Module: Introduction

Page: Introduction

CC0.1

Introduction
Please 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 shopping centres, logistics and business parks, office buildings, residential communities and retirement living villages. We operate across most parts of the property value chain. However, we engage others to carry out building works, to deliver services such as security and cleaning, and to provide audit and consultancy services.

This survey discloses information regarding our climate change management approach and greenhouse gas emissions performance for the 2016 financial year, ending 30 June 2016. We publish independently assured data, commitments and commentary as part of our Annual Review, 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-fy16.ashx and our Sustainability Reporting and previous Carbon Disclosure Project submissions can be found at http://www.stockland.com.au/about/sustainability.htm

Our portfolio is spread over three business units – Commercial Property, Residential and Retirement Living. An overview of the portfolio, as at 30 June 2016, 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 2016, the portfolio comprised 42 retail centres, with Stockland's ownership interests valued at $6.8 billion and gross book value of $7.2 billion. These properties accommodate more than 3,500 tenants and generate in excess $6.6 billion of retail sales per annum.
- Logistics and Business Parks - as at 30 June 2016, our logistics and business parks portfolio comprised 27 properties encompassing over 1.3 million square

metres of building area, with Stockland's ownership interests valued at $2.0 billion and a gross book value of $2.2 million.
- Office - as at 30 June 2016, our office portfolio comprised 9 properties with Stockland's ownership interests valued at $0.8 billion and gross book value of $1.1 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 76,800 lots remaining in our portfolio, with a total end value of approximately $18.8 billion (excluding value in projects identified for disposal).

RETIREMENT LIVING - We are a top three retirement living operator within Australia, with over 9,600 established units across five States and the Australian Capital Territory and a short- to medium-term development pipeline of over 3,100 units.

We have identified changes in the climate as a challenge as well as an opportunity for the 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 increase the resilience of our assets and reduce their potential vulnerability by proactively adapting to a changing climate.

Our Commercial Property business is the largest contributor to greenhouse gas emissions in the Group and presents the greatest opportunity for emissions reduction. As it is our most established asset class, and the one over which we have the greatest degree of control, we used the Commercial Property business to develop our methods for climate resilience assessment and management. The majority of our initiatives and achievements to date relate to our Commercial Property business, and we have used our successes in Commercial Property to inform climate risk management activities in other business areas over the past few years.

CC0.2

Reporting Year
Please state the start and end date of the year for which you are reporting data.
The current reporting year is the latest/most recent 12-month period for which data is reported. Enter the dates of this year first.
We request data for more than one reporting period for some emission accounting questions. Please provide data for the three years prior to the current reporting year if you have not provided this information before, or if this is the first time you have answered a CDP information request. (This does not apply if you have been offered and selected the option of answering the shorter questionnaire). If you are going to provide additional years of data, please give the dates of those reporting periods here. Work backwards from the most recent reporting year.
Please enter dates in following format: day(DD)/month(MM)/year(YYYY) (i.e. 31/01/2001).

Enter Periods that will be disclosed
Wed 01 Jul 2015 - Thu 30 Jun 2016

Enter Periods that will be disclosed

CC0.3

Country list configuration

Please select the countries for which you will be supplying data. If you are responding to the Electric Utilities module, this selection will be carried forward to assist you in completing your response.

Select country
Australia

CC0.4

Currency selection

Please select the currency in which you would like to submit your response. All financial information contained in the response should be in this currency.

AUD ($)

CC0.6

Modules

As part of the request for information on behalf of investors, companies in the electric utility sector, companies in the automobile and auto component manufacturing sector, companies in the oil and gas sector, companies in the information and communications technology sector (ICT) and companies in the food, beverage and tobacco sector (FBT) should complete supplementary questions in addition to the core questionnaire.
If you are in these sector groupings, the corresponding sector modules will not appear among the options of question CC0.6 but will automatically appear in the ORS navigation bar when you save this page. If you want to query your classification, please email respond@cdp.net.
If you have not been presented with a sector module that you consider would be appropriate for your company to answer, please select the module below in CC0.6.

Further Information

Module: Management

Page: CC1. Governance

CC1.1

Where is the highest level of direct responsibility for climate change within your organization?

Board or individual/sub-set of the Board or other committee appointed by the Board

CC1.1a

Please identify the position of the individual or name of the committee with this responsibility

SUSTAINABILITY BOARD COMMITTEE
The purpose of the Committee is to ensure that the Group operates its business ethically, responsibly and sustainably. It considers the social, environmental and ethical impact of our business activities; major corporate responsibility and sustainability initiatives and changes in policy; and stakeholder communications about our sustainability policies and performance. All Directors of the Board are members of the Sustainability Committee, reflecting the integral role that sustainability plays in our business operations and brand value. This enables all Directors to be well informed about and engaged in policies and decisions relating to our economic, social, and environmental performance. The Sustainability Committee met three times in FY16 (as reported in the Financial Report, https://www.stockland.com.au/~/media/corporate/pdf/investor-centre/reports-and-presentations/reports/stockland-financial-report-fy16.ashx, pages 21 and 28).

A sustainability update is submitted to the Executive Committee and to the Board each month.

An overview of the Sustainability Board Committee can be found on page 28 of the Financial Report (URL provided above).

The Sustainability Board Committee charter can be viewed here https://www.stockland.com.au/shopping-centres/external-link?url=http%3A%2F%2Fmedia.corporate-ir.net%2Fmedia_files%2FIROL%2F17%2F173099%2Fgov%2FSustainability_Committee_Charter_June_2012.pdf.

CC1.2

Do you provide incentives for the management of climate change issues, including the attainment of targets?

Yes

CC1.2a

Please provide further details on the incentives provided for the management of climate change issues

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
Corporate executive team	Monetary reward	Emissions reduction target	The Executive team has performance indicators linked to our greenhouse gas emission targets.
Chief Executive Officer (CEO)	Monetary reward	Emissions reduction target	The CEO (along with other members of the executive team) has a performance indicator linked to greenhouse gas emission targets.
Facility managers	Monetary reward	Emissions reduction project Emissions reduction target	Facility managers have incentivised performance indicators linked to greenhouse gas emissions targets for assets and greenhouse gas emissions project level reporting.
Environment/Sustainability managers	Monetary reward	Emissions reduction project Emissions reduction target	Environment/Sustainability managers have incentivised performance indicators linked to greenhouse gas emission targets and climate change mitigation and adaptation actions.
All employees	Monetary reward	Emissions reduction project Emissions reduction target Energy reduction project Energy reduction	All employees have incentivised performance indicators linked to sustainability performance as part of our balanced scorecard performance assessment approach. These differ in accordance with the roles and responsibilities of the individual employee (e.g. consideration of climate change risks/opportunities, achievement of emissions reduction targets, promotion of energy efficiency initiatives with suppliers/customers etc).

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
		target Efficiency target Behavior change related indicator	

Further Information

For further information please refer to the attached Governance and Risk DMA and FY16 Financial Report (Remuneration Report enclosed page 35).

Attachments

https://www.cdp.net/sites/2017/70/17770/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC1.Governance/Stockland Financial Report FY16.pdf
https://www.cdp.net/sites/2017/70/17770/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC1.Governance/Governance and Risk DMA FY16.pdf

Page: CC2. Strategy

CC2.1

Please select the option that best describes your risk management procedures with regard to climate change risks and opportunities

Integrated into multi-disciplinary company wide risk management processes

CC2.1a

Please provide further details on your risk management procedures with regard to climate change risks and opportunities

Frequency of monitoring	To whom are results reported?	Geographical areas considered	How far into the future are risks considered?	Comment
Six-monthly or more frequently	Board or individual/sub-set of the Board or committee appointed by the Board	Stockland's assets and developments across the entire portfolio (New South Wales, ACT, Victoria, South Australia, Western Australia and Queensland)	> 6 years	All functions (Business Units & Group, including the Executive Committee) are responsible for the identification, assessment and management of risks. As part of our Group Risk matrix, we highlight the risks associated with climate. The key climate-related risks identified by Stockland are around large scale weather events that impact our assets. 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.

CC2.1b

Please describe how your risk and opportunity identification processes are applied at both company and asset level

COMPANY LEVEL
Formal risk workshops are 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 profile is also produced including items that have a company-wide impact, such as climate change. Associated risk plans are monitored and reported quarterly.

ASSET LEVEL
Stockland has a diversified property portfolio that is actively managed in terms of portfolio composition and performance. The portfolio for each asset class is assessed annually, including an assessment of financial and non-financial risks and opportunities. We also conduct climate vulnerability and resilience assessments across our assets. 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 Group-wide focus on energy efficiency manifests differently across our three business units, with implementation posing different challenges and opportunities for each asset class. We concentrate our energy and emissions reduction efforts on our Commercial Property and Retirement Living businesses where we manage the operation of the built form. In Residential, we have limited control over the performance of housing within our masterplanned communities as we predominantly

sell land to our customers. However, we actively promote energy efficient design and opportunities through our Green Star Communities rating tool and CCAP Precinct in the design of our masterplans.

Risks and opportunities are reviewed at each stage of the project lifecycle as part of our investment process and project management process.

CC2.1c

How do you prioritize the risks and opportunities identified?

At the asset level, risks and opportunities are prioritised based on the:
- overall potential impact on asset performance
- financial impact to the business in managing/mitigating
- impact on communities and the environment in which we operate.

Across the portfolio, risks and opportunities are prioritised based on the:
- geographical areas of highest risk
- design attributes of the asset which affect climate resilience
- regional predictions for weather changes over medium and long term
- overall impacts on company emissions
- impact on the local communities and environment
- overall risk to portfolio value and revenue.

The prioritisation process differs across our Business Units based on the systems in place to measure and evaluate energy and climate change data and performance. For our Commercial Property and Retirement Living businesses, minimum standards have been developed to ensure energy efficiency is designed into all new build projects and major refurbishments. The Green Star accreditation process (which we have formalised into sustainability plans for development and construction) requires assessment of climate change risks and opportunities, including energy modelling to assess highest abatement at lowest cost. Performance is monitored against targets to measure the design outcomes and efficiency gains made from building tuning and systems optimisation.

For our Residential and Retirement Living businesses, we generally use a statistical model that compares our project masterplans against regional benchmarks. The tool is used to establish performance based targets at the planning and design phase to reduce energy and greenhouse gas emissions and inform project transport needs. We then model different design and technology options that can be introduced to improve project performance and produce a marginal abatement cost curve to enable a simple assessment of cost and payback of each opportunity or design element.

CC2.1d

Please explain why you do not have a process in place for assessing and managing risks and opportunities from climate change, and whether you plan to introduce such a process in future

Main reason for not having a process	Do you plan to introduce a process?	Comment

CC2.2

Is climate change integrated into your business strategy?

Yes

CC2.2a

Please describe the process of how climate change is integrated into your business strategy and any outcomes of this process

i. How business strategy is influenced

Our business strategy has three focus areas to ensure 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 10% improvement in retail FY14 energy intensity by FY17) that help us achieve 'operational excellence'. Further information on our business strategy and integrated sustainability strategy can be found on page 18 of the FY16 Annual Review (attached in 'Further information').

ii. 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 in FY16 of solar PV feasibility on 10 additional shopping centres and installation of a $2 million, 925kW solar PV system at our Wetherill Park centre (adding to the 1.3MW installed prior to FY16). 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 investments in solar.

We have continued our response to climate change adaptation in FY16 completing climate resilience assessments and action plans over a number of assets such as Walnut Grove in Retirement Living, The Grove in Residential and Nowra within Retail. These assessments build on the success of resilience planning at our retail centre in Rockhampton, which has withstood a number of significant weather events without major damage since our upgrade of the centre to withstand a 1:300 year storm event. The centre is also used as a disaster recovery facility for the surrounding areas.

iii. What aspects of climate change have influenced the strategy

- Physical risks - ensuring our assets are resilient to the pressures of changing climate and extreme weather conditions. 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 - ensuring climate change risks and opportunities are considered and factored into the activities of our key suppliers. We continue to develop and encourage sustainable procurement practices across our direct and indirect spend.
- Financial risks - increased costs associated with changing regulation, more frequent asset repair/maintenance etc.
- Cost reductions - focus on operational efficiency (linked to emission reduction targets), as well as the upfront design and build of efficient and resilient assets.
- Energy abatement and alternate energy - capitalising on voluntary emissions trading opportunities through abatement opportunities. We have also installed solar at several of our shopping centres such as Stockland Shellharbour and Wetherill Park.

iv. 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.

v. 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.
- Ensuring we are 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.

vi. 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.

vii. 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.

viii. Use of forward-looking scenario analyses, including a 2C scenario, to inform strategy

We have been using different tools to look at forward scenarios for the business, including benchmarking the 2 degree scenario, reviewing peer targets, and the “We Mean Business Coalition” tools in this space.

CC2.2b

Please explain why climate change is not integrated into your business strategy

CC2.2c

Does your company use an internal price on carbon?

Yes

CC2.2d

Please provide details and examples of how your company uses an internal price on carbon

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.

CC2.3

Do you engage in activities that could either directly or indirectly influence public policy on climate change through any of the following? (tick all that apply)

Direct engagement with policy makers
Trade associations

CC2.3a

On what issues have you been engaging directly with policy makers?

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
Adaptation resiliency	Support	Stockland, in collaboration with the Australian Built Environment Council, has discussed opportunities to increase the resilience of the built environment with the National Climate Change Adaptation Research Facility and the Federal Government.	In collaboration with industry and the Australian Sustainable Built Environment Council, a proposal has been put forward to the Federal Government for an Adaptation Policy Framework to improve the resilience of the built environment in the face of climate change. This Framework aims to: protect the wellbeing of communities through targeted policy initiatives and better urban and building design, ensure appropriate institutional arrangements to facilitate adaptation, realise economic benefits from early adaptation through effective strategic planning and risk minimisation, advance sustainability through better resource and risk management strategies, increase community education and awareness about climate change risks and adaptation.
Energy efficiency	Support	Our General Manager, Sustainability, is the Chair of the National Sustainability Committee at the Property Council of Australia (PCA). We were involved in the preparation of a 2015 advocacy paper to explain the role of the property sector in managing carbon emissions and advocating for a better sustainability outcome. 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

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
			and emerging technologies; (h) That markets can be designed that drive desired behaviours; (i) That collaboration between energy generators, energy distributors and energy users is required for optimal energy productivity. We have also worked with the PCA on the Australian Sustainability Built Environment Council report released in May 2016 called "Low Carbon, High Performance". This report reviews the global 2015 Paris agreement in an Australian context, and considers the pathway to reduced emissions.
Other: Green buildings	Support	Green Building Council of Australia (GBCA) - Our CEO Residential is a member of the Board, and our General Manager, Sustainability, is a member of the Steering Committee. Beyond our participation in GBCA governance, we engage with the GBCA (via participation in working groups, for examples) on policy issues related to climate change and urban development, green buildings, and development of Green Star rating tools.	The GBCA engages with government to promote the role of green buildings in reducing Australia's emissions. GBCA proposes incentives for developers to take up more sustainable and efficient developments and operations that encourage best practice sustainable development and enhance the development of new skills and technologies for the industry. The GBCA has released a commitment to net zero emissions by 2050, and released a carbon consultation paper which shows how Green Star rated buildings will transition to net zero emissions by 2030. In FY16 the Green Star Steering Committee approached National Carbon Offset Standard (NCOS) to co-create a buildings and communities net-zero standard. This work was completed in 2016 and has been the subject of public consultation, due for release as a pilot in 2017.

CC2.3b

Are you on the Board of any trade associations or provide funding beyond membership?

Yes

CC2.3c

Please enter the details of those trade associations that are likely to take a position on climate change legislation

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association's position	How have you, or are you attempting to, influence the position?
Property Council of Australia	Consistent	Promoting smart policies to improve energy efficiency and incentivise best practice development and community creation.	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 FY16 our Managing Director and CEO was the President of the Property Council of Australia and our General Manager of Sustainability is currently the Chair of the National Sustainability Roundtable which promotes innovative climate change action and makes recommendations on effective government climate change policy for the property sector. We have also worked with the PCA on the Australian Sustainability Built Environment Council report which was released in May 2016 which is called "Low Carbon, High Performance". This report reviews the global Paris 2015 commitments in an Australian context, and considers the pathway to reduced emissions. Since its release 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.
Green Building Council of Australia	Consistent	The Green Building Council of Australia (GBCA) is supportive of raising awareness and taking action on emissions reduction and climate change adaptation.	We support the GBCA's position on climate change and work in partnership with the GBCA to develop tools and initiatives to promote more efficient and resilient assets and communities across Australia. We sit on the Board and on the GBCA Steering Committee to promote innovation, best practice and advocate for a more sustainable built environment through the development and use of voluntary rating tools to meet policy objectives and access government incentives. We support the GBCA's efforts to expand the national carbon offset standard for buildings, precincts and cities through the Green Star Steering Committee. In FY16 the Green Star Steering Committee approached NCOS to co-create a buildings and communities net zero standard. This work was completed in 2016 and has been the subject of public consultation, due for release as a pilot in 2017.

CC2.3d

Do you publicly disclose a list of all the research organizations that you fund?

CC2.3e

Please provide details of the other engagement activities that you undertake

CC2.3f

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 Government Relations team leads and coordinates our engagement with policymakers and industry associations. Our Government Relations team serves as a central point of contact for our policy advocacy activities, and is responsible for implementing a formalised 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 Government Relations team as the coordinator of Stockland representation on external committees, mandating a Government 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 Government 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 Government 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.

CC2.3g

Please explain why you do not engage with policy makers

Further Information

Attachments

https://www.cdp.net/sites/2017/70/17770/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC2.Strategy/Stockland Annual Review FY16.pdf
https://www.cdp.net/sites/2017/70/17770/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC2.Strategy/Stakeholder Engagement DMA FY16.pdf
https://www.cdp.net/sites/2017/70/17770/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC2.Strategy/Climate and Community Resilience DMA FY16.pdf

Page: CC3. Targets and Initiatives

CC3.1

Did you have an emissions reduction or renewable energy consumption or production target that was active (ongoing or reached completion) in the reporting year?

Absolute target
Intensity target
Renewable energy consumption and/or production target

CC3.1a

Please provide details of your absolute target

ID	Scope	% of emissions in scope	% reduction from base year	Base year	Base year emissions covered by target (metric tonnes CO2e)	Target year	Is this a science-based target?	Comment
Abs1	Scope 1+2 (market-based)	27%	70%	2006	24679	2030	No, but we anticipate setting one in the next 2	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

ID	Scope	% of emissions in scope	% reduction from base year	Base year	Base year emissions covered by target (metric tonnes CO2e)	Target year	Is this a science-based target?	Comment
							years	totalled 24,679 tonnes CO2e in 2006. This equates to an absolute reduction of 17,275 tCO2e by 2030.
Abs2	Scope 1+2 (market-based)	100%	10%	2014	5804971	2017	No, but we anticipate setting one in the next 2 years	Given the changing size of our business with divestments and acquisitions, intensity targets are more meaningful to our business than absolute targets. For our Commercial Property business, we committed to a 10% energy intensity reduction in FY14 by FY17. This equates to approximately 5,804,971kgCO2-e in absolute savings terms. This 10% is a further reduction on the 29% intensity reduction achieved by FY14, based on FY09 figures.

CC3.1b

Please provide details of your intensity target

ID	Scope	% of emissions in scope	% reduction from base year	Metric	Base year	Normalized base year emissions covered by target	Target year	Is this a science-based target?	Comment
Int1	Scope 1+2 (market-based)	100%	10%	Other: kgCO2-e per square meter	2014	61.52	2017	No, but we anticipate setting one in the next 2 years	For Commercial property - in FY14, we committed to a 10% energy intensity reduction against FY14 by FY17. This 10% is a further reduction on the 29% reduction we had achieved by FY14, based on FY09 figures.
Int2	Scope 1	8.8%	60%	Other: kgCO2-e per square	2016	3091	2025	No, but we anticipate setting one in	Applies to refrigerants.

ID	Scope	% of emissions in scope	% reduction from base year	Metric	Base year	Normalized base year emissions covered by target	Target year	Is this a science-based target?	Comment
				meter				the next 2 years	
Int2	Scope 2 (market-based)	65.5%	66%	Other: kgCO2-e per square meter	2016	58839	2025	No, but we anticipate setting one in the next 2 years	Applies to our retail assets. Equates to a 60% reduction on base year FY06 by FY25 (currently at 36% reduction). This assumes that Stockland can take local generation credits as a renewables incentive and not reduce from carbon savings.
Int2	Scope 2 (market-based)	21.9%	15%	Other: kgCO2-e per square meter	2016	19657	2025	No, but we anticipate setting one in the next 2 years	Applies to our office and business parks assets. Equates to a 60% reduction on base year FY06 by FY25 (currently at 52% reduction). This assumes that Stockland can take local generation credits as a renewables incentive and not reduce from carbon savings.
Int2	Scope 2 (market-based)	7.7%	5%	Other: kgCO2-e per square meter	2016	6918	2025	No, but we anticipate setting one in the next 2 years	Applies to retirement living operations.
Int2	Scope 3: Fuel- and energy-related activities (not included in Scopes 1 or 2)	37.3%	30%	Other: kgCO2-e per square meter	2016	14782	2025	No, but we anticipate setting one in the next 2 years	Applies to transmission and production losses (from purchased electricity, gas, and fleet fuel).

CC3.1c

Please also indicate what change in absolute emissions this intensity target reflects

ID	Direction of change anticipated in absolute Scope 1+2 emissions at target completion?	% change anticipated in absolute Scope 1+2 emissions	Direction of change anticipated in absolute Scope 3 emissions at target completion?	% change anticipated in absolute Scope 3 emissions	Comment
Int1	Decrease	10	No change	0	On a like-for-like basis this would represent a 10% absolute reduction.
Int2	Decrease	35	Decrease	13	Collective impact of all targets identified in CC3.1b as Int2.

CC3.1d

Please provide details of your renewable energy consumption and/or production target

ID	Energy types covered by target	Base year	Base year energy for energy type covered (MWh)	% renewable energy in base year	Target year	% renewable energy in target year	Comment
RE1	Electricity consumption	2014	65017	0.23%	2017	3%	We have set a target to achieve 3% renewable energy in retail by FY17 through on-site generation.

CC3.1e

For all of your targets, please provide details on the progress made in the reporting year

ID	% complete (time)	% complete (emissions or renewable energy)	Comment
Abs1	44%	89%	We are on track to achieve this target well ahead of schedule having maintained a reduction of 62.5% in FY16.
Abs2	66.67%	50%	Our Retail business has reduced its absolute carbon emissions by 5% against FY14 which equates to 50% of the target. This is a good outcome considering the amount of large developments that have taken place in FY16 .We will continue to report on our 10% improvement target through to FY17.
Int1	66.67%	50%	Our Retail business has reduced its energy intensity by 5% from FY14. This is a good outcome considering the amount of large developments that have taken place in FY16. We will continue to report on our 10% improvement target through to FY17.
Int2	0%	0%	We have made 0% progress on Int2 because its base year is FY16. The Int2 targets are a continuation of our achievements of emissions intensity reduction to date of 52.4% in the office portfolio and 36.1% in the retail portfolio with reference to a FY06 baseline.
RE1	66.66%	100%	3% represents 1.36MW, which is four assets, including through the Shellharbour PV project (1.22 MW). Our focus for FY17 will be verifying that we have exceeded our 3% renewables target in operation and to significantly increase our renewable power generation capacity.

CC3.1f

Please explain (i) why you do not have a target; and (ii) forecast how your emissions will change over the next five years

CC3.2

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

CC3.2a

Please 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	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
Group of products	Green Star certified retirement living villages.	Low carbon product	Climate Bonds Taxonomy	11%	Less than or equal to 10%	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).
Group of products	Green Star certified retail centres.	Low carbon product	Climate Bonds Taxonomy	23%		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).

CC3.3

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

Yes

CC3.3a

Please identify the total number of projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings

Stage of development	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	21	
To be implemented*	2	349
Implementation commenced*	3	804
Implemented*	9	1913
Not to be implemented	2	

CC3.3b

For those initiatives implemented in the reporting year, please provide details in the table below

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
Energy efficiency: Building services	Upgrading of air conditioning units (end of life) to more energy efficient units and fine tuning of Building Management System controls.	424	Scope 2 (location-based)	Voluntary Mandatory	70740	3500000	4-10 years	11-15 years	In FY16 there were numerous packaged air conditioning units and chilled water central plants at the end of their life cycle. Therefore these units were replaced and upgraded to be: 1) More energy efficient 2) to no longer operate on R22 gas. Payback period has been calculated on basis that equipment is being replaced at end of life.
Energy efficiency: Building services	LED Lighting	1327	Scope 2 (location-based)	Voluntary	235000	942000	4-10 years	3-5 years	Lighting upgrades using LED lighting technology were completed or underway across four retail centres in FY16 with the actual savings consistently meeting expectations. Additional lighting upgrade opportunities are being investigated for FY17. This was a voluntary initiative implemented to reduce Scope 2 emissions across our retail portfolio and will be a contributing factor to our Commercial Property business achieving its FY17 reduction targets.
Energy efficiency:	Implementation of chiller optimisation	162	Scope 1 Scope 2	Voluntary	27000	79800	4-10 years	11-15 years	Piloting of new chiller optimisation technology at

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
Building services	technology		(location-based)						Stockland Rockhampton which will be monitored in FY17 to determine whether the savings are in line with feasibility. If this is a success we will look into rolling this across our portfolio.This was a voluntary initiative implemented to reduce Scope 2 emissions across our retail portfolio.
Energy efficiency: Building services	Monitoring system	145	Scope 1 Scope 2 (location-based)	Voluntary	20000	45600	1-3 years	6-10 years	A smart energy monitoring and metering system was installed in Bundaberg in FY15 after Stockland purchased 50% share in the asset. This was so it was in line with the rest of the portfolio. The system allows remote engineers to provide advice and guidance where efficiency can be achieved and to resolve wastage immediately. Additionally, we extended this approach in FY16 with a Retirement Living pilot involving 2 villages.
Low carbon energy purchase	GreenPower	5.5	Scope 2 (location-based) Scope 2 (market-based)	Voluntary	0	350	>25 years	Ongoing	Certified GreenPower is purchased for the illumination of the Stockland sign at the top of the Sydney head office. This is a voluntary initiative which does not have a payback as there are

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
									additional costs to implement this initiative.

CC3.3c

What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Marginal abatement cost curve	At an organisational level, we use carbon abatement cost curves to identify specific abatement opportunities and the costs to implement these measures. The curves enable us to quickly model the costs of reducing emissions across our entire asset portfolio, as well as at the individual asset level. The estimates are based on our carbon abatement data, ensuring a high level of confidence in the results returned. Marginal abatement cost curve is also used within our development master-planning process to identify key infrastructure and programs to reduce emissions. Now that marginal abatement cost curves have been done at a business unit level, these are updated by completing detailed financial analysis at a project level using internal rate of return.
Compliance with regulatory requirements/standards	Compliance with State and Federal regulation on energy efficiency is contributing to investment in more efficient design and better management of our projects. We aim to stretch beyond these increasing compliance requirements.
Dedicated budget for energy efficiency	CAPEX budget - if an energy efficiency project meets our investment hurdle rate and can deliver a return on investment, then it is given approval to proceed to implementation. This can be achieved at an individual site level or at a portfolio level.
Dedicated budget for low carbon product R&D	We trial new technology and if successful, then it is rolled out across the portfolio, such as our trial of investment in chiller optimisation technology.
Dedicated budget for other emissions reduction activities	We set aside budget for building tuning and maintenance activities that result in improved emission performance.

Method	Comment
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. Our Retirement Living business committed to a 40% reduction in energy usage per retirement home incorporated into the design of newly developed projects (compared to regional averages) using CCAP Precinct.
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.

CC3.3d

If you do not have any emissions reduction initiatives, please explain why not

Further Information

Page: CC4. Communication

CC4.1

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	Status	Page/Section reference	Attach the document	Comment
In mainstream reports (including an integrated report) in accordance with the CDSB Framework	Complete	Annual Review 2016/Optimise and Innovate/pp. 57-67	https://www.cdp.net/sites/2017/70/17770/Climate Change 2017/Shared Documents/Attachments/CC4.1/Stockland Annual Review FY16.pdf	Stockland's Integrated Report is available online. Please refer to https://www.stockland.com.au/~/media/corporate/pdf/investor-centre/reports-and-presentations/reports/stockland-annual-review-fy16.ashx Information on our emission and climate change performance can be found under 'Optimise and Innovate' and 'Operational Excellence'.
In voluntary communications	Complete	Sustainability Report 2016 (Optimise and Innovate, Carbon & Energy section) https://www.stockland.com.au/about-stockland/sustainability	https://www.cdp.net/sites/2017/70/17770/Climate Change 2017/Shared Documents/Attachments/CC4.1/Carbon and Energy DMA FY16.pdf	Please refer to Stockland's 'Carbon and Energy Emissions Disclosure on Management Approach' and our 'Climate and Community Resilience Disclosure on Management Approach', both of which are provided on our sustainability reporting webpage https://www.stockland.com.au/about-stockland/sustainability and attached.

Further Information

Stockland's 2016 Sustainability Report can be found at https://www.stockland.com.au/about-stockland/sustainability Stockland's Annunal Review 2016 can be found at https://www.stockland.com.au/~/media/corporate/pdf/investor-centre/reports-and-presentations/reports/stockland-annual-review-fy16.ashx Stockland's 'Carbon and Energy' and 'Climate and Community Resilience' Disclosures on Management Approach are attached.

Attachments

https://www.cdp.net/sites/2017/70/17770/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC4.Communication/Carbon and Energy DMA FY16.pdf
https://www.cdp.net/sites/2017/70/17770/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC4.Communication/Climate and Community Resilience DMA FY16.pdf

Module: Risks and Opportunities

Page: CC5. Climate Change Risks

CC5.1

Have you identified any inherent climate change risks that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

Risks driven by changes in regulation
Risks driven by changes in physical climate parameters
Risks driven by changes in other climate-related developments

CC5.1a

Please describe your inherent risks that are driven by changes in regulation

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
General environmental regulations, including planning	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	Increased capital cost	1 to 3 years	Direct	About as likely as not	Low-medium	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 (ie end-market value of $18.8 billion as at 30 June 2016) was deemed not suitable for	We conduct Climate Change Assessments for potential acquisitions to assess the climate change risks inherent at each site. This is an integral part of our planning and acquisition process. Our ability to meet the required conditions for approvals is	Climate Change Assessments on new developments cost between $1000-$8000 for a full scale assessment. This cost is factored into development budgets, and is a minor investment given the financial risk it mitigates. We have conducted a total of 39

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	of the planning approval process for property development in Australia (particularly in relation to floodplain risk management). We regularly scan for opportunities to both achieve operational excellence and meet or exceed changing environmental regulations, such as through our innovative use of reused fill material to meet floodplain risk regulation at our development at Pallara (explained further in 'Management Method' to the right).						development, this would lead to up to $376 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.	strong given demonstrated climate change adaptation management and performance. We completed Climate Resilience assessments in several development assets in FY16 including at Bundaberg and Nowra (Commercial Property); Cloverton, Calleya, The Grove, Newport, Willowdale, and Altrove (Residential); Walnut Grove, Maybrook, The Cove, Patterson Lakes, Salford Waters, Hillsview (Retirement Living). An example of where innovative action was taken to improve resilience and	assessments at the time of reporting, the estimated cost of management is $312,000.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								also to manage regulatory risks included recycling earthworks materials from our site at Augustine Heights to our site at Pallara. The reuse of this material reduced GHG emissions, diverted material from landfill, and increased the site level above regulatory requirements for flood resilience.	
Uncertainty surrounding new regulation	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	Increased operational cost	Up to 1 year	Direct	About as likely as not	Low	It is difficult to estimate costs accurately as it 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,	Monitoring of regulation and continued collaboration with industry bodies to influence emerging policy and regulation which may impact our operations.	No additional cost, as this is a core responsibility of our Stakeholder Relations team.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	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.						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.		

CC5.1b

Please describe your inherent risks that are driven by changes in physical climate parameters

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Sea level rise	In 2011, we commissioned external research on the key climate risks to which we are exposed. This	Reduction/disruption in production capacity	>6 years	Direct	About as likely as not	Low-medium	Estimated financial implications relate to loss of tracts of development land and the adverse impact on existing assets. The value of this loss would	All projects are required to review sea level rise and flooding risk in the acquisition/planning stage. High risk projects (according to location) must	The cost of management is associated with undertaking and developing the Climate

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	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						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 $18.8 billion as at 30 June 2016) was impacted or deemed not suitable for development, this would result in up to $188 million of future revenue lost. It would also have indirect financial impacts if communities surrounding our retail centres are impacted and therefore unable to access and shop at our centres due to salt water inundation.	conduct a Climate Vulnerability and Resilience Assessment. These assessments focus on the vulnerability of assets to climate change and the ability to endure severe weather impacts and operate without disruption. Where specific risks are identified, suitable mitigation or correctional measures must be included in action plans. During FY16 we continued our assessment of shopping centres at Stockland Bundaberg and Stockland Nowra. These assets are in regional locations with different climate impacts. We have managed sea level rise at Stockland Newport through consideration of	Vulnerability and Resilience Assessments - a process that is either conducted internally by key staff or by external consultants. Costs therefore range from $1000-$8000 per assessment. We have conducted a total of 39 assessments at the time of reporting, the estimated cost of management is $312,000 (assuming $8000 per assessment). Other costs include design and development of assets in accordance

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	risk as described in the 'Management method' column.							year 2100 sea level rise scenarios in the design of the development and its integrated water management solution. Furthermore, we have committed to designing the development so it achieves recognition as a Green Star community.	with Green Star and also costs involved in upgrading development design to meet or exceed regulatory requirements. Consultant costs associated wih the Green Star rating for Newport were approximately $83,000.
Change in mean (average) temperature	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	Increased operational cost	1 to 3 years	Direct	Very likely	Low	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	Potential at risk projects (based on location) must conduct a Climate Vulnerability and Resilience assessment. These assessments focus on the vulnerability of assets to climate change and the ability to endure severe weather impacts and operate without	The cost of management is associated with undertaking and developing the Climate Vulnerability and Resilience Assessments - a process that is either conducted

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	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						Property business for example, with an annual HVAC operating cost of $6.7 million, this represents approximately $335,000 annually.	disruption. Where specific risks are identified, suitable mitigation or correctional measures must be included in asset-specific action plans, with actions implemented and tracked. An example includes the periodic assessment we conduct of our retail portfolio to assess the optimal operating conditions for our HVAC units (i.e. using minimal energy to maintain optimum temperature). At our Green Hills shopping centre for example, we replaced the HVAC system ahead of the end of life at a cost of $5 million. We undertook a climate resilience assessment of Stockland Nowra in FY16, which	internally by key staff or by external consultants. Costs therefore range from $1000-$8000 per assessment. As we have conducted 39 assessments to date, the estimated cost of management is $312,000. In addition, we spend approximately $100,000 per annum assessing the performance of our HVAC systems and in 2016, spent approximately $7.8 million upgrading and replacing our HVAC systems at our shopping

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	area of Western Sydney that experiences higher than average summer temperatures.							contains features to improve its resilience to changes in mean temperatures, such as construction with weather resistant materials, upgraded air conditioning systems with supplementary systems used only on days of extreme heat, duplex power supply with capacity for alternate supply in the event of grid failure, and a 50kW solar PV system. 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.	centres.
Change in temperature extremes	In 2011, Stockland commissioned external research on	Wider social disadvantages	1 to 3 years	Indirect (Client)	Likely	Medium	Estimated financial implications relate to increased operating and maintenance costs	Potential at risk projects must conduct a Climate Vulnerability and Resilience	Our potential at risk projects must conduct a Climate

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	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						for our assets due to increased demand on HVAC systems. It is estimated that this could lead to a 5% increase in our HVAC system operating costs. For our Commercial Property business for example, with an annual HVAC operating cost of $6.7million, this represents approximately $335,000 annually.	assessment tool. Where specific risks are identified, suitable mitigation or correctional measures must be included in asset-specific action plans. 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. We also ensure energy efficiency and natural ventilation of Retirement Living villages using the Green Star	Vulnerability and Resilience Assessment. This process is either conducted internally by key staff or by external consultants. Costs therefore range from $1000-$8000 per assessment. As we have conducted a total of 39 assessments at the time of reporting, the estimated cost of management is $312,000. Where specific risks are identified, suitable mitigation or correctional measures must be included in

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	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.							standards. We undertook a climate resilience assessment of Stockland Nowra in FY16, which contains features to improve its resilience to changes in temperature extremes, such as construction with weather resistant materials, upgraded air conditioning systems with supplementary systems used only on days of extreme heat, duplex power supply with capacity for alternate supply in the event of grid failure, and a 50kW solar PV system. Our centre at Wetherill Park is also participating in a study with the Low Carbon Living Cooperative Research Centre on mitigating urban	asset-specific action plans, with actions implemented and tracked. In some instances, we have had to upgrade HVAC systems at our shopping systems (ahead of their end of life) as the systems could not cope with the increased temperatures. 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.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								heat island effect.	
Tropical cyclones (hurricanes and typhoons)	In 2011, Stockland commissioned external research on the key climate risks to which we are exposed. This research found that a considerable 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	Reduction/disruption in production capacity	1 to 3 years	Direct	Likely	Medium	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.	We conduct Climate Resilience and Vulnerability Assessments, which assess the vulnerability of assets to climate change and the ability to endure severe weather impacts and operate without disruption. The methodology defines key vulnerability and resilience criteria, with a particular focus on location and design, structure, operation and maintenance, utilities and services and stakeholders. Action plans are developed for each asset and include the implementation of operational responses, maintenance regimes and emergency	Costs of a Climate Vulnerability and Resilience Assessment range from $1000-$8000 per assessment. As we have conducted a total of 39 assessments at the time of reporting, the estimated cost of management is $312,000. Where specific risks are identified, suitable mitigation or correctional measures must be included in asset-specific action plans, with actions implemented and tracked.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	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							response plans with a view to improving the resilience score of the asset. As an example, we conducted an assessment of climate change risks at our Rockhampton shopping centre and implemented a plan to improve the cyclone resilience of this centre at an approximate cost of $700,000. In FY16, we conducted a deeper level of climate resilience assessments on our retail assets in North Queensland, where there is a high exposure to tropical cyclones. We worked with the Cyclone Testing Station at James Cook University to complete two cyclonic wind vulnerability	As an example, we conducted an assessment of climate change risks at our Rockhampton shopping centre and implemented a plan to improve the cyclone resilience of this centre at an approximate cost of $700,000. There are no additional management costs involved in screening suppliers as this is integrated into current contractor management system. The cost for the Cyclone Testing

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	cyclone activity and thus may be impacted.							assessments at our shopping centres at Bundaberg and Hervey Bay. These assessments take a more detailed look at the roof structure and building envelope of a shopping centre to identify vulnerability to damage from cyclonic wind events.	Station at James Cook University to complete two cyclonic wind vulnerability assessments at our shopping centres in Bundaberg and Hervey Bay was $35,000.
Change in precipitation extremes and droughts	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,	Reduction/disruption in production capacity	1 to 3 years	Direct	About as likely as not	Low	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	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 Vulnerability and Resilience Assessment. Where specific	Our potential at risk projects (based on location) must conduct a Climate Vulnerability and Resilience Assessment. This process is either conducted internally by key staff or by external consultants. Costs therefore

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	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.						approximately $4.8 million in FY16, a 10% increase in water costs would lead to an annual cost increase of approximately $480,000. 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.	risks are identified, suitable mitigation or correctional measures must be included in asset-specific action plans. During FY16 we continued our assessment of shopping centres using our climate resilience assessment tool at Stockland Bundaberg and Stockland Nowra. These assets are in regional locations with different climate impacts. Stockland Nowra is the best performing retail asset of the 18 assets assessed to date. Design features incorporated into Stockland Nowra that mitigate impacts of changes in precipitation extremes and droughts include construction above flood level, use of	range from $1000-$8000 per assessment. As we have conducted a total of 39 assessments at the time of reporting, the estimated cost of management is $312,000. Where specific risks are identified, suitable mitigation or correctional measures must be included in asset-specific action plans, with actions implemented and tracked.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								weather resistant materials, and sound roof structure and roof drainage with minimal leakage. Additional information is provided in the 'Climate and Community Resilience DMA' attachment in the Further Information subsection of this question.	

CC5.1c

Please describe your inherent risks that are driven by changes in other climate-related developments

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Reputation	Stakeholders are increasingly looking to understand what organisations are doing to manage	Reduced stock price (market valuation)	1 to 3 years	Direct	Unlikely	Low-medium	We could be impacted financially if our reputation for climate resilience was damaged and	Potential at risk projects (based on location) must conduct a Climate	Managing our reputation on climate risk management is part of the mandate of our Stakeholder

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	climate change risks. This is particularly important as business partners and investment analysts place increasing value on intangible dimensions such as risk management, brand, reputation and employee engagement. If we were to lower our focus on climate resilience, we would risk damage to our reputation and reduced demand for our assets, adversely impacting revenue, which in turn, would impact on investor confidence and thus our share price. Lowering our focus on climate risk would also impact our standing on indices such as Dow Jones						we were therefore no longer considered an investment of choice (therefore impacting access to capital). our share price could also be negatively impacted from damage to our reputation. The extent of impact would be dependent on the nature of the reputation damage. By way of example, a 10% fall in our share price could result in approximately $1.127 billion in loss of share value for investors (based on a market capitalisation of $11.27 billion as at 30 June 2016). There would also be financial implications of reduced market share and missed development opportunities if we	Vulnerability and Resilience Assessment. These assessments focus on the vulnerability of assets to climate change and the ability to endure severe weather impacts and operate without disruption. Where specific risks are identified, suitable mitigation or correctional measures must be included in asset-specific action plans, with actions implemented and tracked. An example includes the periodic assessment we conduct of	Relations team. There is therefore no additional/specific cost associated with management of this risk. Our potential at-risk projects must conduct a Climate Vulnerability and Resilience Assessment. This process is either conducted internally by key staff or by external consultants. Costs therefore range from $1000-$8000 per assessment. As we have conducted a total of 39 assessments at the time of reporting, the estimated cost of management is $312,000. Where specific risks are identified, suitable mitigation or correctional measures must be included in asset-specific action plans, with actions implemented and tracked.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	Sustainability Index, which are used by investors to invest in companies with high sustainability credentials. We may also lose the confidence of key decision-making bodies (such as State Government and local Australian Councils) and institutional investors. This would adversely impact project approvals and access to capital.						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.	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. We have an active Stakeholder Relations team which ensures climate change issues remain on the radar and that the company responds to any concerns quickly and effectively to	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								minimise potential damage to our reputation. We also manage our reputation through participation in a range of reporting surveys, such as DJSI, GRESB, and CDP. We report on our sustainability performance annually through our integrated Annual Review and convene regular meetings with institutional investors.	
Changing consumer behavior	In some facets of our business, customers are increasingly engaged on sustainability issues, with growing	Reduced demand for goods/services	1 to 3 years	Direct	Unlikely	Low	We could be impacted financially if our reputation for climate risk management were damaged and we were unable to	Ensure that all our assets have a minimal level of sustainability performance which ensures	Costs involved in design and development of assets in accordance with Green Star, and also costs involved in upgrading and

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	expectations around the sustainability performance of assets. Some tenant groups, including government, have stated their intention to only occupy buildings that meet minimum sustainability (energy efficiency) requirements. Our strong positive reputation depends on our consideration of climate risk when developing our assets. This positive reputation enlarges our customer base through recommendations and word of mouth, particularly in residential communities when residents refer friends and family to live in a						attract tenants/customers to our assets. This risk will increase over time as other new buildings are developed with modern and efficient fixtures. It is difficult to estimate the exact financial impact of this risk as it would depend on the extent of the downturn in demand from tenants or customers.	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 ensure they maintain high level performance.	refurbishing existing assets to ensure their enhanced sustainability performance. Consultant costs associated with our only Commercial Property Green Star Design rating (Harrisdale) in FY16 was approximately $100,000. Management costs also include the costs of maintaining and upgrading our systems such as LED lighting and HVAC. In FY16, we spent approximately $3.6 million in HVAC maintenance and $7.8 million in replacing/upgrading out shopping centre HVAC systems and approximately $1 million in upgrading to LED lighting systems.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	Stockland development. Thus, we would expect a negative impact on our reputation to flow on to lower demand for our products and less revenue. Any reduction in revenue or failure to meet revenue targets would impact on investor confidence, which could lead to a reduction in our stock price.								

CC5.1d

Please explain why you do not consider your company to be exposed to inherent risks driven by changes in regulation that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC5.1e

Please explain why you do not consider your company to be exposed to inherent risks driven by changes in physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC5.1f

Please explain why you do not consider your company to be exposed to inherent risks driven by changes in other climate-related developments that have the potential to generate a substantive change in your business operations, revenue or expenditure

Further Information

Further information on approach to managing climate risks is provided in our Climate and Community Resilience DMA.

Attachments

https://www.cdp.net/sites/2017/70/17770/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC5.ClimateChangeRisks/Climate and Community Resilience DMA FY16.pdf

Page: CC6. Climate Change Opportunities

CC6.1

Have you identified any inherent climate change opportunities that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

Opportunities driven by changes in regulation
Opportunities driven by changes in physical climate parameters
Opportunities driven by changes in other climate-related developments

CC6.1a

Please describe your inherent opportunities that are driven by changes in regulation

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Cap and trade schemes	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	Other: Revenue	1 to 3 years	Direct	Very likely	Low-medium	We have traded ESCs in 2012 (all office) and more recently in March 2015 (office and retail). On 9 March 2015, we traded 14,337 certificates accumulated between 2012 and 2014 at a price of $17.90 for an income of $256,632. To date we have traded over 20,000 ESCs and realised $421,000 of income. We will create new ESCs again with this year's NABERS ratings and will look to trade again in 2017.	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 have traded ESC's in 2012 (all office) and more recently in March 2015 (office and retail). To date we have	Management costs include consultants fees for the creation of the ESCs and fees for the ESC registration totalling approximately $10,000. While there are costs associated with the upgrade of assets to generate credits, these costs would be undertaken anyway to meet internal energy targets.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	created for projects and initiatives that reduce energy consumption. One ESC represents 1 tonne/CO2 and has a dollar value which can be traded in an open market. Buyers are typically energy retailers to meet mandatory energy savings reporting obligations using a NABERS benchmarking method. Stockland Glendale, Stockland Jesmond, Stockland Nowra, and three Stockland office buildings in Sydney have accrued ESCs in the most recent reporting period.							traded over 20,000 ESC's and realised $421,000 of income. At our Green Hills shopping centre, we have upgraded lights to LEDs, replaced all the air conditioning plant and placed smart metering in. The cumulative savings are more than 50% and Stockland receives an annual contribution through ESCs in recognition of these savings.	

CC6.1b

Please describe your inherent opportunities that are driven by changes in physical climate parameters

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Change in mean (average) temperature	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 demand for existing products/services	1 to 3 years	Indirect (Client)	Likely	Low	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 $30.50 (30,060 visitors). 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 $30,500 spent within the centre.	We manage this opportunity by ensuring that our retail centres are resilient to climate change and 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	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. 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.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	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.							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.	
Change in temperature extremes	Market demand for more efficient design as potential tenants seek highly efficient (lower energy cost) premises. This could lead to increased demand for our assets.	Increased demand for existing products/services	1 to 3 years	Direct	Likely	Medium	Positive financial implications may arise through maintaining minimal vacancy rates across our portfolio as a result of having highly efficient and therefore attractive assets. In 2016, our tenants saved over $3.5 million in energy bills as	We manage this opportunity by ensuring that our assets are continuously assessed and upgraded to ensure energy efficiency is optimised and in line with best practice. An example includes the periodic	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

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
							a result of energy efficiency improvements across our Commercial Property portfolio.	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.	criteria, they are integrated into operational budgets. As an example, implementing chiller optimisation to improve the efficiency of the chillers at Stockland Rockhampton shopping centre required a capital investment of $79,800 with a return on investment of 34% or a payback within 3 years
Induced changes in natural resources	As natural resources become scarcer and more costly, those companies with more efficient operations will be best placed in the market. As such, having highly efficient assets will	Increased demand for existing products/services	1 to 3 years	Direct	Likely	Low-medium	Positive financial implications may arise from increased market demand and cost savings due to ongoing efficiency initiatives. In 2016, our tenants saved over $3.5 million in energy bills as	We manage this opportunity through continuous delivery of improvements across our assets that enhance their operational efficiency. In addition to lighting and	Management costs are associated with individual efficiency improvement initiatives. As an example, a LED lighting upgrade at the Stockland Shellharbour shopping centre in 2016 required

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	increase our competitive advantage and ability to respond to market demand.						a result of energy efficiency improvements across our Commercial Property portfolio.	physical upgrades, this also includes assessing the optimal load at which our air conditioning equipment operates to ensure minimal energy use, assessing the frequency and quantity of our waste disposal and monitoring water use across our assets.	a capital investment of $122,000, with a return on investment within 3 years equating to 37%.
Other physical climate opportunities	The frequency of extreme weather events is predicted to increase due to climate change. This means that residential and commercial properties are at risk of damage. There is an opportunity for us to continue to improve the climate resilience of our	Reduced operational costs	1 to 3 years	Direct	Likely	Medium	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	Potential at risk projects (based on location) must conduct a Climate Vulnerability and Resilience Assessment. These assessments focus on the vulnerability of assets to climate change and the ability to endure severe weather impacts and operate without	Our potential at risk projects must conduct a Climate Vulnerability and Resilience Assessment. This process is either conducted internally by key staff or by external consultants. Costs therefore range from $1000-$8000 per assessment. As we have

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	assets and therefore reduce our insurance premiums.						of cyclone vulnerability assessment and resilience works.	disruption. Where specific risks are identified, suitable mitigation or correctional measures must be included in asset-specific action plans, with actions implemented and tracked.	conducted a total of 39 assessments at the time of reporting, the estimated cost of management is $312,000. Where specific risks are identified, suitable mitigation or correctional measures must be included in asset-specific action plans, with actions implemented and tracked.

CC6.1c

Please describe your inherent opportunities that are driven by changes in other climate-related developments

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Reputation	Ensuring the climate	Increased demand for	>6 years	Direct	Likely	Low-medium	Positive financial	Potential at risk projects (based	Our potential at risk projects must

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	resilience of our developments so that they continue to be great places to live now and into the future. This safeguards our brand and demonstrates the value of our assets. It also promotes trust and customer satisfaction which are key drivers of referrals and ongoing sales and revenue. In addition, sustainability and the climate resilience of our assets is increasingly important to institutional investors and therefore Stockland's access to capital, which allows to Stockland to maintain, expand and	existing products/services					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. The extent of impact would be dependent on the nature of the reputation impact. By way of example, a 10% fall in our share price could result in approximately $1.127 billion in loss of share value for investors (based on a	on location) must conduct a Climate Vulnerability and Resilience assessment. These assessments focus on the vulnerability of assets to climate change and the ability to endure severe weather impacts and operate without disruption. Where specific risks are identified, suitable mitigation or correctional measures must be included in asset-specific action plans. We have also developed a community resilience scorecard, which is designed to measure the resilience of	conduct a Climate Vulnerability and Resilience Assessment. This process is either conducted internally by key staff or by external consultants. Costs therefore range from $1000-$8000 per assessment. As we have conducted a total of 39 assessments at the time of reporting, the estimated cost of management is $312,000. Where specific risks are identified, suitable mitigation or correctional measures must be included in asset-specific action plans, with actions implemented and tracked. We spent

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	grow our assets.						market capitalisation of $11.27 billion as at 30 June 2016). Further, an enhanced climate resilience reputation may lead to improved sales. For example, if sales of residential assets were to increase by 1% due to our enhanced sustainability reputation, this could lead to an increase in sales revenue of $14.8 million (based on FY16 residential revenue of $1,482 million).	communities and identify opportunities to help them bounce back from external stresses and shocks such as climate change. The scorecard has been used to assess resilience at three Stockland shopping centres, providing a profile of community resilience for each asset. This helps us understand whether our community and environmental initiatives contribute to more resilient communities and guide future activities. We have an active Stakeholder Relations team which ensures climate change	approximately $30,000 on the development of the community resilience scorecard. Other costs include the costs of employing our environmental team and the time contributed from other personnel. This cost is estimated to be approximately $900,000.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								issues remain on the radar and that the company responds to any concerns quickly and effectively to minimise potential reputational damage. We also manage our reputation through participation in a range of reporting surveys, such as DJSI (global real estate sector leader), GRESB, and CDP. We report on our sustainability performance annually through our integrated Annual Review and hold regular meetings with institutional investors.	
Reputation	Reputation	Wider social		Direct	Likely	Low-	Positive	We developed a	We spent

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	benefits associated with supporting the communities in which we operate to become more resilient, including to climate change. Stockland Rockhampton shopping centre is an example of where we have implemented works to improve the physical resilience of the asset and have contributed to local community resilience by encouraging the use of the asset as a community refuge and field hospital during local flooding events.	benefits				medium	financial implications may arise from increased market share from customer loyalty and long term brand value. As this is a long-term opportunity associated with enhancing brand value, it is difficult to more accurately estimate the extent of the financial implication.	community resilience scorecard. The scorecard is designed to measure and manage the resilience of communities and help them bounce back from external stresses and shocks such as climate change. The scorecard has been used to assess resilience at three of our shopping centres, providing a profile of community resilience for each asset. This helps us understand whether our community and environmental initiatives contribute to more resilient communities and guide future	approximately $30,000 on the development of the community resilience scorecard. Implementation of the scorecard is conducted by our employees with a time commitment of approximately four hours per asset. Our assessment of climate change risks at our Rockhampton shopping centre led to a plan to improve the cyclone resilience of this centre at an approximate cost of $700,000.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								activities.	

CC6.1d

Please explain why you do not consider your company to be exposed to inherent opportunities driven by changes in regulation that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC6.1e

Please explain why you do not consider your company to be exposed to inherent opportunities driven by changes in physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC6.1f

Please explain why you do not consider your company to be exposed to inherent opportunities driven by changes in other climate-related developments that have the potential to generate a substantive change in your business operations, revenue or expenditure

Further Information

Module: GHG Emissions Accounting, Energy and Fuel Use, and Trading

Page: CC7. Emissions Methodology

CC7.1

Please provide your base year and base year emissions (Scopes 1 and 2)

Scope	Base year	Base year emissions (metric tonnes CO2e)
Scope 1	Tue 01 Jul 2008 - Tue 30 Jun 2009	20909
Scope 2 (location-based)	Tue 01 Jul 2008 - Tue 30 Jun 2009	119352
Scope 2 (market-based)	Tue 01 Jul 2008 - Tue 30 Jun 2009	119257

CC7.2

Please give the name of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

Please select the published methodologies that you use
Australia - National Greenhouse and Energy Reporting Act

CC7.2a

If you have selected "Other" in CC7.2 please provide details of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

CC7.3

Please give the source for the global warming potentials you have used

Gas	Reference
CO2	Other: National Greenhouse Accounts (NGA) Factors
CH4	Other: National Greenhouse Accounts (NGA) Factors
Other: N20	Other: National Greenhouse Accounts (NGA) Factors
HFCs	Other: National Greenhouse Accounts (NGA) Factors

CC7.4

Please give the emissions factors you have applied and their origin; alternatively, please attach an Excel spreadsheet with this data at the bottom of this page

Fuel/Material/Energy	Emission Factor	Unit	Reference

Fuel/Material/Energy	Emission Factor	Unit	Reference
Other:			See attachment

Further Information

The base year FY2009 emissions have been re-based to reflect the inclusion of the residential and retirement living portfolio that we currently report (but didn't in previous years) and also changes in our Commercial Property business due to divestment, acquisitions and redevelopments. The residential portfolio has undergone significant organic growth and the retirement living portfolio has grown significantly through acquisitions. The previously reported baseline emissions of 3016 tCO2-e for Scope 1, and 120001 tCO2-e for Scope 2 did not include the emissions for the residential and retirement living business activities and didn't reflect changes in our Commercial Property business. In May of the FY09 baseline year, we commissioned the trigeneration plant in the Piccadilly Centre which operated for just two months during this year. Thus the location-based Scope 2 emissions are only slightly greater than the market-based emissions for this baseline and this is not an error (where one may expect that the location and market-based numbers would be the same for the baseline year).

Attachments

https://www.cdp.net/sites/2017/70/17770/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC7.EmissionsMethodology/CC7.4 ghg_emission_factor.csv

Page: CC8. Emissions Data - (1 Jul 2015 - 30 Jun 2016)

CC8.1

Please select the boundary you are using for your Scope 1 and 2 greenhouse gas inventory

Operational control

CC8.2

Please provide your gross global Scope 1 emissions figures in metric tonnes CO2e

35036

CC8.3

Please describe your approach to reporting Scope 2 emissions

Scope 2, location-based	Scope 2, market-based	Comment
We are reporting a Scope 2, location-based figure	We are reporting a Scope 2, market-based figure	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.

CC8.3a

Please provide your gross global Scope 2 emissions figures in metric tonnes CO2e

Scope 2, location-based	Scope 2, market-based (if applicable)	Comment

Scope 2, location-based	Scope 2, market-based (if applicable)	Comment
90259	89881	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.

CC8.4

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

CC8.4a

Please provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure

Source	Relevance of Scope 1 emissions from this source	Relevance of location-based Scope 2 emissions from this source	Relevance of market-based Scope 2 emissions from this source (if applicable)	Explain why the source is excluded

CC8.5

Please estimate the level of uncertainty of the total gross global Scope 1 and 2 emissions figures that you have supplied and specify the sources of uncertainty in your data gathering, handling and calculations

Scope	Uncertainty range	Main sources of uncertainty	Please expand on the uncertainty in your data
Scope 1	More than 2% but less than or equal to 5%	Assumptions Metering/ Measurement Constraints	Assumptions: the data boundary excludes extremely small emissions that are part of property management e.g. fire extinguishers. These small emissions account for less than 0.5%. Measurement Constraints: Our residential and retirement living development businesses face a number of challenges reporting on the activities of contractors and thus rely on the third party data.
Scope 2 (location-based)	Less than or equal to 2%	Extrapolation	We apply a comprehensive estimation methodology across any data that has not accrued at the time of reporting. Thus a level of uncertainty exists due to the nature of estimated data versus the actual emissions, which was less than 1% in FY16.
Scope 2 (market-based)	Less than or equal to 2%	Extrapolation	We apply a comprehensive estimation methodology across any data that has not accrued at the time of reporting. Thus a level of uncertainty exists due to the nature of estimated data versus the actual emissions, which was less than 1% in FY16.

CC8.6

Please indicate the verification/assurance status that applies to your reported Scope 1 emissions

Third party verification or assurance process in place

CC8.6a

Please provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/section reference	Relevant standard	Proportion of reported Scope 1 emissions verified (%)
Annual process	Complete	Reasonable assurance	https://www.cdp.net/sites/2017/70/17770/Climate Change 2017/Shared Documents/Attachments/CC8.6a/Stockland Emissions Assurance Statement FY16.pdf	Whole document	Australian National GHG emission regulation (NGER)	100
Annual process	Complete	High assurance	https://www.cdp.net/sites/2017/70/17770/Climate Change 2017/Shared Documents/Attachments/CC8.6a/Assurance Report FY16 EY.pdf	Page 1 - reasonable level assurance for AA1000 AccountAbility Principles (2008) and limited assurance of the accuracy and quality of the sustainability information.	AA1000AS	100

CC8.6b

Please provide further details of the regulatory regime to which you are complying that specifies the use of Continuous Emission Monitoring Systems (CEMS)

Regulation	% of emissions covered by the system	Compliance period	Evidence of submission

CC8.7

Please indicate the verification/assurance status that applies to at least one of your reported Scope 2 emissions figures

Third party verification or assurance process in place

CC8.7a

Please provide further details of the verification/assurance undertaken for your location-based and/or market-based Scope 2 emissions, and attach the relevant statements

Location-based or market-based figure?	Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 2 emissions verified (%)
Market-based	Annual process	Complete	Reasonable assurance	https://www.cdp.net/sites/2017/70/17770/Climate Change 2017/Shared Documents/Attachments/CC8.7a/Stockland Emissions Assurance Statement FY16.pdf	Whole document	Australian National GHG emission regulation (NGER)	100
Market-based	Annual process	Complete	High assurance	https://www.cdp.net/sites/2017/70/17770/Climate Change 2017/Shared Documents/Attachments/CC8.7a/Assurance Report FY16 EY.pdf	Page 1 - reasonable level assurance for AA1000 AccountAbility Principles (2008) and limited assurance of the accuracy and quality of the sustainability information.	AA1000AS	100

CC8.8

Please identify if any data points have been verified as part of the third party verification work undertaken, other than the verification of emissions figures reported in CC8.6, CC8.7 and CC14.2

Additional data points verified	Comment
Year on year change in emissions (Scope 1 and 2)	Assured by EY, as part of ASAE3410 sustainability assurance.
Year on year emissions intensity figure	Assured by EY, as part of ASAE3410 sustainability assurance.
Progress against emissions reduction target	Assured by EY, as part of ASAE3410 sustainability assurance.
Emissions reduction activities	Assured by EY, as part of ASAE3410 sustainability assurance.
Other: Scope 3 Emissions	Scope 3 emissions assured by EY as part of ASAE3410 sustainability assurance includes hire cars, rental vehicles and airline travel, transmission and production losses from purchased electricity, gas and fleet fuel and operational waste from our Commercial Property portfolio.

CC8.9

Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?

No

CC8.9a

Please provide the emissions from biologically sequestered carbon relevant to your organization in metric tonnes CO2

Further Information

Further details can be found in the attached FY16 environmental data pack published along with our 2016 Sustainability Reporting (attached here and available online). The Australian Clean Energy Regulator (CER) publishes the total Scope 1 and 2 emissions for entities reporting under the National Greenhouse and Energy Reporting Scheme (NGERS). A minor variance will occur between the emission figures reported in our Sustainability Report and those submitted to the CER in our NGERS report due to the timing of disclosure. Our sustainability report includes estimations for where data is not available at the end of the financial year in time for

the corporate reporting release. The NGER report is submitted later in the year and uses a data set with actual emissions replacing the estimates. The gross totals submitted to the CER are: Scope 1 35,036TCO2e; and Scope 2 89,881TCO2e. The NGER submission is also assured as noted in the PwC assurance statement. This CDP submission references the emissions data from our sustainability report as the data is more widely available and includes commentary on performance. The data published by the CER is uniquely the gross Scope 1 and 2 totals.

Attachments

https://www.cdp.net/sites/2017/70/17770/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC8.EmissionsData(1Jul2015-30Jun2016)/Environmental Data FY16.pdf

Page: CC9. Scope 1 Emissions Breakdown - (1 Jul 2015 - 30 Jun 2016)

CC9.1

Do you have Scope 1 emissions sources in more than one country?

No

CC9.1a

Please break down your total gross global Scope 1 emissions by country/region

Country/Region	Scope 1 metric tonnes CO2e

CC9.2

Please indicate which other Scope 1 emissions breakdowns you are able to provide (tick all that apply)

By business division
By activity

CC9.2a

Please break down your total gross global Scope 1 emissions by business division

Business division	Scope 1 emissions (metric tonnes CO2e)
Commercial Property	4568
Retirement Living	847
Residential Communities	29535
Corporate	86

CC9.2b

Please break down your total gross global Scope 1 emissions by facility

Facility	Scope 1 emissions (metric tonnes CO2e)	Latitude	Longitude

CC9.2c

Please break down your total gross global Scope 1 emissions by GHG type

GHG type	Scope 1 emissions (metric tonnes CO2e)

CC9.2d

Please break down your total gross global Scope 1 emissions by activity

Activity	Scope 1 emissions (metric tonnes CO2e)
Office and Business Park Operations	1080
Industrial Facility Operations	0
Retail Centre Operations	398
Fleet Vehicles	86
Leaked Refrigerants	3091
Residential Community Sales	10
Residential Community Development	29525
Retirement Living Village Operations	487
Retirement Living Village Development	360

Further Information

Environmental data pack published as part of our 2016 Sustainability Report is attached. Stockland's sustainability reporting can be found at https://www.stockland.com.au/about-stockland/sustainability

Attachments

https://www.cdp.net/sites/2017/70/17770/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC9.Scope1EmissionsBreakdown(1Jul2015-30Jun2016)/Environmental Data FY16.pdf

Page: CC10. Scope 2 Emissions Breakdown - (1 Jul 2015 - 30 Jun 2016)

CC10.1

Do you have Scope 2 emissions sources in more than one country?

No

CC10.1a

Please break down your total gross global Scope 2 emissions and energy consumption by country/region

Country/Region	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes 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)

CC10.2

Please indicate which other Scope 2 emissions breakdowns you are able to provide (tick all that apply)

By business division
By activity

CC10.2a

Please break down your total gross global Scope 2 emissions by business division

Business division	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)
Commercial Property	80166	79787
Residential Communities	1814	1814
Retirement Living	6926	6926
Corporate	1353	1353

CC10.2b

Please break down your total gross global Scope 2 emissions by facility

Facility	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)

CC10.2c

Please break down your total gross global Scope 2 emissions by activity

Activity	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)
Corporate Tenancies	1353	1353
Office and Business Park Operations	20036	19657
Logistics Centres Operations	1291	1291
Retail Centre Operations	58839	58839
Residential Community Sales	1515	1515
Residential Community Development	299	299
Retirement Living Village Operations	6918	6918
Retirement Living Village Development	8	8

Further Information

Environmental data pack published as part of our 2016 Sustainability Report is attached.

Attachments

https://www.cdp.net/sites/2017/70/17770/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC10.Scope2EmissionsBreakdown(1Jul2015-30Jun2016)/Environmental Data FY16.pdf

Page: CC11. Energy

CC11.1

What percentage of your total operational spend in the reporting year was on energy?

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

CC11.2

Please state how much heat, steam, and cooling in MWh your organization has purchased and consumed during the reporting year

Energy type	MWh
Heat	18
Steam	0
Cooling	453

CC11.3

Please state how much fuel in MWh your organization has consumed (for energy purposes) during the reporting year

10987

CC11.3a

Please complete the table by breaking down the total "Fuel" figure entered above by fuel type

Fuels	MWh
Natural gas	10646
Diesel/Gas oil	264
Motor gasoline	60
Biogasoline	17

CC11.4

Please provide details of the electricity, heat, steam or cooling amounts that were accounted at a low carbon emission factor in the market-based Scope 2 figure reported in CC8.3a

Basis for applying a low carbon emission factor	MWh consumed associated with low carbon electricity, heat, steam or cooling	Emissions factor (in units of metric tonnes CO2e per MWh)	Comment
Direct procurement contract with a grid-connected generator or Power Purchase Agreement (PPA), where electricity attribute certificates do not exist or are not required for a usage claim	1455	0.57971	The Piccadilly Tower in Sydney has a trigeneration plant operated by Origin Energy. This plant provides the electricity reported here in CC11.4 as well as the heating and cooling reported in CC11.2. Origin has no formal certificates denoting the emissions factors for this energy available, so we work with consultants to calculate the appropriate emissions factor in accordance with the NGER Act.
Contract with suppliers or utilities, supported by energy attribute certificates	6	0	The illuminated signage atop our head office in Sydney is supplied with certified 100% renewable Greenpower.

CC11.5

Please report how much electricity you produce in MWh, and how much electricity you consume in MWh

Total electricity consumed (MWh)	Consumed electricity that is purchased (MWh)	Total electricity produced (MWh)	Total renewable electricity produced (MWh)	Consumed renewable electricity that is produced by company (MWh)	Comment

Total electricity consumed (MWh)	Consumed electricity that is purchased (MWh)	Total electricity produced (MWh)	Total renewable electricity produced (MWh)	Consumed renewable electricity that is produced by company (MWh)	Comment
106365	104424	1941	1941	1941	Total energy produced by our assets are from solar PV installations. All energy produced is consumed by the assets.

Further Information

Environmental data pack published as part of our 2016 Sustainability Report is attached.

Attachments

https://www.cdp.net/sites/2017/70/17770/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC11.Energy/Environmental Data FY16.pdf

Page: CC12. Emissions Performance

CC12.1

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

Increased

CC12.1a

Please 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

Reason	Emissions value (percentage)	Direction of change	Please explain and include calculation
Emissions reduction activities	6.5	Decrease	Gross Scope 1+2 emissions decreased by 6.5% because of emissions reduction activities, which primarily take place in our Commercial Property business through efficiency upgrades and diversification of energy sources. The calculation used is consistent with page 152 of the guidance, specifically a reduction of 8,045.6 tCO2e was achieved in FY16 through emissions reduction activities. Total S1+S2 emissions in previous year were 124,131 tCO2e. The calculation is therefore (-8045.6 / 124131) = 6.5%.
Divestment	3.8	Decrease	For FY16 we divested two commercial property assets - Eagle Street Pier and Waterfront Place. These divestments decreased our gross emissions from the previous year by 4,675 tCO2e in both Scope 1 and 2 emissions. The calculation explained is 4,675 tCO2e decrease due to divestment, the total S1+S2 emissions in previous year were 124131 tCO2e, thus (-4,675 / 124,131) = -3.8%.
Acquisitions	1.3	Increase	We acquired a number of assets relating to FY16 reporting year for which we have operational control. For example, Pallara was an acquisition within our Residential business. The combined acquisitions lead to an increase of 1,598 tCO2e in gross emissions over the previous year mainly in Scope 2 emissions. The calculation explained is 1,598 tCO2e increase due to acquisitions, the total S1+S2 emissions in previous year were 124,131 tCO2e, thus (1598 / 124,131) = 1.3%.
Mergers	0	No change	There were no mergers in FY16 that led to any changes in gross emissions.
Change in output	11.5	Increase	Changes in our output relate primarily to increased production of lots and units across the residential and retirement living business units. FY16 also saw an increase in activity at two retail centres due to the opening of additional development stages. These centres were Wetherill Park and Baldivis. This increase in production and activity saw an increase of 14,300 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 14,300 tCO2e increase due to change in output, the total S1+S2 emissions in previous year were 124,131 tCO2e, thus (14300 / 124131) = 11.5%.
Change in methodology	0	No change	There was no change in methodology in FY16 that led to any changes in gross emissions.
Change in boundary	0.8	Decrease	In FY16, one retirement village had a change in operational control. This led to an increase in gross emissions. This change in boundary resulted in an increase of 936 tCO2e over the previous reporting year primarily in Scope 2 emissions. The calculation explained is 936 tCO2e increase due to change in output, the total S1+S2 emissions in previous year were 124,131 tCO2e, thus (936 / 124,131) = 0.8%.
Change in physical operating conditions	0	No change	There was no real change in physical operating conditions which were attributable to changes in gross emissions.
Unidentified	0	No change	There were no unidentified reasons for changes to gross emissions.
Other	0.2	Increase	We calculate emissions from refrigerant leakage based on the NGER Act. As this methodology is based on

Reason	Emissions value (percentage)	Direction of change	Please explain and include calculation
			the portfolio floor area for commercial property, there has been an increase in leaked refrigerant due to an increase in the portfolio floor area. The other emissions included here in FY16 account for an increase of 308 tCO2e over the previous year. Refrigerants are Scope 1 emissions. The calculation explained is 308 tCO2e increase due to change in output, the total S1+S2 emissions in previous year were 124,131 tCO2e, thus (308 / 124,131) = 0.2%.

CC12.1b

Is your emissions performance calculations in CC12.1 and CC12.1a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Market-based

CC12.2

Please describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO2e per unit currency total revenue

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator: Unit total revenue	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
0.0000540	metric tonnes CO2e	2312000000	Market-based	10.8	Decrease	For the FY16 reporting period, our increase in total revenue of 10.8% outweighed the slight increase in combined Scope 1 and Scope 2

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator: Unit total revenue	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
						emissions of 0.6%. This yielded a moderate decrease in tCO2e/AUD of 9.2%. The overall emissions increased due to acquisitions and developments (change in output). We were able to limit the emission increases through emission reduction activities.

CC12.3

Please provide any additional intensity (normalized) metrics that are appropriate to your business operations

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator	Metric denominator: Unit total	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
90.1	metric tonnes CO2e	full time equivalent (FTE) employee	1386	Market-based	3	Decrease	For the FY16 reporting period, we had an increase in full time equivalent employees of 3%. The increase in FTEs was greater than the increase in emissions, which led to a decrease in this intensity metric (increase in denominator led to the reduction in tCO2e/FTE of 2.3%). The overall emissions increased due to acquisitions and developments (change in output). We were able to limit the emission increases through emission reduction activities.
0.000054	metric tonnes CO2e	square meter	1047054	Market-based	3	Decrease	For FY16 reporting period, we had an increase in retail area equivalent to 3.3%. Emission reduction activity - the emissions intensity of the retail portfolio component

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator	Metric denominator: Unit total	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
							of the commercial property business saw a decrease (56.58tCo2e down from 58.32tCo2e in FY15) due to the roll out of efficiency upgrades, with an increase in gross floor area (increase in denominator led to the reduction in tCO2e/Retail Area of 6%).
0.0002	metric tonnes CO2e	square meter	320943	Market-based	3.5	Decrease	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 67.32tCO2e in FY15 to 64.97tCO2e in FY16 resulting in a decrease in intensity tCO2e/office area (m2) of 7.1%.

Further Information

The environmental data pack, employee data, and financial report references are attached.

Attachments

https://www.cdp.net/sites/2017/70/17770/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC12.EmissionsPerformance/Stockland Financial Report FY16.pdf
https://www.cdp.net/sites/2017/70/17770/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC12.EmissionsPerformance/Environmental Data FY16.pdf
https://www.cdp.net/sites/2017/70/17770/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC12.EmissionsPerformance/People Data FY16.pdf

Page: CC13. Emissions Trading

CC13.1

Do you participate in any emissions trading schemes?

Yes

CC13.1a

Please complete the following table for each of the emission trading schemes in which you participate

Scheme name	Period for which data is supplied	Allowances allocated	Allowances purchased	Verified emissions in metric tonnes CO2e	Details of ownership
Other: NSW Energy Savings Scheme	Fri 01 Jan 2016 - Sat 31 Dec 2016	6377	0	6377	Facilities we own and operate
Other: NSW Energy Savings Scheme	Thu 01 Jan 2015 - Thu 31 Dec 2015	6118	0	6118	Facilities we own and operate
Other: NSW Energy Savings Scheme	Wed 01 Jan 2014 - Wed 31 Dec 2014	8469	0	8469	Facilities we own and operate
Other: NSW Energy Savings Scheme	Tue 01 Jan 2013 - Tue 31 Dec 2013	3206	0	3206	Facilities we own and operate
Other: NSW Energy Savings Scheme	Sun 01 Jan 2012 - Mon 31 Dec 2012	4191	0	4191	Facilities we own and operate
Other: NSW Energy Savings Scheme	Sat 01 Jan 2011 - Sat 31 Dec 2011	4484	0	4484	Facilities we own and operate
Other: NSW Energy Savings Scheme	Fri 01 Jan 2010 - Fri 31 Dec 2010	1181	0	1181	Facilities we own and operate

CC13.1b

What is your strategy for complying with the schemes in which you participate or anticipate participating?

We are involved in the New South Wales Energy Savings Scheme. This scheme places a mandatory obligation on Liable Entities to obtain and surrender Energy Savings Certificates (ESCs) to meet annual energy savings targets. We are an Accredited Certificate Provider, creating ESCs that can be sold to Liable Entities or other voluntary parties.

We create ESCs by carrying out Recognised Energy Savings Activities including: the replacement and installation of common electrical appliances; high efficiency lighting and other energy saving devices; the NABERS rating of buildings and changes in electricity consumption measured against an established baseline. Our strategy for complying with the scheme is to ensure these requirements are integrated into our management system and that responsibility is assigned to a member of the sustainability team to monitor and maintain the system and associated processes.

CC13.2

Has your organization originated any project-based carbon credits or purchased any within the reporting period?

Yes

CC13.2a

Please provide details on the project-based carbon credits originated or purchased by your organization in the reporting period

Credit origination or credit purchase	Project type	Project identification	Verified to which standard	Number of credits (metric tonnes CO2e)	Number of credits (metric tonnes CO2e): Risk adjusted volume	Credits canceled	Purpose, e.g. compliance
Credit origination	Energy efficiency: industry	The NABERS baseline method can be used to calculate energy savings for improvements in the NABERS rating of a commercial building. To use this method, Stockland must have	Other: NABERS Metered	6118	6118	Not relevant	Voluntary Offsetting

Credit origination or credit purchase	Project type	Project identification	Verified to which standard	Number of credits (metric tonnes CO2e)	Number of credits (metric tonnes CO2e): Risk adjusted volume	Credits canceled	Purpose, e.g. compliance
		a certified NABERS rating issued by the NABERS National Administrator for each building from which we may create energy savings certificates. NABERS ratings are undertaken on our portfolio of office buildings and shopping centres and energy efficiency improvements are typically achieved through lighting and HVAC upgrades, building tuning and optimisation of building systems. The NABERS Baseline Method provides a way to calculate and create Energy Savings Certificates (ESCs) reflecting the energy savings resulting from the improvement in a NABERS rating for a building. The baseline is determined by the Benchmark NABERS Rating Index which is taken from a previous NABERS rating and compares improvement against the current NABERS rating. To create ESC's, the rating must be at least one star greater than the benchmark NABERS rating index.	Baseline Method				

Further Information

Attachments associated with the two most recent years of emissions trading provided.

Attachments

https://www.cdp.net/sites/2017/70/17770/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC13.EmissionsTrading/CC13.2a 2015 Vintage Tax Invoice.pdf
https://www.cdp.net/sites/2017/70/17770/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC13.EmissionsTrading/CC13.2a 2016 Vintage Tax Invoice.pdf

Page: CC14. Scope 3 Emissions

CC14.1

Please account for your organization's Scope 3 emissions, disclosing and explaining any exclusions

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Purchased goods and services	Not relevant, explanation provided	0		0.00%	Emissions data from contractors and suppliers involved in our Residential and Retirement Living developments is captured within our Scope 1 + 2 emissions data, as their activities fall within our operational control boundary. The contractors and suppliers working on our Commercial Property developments do not fall within our operational control boundary and so we do not collect or report data on their emissions -this is managed by the principal contractor/operator on site.
Capital goods	Not relevant, calculated	21629	MLCI assessments undertaken in accordance with EN15978 and ISO14044.	0.00%	As a real estate company, our capital goods primarily consists of buildings. As these buildings have a long life (>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 reporting year we undertook an MLCI assessment for one retail centre development which is reported here for example.
Fuel-and-energy-related activities	Relevant, calculated	14782	Total transmission losses from electricity, gas and fleet fuel. Calculated using	100.00%	Relevant as it is information requested under NGERS, and reductions are directly related to our

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
(not included in Scope 1 or 2)			National Greenhouse Accounts Scope 3 emission factors.		reduction in purchased electricity consumption.
Upstream transportation and distribution	Not relevant, explanation provided	0		0.00%	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	Relevant, calculated	20571	Calculated using the National Greenhouse Accounts Scope 3 emissions factors, based on waste data collected, mass of waste reported and assured in Sustainability Report.	100.00%	The reduction of waste to landfill is an ongoing focus for both our development and operational activities. In development: 83% diversion from landfill in our commercial property development construction waste; 96% diversion from landfill for our Residential and Retirement Living contractor waste. In operations: 39% diversion from landfill across our retail centre assets; 42% diversion from landfill across our office building assets.
Business travel	Relevant, calculated	4275	These emissions are calculated for car hire and air travel. Air travel is calculated using the United Kingdom Department of Environment, Food & Rural Affairs standard as the Australian National Greenhouse Accounts do not include conversions for air travel. Car hire is calculated using the Australian Government Green Vehicle Guide.	100.00%	Given the geographical spread of our assets, business travel is considered a material source of Scope 3 emissions for our business. For FY16, airline travel actually increased by 14% from more movements between the east and west coasts of Australia. (FY15 = 3747, FY16 = 4275. % change = (FY16 - FY15 / FY15) x 100. Carbon emissions appear to not change substantially as the DEFRA emission factors have been updated for FY16. This reflects improvements in the airline industry and their carbon accounting methods.

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Employee commuting	Not relevant, explanation provided	0		0.00%	While employee commuting does not have a material impact to our total greenhouse gas emissions, due to the nature of Stockland's operations (across majority of states in Australia, employees located at assets as well as employees travelling between assets) this would be challenging to calculate and business travel would account for much of the emissions.
Upstream leased assets	Not relevant, explanation provided	0		0.00%	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	Not relevant, explanation provided	0		0.00%	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	Not relevant, explanation provided	0		0.00%	Not applicable to our business as we do not produce intermediate products.
Use of sold products	Not relevant, explanation provided	0		0.00%	The use of sold products is not relevant to our overall emissions performance because such use falls outside operational control as per Australian greenhouse regulations. However, 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

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
					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	Not relevant, explanation provided	0		0.00%	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	Not relevant, explanation provided	0		0.00%	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	Not relevant, explanation provided	0		0.00%	Not applicable to our business as we operate zero franchises.
Investments	Not relevant, explanation provided	0		0.00%	Not applicable to our business due to the nature of our investments, which is land or existing assets.
Other (upstream)	Not relevant, explanation provided	0		0.00%	Not applicable to our business due to the nature of our activities ie. development and operations of assets.
Other (downstream)	Not relevant, explanation provided	0		0.00%	Not applicable to our business due to the nature of our activities ie. development and operations of assets.

CC14.2

Please indicate the verification/assurance status that applies to your reported Scope 3 emissions

Third party verification or assurance process in place

CC14.2a

Please provide further details of the verification/assurance undertaken, and attach the relevant statements

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 3 emissions verified (%)
Annual process	Complete	Limited assurance	https://www.cdp.net/sites/2017/70/17770/Climate Change 2017/Shared Documents/Attachments/CC14.2a/Assurance Report FY16 EY.pdf	Page 1	ISAE 3410	100

CC14.3

Are you able to compare your Scope 3 emissions for the reporting year with those for the previous year for any sources?

Yes

CC14.3a

Please identify the reasons for any change in your Scope 3 emissions and for each of them specify how your emissions compare to the previous year

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
Fuel- and energy-related activities (not included in Scopes 1 or 2)	Other: Change in NGA emission factors	89	Increase	There were substantial changes in the NGA factors for FY16 compared to the previous year which contributed to a net increase in total Scope 3 emissions from energy production and distribution losses. For example, there was a 23% increase in the emissions factor for the state of Queensland for FY16, where QLD accounts for 25% of our total scope 3 emissions. In FY16 we also included emissions generated from Commercial Property operational waste.
Business travel	Change in output	15	Increase	For FY16, airline travel actually increased by 14% (based on GHG emissions) from more movements between the east and west coasts of Australia due to the organic growth in the business. GHG emissions factor for business travel appear to not have changed substantially as the DEFRA emission factors have been updated for FY16. This reflects improvements in the airline industry and their carbon accounting methods.
Fuel- and energy-related activities (not included in Scopes 1 or 2)	Emissions reduction activities	14	Decrease	The Scope 3 emissions from energy production and distribution losses has reduced for the facilities which reduced emissions through emission reduction and energy efficiency activities during the period.
Fuel- and energy-related activities (not included in Scopes 1 or 2)	Change in boundary	98.5	Increase	For FY16 we have expanded our boundary to include Scope 3 emissions from waste generated at our commercial property assets leading to a large increase in reported Scope 3 emissions. Also included within change in boundary for FY16 is one Retirement Living Village - Patterson Lake, which change to our operational control within this reporting period. The combined additions equate to increase in Scope 3 emissions by 20683 tonnesCO2-e. Total Scope 3 emissions for FY15 was 21,002 tonnesCO2-e. Calculation is 20683 / 21002042 = 98.5%

CC14.4

Do you engage with any of the elements of your value chain on GHG emissions and climate change strategies? (Tick all that apply)

Yes, our suppliers
Yes, our customers

Yes, other partners in the value chain

CC14.4a

Please give details of methods of engagement, your strategy for prioritizing engagements and measures of success

Customers

Method of engagement – 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.

Strategy for prioritisation – Feedback from customer engagement activities is incorporated into our entity-wide materiality process, where we consider customer preferences and attitudes among other stakeholder issues. Stakeholder concerns are incorporated into targets for the business, and potential actions are prioritised against their potential to contribute to achieving these targets and their financial feasibility.

Measure of success – We set public, entity-wide, targets on issues important to stakeholders, such as greenhouse gas emissions, and ensure each of our assets has individual targets that contribute to the entity target. We consult with local communities on ways to reduce emissions and measure success through continuous evaluation of our performance and reporting achievement (or otherwise) of targets. Customers are engaged as part of the evaluation process, using activities such as Earth Hour as a means of asking customers about our success or otherwise, which is then fed into the engagement and prioritisation process described above.

Suppliers

Methods of engagement - 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. We collect and monitor emissions data from our contractors (except for Commercial Property developments where it does not fall within our operational control boundary).

Strategy for prioritisation - We prioritise our engagement with our strategic suppliers. Our strategic suppliers are those that: are integral to delivering our business strategy; are top suppliers by overall spend; and provide opportunities to partner to deliver outcomes.

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.

Other Partners

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

CC14.4b

To give a sense of scale of this engagement, please give the number of suppliers with whom you are engaging and the proportion of your total spend that they represent

Type of engagement	Number of suppliers	% of total spend (direct and indirect)	Impact of engagement
Active engagement	302	61%	We engage with critical suppliers across all business units on issues of environmental performance and climate change strategies. We request general environmental performance, assess supplier capabilities, require project-specific environmental management plans and specify minimum standards for environmental performance as part of development projects. 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. In addition, we request and capture emissions data from 46 contractors involved in our Residential communities and Retirement Living developments, where their activities fall within our operational control. These 46 contractors account for 87% of residential and retirement living construction spend. We do not collect emission data from Commercial Property or Retirement Living developments where Stockland does not have operational control. We have also started to engage more closely with our larger contractors to identify opportunities for performance improvements. We prioritise this more detailed engagement with larger contractors given that they generally have the greatest impact, deliver the most significant stages of project work and have the most mature systems and processes.

CC14.4c

Please explain why you do not engage with any elements of your value chain on GHG emissions and climate change strategies, and any plans you have to develop an engagement strategy in the future

Further Information

Module: Sign Off

Page: CC15. Sign Off

CC15.1

Please provide the following information for the person that has signed off (approved) your CDP climate change response

Name	Job title	Corresponding job category
Michael Rosmarin Simon Shakesheff Katherine Grace	Chief Operating Officer Group Executive - Strategy and Stakeholder Relations Group Executive - General Counsel and Company Secretary	Chief Operating Officer (COO)

Further Information

CDP