TCFD Statement 2022

BRICKWORKS

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Climate-related Impacts and Responses

As one of Australia's leading manufacturers of quality building products, Brickworks' purpose has sustainability at our core – to create beautiful products that last forever.

We are committed to reducing our carbon emissions, through continued investment in manufacturing excellence. This includes our global kiln refurbishment program to drive energy efficiency beyond international benchmarks and driving biofuels and low carbon opportunities.

Since 2006 we have reduced our emissions by 45% through manufacturing rationalisation, capital investments into modern, fuel-efficient production processes, as well as product redesign, use of recycled material and firing our kilns with green fuels such as landfill gas.

During financial year 2022, we announced a collaboration agreement with Delorean, whereby we will work together to investigate the feasibility of developing green synthetic natural gas facilities at our brick plants. If successful, each facility has the potential to displace up to 100,000 gigajoules per annum of fossil fuel gas with renewable biomethane.

We are incrementally adopting the recommendations of the leading carbon risk framework, Task Force on Climate-Related Financial Disclosures (TCFD), such as undertaking climate scenarios and identifying risks and responses. Leading experts in TCFD are supporting our analysis of climate scenario analysis. This is our first TCFD Statement and progress updates will be included in the Sustainability Report from financial year 2022 onwards.

Our Approach

We recognise that as a manufacturer of construction and building products, we are an emitter of carbon, particularly through our brick manufacturing operations, which account for the majority of our total (Scope 1 & 2) emissions of 263,094 tonnes of CO_2-e in 2021 for Building Products Australia.

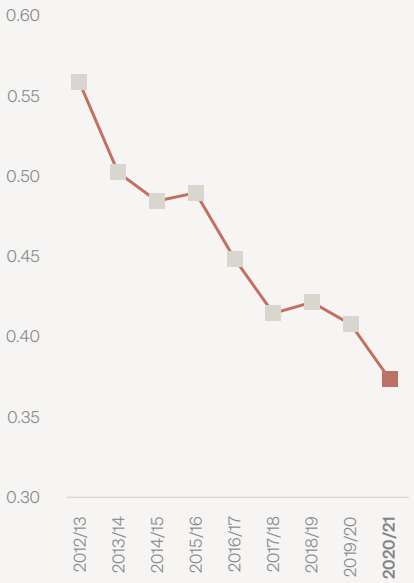
Carbon emissions from our Australian operations have followed a general downward trend, with a 45% decrease compared to the base year 2005/06. The decrease can be attributed to efficiencies gained from alternate fuels such as landfill gas and sawdust, manufacturing consolidation, equipment upgrades and operational improvements.

We are committed to the continued development of appropriate strategies to identify, manage and respond to climate-related risks and opportunities across our business. This includes building the resilience of our portfolio to consider climate impacts through adapting and responding to market, policy and technological changes by creating innovative solutions and products that support a smooth transition to a low carbon future. We strive to provide transparent disclosure of those risks and opportunities, and how we manage and respond to climate impacts, to help investors and other stakeholders understand our business. We are progressively adopting the recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD) to improve both our approach in assessing and managing climate-related risks and opportunities and our related external reporting.

The TCFD recommendations are focused on the financial impact of climate-related risks and opportunities and comprise of four core elements of how organisations operate: governance, strategy, risk management, and metrics and targets. Climate-related risks encompass both physical risks and risks relating to the transition to a lower carbon economy. We have actively monitored and reported our emissions across our international operations since 2008 and in this report we have outlined how we manage our climate risks, and the metrics and targets we use to monitor performance. We have incorporated key information previously included in our Sustainability Report responses over the following pages, with detailed carbon emissions and energy consumption data available at https://www.brickworks.com.au/sustainability/.

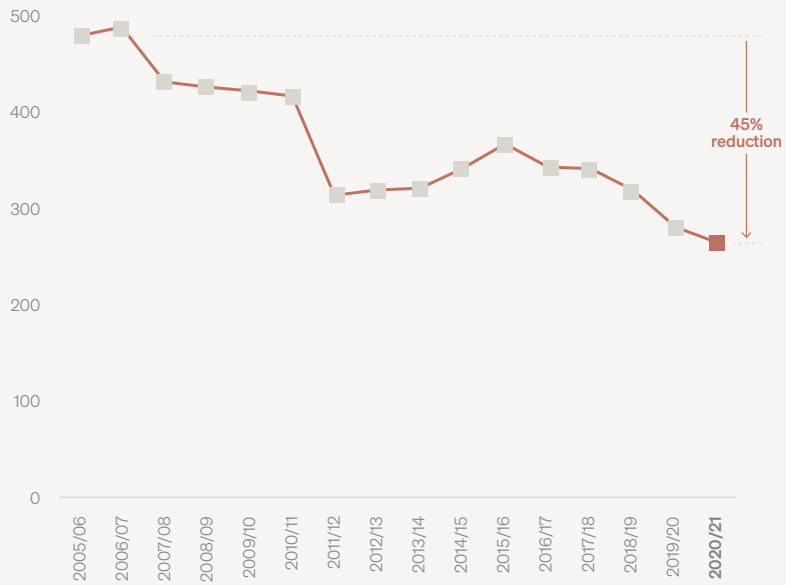
BBP Australia Carbon Intensity

($kTCO_2$-e / $million revenue)



BBP Australia carbon emissions since 2005/06

($kTCO_2$-e)



National Greenhouse and Energy Reporting Data from FY21.

To gain a better understanding of the potential climate-related transition risks and opportunities, Brickworks Building Products Australia has commenced scenario analysis and an internal review, focused on transition risks in building product production and imports. This work will expand to include the North American business and physical risk in future revisions. Three climate scenarios have been developed, and these are informing the development of appropriate response strategies to potential climate transition risks. This includes a less than two-degree scenario as recommended by the TCFD and consistent with Paris Agreement's core temperature target. Further information on the scenario analysis work is provided within this document.

Strategy

Brickworks acknowledges the potential impact on our business from a global transition to lower carbon energy sources.

Such a global transition presents both risks and opportunities for our business through the pricing of energy and carbon policies, construction industry standards and customer preferences for lower carbon solutions. A low carbon transition may result in a need to develop new technologies to remain competitive and increased investor expectations on climate-related disclosure and performance.

The key mitigation response strategies to climate-related transition risks and opportunities faced by Brickworks are outlined in the following table.

Brickworks Climate-related Impacts Strategy and Targets

	Manufacturing Excellence and Efficiency Strategy	Sustainable Design and Product Strategy	Alternative Energy and Waste Strategy	Renewables and Gas Purchasing Strategy
Strategy Focus Area	Achieve global leadership in leading manufacturing excellence and efficiency	Responding to an increase in consumer preferences for products with leading sustainability attributes and low carbon options	Harness circular economy opportunities by investing in technology suppliers and biogas technology partners	Responding to any uncertainty in the gas and renewables market with leading expert analysis and planning
Deliverables	10% increase in gas efficiency at Austral Bricks plants by 2030 (FY18 baseline, stretch target)	Double volume of products with leading sustainability attributes by 2025 from FY19 baseline Invest in research for thermal design and lifecycle education	Expand on 13% of energy as biofuels in AU through investment in a pipeline of innovative projects	Optimise purchasing and partnership opportunities to support manufacturing excellence and efficiency
			Invest in the transition to the hydrogen economy through the Brickworks Hydrogen Feasibility Project	

Recent Highlights in Climate-related Impacts Strategy

	Manufacturing Excellence and Efficiency Strategy	Sustainable Design and Product Strategy	Alternative Energy and Waste Strategy	Renewables and Gas Purchasing Strategy
Recent milestones	Horsley Park Plant 2 efficiency upgrade DA approved for New Berrima efficiency upgrade	Expansion of Carbon Neutral certification to selected projects. Sustainable Home Guide – outlining key benefits of Brickworks products that can support future homes Investment in thermal design research including phase change material Participation in industry groups including Green Building Council Australia and Materials and Embodied Carbon Alliance Sustainable Design & Products Strategy and Working Group	Brickworks Hydrogen Feasibility Project Exploration of Anaerobic Digestion opportunities Development of a pipeline of innovative projects Alternative Energy and Waste Strategy and Working Group Publication of Low Emission Technology Statement	

Governance

The Audit and Risk Committee of the Board maintains oversight of Brickwork's response to climate-related risks and opportunities, including risk identification and management, strategy and external reporting.

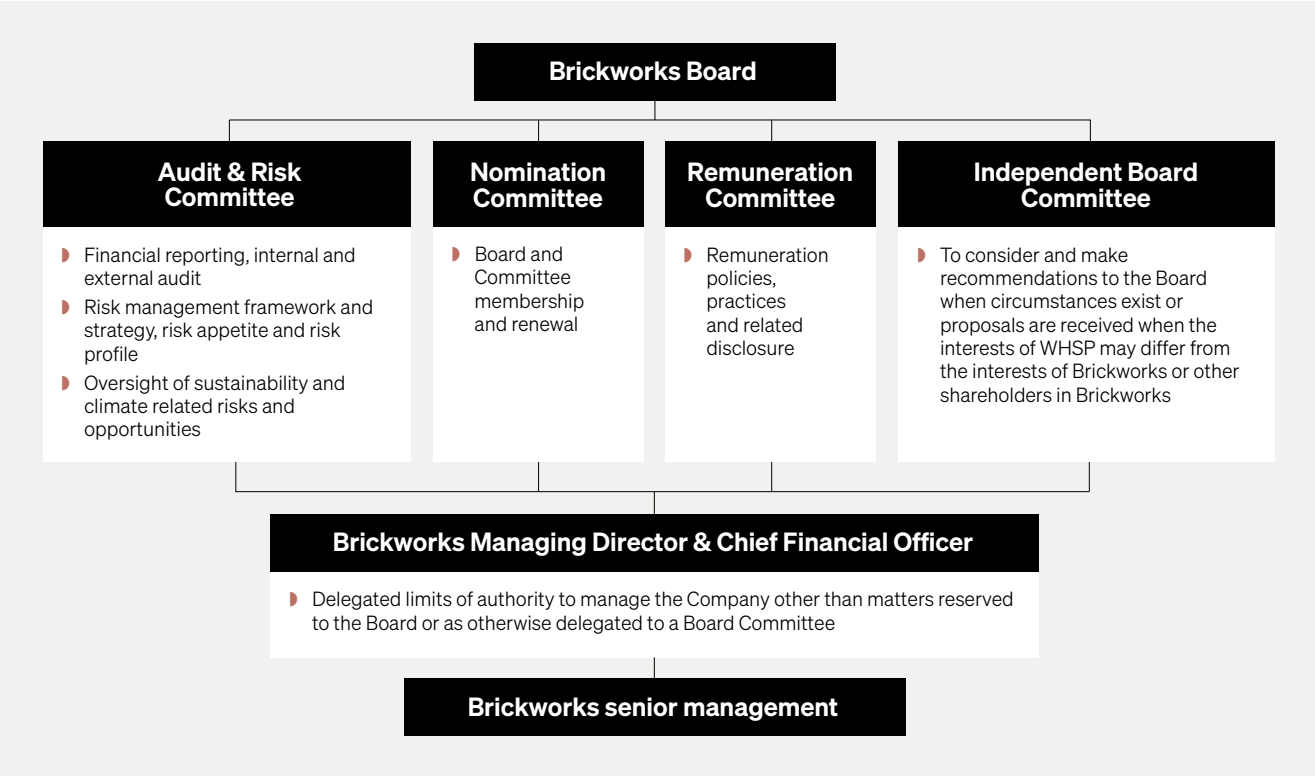
Brickworks Audit & Risk Committee (ARC) is responsible for satisfying itself that a sound system of risk oversight and management exists and that internal controls are effective. It receives an annual report on our organisation-wide risks, which include climate-related risks and opportunities. Further details of the roles and responsibilities of the ARC are in the Corporate Governance Statement and the Annual Report.

Annually, key management personnel make presentations to the Board on safety, human resources, risk, environment and sustainability issues and targets. In FY20, sustainability was formally incorporated into the charter of the ARC.

Brickworks' TCFD Working Group was formed in FY20, consisting of representatives from Brickworks Executive Management Team. The Working Group represents key areas including energy, operations, research & development, strategy, risk and governance, and sponsored by the Company Secretary. The purpose of the working group is to support the execution of Brickworks TCFD implementation plan and its objectives are to:

1. Ensure a common understanding of key climate risk-related concepts, including the TCFD recommendations, across the represented business functions.
2. Operationalise the TCFD Plan through cross-functional representation, in order to inform analysis conducted within the TCFD Plan and contribute to implementation of its outcomes.
3. Ensure that the TCFD recommendations and climate risk-related analysis undertaken by Brickworks are understood at an appropriate level of detail to support decision-making by Brickworks' senior management team and oversight by the Audit and Risk Committee and Brickworks' Board of Directors.

Brickworks governance framework



Risk Management

Climate-related risks are incorporated into Brickworks Building Products risk identification and management process, which includes a formal bottom-up, organisation-wide risk management process undertaken on a yearly basis.

This process is managed by Group Risk & Internal Audit. A summary of our climate-related risks and responses are included on page 12.

To supplement the annual risk review process, in 2020-21 a targeted Climate-related Risks and Opportunities Strategic Review was undertaken across Building Products Australian businesses using the recommended framework set out by the TCFD. This process identified more specific transition climate-related risks and opportunities which are included below. The outcomes of this review were presented to the ARC and the sustainability risks are to be embedded into the Group and business-level strategies. Following this review of Transition risks, we will continue with the review of physical risks.

Scenario Analysis

Scenario analysis includes the identification and assessment of a range of climate-related risks to the business, with deeper investigation into the most material risks. A high-level review identified the most material transition risks as natural gas and carbon prices driven by climate policy, consumer preferences, a need to develop new technologies to remain competitive and increased investor expectations on for climate-related metrics and targets.

At an organisational level, scenario analysis is useful to test the resilience of an organisation's business strategy and operations under different climate trajectories and is an important aspect of risk management. However, scenario outputs must be viewed with an appropriate level of caution given the large number of highly uncertain assumptions required to build and quantify them, and then assess industry, business and investment-level impacts. As hypothetical constructs, scenarios should not be viewed as predictions or forecasts.

Details of Scenarios Considered

Working with climate risk management experts Energetics, three relevant scenarios were considered including:

Scenario 1

Sustainable Scenario <2°C
SSP1-RCP2.6

Scenario 2

Regional rivalry, security first 2-3°C
SSP3-RCP4.5

Scenario 3

Fossil-fuelled growth >4°C
SSP5-RCP8.5

Scenarios Selected and Assumptions Part 1

Parameter	Scenario 1	Scenario 2	Scenario 3
Likely rise in global temperature	**<2°C**	**2 – 3°C**	**>4°C**
Key Emissions Policy characteristics			
National Emissions Policy	Net zero by 2050	Trajectory based on current 2030 target	No target
Carbon Prices	Rises significantly to $100 by 2030 and $270 by 2050 (SSP1 $55, $150 converted to $AU 2019) SSP Public Database, International Institute for Applied Systems Analysis	Mild increase from current ACCU prices	Carbon price is zero
Key Socioeconomic characteristics			
Shared socioeconomic pathway (SSP)	"Sustainable approach"	"Regional rivalry"	"Fossil-fuelled growth"
Social and political characteristics	Sustainable approach, global cooperation	Nationalist, security-focused, fragmented geopolitics	Materialist, highly globalised
Building material regulations	Strong regulation focused on reducing lifecycle impacts and improving resilience	Current regulation	Reduced regulation
Consumer preferences Lifecycle	Widespread desire for sustainable, low carbon/low energy products	Sustainable products grow market shares slightly, cost consciousness predominates	Materialism, conspicuous consumption, status signifiers
Social licence to operate expectations	Widespread expectations and demands for cleaner more sustainable manufacturing	Current expectations	Reduced expectations

Scenarios Selected and Assumptions Part 2

Parameter	Scenario 1	Scenario 2	Scenario 3
Likely rise in global temperature	**<2°C**	**2 – 3°C**	**>4°C**
Key Economic characteristics			
GDP	Strong growth	Low growth	Very strong growth
Technology	Rapid decarbonisation technological development	Slow technological innovation	Rapid technological innovation
Energy transformation trends	Rapid decarbonisation of electricity, gradual growth of hydrogen in distribution networks Electricity emissions intensity reduced to very low carbon levels, ~15% H_2 in pipeline gas	Slow market-driven replacement of coal-fired generation Electricity emissions intensity reduced to low carbon levels, no H_2 in pipeline gas	Technological development across without an exclusive focus on decarbonisation Electricity emissions intensity reduced in carbon levels, no H_2 in pipeline gas
Energy market trends	Moderate impact on gas prices	Moderate impact on gas prices	Low impact on gas prices
Investor appetite for perceived carbon risk	Actual change in investment pattern	Pressure for disclosure and to improve performance	Focus on innovation

Ref: Energy Market and Transformation Trends = AEMO, Gas Statement of Opportunitles 2021, AEMO, Integrated System Plan 2020, IEA, SSP database. Selected With the support of consultant Energetics.

Summary of Risks and Responses

We have outlined Brickworks Building Products Australia key risks and opportunities based on the Climate-related Risks and Opportunities Strategic Review undertaken in 2020–21 and the scenario analysis work currently being completed by the business.

Transition Risks – Medium and Long-Term

Increased energy costs from changes in carbon or energy policy. The potential introduction of regulatory pricing mechanisms and/or trading systems in Australia would primarily impact our more energy-intensive brick business. The policy environment in which decarbonisation occurs remains unclear, creating uncertainty for business around types and magnitudes of climate-related transition risks and opportunities that it will face. Our strategy is to continue to:

- Achieve global leadership in leading manufacturing excellence and efficiency
- Harness circular economy opportunities by investing in technology, suppliers and partners
- Respond to any uncertainty in the gas and renewables market with leading expert analysis and planning

Changes in construction industry standards on materials efficiency and regulation of existing products in buildings, large construction and infrastructure projects, as well **as shifts in consumer preferences** may result in demand shifts towards low carbon construction materials. Thermal mass materials may have higher embodied energy than some light weight alternatives, however offer significant lifecycle thermal efficiency benefits. Our strategy is to continue to:

- Respond to an increase in consumer preferences for products with leading sustainability attributes and low carbon options

Need for innovation to develop new technologies to remain competitive. Rapid decarbonisation and technical development with strong economic growth will require investment in innovation to match the rates of technological adoption. Our strategy is to continue to:

- Achieve global leadership in leading manufacturing excellence and efficiency
- Harness circular economy opportunities by investing in technology, suppliers and partners
- Respond to any uncertainty in the gas and renewables market with leading expert analysis and planning

Increased investor expectations on metrics and targets for climate-related financial risks. Expectations include disclosure frameworks such as the TCFD recommendations. Our strategy is to progressively implement the recommendations of the TCFD, and continue to provide detailed sustainability communications aligned with international guidelines such as the TCFD framework to guide the progressive identification of relevant climate-related metrics.

Transition Opportunities – Medium and Long-Term

Reduced energy and waste costs through energy efficiency initiatives and alternative fuels use in manufacturing.

Strong economic growth for resilient products. Changes in construction industry standards to further recognise resilience and life cycle energy efficiency. Our bricks and concrete products are manufactured to provide resilience. They are durable, fire-proof, contain thermal mass for energy efficient design, have excellent acoustic properties and no indoor air emissions (VOCs) and our clay bricks hold a 100-year guarantee.

These product attributes contribute Goal 11 of the United Nations' Sustainable Development : "Make cities and human settlements inclusive, safe, resilient and sustainable".

Build reputation as leader in providing products with leading sustainable attributes. Brickworks is a leader in locally made and sourced products which contribute to the thermal efficiency of leading sustainably designed buildings. Our strategy is to continue to respond to an increase in consumer preferences for products with leading sustainability attributes and low carbon options.

Physical Risks

As part of its TCFD implementation plan, Brickworks has completed an initial qualitative physical risk assessment to better understand the exposure of our sites to projected climate related hazards.

We engaged a specialist consultancy to understand how climate related physical risks affect our business under the three scenarios from the transition risks analysis; Sustainability (RCP2.6), Security first (RCP4.5) and Fossil-fueled growth (RCP8.5).

Scope

Our sites were assessed against four main physical risks:

- **Extreme high rainfall events** causing production delays, site erosion and sediment discharge and flooding of operations
- **Extreme high temperature events** causing production delays over summer, increased employee heat stress and effect on physical infrastructure
- **Water stress** causing reduced water availability for operations
- **Bushfires** causing production delays in bushfire season, equipment and operations failure and damage to facilities

68

Sites

Our Australian business were initially screened and assessed for exposure to climate related hazards, including **27** factories and **39** quarries.

3

Climate scenarios applied

The selected scenarios are aligned to the IPCC's Representative Concentration Pathways (RCP) RCP 2.6, RCP4.5 and RCP 8.5.

2

Time horizons assessed

2030 and 2050 timeframes were selected to review risk exposure over time.

Insights

The findings of this assessment indicated that for all scenarios the majority of our sites, physical risk exposure does not significantly increase until 2050.

Several sites show a substantial bushfire risk with the potential for unmitigable bushfires under all analysed scenarios, however the majority of these sites are quarries where they are less likely to impact operations severely.

Some plants within Western Australia are most likely to experience prolonged high temperature events under all scenarios by 2050. Queensland plants are also likely to experience these high temperatures under scenario RCP8.5 by 2050.

Our remote Western Australian quarries are likely to experience substantially elevated water stress and some remote Queensland and Victorian sites are also likely to experience elevated severity.

The review found that of Brickworks' sites, 7 of the 68 sites reviewed were exposed to increased flooding potential.

Worker impacts will be most significantly felt at our plants rather than our quarries due to minimal workers located at our quarries. Plants that are affected by acute physical risks may result in operational delays.

Brickworks' response

The results of this analysis will be used by our operational teams to consider the vulnerability of specific assets to the identified exposures and adjust future capital works programs, if required.

Current actions:

Water stress:

- Mapping of sites against the World Resources Institute (WRI) ranks water stress, drought risk and riverine flood risk in the Aqueduct Water Risk Atlas

Water Risk Area	L	L–M	M–H	H	EH
Risk Score	0–1	1–2	2–3	3–4	4–5
Sites in Area	39%	51%	9%	1%	0%

- Brickworks 2025 Sustainability Strategy outlines a key target to reduce potable water use in high water stress areas in Australia

WATER
Reduced potable water use in water stressed areas

- Reporting and monitoring of water consumption and water intensity. Business KPIs to reduce potable water consumption, implementation of water efficiency programs and increased water recycling
- Company guidelines have been issued for sustainability considerations for new plants or major upgrades including solar PV installations and water collection requirements
- Site water treatment and management programs to ensure compliance with environmental requirements

Bushfire

- Bushfire preparedness plans, risk assessments and training
- Fire break maintenance activities
- Employee fire and incident drills

Extreme weather, flooding

- Erosion and sediment plans and upgrading of stormwater management systems
- Emergency preparedness plans for extreme weather events
- Weather monitoring systems at some sites
- Automating water treatment at some sites

High temperatures

- Risk assessments and procedures for working in high temperatures

Future actions

- Further review additional future proofing requirements for sites
- Identify potential controls to reduce projected impacts
- Monitor assets for potential climate-related impacts
- Further review the project supply chain security impacts
- Further review the impacts of heat stress on electricity supply, building infrastructure requirements, employee health and safety measures

Conclusions

Brickworks recognises the seriousness of the risks present and is providing disclosure in a way that covers these issues.

The TCFD process was beneficial to identify key risk drivers and mitigation options:

- Climate policy is the most significant driver of transition risk yet the policy environment in which decarbonisation occurs remains unclear, creating uncertainty for business
- Energy efficiency, renewable energy and alternative energy such as biogas reduce projected greenhouse gas liabilities

Outcomes of this work will be included in annual strategic, capital and business planning.

Next Steps

Following this risk review focus on Australian operations, we will continue with the review of risks across the US operations. Brickworks will continue to monitor and report on management of climate risks.