaboration with our primary contractor at our Newport residential development provides an example of our climate-related engagement with suppliers leading to positive impact. Part of the rationale for us selecting this contractor was its capacity to deliver on our sustainability objectives, including emissions reduction and climate resilience. Our contractor prioritised the use of energy efficient earthworks equipment, saving the project over 114,000 litres of fuel. This equates to a saving of over \$135,000 (using 2016 average Queensland diesel fuel price of \$1.192 per litre) and over 305,000 kg CO₂-e of greenhouse gas emissions avoided. These sustainable earthworks initiatives at Newport protect our natural environment, save money, and improve the competitiveness of our business and our suppliers.

Comment

Type of engagement

Information collection (understanding supplier behavior)

Details of engagement

Collect climate change and carbon information at least annually from suppliers

% of suppliers by number

15

% total procurement spend (direct and indirect)

42.8

% Scope 3 emissions as reported in C6.5

0

Rationale for the coverage of your engagement

The coverage of this engagement (collecting climate change and carbon information at least annually) relates to 100% of our residential development primary contractors. This is an important group to target because in the reporting year they constituted the majority (62%) of our development activities. We are Australia's largest residential developer and so our collection of carbon information from our primary contractors enables us to publicly report on the emissions of development activities and positively influence the energy efficiency of our contractor partners and the industry as a whole. Note that under the operational control specifications of the Australian National Greenhouse and Energy Reporting Act, we are required to report on the emissions from our residential development contractors under our Scope 1 emissions. For this reason, these emissions are not reported as Scope 3 which is why we have declared that our engagement with these contractors relates to 0% of our Scope 3 emissions as reported in

C6.5. As an indication, our residential contractors Scope 1 emissions in the reporting period was 20,278 tonnes of CO2e, which comprises 75% of our total Scope 1 emissions over the same period.

Impact of engagement, including measures of success

We measure success in our engagement with suppliers through successful achievement of Green Star certifications, especially those Green Star credits relating to issues where suppliers have influence, such as materials. Success is also measured through reduced supplier emissions indicated through emissions data we collect. Our collaboration with our primary contractor at our Newport residential development provides an example of our climate-related engagement with suppliers leading to positive impact. Part of the rationale for us selecting this contractor was its capacity to deliver on our sustainability objectives, including emissions reduction and climate resilience. Our contractor prioritised the use of energy efficient earthworks equipment, saving the project over 114,000 litres of fuel. This equates to a saving of over \$135,000 (using 2016 average Queensland diesel fuel price of \$1.192 per litre) and over 305,000 kg CO2-e of greenhouse gas emissions avoided. Our collection of carbon information from suppliers, such as our primary contractor at Newport, enables us to publicly report on the carbon emissions of our residential development activities and understand how to enhance emissions reductions across our development activity.

Comment

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.

Type of engagement

Education/information sharing

Details of engagement

Run an engagement campaign to educate customers about the climate change impacts of (using) your products, goods, and/or services

Size of engagement

100

% Scope 3 emissions as reported in C6.5

65.1

Please explain the rationale for selecting this group of customers and scope of engagement

We engage across the entirety of our customer base on matters related to energy efficiency and climate resilience. The exact nature of this engagement varies across our business units: Commercial Property - We engage with tenants in our Commercial Property portfolio through sustainability requirements in lease contracts and green fitout guidelines. We engage with some of our tenants in our retail town centres on physical risk when conducting climate and community resilience assessments at our assets. Residential and Retirement Living - We engage with residents of our residential and retirement living communities by providing advice on sustainable living, including energy efficiency, in their welcome packs when they purchase a property or move into the community. We also engage with residents on physical risk when completing climate and community resilience assessments at our assets, as part of their resident evacuation plans. Residents of Green Star Communities rated assets are provided with information on how the rating influences the efficiency and resilience of their community. We also convene informal sustainability awareness sessions and establish sustainable living hubs (for example Willowdale) where residents can come and receive practical tips on energy efficient living. More generally, we have a dedicated Customer Insights team that engages with our customers about their understanding of sustainability and their preferences for our sustainability initiatives, including those related to energy efficiency, greenhouse gas emissions, and climate resilience. We engage with customers using surveys, the Stockland Exchange research community, and through our community development activities.

Impact of engagement, including measures of success

Impact of engagement - Since we set emissions reductions targets and engaged our customers on climate-related issues, an example of a customer-related impact is the uptake of solar photovoltaics at our Retirement Living villages. We currently have solar installed at 39 out of 49 villages (80%), and 32 of these villages include solar installed on residents' homes (as opposed to only clubhouses or other Stockland-owned facilities in the village). In commercial property, we have surveyed our customers on climate-related issues and found that 89% of our customers indicate energy efficiency is important to their retail experience, and that 95% of customers indicated that our centres perform adequately regarding energy efficiency (expressed as a percentages of customers who expressed an opinion on the matter as opposed to saying "I don't know"). We will continue to monitor these customer perceptions. Measures of success –We set public, entity-wide, targets on issues important to stakeholders, such as greenhouse gas emissions, and establish targets for each of our assets that contribute to the entity target. We consult with local communities on ways to reduce emissions and measure success through continuous evaluation of our performance and reporting achievement (or otherwise) of targets. We track the implementation of energy efficiency and renewable energy installations at our Commercial Property and Retirement Living assets, and encourage the use of our Green Fitout Guide by our tenants. We engage our customers to understand their perceptions of our success, and the findings are used to evolve our customer engagement on climate-related issues over time.

C12.1c

(C12.1c) Give details of your climate-related engagement strategy with other partners in the value chain.

Where we have joint ventures in our Retail business, we engage with our partners to ensure we apply our corporate approach and strategy, including climate change strategy and emissions reduction activities.

C12.3

(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?

Direct engagement with policy makers
Trade associations

C12.3a

(C12.3a) On what issues have you been engaging directly with policy makers?

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Adaptation or resilience	Support	Stockland, in collaboration with the Australian Built Environment Council, has discussed opportunities to increase the resilience of the built environment with the National Climate Change Adaptation Research Facility and the Federal Government.	In collaboration with industry and the Australian Sustainable Built Environment Council, a proposal has been put forward to the Federal Government for an Adaptation Policy Framework to improve the resilience of the built environment in the face of climate change. This Framework aims to: protect the wellbeing of communities through targeted policy initiatives and better urban and building design, ensure appropriate institutional arrangements to facilitate adaptation, realise economic benefits from early adaptation through effective strategic planning and risk minimisation, advance sustainability through better resource and risk management strategies, increase community education and awareness about climate change risks and adaptation.
Energy efficiency	Support	Our General Manager, Sustainability, is the Chair of the National Sustainability Committee at the Property Council of Australia (PCA). We were involved in the preparation of a 2015 advocacy paper to explain the role of the property sector in managing carbon emissions and advocating for a better sustainability outcome which led to substantial advocacy on climate related issues in FY17. The aim is to describe the principles necessary for energy efficiency and renewables to flourish across the property sector.	The PCA National Sustainability Roundtable advocates for the development of a comprehensive framework that will assist the industry in becoming more sustainable: (a) The respective roles of sustainable carbon reduction strategies: energy efficiency, on site renewables, energy generation and storage, off site renewable energy, fuel switching, carbon offsets, and electrification of the transport sector; (b) Incentives that encourage best practice, developing new skills and technologies; (c) Removal of perverse subsidies where they continue to exist; (d) Programs that account for the cost of carbon; (e) Programs that reward and create demand for high performing buildings and cities; (f) The role of new skills and training; (g) The role of new and emerging technologies; (h) That markets can be designed that drive desired behaviours; (i) That collaboration between energy generators, energy distributors and energy users is required for optimal energy productivity. We have also worked with the PCA on the Australian Sustainability Built Environment Council report released in May 2016 called "Low Carbon, High Performance". This report reviews the global 2015 Paris agreement in an Australian context, and considers the pathway to reduced emissions. This report has been used for substantial advocacy in FY17 during which time some of its key recommendations have been implemented, such as a review of the National Construction Code, and several Australian states have adopted its recommended targets.
Other, please specify (Green building)	Support	Green Building Council of Australia (GBCA) - Our CEO Residential is a member of the Board, and our General Manager, Sustainability, is a member of the Steering Committee. Beyond our participation in GBCA governance, we engage with the GBCA (via participation in working groups, for examples) on policy issues related to climate change and urban development, green buildings, and development of Green Star rating tools.	The GBCA engages with government to promote the role of green buildings in reducing Australia's emissions. GBCA proposes incentives for developers to take up more sustainable and efficient developments and operations that encourage best practice sustainable development and enhance the development of new skills and technologies for the industry. The GBCA has released a commitment to net zero emissions by 2050, and released a carbon consultation paper which shows how Green Star rated buildings will transition to net zero emissions by 2030.

C12.3b

(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?

Yes

C12.3c

(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.

Trade association

Property Council of Australia

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

Promoting smart policies to improve energy efficiency and incentivise best practice development and community creation.

How have you, or are you attempting to, influence the position?

We support the PCA's position on climate change, their focus on eco-efficiency and the need to establish an Adaptation Policy Framework. We provide case studies to provide support for their submissions. In FY17 our Managing Director and CEO was on the Board of the Property Council of Australia and our General Manager of Sustainability is currently the Chair of the National Sustainability Roundtable which promotes innovative climate change action and makes recommendations on effective government climate change policy for the property sector. We have also worked with the PCA on the Australian Sustainability Built Environment Council report which was released in May 2016 which is called "Low Carbon, High Performance". This report reviews the global Paris 2015 commitments in an Australian context, and considers the pathway to reduced emissions. Within FY17 the report has been used to position the property sector's approach to net zero emissions, and is the subject of extensive consultation with all levels of Government.

Trade association

Green Building Council of Australia

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

The Green Building Council of Australia (GBCA) is supportive of raising awareness and taking action on emissions reduction and climate change adaptation.

How have you, or are you attempting to, influence the position?

We support the GBCA's position on climate change and work in partnership with the GBCA to develop tools and initiatives to promote more efficient and resilient assets and communities across Australia. We sit on the Board and on the GBCA Steering Committee to promote innovation, best practice and advocate for a more sustainable built environment through the development and use of voluntary rating tools to meet policy objectives and access government incentives. We support the GBCA's efforts to expand the national carbon offset standard for buildings, precincts and cities through the Green Star Steering Committee.

C12.3f

(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?

Stockland's Stakeholder Relations team leads and coordinates our engagement with policymakers and industry associations. Our Stakeholder Relations team serves as a central point of contact for our policy advocacy activities, and is responsible for implementing a formalised Government Relations policy that applies to all of our employees when engaging policymakers.

The Government Relations policy is Board-endorsed, and contains the necessary mechanisms to ensure our advocacy activities are consistent across a range of platforms, including our overall climate change strategy. These mechanisms include: identifying the Stakeholder Relations team as the coordinator of Stockland representation on external committees, mandating a Stakeholder Relations team member to attend Stockland meetings with Ministerial-level policy decision makers, and responsibility for coordinating Stockland representatives to attend external policy-focused events. The Stakeholder Relations team also prepares and maintains State Stakeholder Plans that guide activities across internal business units, to ensure external engagement with government and industry is coordinated and consistent.

The Stakeholder Relations team also coordinates our engagement with industry organisations, including the Green Building Council of Australia, which is the key forum through which we participate in relation to our overall climate change strategy. Our membership of industry organisations like the GBCA enables us to take part in discussions and demonstrate industry leadership on policy areas such as climate change. Our CEO Residential, Andrew Whitson, is a Director of the Board of the Green Building Council. Our teams are closely involved with their technical and advocacy committees to promote innovation and best practice, and to advocate for a more sustainable built environment through the development and use of voluntary rating tools to meet policy objectives and access government. We are also a member of the Property Council's National Sustainability Roundtable, to promote innovative climate change action and propose recommendations relating to effective government climate change policy for the property sector.

C12.4

(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Publication

In mainstream reports

Status

Complete

Attach the document

Stockland 2017 Annual Review.pdf

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Publication

In voluntary sustainability report

Status

Complete

Attach the document

Carbon and Energy FY17.pdf

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Publication

In voluntary sustainability report

Status

Complete

Attach the document

Climate and Community Resilience FY17.pdf

Content elements

Governance
Strategy
Risks & opportunities
Other metrics
Other, please specify (Climate and community resilience)

C14. Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

Not applicable

C14.1

(C14.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Chief Operating Officer	Chief Operating Officer (COO)

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	Public or Non-Public Submission	I am submitting to
I am submitting my response	Public	Investors

Please confirm below

I have read and accept the applicable Terms