

# Stockland - Climate Change 2019

C0. Introduction

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C0.1

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## (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 2018 financial year, ending 30 June 2018. 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-annual-review-fy18.ashx?la=en> 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 2018, 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 2018, the portfolio comprised 39 retail centres, with Stockland's ownership interests valued at \$7.4 billion and gross book value of \$7.9 billion. These properties accommodate more than 3,600 tenants and generate in excess \$6.8 billion of retail sales per annum.
- Logistics and Business Parks - as at 30 June 2018, 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 \$2.2 billion and a gross book value of \$2.4 billion.
- Office - as at 30 June 2018, our office portfolio comprised 7 properties with Stockland's ownership interests valued at \$0.8 billion and gross book value of \$1.3 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 82,000 lots remaining in our portfolio, with a total end value of approximately \$22.2 billion (excluding value in projects identified for disposal) as at 30 June 2018.

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 3,000 units as at 30 June 2018.

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. Being the largest business unit in the group, Our Commercial Property business has a GHG footprint which presents the greatest opportunity for emissions reduction. As it is our most established asset class, and the one key area over which we have the greatest degree of control, we have 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

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**(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 2017	June 30 2018	No	<Not Applicable>

C0.3

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

Australia

C0.4

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

AUD

C0.5

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**(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

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C1.1

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

Yes

C1.1a

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**(C1.1a) Identify the position(s) (do not include any names) 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-level committee	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"> <li>Reviewing and guiding strategy</li> <li>Reviewing and guiding major plans of action</li> <li>Reviewing and guiding risk management policies</li> <li>Reviewing and guiding annual budgets</li> <li>Reviewing and guiding business plans</li> <li>Setting performance objectives</li> <li>Monitoring implementation and performance of objectives</li> <li>Overseeing major capital expenditures, acquisitions and divestitures</li> <li>Monitoring and overseeing progress against goals and targets for addressing climate-related issues</li> </ul>	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 and risks (both physical and transition). 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. The Board also regularly views sustainable assets, such as solar.

## C1.2

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**(C1.2) Provide the highest management-level 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 Financial Officer (CFO)	Both assessing and managing climate-related risks and opportunities	More frequently than quarterly

## C1.2a

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**(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 (do not include the names of individuals).**

The highest management-level responsibility for climate-related issues lies with our Chief Financial Officer (CFO), because the CFO has responsibility for our Group Sustainability team, who work to identify, assess, and manage climate-related issues. The CFO directly reports to our Managing Director and CEO. The CFO reports to the board on a monthly basis, including any relevant sustainability matters about the sustainability strategy, including key updates on climate related issues. For example, the CFO is responsible for signing off on company targets such as Stockland's long-term emission reductions targets, and signing off on the annual CDP submission, and other strategic sustainability and climate-related investor surveys such as DJSI and GRESB.

The CFO also convenes our internal Sustainability Steering Committee, which shapes and monitors our sustainability approach and strategy. The Sustainability Steering Committee is chaired by the CFO 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 two 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

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

Yes

## C1.3a

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**(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).**

**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.

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**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.

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**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.

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**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**

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).

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## C2. Risks and opportunities

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### C2.1

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**(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 Recommendations 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**

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**(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. We understand that current regulations in Australia have the potential to impact our operations, especially with regards to development, which is why we incorporate these considerations into our climate scenario analysis using ICPP RCP 2.6 and the Deep Decarbonisation Pathways Project to identify transition risks. These scenarios highlight that 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. As such, we incorporate emerging regulation considerations into our ICPP RCP 2.6 and Deep Decarbonisation Pathways Project assessments for transition risks. 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, based on outcomes from our scenario analysis. 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. Our commitment is to install 12MW of solar across our retail portfolio by FY20.
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, which is why we incorporate these considerations into our climate scenario analysis using ICPP RCP 2.6 and the Deep Decarbonisation Pathways Project to identify transition risks. 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. For this reason, we include market considerations in our climate scenario analysis using ICPP RCP 2.6 and the Deep Decarbonisation Pathways Project to identify transition risks. 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 (solar PV) 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, including customers and employees. Therefore, we consider reputational considerations in our climate scenario analysis using the ICPP RCP 2.6 and the Deep Decarbonisation Pathways Project to identify transition risks.
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 average Queensland diesel fuel price of \$1.192 per litre) and over 305,000 kg CO <sub>2</sub> -e of greenhouse gas emissions avoided. Stockland has also considered the risk of carbon pricing into our climate scenario analysis and assessments, 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, within our climate scenario analysis regarding transition risks. 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 25 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 risks & opportunities

Given the potential for climate-related physical risks to damage assets and bring potential losses, we have included these risks, opportunities, and 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. In terms of managing opportunities, mitigating our risk and improving resilience allows for opportunities to be realised such as future cost savings associated with maintenance, upgrade and emergency response initiatives.

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

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

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

- geographical areas of highest risk
- impact on local communities & 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 high priority for resilience assessments due to the region's exposure to cyclones and extreme weather events. We completed resilience assessments of our North Queensland assets in 2014-15 and 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 completing 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, which validated our approach.

Managing climate opportunities comes from effective management of physical risk in our Commercial Property business unit such as:

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

## Management of transition risks & opportunities

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 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 Stockland when managing risks from climate-related regulatory requirements. For example, Stockland has faced rising energy costs

in recent years and 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. As an opportunity, 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.

Managing climate-related transition opportunities also involves participating 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

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### **(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

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### **(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**

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). As a greenfield developer, with active land developments underway for our Residential portfolio in FY18 including Mt Atkinson and Orion in Victoria, we are therefore at risk of write-offs for increased project costs if developments are not approved or are delayed due to regulatory changes. For example if 2% of Stockland's residential portfolio (end-market value of \$22.2 billion as at 30 June 2018) was deemed not suitable for development, this would lead to up to \$444 million of future revenue lost. 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 Newport (explained further in 'Management method' below).

#### **Time horizon**

Long-term

#### **Likelihood**

Unlikely

#### **Magnitude of impact**

Medium-low

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

444000000

**Potential financial impact figure – minimum (currency)**

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

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 \$22.2 billion as at 30 June 2018) was deemed not suitable for development, this would lead to up to \$444 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; an integral part of our planning & 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 operational and development assets in FY18 including three Commercial Property assets (Pacific Highway NSW, Trinita Business Campus NSW, Altona Vic); at residential projects in priority high risk locations including Kalina (Qld), Paradise Waters (Qld), Mount Atkinson (Vic), and more), three Retirement Living locations (including Bellevue Gardens NSW, Golden Ponds NSW). An example of innovative action taken to improve resilience and manage regulatory risks included recycling earthworks material within our Newport development site. The reuse of this material reduced GHG emissions, diverted material from landfill, and increased site level above regulatory requirements for flood resilience. The cost of management is associated with undertaking the Climate Vulnerability and Resilience Assessments - a process that is either conducted internally or by external consultants. Costs provided here assume \$8000 per assessment (estimated from external consultant costs). We have conducted a total of 73 assessments at the time of reporting, the estimated cost of management is \$584,000.

**Cost of management**

584000

**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 73 assessments at the time of reporting, the estimated cost of management is \$584,000.

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**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**

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. As an asset developer, owner, and operator, we are constantly seeking ways to reduce our GHG consumption and intensity levels, particularly via our operations. For Stockland, a price on carbon may 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 FY18 were approximately \$15.9 million, so the financial impact of the potential regulation is estimated at 10% of this costs, or \$1.59 million.

**Time horizon**

Medium-term

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**Likelihood**

About as likely as not

**Magnitude of impact**

Low

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

1590000

**Potential financial impact figure – minimum (currency)**

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

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 FY18 were approximately \$15.9 million, so the financial impact of the potential regulation is estimated at 10% of this costs, or \$1.59 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. For example, we are an active member of Business Council of Australia, Green Building Council of Australia, Property Council of Australia, Shopping Centre Council of Australia, and Urban Development Institute of Australia, and they continue to be our primary representative bodies at both federal and state levels, particularly when engaging and advocating on carbon related issues. We also engage with the Investor Group on Climate Change and participate as an Organisational Stakeholder in the Global Reporting Initiative. For cost of management, there is no additional cost, as this is a core responsibility of our Stakeholder Relations team.

**Cost of management**

0

**Comment**

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

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**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**

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

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

222000000

**Potential financial impact figure – minimum (currency)**

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

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 \$22.2 billion as at 30 June 2018) was impacted or deemed not suitable for development, this would result in up to \$222 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, or retailers are impacted by supply chain disruption, 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. For example, during the reporting period we completed resilience assessments across our North Queensland retail portfolio, having been identified as high-risk relating to sea level rise, 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 development design and its integrated water management solution. Furthermore, we have committed to designing the development community so it achieves Green Star recognition. Cost of management relates to climate resilience assessments, which are estimated at \$8000 per assessment (external consultant costs). We have conducted a total of 73 assessments at the time of reporting, the estimated cost of management is \$584,000. Management cost includes additional costs associated with Green Star. Consultant costs associated with Newport's Green Star rating were approximately \$83,000. Where specific risks are identified, suitable mitigation or correctional measures are included in capital expenditure and asset maintenance plans.

**Cost of management**

667000

**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 73 assessments at the time of reporting, the estimated cost of management is \$584,000. 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**

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

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

218000

**Potential financial impact figure – minimum (currency)**

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

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 \$4.4 million, this represents approximately \$218,000 annually.

**Management method**

Potential at risk projects must conduct a Climate Vulnerability and Resilience assessment. Where specific risks are identified, suitable mitigation or correctional measures are included in asset-specific action plans, with actions implemented and tracked. An example is the periodic assessment of our retail portfolio to assess the optimal operating conditions for 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 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 includes climate resilience assessments, which are estimated at \$8000 per assessment based on external consultant costs. We have conducted 73 assessments to date, the estimated cost of management is \$584,000. In addition, we spend approximately \$100,000 per annum assessing the performance of our HVAC systems and in 2018, spent approximately \$3.3 million upgrading and replacing our HVAC systems at our shopping centres.

**Cost of management**

3984000

**Comment**

Cost of management includes climate resilience assessments, which are estimated at \$8000 per assessment based on external consultant costs. As we have conducted 73 assessments to date, the estimated cost of management is \$584,000. In addition, we spend approximately \$100,000 per annum assessing the performance of our HVAC systems and in 2018, spent approximately \$3.3 million upgrading and replacing our HVAC systems at our shopping centres.

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**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**

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

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

218000

**Potential financial impact figure – minimum (currency)**

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

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 \$4.4 million, this represents approximately \$218,000 annually.

**Management method**

Potential at risk projects must conduct a Climate Vulnerability and Resilience assessment. Where specific risks are identified, suitable mitigation/corrective measures are 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 HVAC units (i.e. using minimal energy to maintain optimum temperature). During the reporting period we completed resilience assessments across our North Queensland retail portfolio to assess the enhancements to resilience resulting from our targeted initiatives since 2015. These initiatives enhanced the resilience of our retail town centres to cyclone impacts, given the cyclone risk in the North Queensland region. Our portfolio-scale solar PV rollout also manages the impact of physical risk by providing assets with on-site power generation that can be relied upon during periods of peak energy demand. Cost of management refers to \$584,000 on 73 climate resilience assessments conducted to date, estimated at \$8000 per assessment. In addition, we spend approximately \$100,000 per annum assessing the performance of our HVAC systems & in 2018, spent approximately \$3.3 million upgrading & replacing HVAC systems at our shopping centres. Cost also includes \$2 million spent in FY18 on on-site solar PV to enhance the resilience of our Wetherill Park centre and reduce impact on the energy grid during peak demand.

**Cost of management**

5984000

**Comment**

Cost of management refers to \$584,000 on 73 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 2018, spent approximately \$3.3 million upgrading and replacing our HVAC systems at our shopping centres. Cost also includes \$2 million spent in FY18 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.

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**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**

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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

### Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

### Potential financial impact figure (currency)

120000

### Potential financial impact figure – minimum (currency)

<Not Applicable>

### Potential financial impact figure – maximum (currency)

<Not Applicable>

### Explanation of financial impact figure

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, with a focus on location, design, structure, operation and maintenance, utilities and stakeholders. Action plans are developed for each asset and include the implementation of operational responses, maintenance regimes, and emergency response plans. For 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. In FY17, we reassessed the resilience of our North Queensland centres to understand how our actions have enhanced centre resilience. We worked with the Cyclone Testing Station at James Cook University to complete two cyclonic wind vulnerability & emergency assessments at our shopping centres at Bundaberg & Hervey Bay. These assessments took a detailed look at the roof structure & building envelope to identify vulnerability to facility damage from cyclonic wind events. Cost of management includes climate resilience assessments, at \$8000 per assessment based on external consultant costs. We have conducted a total of 73 assessments at the time of reporting; estimated cost of management is \$584,000. Costs include additional assessment of climate change risks at our Rockhampton shopping centre & plan to improve the cyclone resilience of this asset at a cost of ~\$700,000. Costs also include the cost for the Cyclone Testing Station to complete two cyclonic wind vulnerability assessments at our shopping centres, at \$35,000.

### Cost of management

1319000

### 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 73 assessments at the time of reporting, the estimated cost of management is \$584,000. 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.

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### Identifier

Risk 7

### Where in the value chain does the risk driver occur?

Direct operations

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**Risk type**

Physical risk

**Primary climate-related risk driver**

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

**Type of financial impact**

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

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

460000

**Potential financial impact figure – minimum (currency)**

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

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 \$4.6 million in FY18, a 10% increase in water costs would lead to an annual cost increase of approximately \$460,000. 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. In FY17 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 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 73 assessments at the time of reporting, the estimated cost of management is \$584,000.

**Cost of management**

584000

**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 73 assessments at the time of reporting, the estimated cost of

management is \$584,000.

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#### 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

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 shareholder returns. By way of example, a 10% fall in our share price could result in approximately \$963 million in loss of share value for investors (based on a market capitalisation of \$9.63 billion as at 30 June 2018). Stockland has over 54,000 securityholders in Australia and overseas, who we actively work to keep engaged and ensure we are addressing their concerns, including climate-related concerns. Lowering our focus on climate risk would also impact our standing on assessments such as Dow Jones Sustainability Index and GRESB, 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

#### Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

#### Potential financial impact figure (currency)

963000000

#### Potential financial impact figure – minimum (currency)

<Not Applicable>

#### Potential financial impact figure – maximum (currency)

<Not Applicable>

#### Explanation of financial impact figure

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 \$963 million in loss of share value for investors (based on a market capitalisation of \$9.63 billion as at 30 June 2018). 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 focusing on climate resilience of our portfolio. Potential at risk projects must conduct a climate risk assessment. Where risks are identified, mitigation measures are included in asset-specific action plans, with actions implemented & tracked. An example is the periodic assessment we conduct of our retail portfolio to assess the optimal operating conditions for heating, ventilation, & air conditioning units (i.e. using minimal energy to maintain optimum temperature). This assessment of our Green Hills shopping centre identified problems such as inability to keep up with demand on hot days, causing customer discomfort. We replaced the heating, ventilation, & air conditioning system ahead of the end of life at a cost of \$5 million. Our

Stakeholder Relations team responds to climate change concerns effectively to minimise potential damage to our reputation. We also manage our reputation by participating in surveys such as CDP, reporting on our sustainability performance annually & meeting with institutional investors. Cost of management includes climate resilience assessment costs, estimated at \$8000 per assessment (external consultant costs). We have conducted a total of 73 assessments at the time of reporting, the estimated cost of management is \$584,000. Cost also includes the heating, ventilation, and air conditioning upgrade at Green Hills (end of life cost \$5 million) as an indicative cost of capital expenditure targeted at enhancing resilience.

#### **Cost of management**

5584000

#### **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 73 assessments at the time of reporting, the estimated cost of management is \$584,000. The quoted cost also includes the heating, ventilation, and air conditioning upgrade at Green Hills (end of life cost of \$5 million) as an indicative cost of capital expenditure targeted at enhancing resilience.

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#### **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**

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. For example, some of our tenant groups, including government, have stated their intention to only occupy our office buildings that meet minimum sustainability (energy efficiency) requirements, e.g. 4.5 star NABERS energy rating. Should we not maintain our assets to energy efficiency standard at or above 4.5 stars, then we risk losing at least 25 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 6.25 per cent of our FY18 office rent revenue of \$59.6 million (impact of 6.25 per cent results from the need to re-lease 25 per cent of our portfolio at a 25 per cent discount), a figure of \$3,687,000. Therefore, our strong positive reputation depends on our continued consideration of climate risk when developing our assets, including a consideration of consumer preferences such as our tenants requiring minimum energy efficiency standards. Having a 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 may also impact on investor confidence, which could lead to a reduction in our stock price.

#### **Time horizon**

Short-term

#### **Likelihood**

Unlikely

#### **Magnitude of impact**

Low

#### **Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

#### **Potential financial impact figure (currency)**

3687000

#### **Potential financial impact figure – minimum (currency)**

<Not Applicable>

#### **Potential financial impact figure – maximum (currency)**

<Not Applicable>

#### **Explanation of financial impact figure**

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 25 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 25 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 6.25 per cent of our FY18 office rent revenue of \$59.6 million (impact of 6.25 per cent results from the need to re-lease 25 per cent of our portfolio at a 25 per cent discount), a figure of \$3,687,000.

#### **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. 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 Commercial Property Green Star Design rating (Greenhills) were approximately \$150,000. Management costs also include the costs of maintaining and upgrading our systems such as LED lighting and HVAC. In FY18, we spent approximately \$4.4 million in HVAC maintenance and \$3.3 million in replacing/upgrading our shopping centre HVAC systems and approximately \$2,000,000 in upgrading to LED lighting systems.

#### **Cost of management**

9850000

#### **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 Commercial Property Green Star Design rating (Greenhills) were approximately \$150,000. Management costs also include the costs of maintaining and upgrading our systems such as LED lighting and HVAC. In FY18, we spent approximately \$4.4 million in HVAC maintenance and \$3.3 million in replacing/upgrading our shopping centre HVAC systems and approximately \$2,000,000 in upgrading to LED lighting systems.

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## 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

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## 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**

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/CO<sub>2</sub> 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, Shellharbour, Foster, 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

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

747000

**Potential financial impact figure – minimum (currency)**

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

We have traded ESCs in 2012, 2015, and 2017. In 2018, we traded 4731 ESCs, earning over \$115,436. To date we have traded over 38,000 ESCs and realised over \$747,000 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 Shellharbour shopping centre in New South Wales, we have upgraded lights to LEDs, replaced all the air conditioning plant and installed smart metering. Management costs include consultants fees for the creation of the ESCs and fees for the ESC registration totalling approximately \$13,500. 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.

**Cost to realize opportunity**

13500

**Comment**

Management costs include consultants fees for the creation of the ESCs and fees for the ESC registration totalling approximately \$13,500. 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.

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**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**

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

#### **Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

#### **Potential financial impact figure (currency)**

33740

#### **Potential financial impact figure – minimum (currency)**

<Not Applicable>

#### **Potential financial impact figure – maximum (currency)**

<Not Applicable>

#### **Explanation of financial impact figure**

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). This assessment identified that our Green Hills retail centre was not coping with hot days and causing customer discomfort during peak times. Therefore, we replaced the HVAC system ahead of the end of life at a cost of \$5 million, to ensure we could cater to customer needs and keep them cool on hot days, whilst using minimal energy. Cost of management includes climate resilience assessment costs, estimated at \$8000 per assessment based on external consultant costs. As we have conducted a total of 73 assessments at the time of reporting, the estimated cost of management is \$584,000. Additional management costs associated with energy efficiency initiatives and building upgrades 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. For 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.

#### **Cost to realize opportunity**

5584000

#### **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 73 assessments at the time of reporting, the estimated cost of management is \$584,000. 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.

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#### **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**

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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. By way of example, approximately 25 per cent of our tenants are public sector tenants that have policies to only occupy our office spaces with a NABERS rating of 4.5 stars or higher. By maintaining our office assets to an energy efficiency standard of 4.5 stars or above, we are potentially increasing our revenue through the demand for our energy efficient office spaces.

#### Time horizon

Short-term

#### Likelihood

Likely

#### Magnitude of impact

Medium

#### Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

#### Potential financial impact figure (currency)

90000000

#### Potential financial impact figure – minimum (currency)

<Not Applicable>

#### Potential financial impact figure – maximum (currency)

<Not Applicable>

#### Explanation of financial impact figure

As a result of our focus on energy efficiency and renewable energy, Stockland and its tenants have collectively saved over \$90 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. Such upgrades contribute to the energy efficiency of our assets and their relative green building certifications and ratings such as Green Star and NABERS. 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.

#### 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.

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#### 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**

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 and claims excesses. This is particularly relevant for regions in our portfolio that are at higher risk of extreme weather events such as cyclones, such as our shopping centre assets in Northern Queensland.

**Time horizon**

Short-term

**Likelihood**

Likely

**Magnitude of impact**

Medium

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

150000

**Potential financial impact figure – minimum (currency)**

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact figure**

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. Through our climate resilience assessment process, we have demonstrated resilience of our portfolio to our insurers and reduced premiums and claims expenses. We continue to keep these costs low due to our systematic focus on building the resilience of our portfolio. This is reviewed annually through our climate resilience assessments and reported to our insurers for adjustments to our insurance premiums, based on resilience outcomes. For example in 2015 when we presented our resilience outcomes to an insurer following a cyclone, they agreed to reduce the insurance deductible for our assets by \$150,000 due to our cyclone vulnerability assessment and resilience works, which is a strategy we will continue to pursue in case of such extreme weather events.

**Cost to realize opportunity**

584000

**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 73 assessments at the time of reporting, the estimated cost of management is \$584,000.

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**Identifier**

Opp5

**Where in the value chain does the opportunity occur?**

Customer

**Opportunity type**

Products and services

**Primary climate-related opportunity driver**

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Shift in consumer preferences

#### **Type of financial impact**

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. As a customer-driven organisation, this 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 as a listed company, which allows to Stockland to maintain, expand and grow our assets. This is particularly relevant for our business units that rely on referrals, such as our Residential and Retirement Living portfolios. By way of example, if sales of residential assets were to increase by 1% due to our enhanced sustainability reputation and therefore increased trust, customer satisfaction and customer referrals, this could lead to an increase in sales revenue of \$18.3 million (based on FY18 residential revenue of \$1,830 million).

#### **Time horizon**

Long-term

#### **Likelihood**

Likely

#### **Magnitude of impact**

Medium-low

#### **Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

#### **Potential financial impact figure (currency)**

18300000

#### **Potential financial impact figure – minimum (currency)**

<Not Applicable>

#### **Potential financial impact figure – maximum (currency)**

<Not Applicable>

#### **Explanation of financial impact figure**

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 \$18.3 million (based on FY18 residential revenue of \$1,830 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, 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. For example our latest climate resilience assessment conducted in our Residential community Glendalough in Western Australia identified asset-specific specific actions to improve resilience such to increase the provision of landscaping, natural shading and shelters to reduce urban heat effects and provide respite for tenants using these spaces, as well as to prepare an Extreme Heat Management Plan for the site. Assessing each asset and implementing action plans such as this ensure we meet our customers' expectations and maintain our competitive advantage. Cost to realise opportunity includes climate resilience assessment costs which are estimated at \$8000 per assessment based on external consultant costs. As we have conducted a total of 73 assessments at the time of reporting, the estimated cost of management is \$584,000.

#### **Cost to realize opportunity**

584000

#### **Comment**

Cost to realise opportunity includes climate resilience assessment costs which are estimated at \$8000 per assessment based on external consultant costs. As we have conducted a total of 73 assessments at the time of reporting, the estimated cost of management is \$584,000.

## 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. \$18.3 million based on total residential revenue of \$1,830 million in FY18).
Supply chain and/or value chain	Impacted for some suppliers, facilities, or product lines	Climate-related risks and opportunities such as a decrease/increase in revenues related to reputation from environmental stewardship, as well as the need to maintain energy efficient operations that are third party certified, have impacted our customer base as some of our public sector tenants (an estimated 25 per cent of our office tenant base) how 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 25 per cent of our tenants, with resulting revenue losses from vacancy or needing to re-lease the space at a discount. The magnitude of this impact is estimated at 6.25 per cent of our FY18 office rent revenue of \$59.6 million (impact of 6.25 per cent results from the need to re-lease 25 per cent of our portfolio at a 25 per cent discount).
Adaptation and mitigation activities	Impacted	The magnitude of physical risks such as extreme weather events, heat waves, and flooding events is high - they 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. In addition, the magnitude of transition risks such as energy pricing and regulation is medium-high, impacting 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 \$584,000 however have also led to resilience enhancements that have enabled our centres to remain operational through extreme weather events. To estimate the magnitude of this opportunity, 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 such as cost-savings and increased portfolio resilience from investment in energy efficient technologies/initiatives and renewable energy, 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 high, being our \$23.5 million solar rollout initiated 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 such as extreme weather events like cyclones, floods, and bushfires 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, which is of high magnitude. 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 \$584,000 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 \$90 million in energy costs since 2006, demonstrating this as a high magnitude opportunity.
Other, please specify	Please select	

## C2.6

**(C2.6) Describe where and how the identified risks and opportunities have been 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 panels installed on our retail town centres. We have installed solar PV panels 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. The high magnitude of this opportunity relates to revenues expected from this further rollout, 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 are high magnitude, having saved our Commercial Property business unit over \$90 million in avoided costs since 2006.
Capital expenditures / capital allocation	Impacted	Climate-related risks and opportunities such as energy infrastructure and eco-efficiency upgrades have led to strategic capital expenditure across our business. For example, it is now standard practice for us to integrate capital projects focused 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 million 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. The magnitude of impact on our FY18 CAPEX budget included \$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 magnitude of the impact of climate risks and opportunities on our acquisitions and divestment's 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 such as certifying our assets to a high third-party standard via Green Star and NABERS 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 magnitude of 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, and Stockland is actively engaged with ESG investors on our debt roadshows.
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 \$22.2 billion as at 30 June 2018) was impacted or deemed not suitable for development because of climate risks, this would result in up to \$222 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 so the magnitude of this impact is limited, however we acknowledge the potential for increased influence from climate-related issues on our liabilities, and Stockland is actively engaged with ESG investors on our debt roadshows.
Other	Please select	

**C3. Business Strategy**

**C3.1**

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

Yes

#### **C3.1a**

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

Yes, qualitative and quantitative

#### **C3.1c**

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### **(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'. Additionally in FY18 we included a 2030 target for net-zero carbon for Retirement Living, Logistics, and our corporate tenancies. Further information on our business strategy and integrated sustainability strategy is provided in our publicly available Annual Review (30 June 2018).

#### **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 FY18 commitment and delivery of \$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 FY18 completing climate resilience assessments and action plans over a number of assets such as Bellevue Gardens in Retirement Living, Mt Atkinson in Residential and Pacific Highway, Trinity, and Altona within Commercial Property. 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. Additionally in FY18 we included a 2030 target for net-zero carbon for Retirement Living, Logistics, and our corporate tenancies.

**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 the results 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. For example, changes to the national building code to include carbon neutral requirements could trigger capital costs to Stockland in the form of retrofits or carbon offsetting. - Carbon pricing - has the potential to increase Stockland's energy costs. - Liability risks - including changes to insurability of Stockland's and its customers' assets and commercial liability regarding disclosure of transition and physical risks. This is particularly relevant to Stockland's assets located in higher-risk areas, such as Northern Queensland where extreme weather events are more likely and frequent. - Technology shifts - broad scale changes to how Stockland generates, transmits, and distributes energy, with a shift away from fossil fuels to renewable energy sources. This impacts where and how much renewable energy we invest in, such as our solar PV investments. - Investment considerations - including the potential for lending institutions to prefer borrowers with strong climate risk management practices and the capacity to create low carbon solutions - Reputational risks &amp; opportunities - i.e. loss of Stockland's customer base or employee engagement if we are considered a climate laggard, and potential for increased customer satisfaction and engagement if we continue our climate action leadership, highly relevant as Stockland is a customer-driven organisation. The above 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 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 (e.g. enhanced disclosure and liability risks). A case study of how the results of scenario analysis directly influenced strategy relates to our due diligence strategy for new acquisitions. Post-scenario analysis, we engaged our acquisitions team to integrate climate risk considerations 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 acquire new assets.</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, 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 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 include: - Energy efficiency, such as halving 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 PV - Electrification - such as a full electrification of buildings energy use to zero carbon sources - Non-energy emissions - e.g. process enhancements and materials substitutions. Our scenario analysis using RCP2.6 and DDPP was applied to all areas of our business and the results 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 building requirements. For example, changes to the national building code to include carbon neutral requirements could trigger capital costs to Stockland in the form of retrofits or carbon offsetting. - Carbon pricing - has the potential to increase Stockland's energy costs. - Liability risks - including changes to insurability of Stockland's and its customers' assets and commercial liability regarding disclosure of transition and physical risks. This is highly relevant to Stockland's assets located in higher-risk areas e.g. Northern Queensland where extreme weather events are more likely. - Technology shifts - broad scale changes to how Stockland generates, transmits, and distributes energy, with a shift away from fossil fuels to renewable energy sources. This impacts where and how much renewable energy we invest in, such as our solar PV investments. - Investment considerations - including the potential for lending institutions to prefer borrowers with strong climate risk management practices and the capacity to create low carbon solutions. - Reputational risks &amp; opportunities - i.e. loss of Stockland's customer base or employee engagement if we are considered a climate laggard, and potential for increased customer satisfaction and engagement if we continue our climate action leadership, relevant as Stockland is a listed, customer-driven organisation. The above results of our analysis influence our business objectives and strategy through integration with Group and business unit sustainability strategies, e.g. setting our net zero by 2030 target, &amp; through integration into our enterprise risk management. The results reaffirmed our focus on energy efficiency &amp; renewable energy as appropriate mechanisms for minimising 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 (e.g. enhanced disclosure &amp; liability risks). A case study of how the results of scenario analysis directly influenced strategy relates to our due diligence strategy for new acquisitions. From the scenario analysis, we engaged our acquisitions team to integrate climate risk considerations in the due diligence process for new acquisitions. We continue to refine this process to enhance our consideration of physical &amp; transition risk when we acquire new assets.</p>
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. The results 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, impacting required energy load of assets such as our shopping centres, where customers seek respite on hot days. - 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. Flooding events have already affected Stockland, such as in Townsville, with our asset remaining operational whilst others in the community did not. - Sea level rise – increase in mean sea levels resulting in coastal inundation and erosion, with the potential to impact our coastal-located assets. - 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. As our assets are physical structures, they are highly susceptible to such events in terms of operations and structural damage. - Bushfires – increase in the number of fire weather days and an increased duration of the fire season. As a developer and operator of physical assets, fire events have the potential to impact operations, structurally damage our assets, and impact communities we operate in. The scenario analysis results 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 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

**Targeted % 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

**% of target achieved**

100

**Target status**

Achieved

**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.

---

**Target reference number**

Abs 2

**Scope**

Scope 1 +2 (market-based)

**% emissions in Scope**

22

**Targeted % reduction from base year**

100

**Base year**

2018

**Start year**

2019

**Base year emissions covered by target (metric tons CO2e)**

17264

**Target year**

2030

**Is this a science-based target?**

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

**% of target achieved**

---

0

**Target status**

New

**Please explain**

In September 2018, we signed on to the World Green Building Council's Net Zero Carbon Buildings by 2030 Commitment. Our new net zero targets commits us to achieving net zero carbon emissions by 2030 across our logistics centres, retirement living operations, and corporate head offices.

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**C4.1b**

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

**Target reference number**

Int 2

**Scope**

Scope 1 +2 (market-based)

**% emissions in Scope**

100

**Targeted % reduction from base year**

10

**Metric**

Other, please specify (kg CO2e per square meter)

**Base year**

2017

**Start year**

2018

**Normalized base year emissions covered by target (metric tons CO2e)**

54.93

**Target year**

2020

**Is this a science-based target?**

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

**% of target achieved**

53

**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 1 +2 (market-based)

---

**% emissions in Scope**

83

**Targeted % reduction from base year**

60

**Metric**Other, please specify (kgCO<sub>2</sub>-e per square metre)**Base year**

2006

**Start year**

2016

**Normalized base year emissions covered by target (metric tons CO<sub>2</sub>e)**

104.81

**Target year**

2025

**Is this a science-based target?**

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

**% of target achieved**

84

**Target status**

Underway

**Please explain**

Applies to our retail, office and business parks assets. This assumes that Stockland can take local generation credits as a renewables incentive and not reduce from carbon savings. To further help us track our performance Stockland has set interim FY18-20 targets that fall within this performance. These are not reported separately as they fall as a sub-target.

**% change anticipated in absolute Scope 1+2 emissions**

60

**% change anticipated in absolute Scope 3 emissions**

0

**Target reference number**

Int 4

**Scope**

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

**% emissions in Scope**

80

**Targeted % reduction from base year**

30

**Metric**Other, please specify (kgCO<sub>2</sub>-e per square metre)**Base year**

2006

**Start year**

2016

**Normalized base year emissions covered by target (metric tons CO<sub>2</sub>e)**

20

**Target year**

2025

**Is this a science-based target?**

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

**% of target achieved**

84

**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****(C4.2) Provide details of other key climate-related targets not already reported in question C4.1/a/b.****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 initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.**

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	0	0
To be implemented*	2	1888
Implementation commenced*	2	1060
Implemented*	18	4577
Not to be implemented	0	0

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

Energy efficiency: Building services

**Description of initiative**

HVAC

**Estimated annual CO2e savings (metric tonnes CO2e)**

295

**Scope**

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

58550

**Investment required (unit currency – as specified in C0.4)**

1951676

**Payback period**

>25 years

**Estimated lifetime of the initiative**

21-30 years

**Comment**

In FY18 we continue to upgrade numerous PAC units and chilled water central plants that are at the end of their life cycle. Therefore these units were replaced and upgraded to the latest technology which were: 1) More energy efficient 2) to no longer operate on R22 gas.

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**Initiative type**

Energy efficiency: Building services

**Description of initiative**

Building controls

**Estimated annual CO2e savings (metric tonnes CO2e)**

162

**Scope**

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

35661

**Investment required (unit currency – as specified in C0.4)**

624852

**Payback period**

16-20 years

**Estimated lifetime of the initiative**

16-20 years

**Comment**

In FY18 we upgraded two of our retail Building Management System (BMS) as majority of the components were at the end of their life. The BMS upgrades at Cleveland and Rockhampton provides improved controls and logic, and stability. Additionally due to the success of the pilot with chiller optimisation technology at Stockland Rockhampton in FY17 that continuously tunes the chiller so it is always operating at its most efficient level, this was further rolled out to a NSW retail site at Balgowlah in FY18. The results were better than expected with the system paying itself off within 2 years. In FY19 we continue to investigate where this technology would be viable and have determined another three sites for it to be installed. This was a voluntary initiative implemented to reduce scope 2 emissions across our retail portfolio.

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**Initiative type**

Energy efficiency: Building services

**Description of initiative**

Lighting

**Estimated annual CO2e savings (metric tonnes CO2e)**

1550

**Scope**

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

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**Annual monetary savings (unit currency – as specified in C0.4)**

326350

**Investment required (unit currency – as specified in C0.4)**

2032215

**Payback period**

4 - 10 years

**Estimated lifetime of the initiative**

6-10 years

**Comment**

Lighting upgrades using LED lighting technology were completed or underway across 7 Retail centres in FY18 with the actual savings consistently meeting expectations. Additional lighting upgrade opportunities are currently being investigated or being implemented for FY19. This was a voluntary initiative implemented to reduce Scope 2 emissions across our retail portfolio and will be a contributing factor towards commercial property achieving its new FY20 reduction targets.

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**Initiative type**

Low-carbon energy installation

**Description of initiative**

Solar PV

**Estimated annual CO2e savings (metric tonnes CO2e)**

2555

**Scope**

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

437577

**Investment required (unit currency – as specified in C0.4)**

3314498

**Payback period**

4 - 10 years

**Estimated lifetime of the initiative**

21-30 years

**Comment****Initiative type**

Energy efficiency: Building services

**Description of initiative**

Building controls

**Estimated annual CO2e savings (metric tonnes CO2e)**

15

**Scope**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

0

**Investment required (unit currency – as specified in C0.4)**

0

**Payback period**

&lt;1 year

### Estimated lifetime of the initiative

11-15 years

### Comment

In FY18 we upgraded a couple of our retail Building Management System (BMS) as majority of the components were at the end of their life. The BMS upgrades at Cleveland and Rockhampton provides improved controls and logic, and stability. Additionally due to the success of the pilot with chiller optimisation technology at Stockland Rockhampton in FY17 that continuously tunes the chiller so it is always operating at its most efficient level, this was further rolled out to a NSW retail site at Balgowlah in FY18. The results were better than expected with the system paying itself off within 2 years. While most of the savings relates to scope 2 we did see our scope 1 emissions at Balgowlah reduce. With better control of the chiller it reduced the number of heating and cooling conflicts which meant the boilers were operating more efficiently.

## C4.3c

### (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 used carbon abatement cost curves to identify specific abatement opportunities and the costs to implement these measures. The curves enabled 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**

34

**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). - Green Hills (5 star Green Star – Retail Centre v1 Design Rating)

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**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**

22

**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).

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**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**

26

**Comment**

Assets which form part of the office portfolio low carbon products include the following Green Star rated office buildings: Trinita 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).

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## C5. Emissions methodology

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### C5.1

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**(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

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**(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

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### C6.1

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

**Reporting year**

**Gross global Scope 1 emissions (metric tons CO2e)**

25453

**Start date**

July 1 2017

**End date**

June 30 2018

**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**

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**(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**

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

**Reporting year**

**Scope 2, location-based**

82971

**Scope 2, market-based (if applicable)**

82591

**Start date**

July 1 2017

**End date**

June 30 2018

**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**

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**(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**

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**(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**

<Not Applicable>

**Emissions calculation methodology**

<Not Applicable>

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

<Not Applicable>

**Explanation**

Emissions from the contractors and suppliers working on our Commercial Property developments fall outside of our operational control boundary and so we do not collect or report data on their emissions, therefore this is not relevant to Stockland.

## 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

13216

### 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 NGRS, 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

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

### 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

14892

### 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: 89% diversion from landfill in our commercial property development construction waste; 94% diversion from landfill for our Residential developments based on reported contractor waste. In operations: 33% diversion from landfill across our retail centre assets; 37% diversion from landfill across our office buildings and business parks assets.

## Business travel

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

5758

### 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 and 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 FY18, airline travel actually increased by 29% from more movements between the east and west coasts of Australia. (FY17 = 4450, FY18 = 5758. % change =  $(FY18 - FY17 / FY17) \times 100$ . Carbon emissions do 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

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

### Explanation

Employee commuting does not have a material impact to our total greenhouse gas emissions, due to the nature of Stockland's operations - we have offices across the majority of states in Australia, thus with a wide spread of assets employees generally do not have large commutes. Material emissions from employee commuting come from business travel, which is already accounted for.

## Upstream leased assets

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

### 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

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

### 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

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

### 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

82956

### 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

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

### 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

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

### 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

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

### Explanation

Not applicable to our business as we operate zero franchises.

## Investments

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

### 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

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

### 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

<Not Applicable>

### Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

### Explanation

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

**(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 CO<sub>2</sub>e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.**

**Intensity figure**

0.0385735

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

108044.43

**Metric denominator**

unit total revenue

**Metric denominator: Unit total**

2801000000

**Scope 2 figure used**

Market-based

**% change from previous year**

6

**Direction of change**

Decreased

**Reason for change**

For the FY18 reporting period, our total revenue increased by 3.9% whilst our combined Scope 1 and Scope 2 emissions decreased by 5.8%. This yielded a decrease in tCO<sub>2</sub>e/AUD of 9.4%. The overall emissions decreased due to acquisitions, developments (change in output) and divestments. We were able to limit any emission increases through emission reduction activities.

---

**Intensity figure**

69.2

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

108044

**Metric denominator**

full time equivalent (FTE) employee

**Metric denominator: Unit total**

1561

**Scope 2 figure used**

Market-based

**% change from previous year**

11.2

**Direction of change**

Decreased

**Reason for change**

For the FY18 reporting period, we had an increase in full time equivalent employees of 6.0%. The increase in FTEs and the decrease in the combined Scope 1 and 2 emissions (5.8%) led to a decrease in this intensity metric (FY18 Intensity / FY17 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.

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**Intensity figure**

0.0000469004

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

---

49.54

**Metric denominator**

square meter

**Metric denominator: Unit total**

1056205

**Scope 2 figure used**

Market-based

**% change from previous year**

6.6

**Direction of change**

Decreased

**Reason for change**

For FY18 reporting period, we had an increase in retail area equivalent to 0.2%. Emission reduction activity - the emissions intensity of the retail portfolio component of the commercial property business saw a decrease (49.54 tCO<sub>2</sub>e down from 52.92 tCO<sub>2</sub>e in FY17) due to the roll out of efficiency upgrades, with an increase in gross floor area (increase in denominator led to the reduction in tCO<sub>2</sub>e/Retail Area of 6.6%).

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**Intensity figure**

0.000194503

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

60.41

**Metric denominator**

square meter

**Metric denominator: Unit total**

310586

**Scope 2 figure used**

Market-based

**% change from previous year**

1.1

**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 61.7 tCO<sub>2</sub>e in FY17 to 60.41 tCO<sub>2</sub>e in FY18 resulting in a decrease in intensity tCO<sub>2</sub>e/office area (m<sup>2</sup>) of 1.1%.

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## C7. Emissions breakdowns

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### C7.1

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**(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?**

Yes

#### C7.1a

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**(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 CO2e)	GWP Reference
CO2	22085	IPCC Fourth Assessment Report (AR4 - 100 year)
CH4	12	IPCC Fourth Assessment Report (AR4 - 100 year)
N2O	153	IPCC Fourth Assessment Report (AR4 - 100 year)
HFCs	3203	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 CO2e)
Australia	25453

## 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	5849.36
Retirement Living	780
Residential Communities	18735
Corporate	88.46

### 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	1159.6
Retail Centre Operations	1486.67
Fleet Vehicles	88.46
Leaked Refrigerants	3203.09
Residential Community Sales	68.77
Residential Community Development	18666.43
Retirement Living Village Operations	780.04
Retirement Living Village Development	0

## 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	82971	82591	98976.44	3302

## 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	73268	72888
Residential Communities	1497	1497
Retirement Living	6785	6785
Corporate	1421	1421

### 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	1421	1421
Office and Business Park Operations	17982	17603
Logistic Centres Operations	4251	4254
Retail Centre Operations	51032	51032
Residential Community Sales	1413	1413
Residential Community Development	84	84
Retirement Living Village Operations	6785	6785
Retirement Living Village Development	0	0

## 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	852	Decreased	0.74	Renewable energy generated using solar power (kWh) in FY18 was 3,414,486 compared to 2,387,168 in FY17. This represents an increase of 1,027,318 kWh solar generation. In FY18 solar was operational at Stockland Caloundra, Green Hills, Nowra, Shellharbour and Wetherill Park Shopping centres. These accounted for a combined reduction in Scope 1 + 2 carbon emissions of 852 tonnes CO2-e. The total Scope 1+2 emissions in FY17 was 114,743 tonnes CO2-e. The calculation is therefore $(-852/114743) \times 100 = -0.74\%$ .
Other emissions reduction activities	3332	Decreased	2.9	Gross Scope 1+2 emissions decreased by 2.9% 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 CDP guidance, specifically a reduction of 3332 tCO2e was achieved in FY18 through emissions reduction activities. Total S1+S2 emissions in previous year were 114,743 tCO2e. The calculation is therefore $(-3332 / 114,743) \times 100 = -2.9\%$ .
Divestment	333	Decreased	0.29	For FY18 we divested a number of Commercial property assets including Garden Square, Jimboomba and Vincentia shopping centre in addition to Rosebud Retirement Village. These divestments decreased our gross emissions from the previous year by 333 tCO2e in both Scope 1 and 2 emissions. The calculation explained is 333 tCO2e decrease due to divestment, the total S1+S2 emissions in previous year were 114,743 tCO2e, thus $(-333 / 114,743) \times 100 = -0.29\%$ .
Acquisitions	1	Decreased	0.01	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. These acquisitions decreased our gross emissions from the previous year by 1 tCO2e in both Scope 1 and 2 emissions. The calculation explained is 1 tCO2e decrease from the acquisitions, the total S1+S2 emissions in previous year were 114,743 tCO2e, thus $(-1 / 114,743) \times 100 = -0.001\%$ .
Mergers	692	Decreased	0.6	In FY18 Stockland underwent one new business merger (Townsville shopping centre) and two existing (Bundaberg shopping centre and 135 King Street commercial office) in the reporting period at Stockland. This merger decreased our gross emissions from the previous year by 692 tCO2e in both Scope 1 and 2 emissions. The calculation explained is 692 tCO2e decrease in FY18 following the merger, the total S1+S2 emissions in previous year were 114,743 tCO2e, thus $(-692 / 114,743) \times 100 = -0.6\%$ .
Change in output	541	Decreased	0.5	Changes in our output relate primarily to change in production of lots and units across the residential and retirement living business units. FY18 also saw an increase in activity at Green Hills and Nowra retail centre due to the transition of development activities to operation. The change in production and activity saw a decrease of 540 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 541 tCO2e decrease due to change in output, the total S1+S2 emissions in previous year were 114,742 tCO2e, thus $(-541 / 114,742) \times 100 = -0.5\%$ .
Change in methodology	0	No change	0	There was no change in methodology in FY18 that led to any changes in gross emissions.
Change in boundary	425	Increased	0.37	In FY18 a number of assets across our portfolio transitioned into Stockland operational control. The result is an increase of Scope 1+2 emissions of 425 tonnes CO2-e compared to the previous year. The calculation explained is 425 tCO2e increase, the total S1+S2 emissions in the previous year were 114,743 tCO2-e, thus $(425 / 114,743) \times 100 = 0.37\%$ .
Change in physical operating conditions	0	No change	0	There was no real change in physical operating conditions (change in weather) which were attributable to changes in gross emissions.
Unidentified	1584	Decreased	1.38	Operational enhancements completed at the asset level within our commercial portfolio (Workplace and Logistics) account for remaining reductions. The change in Unidentified saw a decrease of 1584 tCO2e over the previous year. This is a mix of Scope 1 and 2. The calculation explained is 1584 tCO2e decrease due to operational enhancements, the total S1+S2 emissions in previous year were 114,743 tCO2e, thus $(-1584 / 114,743) = -1.38\%$ .
Other	0	No change	0	There was no change in Other in FY18 that led to any changes in gross emissions.

## 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	19093	19093
Consumption of purchased or acquired electricity	<Not Applicable>	2	98976	98978
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>	3274	<Not Applicable>	3274
Total energy consumption	<Not Applicable>	3277	118069	121346

**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 heat	No
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**

18521

**MWh fuel consumed for self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

18521

**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>

**Comment**

---

**Fuels (excluding feedstocks)**

Diesel

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

417

**MWh fuel consumed for self-generation of electricity**

228

**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>

**Comment**

---

**Fuels (excluding feedstocks)**

Petrol

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

139

**MWh fuel consumed for 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>

**Comment**

---

**Fuels (excluding feedstocks)**

Biogasoline

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

16

**MWh fuel consumed for 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>

**Comment**

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C8.2d

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

**Biogasoline**

**Emission factor**

2.70972

**Unit**

kg CO2e per liter

**Emission factor source**

Australian National Greenhouse Emissions Reporting Technical Guidelines

**Comment**

CALCULATED: 90% Gasoline (post-2004 vehicles), 10% Ethanol (post-2004 vehicles) using Australian NGER Technical Guidelines for each component.

**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	3503	3503	3274	3274
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

**Region of consumption of low-carbon electricity, heat, steam or cooling**

Asia Pacific

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

3274

**Emission factor (in units of metric tons CO<sub>2</sub>e 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

**Region of consumption of low-carbon electricity, heat, steam or cooling**

Asia Pacific

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

2

**Emission factor (in units of metric tons CO<sub>2</sub>e per MWh)**

0

**Comment**

Associated with the purchase of 100% GreenPower for signage at our head office location and one particular Distribution Centre in portfolio.

---

## C9. Additional metrics

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### C9.1

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**(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**

2

**Direction of change**

Increased

**Please explain**

We have a target to divert 45 per cent of our Retail operational waste from landfill, and achieve this target in FY18-20

---

**Description**

Waste

**Metric value**

45

**Metric numerator**

per cent diverted from landfill

**Metric denominator (intensity metric only)**

**% change from previous year**

1

**Direction of change**

Decreased

**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 FY18.

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**C10. Verification**

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**C10.1**

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**(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**

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**(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**

Stockland Sustainability Assurance FY18.pdf

**Page/ section reference**

Page 1 shows inclusion of Scope 1 emissions. Page 2 shoes 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**

Stockland Sustainability Assurance FY18.pdf

**Page/ section reference**

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

**Relevant standard**

ASAE3000

**Proportion of reported emissions verified (%)**

100

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**C10.1b**

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**(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**

Stockland Sustainability Assurance FY18.pdf

**Page/section reference**

Page 1 shows inclusion of Scope 3 emissions. Page 2 shoes 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 GJ of energy produced using our solar PV installations as part of our annual sustainability assurance.

**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

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

Yes

## C11.2a

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**(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 CO<sub>2</sub>e)**

4731

**Number of credits (metric tonnes CO<sub>2</sub>e): Risk adjusted volume**

4731

**Credits cancelled**

No

**Purpose, e.g. compliance**

Voluntary Offsetting

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## C11.3

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

Yes

## C11.3a

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**(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.

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**C12. Engagement**

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**C12.1**

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**(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**

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

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### 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. That rationale for the coverage of this engagement is because 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 CO<sub>2</sub>-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

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### 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

### % 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, and make up approximately 15% of our total suppliers and 42% of total procurement spend. The reason why we engage with this group is because as Australia's largest residential developer, our collection of carbon information from this group (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 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 CO<sub>2</sub>-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**

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C12.1b

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## (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

### % of customers by number

100

### % Scope 3 emissions as reported in C6.5

65

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

Stockland engages with 100% of our Commercial Property, Retirement Living and Residential customers, which represents 65% of our total Scope 3 emissions, on matters related to energy efficiency and climate resilience. We have chosen to engage with all customers for the largest impact on our downstream value chain operations. 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 fit-out 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. As a measure of this impact, we currently have solar installed at 46 out of 55 villages (84%), and 32 of these villages include solar installed on residents' homes (as opposed to only clubhouses or other Stockland-owned facilities in the village). To measure the impact of engagement and success 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 measure success in our engagement with customers through annual progress against GHG emissions reduction targets. Successful engagement is represented by year-on-year decrease in GHG Emissions from Stockland's direct and indirect operations. 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. Our FY18 targets for GHG emissions reductions include achieving a 60 per cent reduction intensity for Retail Centres, Workplace, and Business Park assets. 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 also 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.

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## C12.1c

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

Other partners in our value chain that we engage on climate-related issues with are our **employees**. Stockland has over 1500 employees across Australia, based at both our corporate offices and at our assets. As our employees are both ambassadors as our brand, and responsible for implementing climate-related initiatives and engaging with our customers, it is essential that we engage with all of them to ensure Stockland's corporate approach and strategy, including climate strategy and emissions reductions activities are fully embedded within all corners of our organisation. This applies to all job-levels, whether they be entry level or management

level, as all of our employees are part of our value chain.

**Specifically, we engage our employees on climate-related issues via:**

- Climate-related KPIs: All of our employees play a role in ensuring we reach our environmental targets, including GHG emissions reductions. For example, our Leadership Team have specific KPIs including implementing specific environmental and sustainability plans and projects within their departments, and Development Managers have KPI's related to achieving Green Star building certifications including climate-related initiatives. Having KPIs from a Leadership (upper management) level is a key point of engagement, working to trickle down the objectives throughout each business unit.

- Sustainability-related education: The corporate office on-boarding training process for new staff includes a section on sustainability, including Stockland's goals and why this is important to us. For example, our national orientation, which runs multiple times a year and all staff are encouraged to attend, our employees learn about Stockland's sustainability objectives, and why delivering on those objectives is integral to how we do business. We also have an online environment called the 'Better Places Hub', where employees are able to learn more about our sustainability targets including those relating to carbon and energy. They also have the ability to learn more about specific programs we are implementing, including our work on climate resilience, energy management, and renewable energy generation and how to get involved.

- Climate-related staff product and service offers - for example, staff were given early access to discounts on solar packages on homes within Stockland communities. This both encourages uptake of renewable energy generation and consumption within our portfolio, but also works to reaffirm the importance of climate management and opportunities to Stockland employees, who are able to then live the Stockland values outside of work.

- Advertising sustainability within our corporate offices via plaques recognising our sustainability leadership, our office green building certifications, and other sustainability-related events occurring.

- Reducing unnecessary travel (and therefore transport-related emissions) by improving systems and process for staff to work flexibly/remotely.

**We consider our employee engagement to be a successful engagement program. In FY18, measures of success of engaging with our employees on climate-related issues includes:**

- Uptake of flexible working arrangements - we now have over 80% of staff with a flexible working arrangement in place.

- Employee engagement scores measured by our annual employee survey - maintained in FY18 above the national average for employee engagement. Our employee survey also measures satisfaction with our systems and process, including those which allow employees to work remotely. In FY18, 81% of our employees indicated that computer management systems are helping them do their work. It also queries how employees feel regarding sustainability at Stockland. In FY18, we were successful on this metric, scoring 89% in the 'corporate responsibility and sustainability' score of the employee survey, which is 10 points above the Australian National Norm.

- GHG reductions within our corporate offices, including meeting targets that we have set for such emissions reductions.

- Maintaining our NABERS energy rating at our corporate offices

## 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 an 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 FY18. 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". In FY18 the approach was further developed with a joint report, "Build to Perform," released in July 2018. 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 FY18 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 Advisory 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. Additionally, the Green Building Council has partnered to release the 2030 World Green Building Council Net Zero Commitment, which Stockland endorsed in Retirement Living, Logistics, and our corporate office tenancies.

## C12.3b

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

Yes

## C12.3c

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**(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 influenced, or are you attempting to influence their 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 FY18 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", updated in 2018 to a report called "Built to Perform." This report reviews the global Paris 2015 commitments in an Australian context, and considers the pathway to reduced emissions. Within FY18 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.

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**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 influenced, or are you attempting to influence their 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 Advisory 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.

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## C12.3f

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**(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

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**(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, incorporating the TCFD recommendations

**Status**

Complete

**Attach the document**

Stockland Annual Report FY18.pdf

**Page/Section reference**

19-23: Climate-related financial disclosures in line with TCFD recommendations.

**Content elements**

Governance  
Strategy  
Risks & opportunities  
Emissions figures  
Emission targets  
Other metrics

**Comment**

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**Publication**

In mainstream reports

**Status**

Complete

**Attach the document**

Stockland Annual Review FY18.pdf

**Page/Section reference**

Entire document

**Content elements**

Governance  
Strategy  
Risks & opportunities  
Emissions figures  
Emission targets  
Other metrics

**Comment**

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**Publication**

In voluntary sustainability report

**Status**

Complete

**Attach the document**

Carbon and Energy FY18.pdf

**Page/Section reference**

Entire document

**Content elements**

Governance  
Strategy  
Risks & opportunities  
Emissions figures  
Emission targets  
Other metrics

**Comment**

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## C14. Signoff

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### C-FI

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**(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.**

### C14.1

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**(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 Financial Officer	Chief Financial Officer (CFO)

## Submit your response

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**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