



SUSTAINABILITY REPORT

2023

**BRICKWORKS**



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Brunswick House

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COVER  
Project Joyce  
Chapel Bridge

# About this Report

This Sustainability Report is Brickworks Limited's (Brickworks) fifth stand-alone Sustainability Report and is intended to complement the Annual Report, providing expanded disclosure on non-financial performance, impacts and opportunities. It is informed by the Global Reporting Initiative (GRI) Standards, a leading independent environmental, social and governance reporting standard.

This Sustainability Report provides detailed information on the issues that have been identified as most significant through materiality reviews and validation processes previously completed. Brickworks' material sustainability issues were reviewed in FY2023, updating our materiality assessment to align with the updated GRI materiality standards and expanding on the materiality reviews conducted in FY2021 and FY2019. The review included analysis of stakeholder feedback received over the last year and industry trends. Further information is available in the Stakeholder Engagement and Materiality Assessment Process sections of this report.

The boundary of the Sustainability Report covers operations where Brickworks Limited has operational control. Between FY2019 and FY2022, Brickworks acquired North American businesses Glen-Gery, Sioux City, Redland Brick, Illinois Brick Company and Capital Brick. Since FY2021, integration of these operations into Brickworks' Management Systems has been ongoing. This year's Sustainability Report includes key aspects of the North American annual business performance, covering safety, workplace profile, environmental compliance, greenhouse gas emissions and energy use, water use, collective bargaining statistics, company changes, partnerships, risk and governance. Non-financial data presented in this report includes discontinued operations.

The reporting period for most topics is 1 August 2022 to 31 July 2023, aligned with the Brickworks' financial year. An exception is energy and carbon data, where the reporting period is 1 July 2022 to 30 June 2023, aligned with the National Greenhouse and Energy Reporting (NGER) Scheme. The workforce demographic data for Australia is taken from the WGEA report, which is based on 31 March 2023, however the total workforce figure is at 31 July 2023. Details of fundraising efforts for the Children's Cancer Institute are for the 2022 calendar year.

As part of Brickworks' expanded disclosure, a Limited Assurance review was performed in accordance with the International Standard on Assurance Engagements (ISAE) 3000 for metrics internally identified as significant risks, for both the Australian and North American businesses, including:

- ▶ Total recordable injury frequency rate (TRIFR)
- ▶ Near miss frequency rate (NMFR) – Australia
- ▶ Environmental fines
- ▶ Scope 1 and 2 greenhouse gas emissions
- ▶ Total Energy consumption – Australia
- ▶ Total Natural gas energy consumption – North America
- ▶ Natural gas energy intensity – Australia and North America
- ▶ Percentage biofuels of total energy consumed – Australia

A copy of the Limited Assurance Statement from this audit is included in this report.





Beverly Hills  
Project



# A message from the Managing Director

At Brickworks, we understand our long-term responsibilities, and the impact and influence we have on the environment, our customers, employees, communities, and shareholders. We take great pride in manufacturing our products in a sustainable way, creating sustainable developments and beautiful products that last forever. We integrate sustainability and innovation into product design, resulting in greater energy and resource efficiency over the operational lifetime of a building.

## Continued focus on safety

Continual improvement in health and safety is a key requirement and underpinned by the Brickworks Health and Safety Management System. Encouragingly, the total recordable injury rate has decreased from 12.2<sup>1</sup> in FY2022 to 9.98 in FY2023.

The continued improvement in TRIFR can be predominantly attributed to Brickworks' unwavering commitment to reducing health and safety risks for its employees, contractors, and the wider community. At the core of this commitment lies the concept of Capable Safety Leadership, which serves as a cornerstone for building a robust safety culture and establishing a comprehensive framework for identifying and effectively managing health and safety risks. Furthermore, Brickworks has introduced its Australian health and safety risk management framework and technology into its North American operations, thereby reinforcing this positive trend.

Regrettably a fatal accident occurred in July when an employee of a contractor operating at our Austral Masonry Cairns site lost his life. The incident occurred during the processing of waste products managed by a reputable concrete recycling company. Notably, this fatality is excluded from our statistics as Brickworks had no direct operational control or management over this incident.

Our 2025 strategy target is for continued reductions in injury rates for company employees, contractors, and others.

## Advancing our inclusive culture

Brickworks recognises that sustaining a strong culture, driven by the diversity and inclusion of our people, is critical to our long-term success. A part of this strategy has been in setting our Diversity targets towards our stretch target of 35% female senior executives by 2025. Brickworks is proud of its success to date, improving gender diversity in the Australian executive team from 7% female representation in 2015 to 31.4% in 2023, up from 26.5% in FY2022. This represents good progress towards our stretch target of 35% senior executives across Australia.

Overall, female and minority employees as a proportion of total workforce increased from 26.1% to 37.9% in North America

Unfortunately, FY2023 has seen a decrease in female senior executive representation in North America compared to FY2022, from 21% to 14%. To respond to this issue in 2023 in North America, we created a Diversity and Inclusion Committee; whereby, Ambassadors have an opportunity to provide recommendations on ways to promote awareness and engagement, and to create a calendar of events to encourage participation.

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1 FY2022 restated to include injuries that occurred in FY2022 but were reclassified during FY2023.



In North America, there is a significant emphasis on promoting ethnic diversity, with the representation of minority senior executives increasing from 5% in FY2022 to 18% in FY2023.

Investment into key workforce programs continue including programs focused on employee engagement, retention, talent pipeline and employee wellness.

## Sustainable product portfolio

As enablers of safe, resilient and sustainable buildings, at Brickworks, we see a strong future for bricks and concrete products. Our products are manufactured to provide resilience. They are durable, fire-proof, contain thermal mass for energy efficient design, excellent acoustic properties, and no indoor air emissions (VOCs); and our clay bricks hold a 100-year guarantee.

During FY2023, 25% of product volume in Australia was verified as sustainable by third party labels. Verified sustainable products include products with low carbon, recycled content or other good and best practice products. This is approximately 19% of Brickworks building products total production for both Australia and North America. With improved record keeping, measured recycled content of Australian building products has increased from 17% in FY2022 to 20% in FY2023.

This has exceeded our target to double our volume of products manufactured in Australia that hold leading sustainable qualities from a FY2019 baseline.

Brickworks also sees significant opportunities to increase verified sustainable products in our North American business. Verified sustainable products allow our customers to qualify for credits in sustainable building design and construction certification. Brickworks' new sustainable product target is to increase the volume of verified sustainable products to 25% by 2025 across Australia and North America.

## Innovation

Brickworks continues to make improvements to clay bricks through raw material innovation and increased core volume percentage, reducing embodied carbon, lowering the weight of bricks, and making bricks lighter for bricklayers. Increasing substitution of cementitious materials in our concrete products also minimises the amount of virgin raw materials and embodied carbon.

By 2030, Brickworks and our partners will invest over \$22.6 million into research and development into our innovation focus areas including: the thermal mass benefit of products, light-weighting, raw material optimisation to reduce embodied carbon and increase recycled content, sustainable design elements and product innovation.

During FY2023, Brickworks launched two light-weight brick facing systems Thin Tech and Tru Brix. These systems stretch the boundaries of brickwork. This year we also launched GB Aura, a stunning premium range of masonry blocks with 17% recycled content and was awarded a prestigious \$1.6 million research grant collaboration to develop reduced embodied carbon lightweight concrete products.

Brickworks' new product innovation target is a year-on-year increase in investment into research and development into the next generation clay brick and concrete block wall system.

## Our approach to a low carbon future

I am pleased to announce we have developed a new carbon target: to achieve a 15% reduction in Scope 1 and 2 greenhouse gas emissions by 2030, from a 2022 baseline, across our combined Australian and North American operations. This is complemented by enhancing our carbon transition target to also include the continued investment into developing feasible renewable biomethane opportunities in addition to hydrogen.

Our goal is to transition to a low carbon economy, while providing thermal mass products that minimise energy use through the operational phase of the home lifetime. Thermal mass products such as bricks and roof tiles can reduce heating and cooling bills by up to 40% annually using cavity brick compared to lightweight construction.

Key elements to our transition to a low carbon economy include increased manufacturing efficiency, increased renewable energy, innovations in raw materials, product design and the generation or purchase of credible offsets.

This year our Longford plant celebrates the milestone of 10 years of manufacturing Climate Active-certified carbon neutral products. Since 2022, carbon neutral Climate Active has been available as an opt-in program for all Austral bricks and pavers.

Brickworks has long understood the step change carbon emission reductions that are made possible through manufacturing excellence and has a long-term strategic focus in driving our global kiln refurbishment program to improve energy efficiency beyond international benchmarks.

In Australia, carbon emissions have followed a general downward trend, with a 46% decrease compared to the base year 2005/06 (Scope 1 and 2). The decrease is attributed to efficiencies gained from alternate fuels, manufacturing consolidation, equipment upgrades and operational improvements supported by an investment of over \$400 million.

This is underpinned by our stretch target for a 10% increase in gas efficiency at Austral Brick plants by 2030. Our Austral Bricks business has seen a 6.7% improvement in gas efficiency since FY2018, and our North American business has seen an 18% energy efficiency improvement since acquisition in the 2019 calendar year. This year has also seen the commissioning of the new state-of-the-art Horsley Park Plant 2, which will set the standard for brick manufacturing with best-in-class fuel efficiency, productivity and product quality.

As an industry leader using 11% bioenergy in manufacturing in Australia, we understand the critical role renewable bioenergy can have in producing low-carbon products. The Australian Renewable Energy Agency estimates bioenergy could make up 33% of industrial heat processing requirements by 2030.

The decrease in biofuels in FY2023 from 12% in FY2022 is mainly attributed to a reduction in landfill gas usage due





Whitton  
Lane Project

to the closure of Plant 23 in NSW. We continue to progress with feasibilities for a range of other projects outlined in our Bioenergy Transformation Strategy to provide a substantial uplift in bioenergy use.

We are assessing the feasibility of renewable bioenergy generation at our brick plants with leading technology provider Delorean Corporation. If successful, each facility has the potential to provide a significant source of renewable energy. A Development Approval is underway for the Horsley Park NSW location for the potential to produce approximately 210,000 GJ p.a. in Stage 1.

## Rehabilitation and Property

Site rehabilitation is central to our business model. Many of our quarries are located in centralised urban areas and are often transferred into the Property Trust Joint Venture with Goodman at end of life for final rehabilitation into industrial estates.

FY2023 saw the successful relinquishment of the Horsley Park Plant 23 quarry in New South Wales to facilitate Stages 2 to 4 at the new Oakdale Industrial Estate under the Property Trust Joint Venture.

Goodman is a leader in environmental social governance (ESG). Where possible, Goodman aims to enhance the local environment through initiatives such as land rehabilitation, water sensitive urban design, green corridors and using native species in landscaping.

In addition to this, progressive rehabilitation of available land is also an important part of our sustainability strategy. The area of progressive rehabilitation completed in FY2023 was 47,400m<sup>2</sup> in Australia and 168,800m<sup>2</sup> in our North American operations.

## Driving sustainability performance

We are on track to meet our sustainability targets within our “Build for Living: Towards 2025” strategy, as we aim to ensure a long-term sustainable future for our business and a positive impact on the world around us.

During FY2023, significant annual progress was made against our targets in many areas. Mains water reduced by 11% from FY2022, 109 community engagement activities were undertaken and \$260,815 was collected for Children's Cancer institute with over \$4.8 million contributions since 2002. We provided 42 continuous professional development sessions covering topics such as energy efficiency, code compliance, sustainable and life cycle design. Focus will continue to drive targets further during FY2023.

I would like to thank everyone working across the Brickworks Group for their dedication and hard work. I am incredibly proud of our continued improvements in safety and our employees' day-to-day demonstration of our corporate values. Progress against our sustainability strategy demonstrates sustainability achievement and I am excited about the continued journey ahead.

**LINDSAY PARTRIDGE AM**  
Managing Director





Garden House  
Project



# Our business

We create beautiful products  
that last forever



Clifton and Central

# BRICKWORKS

LIMITED

Building Products  
Australia

**BRICKWORKS**  
BUILDING PRODUCTS

Building Products  
North America

**BRICKWORKS**  
BUILDING PRODUCTS

Property

**BRICKWORKS**  
PROPERTY

Investments

**BRICKWORKS**  
INVESTMENTS



# About us

Brickworks Limited (Brickworks) is an ASX200 publicly listed company, with a long and successful history, dating back to 1934.

Brickworks is one of the world's leading providers of building products, employing 1,093 employees across its Australian operations (permanent and temporary employees, excluding casuals) and 934 employees in North America.

From bricks to concrete products, pavers, roofing tiles and timber battens, Brickworks offers a full suite of building products.

Brickworks has a diversified corporate structure that has delivered stability of earnings over the long term. There are four divisions within the Brickworks Group structure:

- ▶ Building Products Australia
- ▶ Building Products North America
- ▶ Property
- ▶ Investments

This report covers the key operating divisions of Building Products Australia and Building Products North America.

The Property division consists primarily of Joint Venture Property Trusts with Goodman Group (an Industrial Property Trust and the Brickworks Manufacturing Trust). An overview of the sustainability achievements from these Property Trusts is provided in this report.

Brickworks' headquarters are in Horsley Park, NSW, approximately 45kms west of Sydney's CBD. Brickworks has a vast network of operational sites and display centres in Australia and North America.

As of 31 July 2023, Brickworks operates 28 manufacturing sites and 53 quarries, comprising:

- 8** Brick plants (Australia)
- 7** Brick plants (North America)
- 2** Roof tile plants (Australia)
- 1** Timber batten plant (Australia)
- 8** Masonry plants (Australia)
- 1** Stone plant (North America)
- 1** Cement terminal (JV) (Australia)
- 36** Quarries (Australia)
- 17** Quarries (North America)

In addition, Building Products has an extensive network of Design Studios, Displays and Masonry Supply Centres across major capital cities in Australia and North America, complemented by an extensive reseller network.

For FY2023, Brickworks' total revenue from continuing operations was \$1,181 million (AUD). This included Building Products Australia revenue of \$734 million, across three major divisions – Austral Bricks, Bristile Roofing and Concrete Products and revenue of \$447 million (AUD) for Building Products North America.

# Backed by **BRICKWORKS**

Local expertise. Global quality. Brickworks Building Products are one of Australia's biggest building material producers. With heritage going all the way back to one of Australia's founding brick producers, we're proud of our reputation for design, innovation and sustainability.

## **BRICKWORKS**

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### AUSTRALIA

 **australbricks**

 **austral masonry**

 **southern cross  
cement**

 **bristle roofing**



**BORAL BRICKS**

**DANIEL ROBERTSON**

**N U B R I K**

**GB Masonry**

**URBANSTONE**

**Terraçade**

  
**CAPITAL BATTENS**

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### NORTH AMERICA

 **Glen-Gery**

**Sioux City Brick**  
Since 1913

**Lawrenceville**  
**BRICK**

**Cushwa**  
**BRICK**

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### EXCLUSIVE DISTRIBUTOR

**La Escandella**  
ROOFING THE WORLD

**S.ANSELMO**  
vivere la differenza

 **la paloma**  
cerámicas

 **CERAMICHE  
KEOPE**









# Organisational Changes

## Building Products Australia

### Austral Bricks

Construction of the new Horsley Park Plant 2 facility was substantially completed in FY2023. This resulted in the permanent closure of the Plant 3 site at Oakdale East, and the consolidation of operations in Western Sydney to the Horsley Park site. Commissioning of the new plant is expected to be completed during the first half of FY2024.

This facility, with a capacity to manufacture 130 million bricks per year, will be the most advanced brick plant in the world, delivering best in its class fuel efficiency, and setting a new standard for brick manufacturing.

During FY2023, brick manufacturing operations in Western Australia ceased, with the closure of the Bellevue plant in November 2022 and the Cardup plant in April 2023.

Advanced Cladding Systems, a new business unit within Austral Bricks, was launched during the year. This business will focus on commercialising thin brick cladding systems, a product category that is experiencing growing demand, particularly in high rise commercial and multi-residential segments.

## Building Products North America

### Glen-Gery

Building Products North America is progressing its focussed capital expenditure program.

Extensive upgrades to the Sergeant Bluff and Adel plants (both in Iowa) were completed during the year. These upgrades were focussed on providing additional output to meet growing market demand and included works to expand kiln capacity and upgrades to the kiln car fleet and dryers. At Adel, the second kiln was activated, including the conversion of the kiln to use natural gas.

In addition, production of handmade and thin bricks was consolidated to the Mid-Atlantic and Pittsburgh plants respectively (both in Pennsylvania). This will provide more efficient and sustainable production methods to support improved quality and higher production output to meet the growing demand for these products.

The plant rationalisation program continued during the FY2023, with the closure of the Caledonia (Ohio) in the first half and then Marseilles (Illinois) in the second half. Following these closures, the plant rationalisation is now largely complete and has resulted in a reduction in operating brick plants to 7 (from 16), an increase in plant utilisation to 72% (from 46%) and a more modern and fuel-efficient fleet, with the average age of kilns reduced to about 20 years (from more than 40 years).

# Brickworks

## at a glance

Brickworks has a diversified corporate structure that has delivered stability of earnings over the long term. There are four divisions within the Brickworks Group structure that span Australia and North America: Building Products Australia, Building Products North America, Property and Investments.

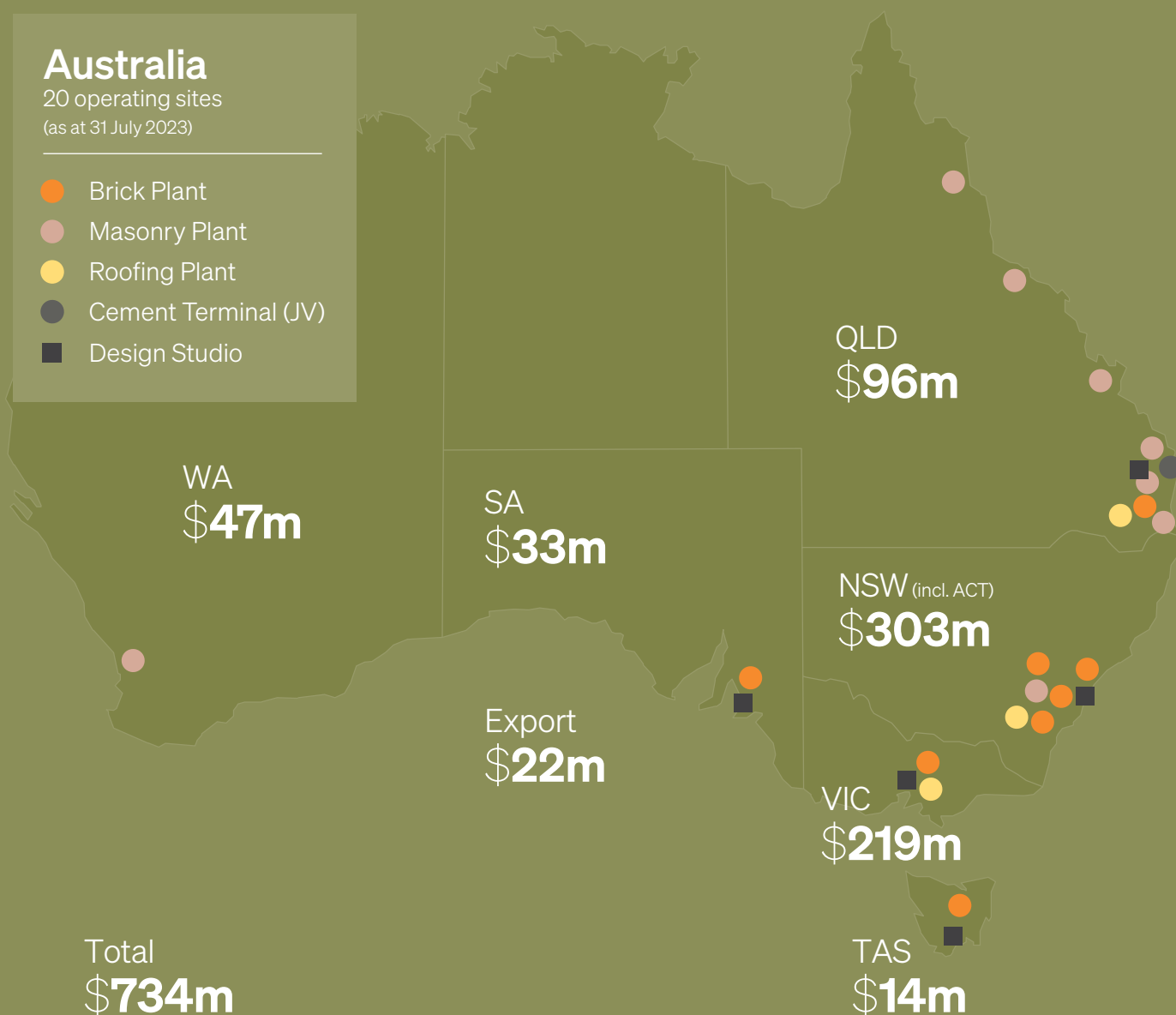
### EARNINGS BEFORE INTEREST AND TAXES BY DIVISION

Investments:	<b>\$159m</b>	Building Products (Aus):	<b>\$53m</b>
Property:	<b>\$506m</b>	Building Products (US):	<b>\$13m</b>

### Australia

20 operating sites  
(as at 31 July 2023)

- Brick Plant
- Masonry Plant
- Roofing Plant
- Cement Terminal (JV)
- Design Studio





OPERATING  
FACTORIES



**28**

NUMBER OF  
RETAIL OUTLETS



**65+**

GROUP  
REVENUE AUD

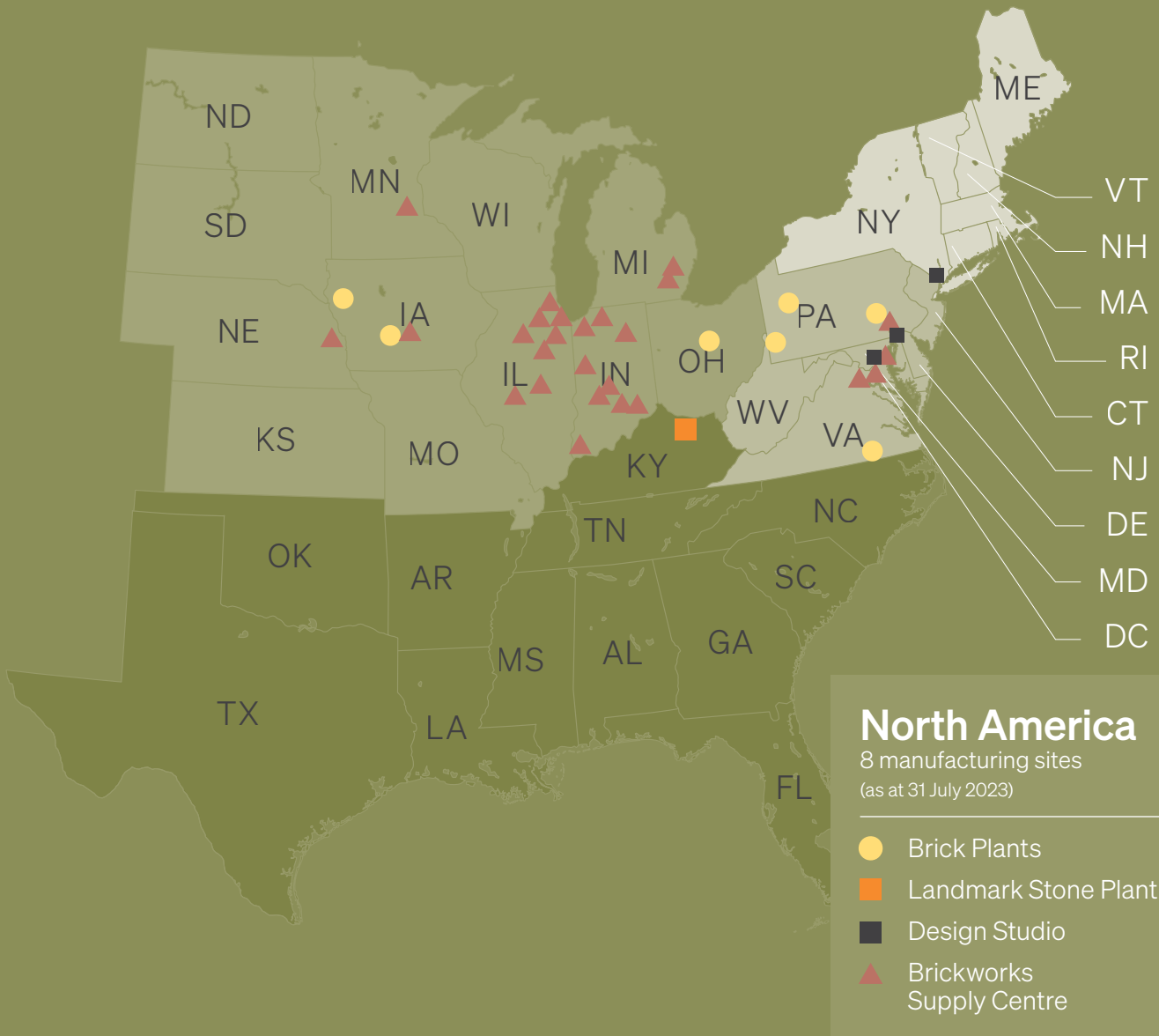


**\$1,181m**

NUMBER OF  
EMPLOYEES



**2,027**



# Target

## Enhancement

During financial year 2019, Brickworks engaged with internal and external stakeholders, to understand what issues matter the most to them. We launched a new sustainability strategy, “Build for Living: Towards 2025” to help us deliver a positive impact for our stakeholders.

Since releasing our strategy Brickworks completed several acquisitions in North America. During FY2023, we have completed a mid-strategy target enhancement to include our North American business in our sustainability targets.



### New Carbon Target

Brickworks is aligning its greenhouse gas reduction strategy with the recognised standard of the Task Force on Climate-related Financial Disclosures (TCFD) recommendations, including risk management disclosures, metrics and targets. Through this process, we have developed a new carbon target: to achieve a 15% reduction in Scope 1 and 2 greenhouse gas emissions by 2030, from a 2022 baseline, across our combined Australian and North American operations.

#### CARBON

15% reduction in Scope 1 and 2 greenhouse gas emissions by 2030, from a 2022 baseline, across our combined Australian and North American operations



### Enhanced Carbon Transition Target

Brickworks has been delivering progress against our existing carbon transition target, to invest in the transition to the hydrogen fuel economy. Brickworks is enhancing this target, to also include the target for continued investment into developing feasible renewable biomethane opportunities.

#### CARBON TRANSITION

Continued investment into developing feasible renewable biomethane opportunities and investment in the transition to the hydrogen fuel economy





Bowral Bricks in  
Chillingham White



## Clarification of Air Quality

Emission Control target to clarify that Brickworks is investing in emission abatement equipment to improve air quality emission control. Brickworks is investing over \$2 million in air quality emission control by 2025.



### AIR QUALITY EMISSION CONTROL

Over \$2 million investment in  
air quality emission control

## Increased Sustainable Product Target

In FY2022, over 6% of product volume in Australia was verified as sustainable by third party labels, which has now increased to 20% of volume. Verified sustainable products allow our customers to qualify for credits in sustainable building design and construction certification.

This has exceeded our target to double our volume of products manufactured in Australia that hold leading sustainable qualities from a FY2019 baseline of 1% volume. Brickworks also sees significant opportunities to increase verified sustainable products in our North American business. Brickworks' new sustainable product target is to increase the volume of verified sustainable products to 25% by 2025 across our combined Australia and North America operations.



### SUSTAINABLE PRODUCTS

Increase the volume of verified  
sustainable products to 25%.

## New Product Innovation Target

Our bricks and concrete products are manufactured to provide resilience. They are durable, fire-proof, contain thermal mass for energy efficient design, excellent acoustic properties and no indoor air emissions (VOCs); and our clay bricks hold a 100-year warranty.

Brickworks will use our product strengths to develop the next generation clay brick and concrete block wall systems. By continuously innovating, we can create a more sustainable future for generations to come.

Our sustainable product innovation strategy focus is to provide a wide range of thermal mass product options with high recycled content and lower embodied carbon across roofing and walling products.

Brickworks' commitment to innovation into manufacturing excellence and raw material optimisation means our products are produced in some of the world's leading energy efficient kilns. In FY2022, Brickworks invested \$3 million into research and development for kiln efficiencies, light weight products and different fuel types.

Brickworks' new product innovation target is a year-on-year increase in investment into research and development into the next generation of clay brick and concrete block wall systems.

By 2030, Brickworks and our partners will invest over \$22.6 million into research and development into our sustainable innovation focus areas including: the thermal mass benefit of products, light-weighting, raw material optimisation to reduce embodied carbon and increase recycled content, sustainable design elements and product innovation.


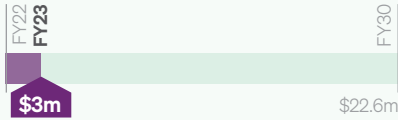

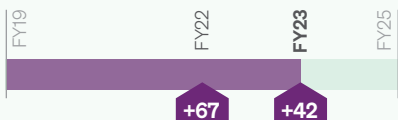







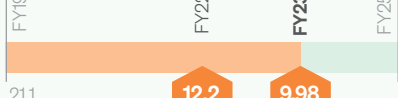





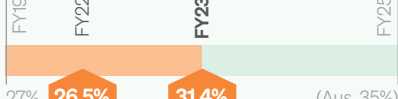


### PRODUCT INNOVATION


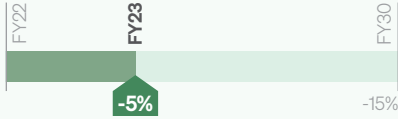



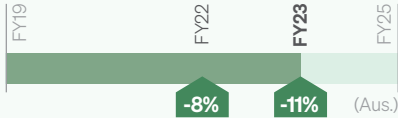



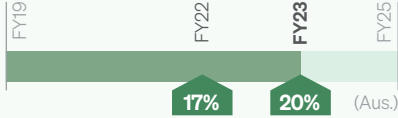



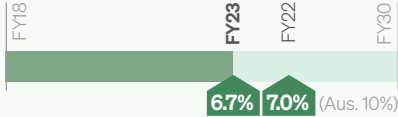
Year on year increase in R&D investment into the next generation of clay brick and concrete block wall systems.

# TOWARDS 2025

Significant annual progress against our 2025 targets including a new carbon target for 2030 and other enhanced targets

Target	Our Progress	Status
 <b>Product Innovation</b> Year on year increase in R&D investment in the next generation of clay brick and concrete block wall systems.	\$3 million R&D spend since FY2022. 24 R&D projects completed in FY2023. \$1.6 million grant awarded in collaboration with Queensland University of Technology.	
 <b>Life Cycle and Thermal Design and Education</b> We will support design tools, guidance and information to incorporate thermal design and life cycle thinking into building design.	42 continuous professional development sessions completed in FY2023. Modelling of 7-star thermal design continuing with University of Newcastle.	
 <b>Sustainable Products</b> Increase the volume of verified sustainable products to 25%.	19% of product volume was verified as sustainable by third party labels.	
 <b>Supply Chain</b> Continuing to reduce supply chain risks.	Modern Slavery Roadmap completed.	
 <b>Governance</b> Business Ethics and Whistle-blower Programs.	Governance programs formalised. Continued annual training.	
 <b>Safety</b> Continue reductions in injury rates.	Total Recordable Injury Frequency Rates reduced by 53% since FY2019.	
 <b>Engagement</b> Existing target of 100 community engagement activities annually.	109 community engagement activities, meeting our target of 100 in Australia.	
 <b>Community Support</b> Supporting charities like the Children's Cancer Institute.	\$260,815 contributed to Children's Cancer institute in 2022 calendar year and over \$4.8 million contributed since 2002.	
 <b>Diversity and Inclusion</b> Stretch target: 35% female senior executives. Develop and implement a Diversity and Inclusion Strategy.	31.4% female senior executives in Australia, Further training on advancing diversity rolled out in FY2023.	



Target	Our Progress	Status
 <b>Carbon</b> 15% reduction in Scope 1 and 2 greenhouse gas emissions by 2030 from a 2022 baseline, across our combined Australian and North American operations.	5% reduction from FY2022 baseline across Australia and North America.	 <p>FY22 FY23 FY30</p> <p>-5% -15%</p>
 <b>Carbon Transition</b> Continued investment into developing feasible renewable biomethane opportunities and investment in the transition to the hydrogen fuel economy.	Hydrogen feasibility preliminary laboratory trials commenced by Murdoch University.  Bioenergy transformation project launched.	 <p>FY19 FY22 FY23 FY25</p> <p>Desktop study Lab trials</p>
 <b>Water</b> Reduce potable water use in water stressed areas.	11% less mains water usage in Australia compared to FY2022.  Commenced tracking potable water use in North America.	 <p>FY19 FY22 FY23 FY25</p> <p>-8% -11% (Aus.)</p>
 <b>Rehabilitation</b> Drive progressive rehabilitation.	49,500 m <sup>2</sup> land progressively rehabilitated and 443,100 m <sup>2</sup> of land relinquished in Australia and 168,875 m <sup>2</sup> of land progressively rehabilitated in North America in FY2023.	 <p>FY19 FY22 FY23 FY25</p> <p>+27ha +5ha (Aus.)</p>
 <b>Circular Economy</b> Year on year increase in recycled material use.	Recycled raw materials increased from 17% in FY2022 to 20% recycled content in FY2023 in Australia.	 <p>FY19 FY22 FY23 FY25</p> <p>17% 20% (Aus.)</p>
 <b>Air Quality Emission Control</b> Over \$2 million investment in emission abatement.	Over \$6 million invested in air quality emission abatement in Australia in FY2023.	 <p>FY19 FY25 FY22 FY23</p> <p>COMPLETE ONGOING</p> <p>\$3m+ \$6m+</p>
 <b>Energy Efficiency</b> Stretch target: 10% increase in gas efficiency at Austral Bricks plant by 2030.	Total gas efficiency at Austral Bricks plant has improved by 6.5% and natural gas efficiency has improved by 6.7% since 2018.	 <p>FY18 FY23 FY22 FY30</p> <p>6.7% 7.0% (Aus. 10%)</p>

## Moving the Sustainability Strategy towards combined Australia and North America targets

The sustainability targets noted above for Safety, Lifecycle and Design, Sustainable Products and Carbon relate to our combined Australian and North American operations. We continue to work towards incorporation of our North American operations into the remainder of our targets as part of our future updates to our strategy.

## Development of our Towards 2030 Strategy

We have established extended climate objectives including carbon reduction, energy efficiency, and product innovation. These elements will serve as the foundation for our forthcoming "Towards 2030" strategy update. Presently, we are in the initial stages of crafting our 2030 strategy, as part of our future updates to our strategy. This comprehensive strategy will incorporate quantitative targets against all areas of high materiality across our Australian and North American operations.





# Environment

Brickworks is committed to managing its operations in an environmentally sustainable manner, whilst considering economic and social influences.

# Environmental

## Performance

### Environmental Strategy

Brickworks environmental commitment is to establish, operate and rehabilitate Brickworks sites in a manner that promotes optimum environmental outcomes. Brickworks Building Products monitors its environmental performance and compliance in accordance with its Safety Health and Environmental Management System (SHEMS).

Core environmental components of the SHEMS are established within an online platform to assist in maintaining and auditing compliance. This platform now provides a centralised database of our environmental licence conditions, hazard, incident and complaint reporting, as well as monitoring and reporting requirements for all sites. Standard operating procedures for significant risks at each Australian site are trained, reviewed, and updated regularly. Management system procedures and standard operating procedures are continuing to be rolled out through North America.

The Brickworks SHEMS is currently aligned with the Environmental Management System International Standard ISO14001:2004. We are cognisant of revisions to the SHEMS to harmonise with ISO 14001:2015, including updates to better reflect contemporary guidance. These revisions are currently in the process of being scheduled.

Brickworks has identified lead indicators to demonstrate the presence of environmental management, building capacity and resilience into environmental management. These lead indicators include training, monthly site inspections and annual environmental risk reviews, and are integrated into business KPIs linked to incentives and regularly reviewed. Lead indicators for North America have been drafted for review.

Hazard and incident reporting is undertaken in accordance with the Risk Management Framework, involving assessment of the likelihood of an event occurring, the potential impact of each event and the controls and processes in place to continually mitigate each risk. This information is reported to Divisional and Group management and issues of material concern are reported to the Board monthly.

Manufacturing and raw material sites are regularly audited. Any issues reported as either a hazard or an incident are rectified in a timely manner. During FY2023, 8 external and 9 internal audits were conducted.

### Environmental Performance

During FY2023, Brickworks did not receive any fines, penalties, or directive notices related to the environment or mining.<sup>2</sup>

Since 31 July 2023, Glen-Gery was fined \$7,800 USD in September 2023 relating to unauthorised stormwater discharge as disclosed to the regulator for which full corrective action has been taken.

We are reinforcing our commitment to zero environmental fines and continued risk reduction across our operations.

Brickworks treats all instances of legal and regulatory non-compliance with the utmost importance. Details of incidents, notices and complaints are raised at the weekly General Managers' meeting, attended by the Managing Director. Each non-compliance incident is investigated and tracked to ensure corrective actions are undertaken within deadlines. Incident reporting procedures and training are a central part of the SHEMS, raising awareness and identifying corrective and preventative actions.

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<sup>2</sup> Reported environmental fines and penalties include those received and paid during the reporting year (ending 31 July). Penalties received regarding property notices are excluded.



Project House  
on flat rock



Brickworks Compliance Statistics	FY2023	
	Aust.	U.S.
Prosecutions	0	0
Penalty Notices	0	0
Directive Notices	0	0

## Environmental Improvement Strategy

After significant investments in Air and Water Pollution Control Equipment (PCE), our next step is to strengthen PCE maintenance, enhance procedures and training to boost environmental capabilities. In FY2023, we conducted 1,943 PCE checks, a key indicator of our environmental commitment. Our environmental improvement strategy is now being shared with our North American business.

Under our environmental improvement strategy, Brickworks implements systematic risk management programs that identify and control impacts to the environment in line with legislation and authorised Brickworks environmental policies.

Key risk areas receive specific focus including our ongoing air and water management programs.

## Air Environmental Program

Our ongoing Air Environmental Program identifies opportunities for emissions reduction technology at Australian sites while optimizing raw materials, equipment, and maintenance to minimize emissions.

All brick factories hold state-issued licenses with emissions limits deemed safe for the environment and human health. Compliance is ensured through air emissions testing by qualified consultants. Any exceedance triggers reporting, followed by investigations and corrective actions as per Brickworks' SHEMS.

Brickworks other building products divisions generally have no specific air emissions limits within licences however, emissions are limited to the provisions of state and local laws.

Our 2025 target for emissions control target has been clarified to identify that it is air quality emissions control to avoid confusion with greenhouse gas emission controls. The clarified target now reads: *Brickworks is investing in emission abatement equipment to improve air quality emission control. Brickworks is investing over \$2 million in air quality emission control by 2025.*

### AIR QUALITY EMISSION CONTROL

Over \$2 million investment in air quality emission control



Investments are made in upgrading kilns, plant control systems, and emission control technologies. In FY2023, limestone scrubbers were installed at Austral Bricks Horsley Park Plant 1 and Plant 2, with a scrubber relocated to Plant 1 after the closure of Plant 3.

The Golden Grove plant completed scrubber refurbishments during a December 2022 shutdown which also saw the scrubber stack extended to improve dispersion of kiln gases and reduce odour at ground level as required by the Environment Protection Authority.

These investments into air pollution abatement equipment represent over \$6 million invested in air quality emission controls in Australia since FY2019.

The expenditure to date exceeds the 2025 goal over \$2 million (AUD) additional investment in emissions abatement. Future investments in environmental initiatives, as part of the Air Environmental Program, will be considered in relation to capital expenditure, technical projects and stakeholder collaboration.

An investment of \$3.6 million (USD) in upgrades to convert and retrofit the existing North American Adel plant in Iowa from petcoke fuel to natural gas was completed in April 2023. The main fuel conversion was completed to allow the kiln to be re-introduced into the production process utilising a much more efficient and reliable fuel source. The project also included an investment of \$129k (USD) to upgrade and re-permit the existing Dry Injection Fabric Filter (DIFF) scrubber.

Most of Brickworks' large Australian facilities trigger reporting requirements under the National Pollutant Inventory (NPI). Brickworks estimates emissions using a calculation tool that incorporates monitoring results and the NPI emissions estimation technique manuals. The latest NPI emissions data is displayed on Brickworks' website and can be downloaded by searching "Austral Brick" at [www.npi.gov.au/npi-data/latest-data](http://www.npi.gov.au/npi-data/latest-data).

All plants in North America report to the Toxics Release Inventory (TRI). The TRI is a resource for learning about toxic chemical releases and pollution prevention activities reported by industrial and federal facilities within the U.S. TRI data supports informed decision-making by communities, government agencies, companies, and others. The latest TRI emission data can be downloaded from [www.epa.gov/toxics-release-inventory-tri-program](http://www.epa.gov/toxics-release-inventory-tri-program) and Brickworks' website [www.brickworks.com.au/sustainability/](http://www.brickworks.com.au/sustainability/).

All North American plants are also regulated by the U.S. Clean Air Act (CAA). The CAA is designed to protect air quality to support public health, and to be sure all air emitting sites take the necessary actions to ensure operations are not having an adverse environmental effect on the local air quality. The CAA requires Glen-Gery sites to obtain a Title V Air Permit that is

renewable every five years. Under each permit is a requirement to report annual emissions to each State in which the operation is taking place.

## Water Environmental Program

The Water Environmental Program has identified investments in leading environmental initiatives and is now more focussed on building capacity via improved PCE checks, procedures and training. Brickworks closely monitors its water use and discharge, investing in water capture systems to ensure the quality of water discharge through appropriate treatment systems. During FY2023 Brickworks invested over \$3 million (AUD) in Australia and \$157k (USD) in North America in water management systems.

Brickworks complies with stringent environmental regulations to ensure that activities, in particular raw material quarrying, minimise impact local bodies of surface water and groundwater. Brickworks ensures the quality of discharged process water by using settling ponds and pH neutralisation systems, where required. In FY2023 Brickworks continued to improve its water management systems by installation in New South Wales of a High Efficiency Sediment basin at Horsley Park and a filter press at Oakdale. Construction and expansion of sediment traps was also completed at Mid-Atlantic Quarries in North America.

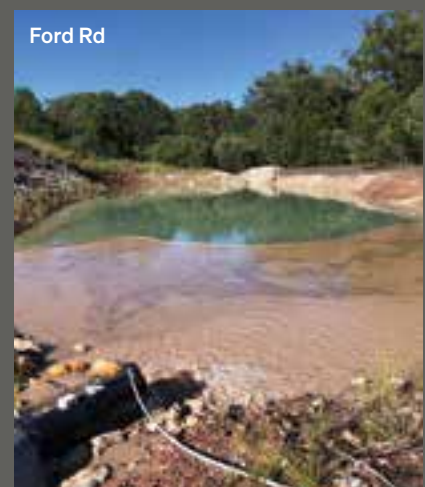
In North America's Glen-Gery business, high-priority environmental projects are identified. In collaboration with the Pennsylvania Department of Environmental Protection, Brickworks developed plans to reduce sediment discharge from the Mid-Atlantic Plant in Shoemakersville, PA. In FY2023, improvements included expanding quarry sediment traps and ponds.

## Resilient water systems have resulted in a significant reduction in the frequency of water discharge non-compliances

Since the automatic dosing and telemetry systems were commissioned at Ford Road and German Church Road quarries in FY2023 the number of discharge event where water quality exceeded release limits has significantly reduced. From January 2020 up to the 1 in 200 year event flood events in February and March 2022 where the basins worked up to and beyond their design capacity, there were 13 water discharge events outside release limits. Since these floods, aside from two discharge incidents at German Church quarry caused by maintenance teething problems, there have been no further non-compliant discharges at either site.



German Church Rd



Ford Rd



# Climate-related Strategy

Brickworks commitment to reducing energy use and carbon emissions is driven by our climate-related strategy, targets and programs.

## Climate Related Strategy and Programs

As companies continue to embrace the global push towards decarbonisation, Brickworks has already dramatically reduced its carbon footprint and is now looking at ways to co-locate bioenergy energy production on its manufacturing sites.

At Brickworks, our challenge is to reduce the energy intensity in the manufacturing process. To achieve this, we regard the use of biofuels as a key enabler. We also acknowledge a role for carbon neutral offsets, to complement our efforts to drive down emissions.

As one of Australia's industry leaders, we plan to pursue realisable projects, driving the development of bio energy projects to become a leading player in the energy transition in the "hard to abate" manufacturing sector.

Brickworks has long understood the step change carbon emission reductions possible through manufacturing excellence.

We have a long-term strategic focus in driving our global kiln refurbishment program to improve energy efficiency beyond international benchmarks. This is underpinned by our stretch target for a 10 per cent increase in gas efficiency at Austral Brick plants by 2030 from FY2018.

In Australia, carbon emissions have followed a general downward trend, with a 46% decrease compared to the base year 2005/06 (Scope 1 and 2).

The decrease is attributed to efficiencies gained from alternate fuels, manufacturing consolidation, equipment upgrades and operational improvements. Brickworks invested over \$400 million dollars since 2006 in equipment upgrades and operational improvements (including new plants) and carbon reduction strategies.

Our climate-related strategy, targets and programs build on these achievements, focusing on 5 key areas, including efficiency, lower carbon energy sources, innovation, the appropriate use of offsets and improving the energy efficiency of homes over lifetime operations. Each focus area has deliverables to drive performance.

## Targets

### New Carbon Target

Brickworks is aligning its greenhouse gas reduction strategy with the recognised standard of the Task Force on Climate-related Financial Disclosures (TCFD) recommendations, including risk management disclosures, metrics and targets. Through this process, we have developed a new carbon target: to achieve a 15% reduction in Scope 1 and 2 greenhouse gas emissions by 2030, from a 2022 baseline, across our combined Australian and North American operations.

#### CARBON

15% reduction in Scope 1 and 2 greenhouse gas emissions by 2030, from a 2022 baseline, across our combined Australian and North American operations



This will be achieved through a range of decarbonisation actions as set out in our Climate-related Strategy, Targets and Programs.

## Climate-related Strategy, Targets and Programs

	Manufacturing Excellence and Efficiency Strategy	Lower Carbon Energy Sources	Innovation	Generation and purchase of offsets to provide Carbon Neutral Product options	Improve home energy efficiency over lifetime operations
STRATEGY FOCUS AREA	Achieve global leadership in leading manufacturing excellence and efficiency.	Increasing use of bioenergy and low carbon fuels .  Renewable Electricity and Gas Purchasing Strategy.	Develop the next generation clay brick and concrete block wall systems, through light-weighting, on-board fuels, raw material optimisation and product innovation.	Responding to an increase in consumer preferences for products with leading sustainability attributes and low carbon options.	Provide thermal mass products such as bricks and roof tiles which can reduce heating and cooling bills by up to 40% annually using cavity brick compared to lightweight construction. <sup>3</sup>
DELIVERABLES	10% increase in gas efficiency at Austral Bricks plants by 2030 (FY2018 baseline).	15% reduction in Scope 1 and 2 greenhouse gas emissions by 2030, from a 2022 baseline, across our combined Australian and North American operations.  Continued investment into developing feasible renewable biomethane opportunities.  Complete the Brickworks Hydrogen Project.	Year on year increase into R&D investment into the next generation of clay brick and concrete block wall systems. This represents more than \$22.6 million invested by 2030 by Brickworks and our partners.  Increase the volume of verified sustainable products to 25%.  (More details in the Responsible Business section).	Expand range of carbon neutral offerings from the existing 12.5 million carbon neutral bricks sold in FY2023.  Explore generation of offsets from existing land holdings.  Ensure purchase of high- quality offsets (defined by Climate Active).	Invest in research for thermal design and lifecycle education.  (More details in the Responsible Business section).

### Enhanced Carbon Transition Target

Brickworks has been delivering progress against our existing carbon transition target, to invest in the transition to the hydrogen fuel economy. Brickworks is enhancing this target, to also include the target for continued investment into developing feasible renewable biomethane opportunities.



#### CARBON TRANSITION

Continued investment into developing feasible renewable biomethane opportunities and invest in the transition to the hydrogen fuel economy

As an industry leader using 11% bioenergy in manufacturing in Australia, we understand the critical role renewable bioenergy can have in producing low-carbon products. We are assessing the feasibility of renewable bioenergy generation at our brick plants with leading technology providers. If successful, each facility has the potential to provide a significant source of renewable energy.

Renewable bioenergy generation also offers the potential to generate carbon offsets on-site, from emission reduction activities such as the diversion of organic waste from landfill. Brickworks has 10 years of experience in providing carbon neutral products from our Longford Tasmania facility.

Longford uses 74% bioenergy of the site's energy mix, which has avoided over 70,000 t CO<sub>2</sub>-e in emissions avoided over 10 years. Residual 50,000 t CO<sub>2</sub>-e of emissions from the lifecycle of brick manufacture and sales from Longford have been offset over the last 10 years. We seek to replicate the success of this low brick carbon manufacturing process across Brickworks sites through the Brickworks Bioenergy Transformation strategy.

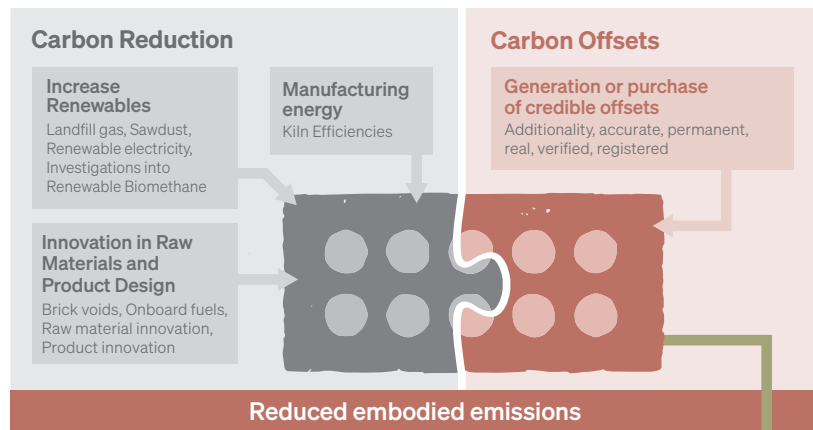
Brickworks sees a range of opportunities to replicate the success of this low brick carbon manufacturing through the Brickworks Bioenergy Transformation strategy. According to estimates by the Australian Renewable Energy Agency, bioenergy could account for 33% of the industrial heat processing needs by 2030. We are actively advancing various feasibility studies for a series of projects designed to significantly boost the utilisation of bioenergy. These opportunities encompass harnessing additional landfill gas resources, integrating alternative organic raw materials, and generating on-site bioenergy through anaerobic digestion.

3 A Study of the Thermal Performance of Australian Housing, University of Newcastle, 2011–2017





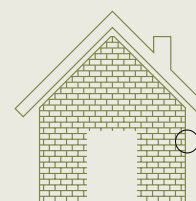
## Brickworks Bioenergy Transformation strategy towards zero emissions – Model for replication on additional sites



## Improve operational energy of buildings

### Measured operational energy efficiency benefits from thermal battery nature of bricks

By combining bricks and insulation in your home, you can reduce your heating and cooling bills by up to 40%, when choosing cavity brick over lightweight construction.\*



### Operational emissions

\* Data derived from tests conducted by The University of Newcastle into the Thermal Performance of Australian Housing. Testing was conducted on a west facing wall in summer. Full report can be found in the Bricks for Living Brickworks publication.

Brickworks is assessing the feasibility of a renewable bioenergy facility to be located next to a brick plant in Horsley Park NSW. We have partnered with Delorean Corporation to undertake a comprehensive feasibility assessment on the development of an anaerobic digestion facility that converts organic waste into renewable gas. Stage 1 of the feasibility study has shown that, if developed, the facility has the potential to produce approximately 210,000 GJ p.a. of renewable gas. If the project receives approval to proceed, the facility could reduce Brickworks Scope 1 emissions by approximately 9,516 tCO<sub>2</sub> p.a. through the displacement of natural gas. Renewable bioenergy facilities provide a pathway to begin the transition to decarbonising natural gas consumption.

## Generation and purchase of carbon offsets

Our carbon neutral products and operations are certified under Climate Active. Climate Active is an ongoing partnership between the Australian Government and Australian businesses to drive voluntary climate action. It is a rigorous carbon neutral certification scheme, built upon international best-practice standards and GHG protocols and underpinned by carbon accounting and offsets integrity principles. Under Climate Active, only high-quality carbon offsets are allowed for reaching carbon neutrality. All our claims under Climate Active are subject to independent third-party verification to ensure the integrity of the carbon neutral claim.

When selecting our offsets, we screen against a list of priority projects and eight parameters including, additionality, accuracy, permanency, real, verified, registered, no double counting and not associated with significant social or environmental harm.

Brickworks is assessing the feasibility of generating carbon offsets from existing land holdings. Opportunities include on-site generated bioenergy through anaerobic digestion and plantations carbon sinks and timber production. On-site anaerobic digestion from digesting organic waste can generate an alternative renewable energy source of biomethane gas and also offers on-site generation of carbon offsets ACCUs, through the diversion of organic waste from landfill to the advanced anaerobic digestion facility.

## Understanding Climate-related Risks and Opportunities

We are incrementally adopting the recommendations of the leading climate-related risk framework, Task Force on Climate-Related Financial Disclosures (TCFD), such as using climate scenarios to identify risks and developing climate-related strategy and programs. Our second TCFD Statement was published on our website in May 2023, setting out our roadmap to improve our TCFD disclosure. We will continue to monitor and report on management of climate risks.

# Brickworks Bioenergy Transformation Strategy Goals



**11%**

Bioenergy used in Energy Mix  
Brickworks Australia FY23

**Potential bioenergy** in Australia's industrial manufacturing energy generation (heat demand) by 2050 – ARENA Bioenergy Roadmap

**33%**

Bioenergy potential identified  
by ARENA Bioenergy  
Roadmap by 2030

‘Renewable industrial heat generation benefits from technologies that are mature and in use throughout the world. It is well established in Australia and can still grow. However, low visibility and non-economic barriers impede its development in Australia.’

Australian Renewable Energy Agency (ARENA) Bioenergy Roadmap

Brickworks is a signatory to the Renewable Gas Alliance's Renewable Gas Challenge



## Australia

20 operating sites  
(as at 31 July 2023)

- Brick Plant
- Masonry Plant
- Roofing Plant
- Cement Terminal (JV)
- Design Studio

### Exploring bioenergy opportunity focus area

- ▶ On-board fuels including alternative organic materials

### Innovation options

- ▶ Carbon Neutral option available on all Austral bricks and pavers

### Exploring generation of offsets

- ▶ Explore plantation carbon sinks and timber production

### Innovation options

- ▶ Carbon Neutral option available on all Austral bricks and pavers

### Exploring Bioenergy opportunity focus areas

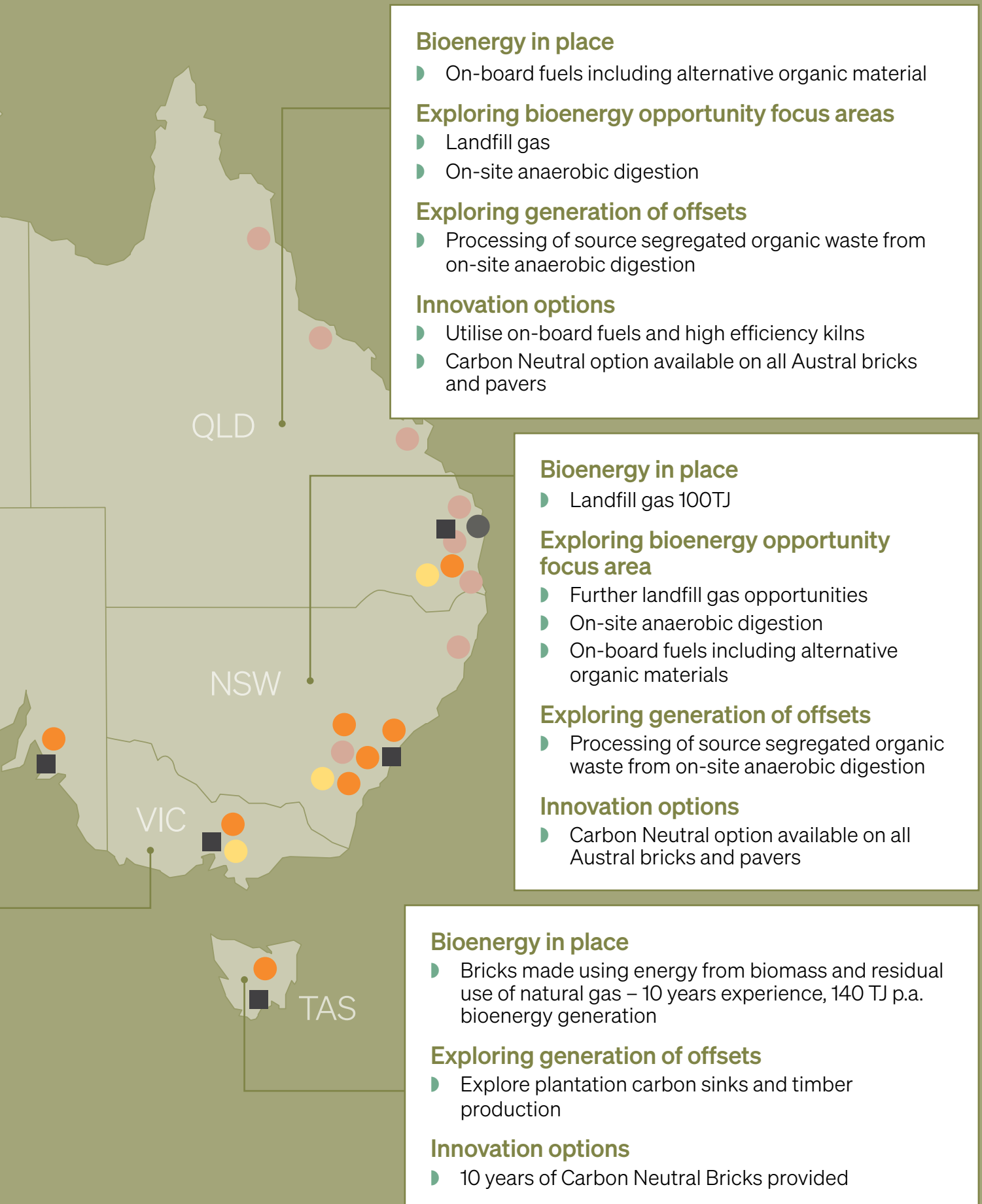
- ▶ Landfill gas
- ▶ On-site anaerobic digestion

### Exploring generation of offsets

- ▶ Processing of source segregated organic waste from on-site anaerobic digestion

### Innovation options

- ▶ Utilise on-board fuels and high efficiency kilns
- ▶ Carbon Neutral option available on all Austral bricks and pavers





# Energy

## Management and Security

### Energy Security

Energy security, reliability and affordability are critical to our business operations. Brickworks is a large natural gas consumer and purchases gas supplies on a wholesale basis. Brickworks is a wholesale gas market participant in each of the Short-Term Trading Markets in Sydney, Brisbane and Adelaide and the Declared Wholesale Gas Market in Victoria. In order to avoid future gas shortfalls on the east coast, it is critical that new gas developments are established as quickly as possible. New gas supplies for the domestic market are also essential to supply gas-fired generators that will need to generate electricity to firm renewables when the sun isn't shining, and the wind isn't blowing.



Brickworks has a long-term relationship with Santos, having entered into a gas supply agreement that commenced in 2020 to deliver gas to the east coast operations for five years. A new agreement with Santos will commence in January 2025 for an additional eleven years, supporting the development of the Narrabri gas project in NSW and providing Brickworks with long-term energy security for its east coast operations.

### Energy Management

Brickworks undertakes business as usual energy management activities, including weekly senior management energy efficiency reviews and annual identification of energy management opportunities. Wholesale gas arrangements have allowed Brickworks to manage its gas costs better and improve its energy efficiency monitoring.

Brickworks utilises internally generated daily gas consumption forecasts to manage wholesale gas market costs, identify kiln and dryer efficiency issues, and manage the variability of landfill gas supplies. Kiln gas efficiency across different products is quantified and acts as a feedback loop into operational improvement activities.

### Exploring renewable gas opportunities

The gas we use to fire the bricks in our kilns cannot be easily substituted for alternative renewable energy sources and kilns are unable to be electrified. However, Brickworks is leading the industry to support the development of a renewable gas market



as a commercially viable pathway to decarbonise our business operations. Brickworks has partnered with Delorean Corporation to undertake a feasibility study to ascertain the viability on developing a renewable gas facility co-located with a brick plant in Horsley Park NSW.

The proposed facility will utilise anaerobic digestion technology to convert organic waste into renewable natural gas for the brick plant. The facility is expected to supply 210,000 GJ of renewable gas each year, reducing Brickworks Scope 1 emissions by 9,516 tCO<sub>2</sub>-e each year through the displacement of natural gas.

Renewable bioenergy facilities provide a pathway to begin the transition to decarbonising natural gas consumption.

Brickworks also has an agreement to collaborate with Santos to explore decarbonisation opportunities, potentially including post-combustion capture and carbon capture and storage, and we continue to be an industry partner with AGL for their Torrens Island Hydrogen Hub project.

### Exploring renewable electricity opportunities

Brickworks is undertaking a review of potential renewable electricity strategies. We have recently signed agreements to install 2,836 kW of new solar capacity on our sites.

## Brickworks signs the Renewable Gas Alliance Renewable Gas Challenge

In July 2023, Brickworks signed Bioenergy Australia's, Renewable Gas Challenge stating:

*We support the development and deployment of biomethane and believe that renewable gas can emerge as a key pillar in Australia's transition to a clean energy economy. Based on supply, availability and price, it would factor into our individual abatement strategies moving forward.*



**Renewable  
Gas  
Alliance**

Brickworks:

- ▶ Supports the development and deployment of biomethane as a decarbonisation pathway,
- ▶ Identifies the lack of policy currently supporting biomethane projects, and
- ▶ Calls for urgent certification of biomethane to allow the buyer to recognise the emission reduction.

# Energy and Carbon

A key strategic focus area is to achieve global leadership in leading manufacturing excellence and efficiency. To achieve this, Brickworks is investing in energy efficiency.

Total energy consumption and greenhouse gas emissions across Brickworks have decreased by 6% and 5% respectively in FY2023 compared to FY2022. This decrease is mainly due to the closure of various plants across the group, including:

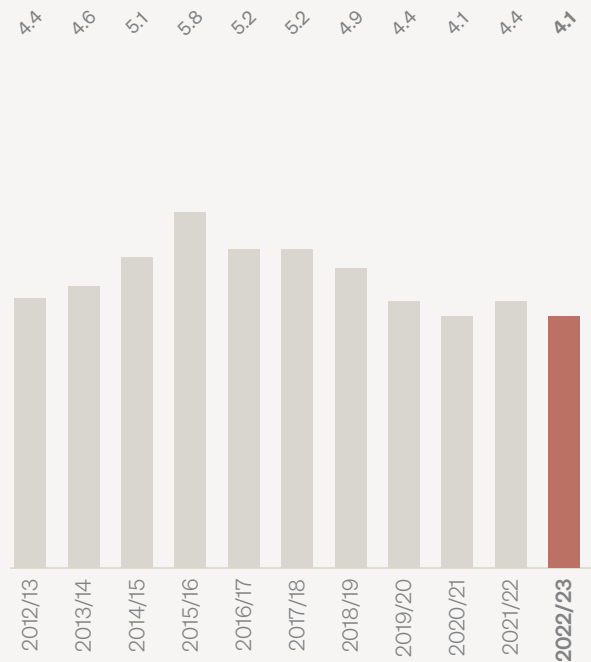
- ▶ Permanent closure of Horsley Park Plant 3 as a result of completing Horsley Park Plant 2 in New South Wales;
- ▶ Ceasing brick manufacturing operations in Western Australia, with the closure of the Bellevue plant in November 2022 and the Cardup plant in April 2023; and
- ▶ The continuation of the plant rationalisation program in North America with the closure of the Caledonia plant (Ohio) in the first half of FY2023 and then the Marseilles plant (Illinois) in the second half.

## Energy

A key strategic focus area is to achieve global leadership in leading manufacturing excellence and efficiency. To achieve this, Brickworks is investing in energy efficiency.

In FY2023, Brickworks Building Products total energy consumption was 6.14PJ, a 6% decrease from FY2022. This is further broken down by region below.

**BBP Australia Total Energy Consumption**  
(PJ)





Brickworks Building Products Australia

Since its inception, Brickworks Building Products (BBP) has invested in the latest kiln, equipment and manufacturing technologies to improve productivity, product quality and energy efficiency.

In FY2023, BBP Australia's total energy usage was 4.1PJ, a 7% decrease from 4.4PJ the previous year, reflecting the closure and mothballing of three plants during FY2023.

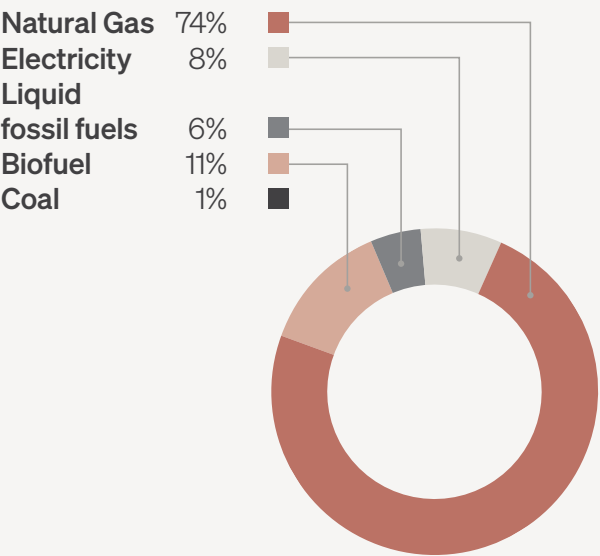
The majority (74%, 3.0 PJ) of the Company's Australian energy requirements comes from natural gas, largely used at Austral Bricks' manufacturing facilities. Gas efficiency is measured at a factory level and results are reported to the Managing Director weekly.

Biofuels

Brickworks has used biogas and sawdust for renewable and alternative energy generation for many years. The alternative fuels program saw BBP Australia achieve 11% energy use composition of biofuels in FY2023, slightly lower than FY2022.

Biofuel sources include landfill gas, sawdust and other biomass products. We continue to investigate ways to increase our biofuels content. Further information is also discussed in the Climate Strategy and Carbon sections.

BBP Australia FY2023 Energy Mix



Horsley Park, NSW, Plant 22 upgrade  
Efficiency upgrades

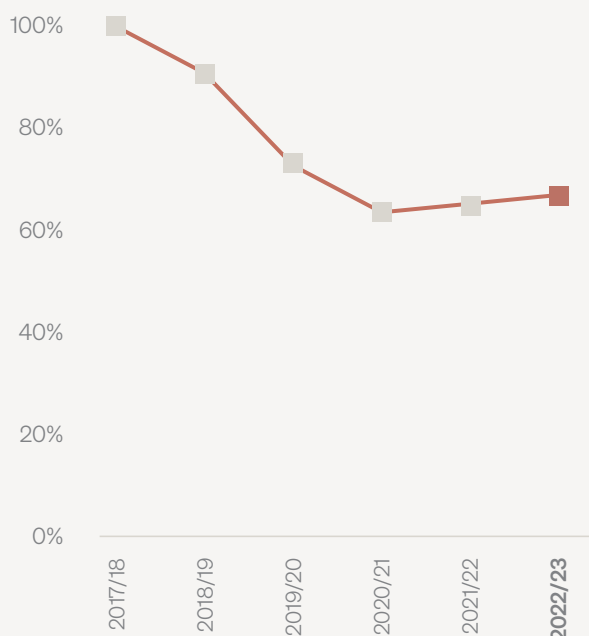
During FY2019, the Austral Bricks Horsley Park Plant 2 kiln was shut down in preparation for an upgrade to a state-of-the-art brick manufacturing facility. Construction of the new Plant 2 facility was completed in FY2023 and commissioning is expected to be completed during the first half of FY2024.

Brickworks has a long history of investing in the latest kiln and manufacturing technologies which is a key approach in how Brickworks has driven a general downward trend in carbon emissions.



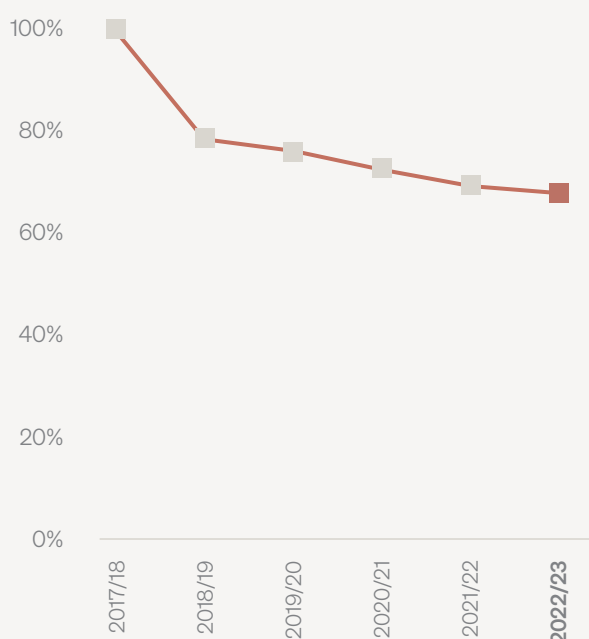
## BBP Australia Natural Gas Efficiency compared to FY2018 base line

(GJ/'000 Standard brick equivalent)



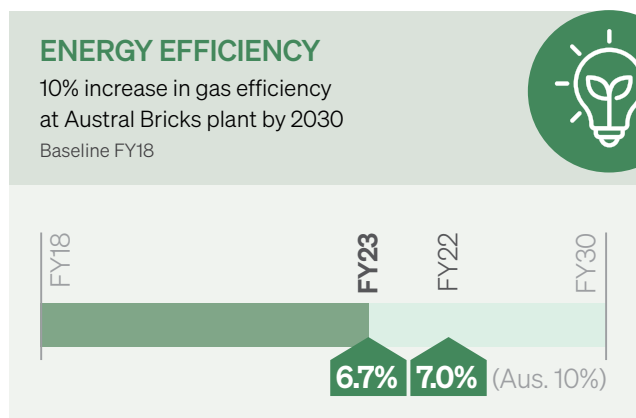
## BBP Australia Total Gas Efficiency compared to FY2018 base line

(GJ/'000 Standard brick equivalent)



## Energy Efficiency

FY2018 marked the start of a strategic 10-year investment vision to drive energy efficiency across Australia. By 2030, major plant upgrades are expected to improve total gas efficiency across Austral Bricks Australia by a stretch target of 10%, based on FY2018 levels.

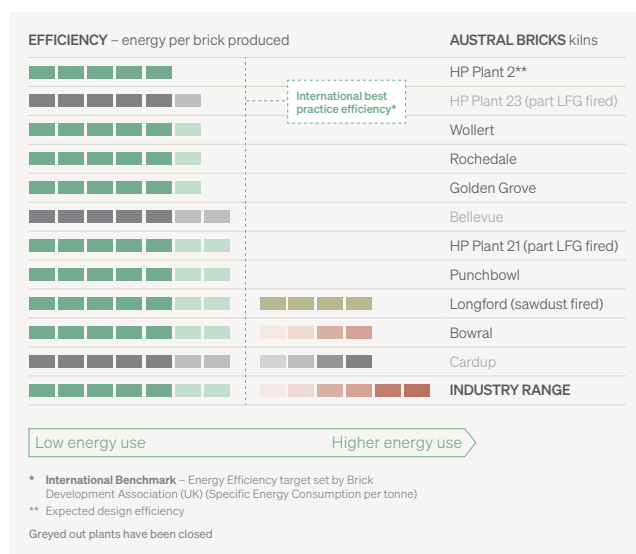


The accompanying graphs depict Austral Bricks gas efficiency trend. Natural gas efficiency has improved by 6.7% since FY2018. There was slightly poorer performance in the natural gas efficiency in FY2023 compared to FY2022 due to closure and opening of various brick manufacturing sites across Australia.

Total gas efficiency (including landfill gas at Horsley Park and sawdust at Longford) has improved by 6.5% since FY2018. Total gas efficiency improved slightly (0.3%) compared to FY2022 due to increased use of onboard fuels in the body of the bricks.

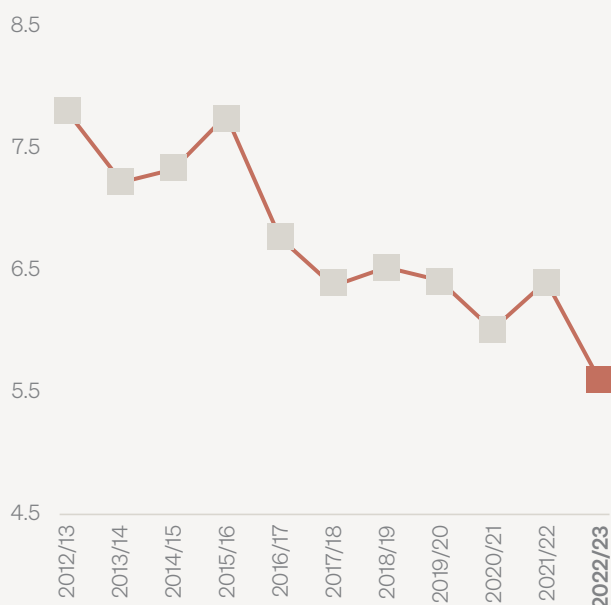
Continued investment into energy efficiency and recovery has led to improvements at many Austral Bricks kilns which now exceed international leading energy efficiency benchmarks.

## Brickworks Building Products – Australia Natural Gas and Electricity Usage



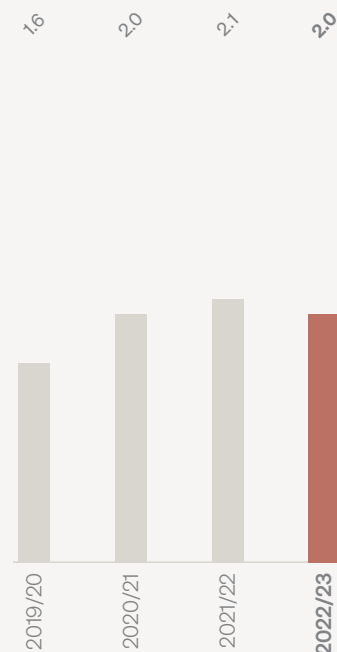
## BBP Australia Energy Intensity

(TJ/\$M Revenue)



## BBP North America Total Energy Consumption

(PJ)<sup>4</sup>



### Vehicle and Logistics Efficiency

Brickworks continuously modernises its trucks after five years to provide up to date safety features for the community and public, and improved fuel efficiency. In FY2023, six trucks were delivered for replacement with Euro V specification. All company vehicles were fitted with telematics providing drivers and managers with real time monitoring and feedback on fuel efficiency indicators.

### Energy intensity by revenue

Brickworks continues to reduce energy intensity across the business. Since FY2013, energy intensity by revenue has improved by 28% in BBP Australia to 5.6 TJ per million dollars (AUD) of revenue. Energy intensity decreased by 6.7% from FY2022, reflecting increase in revenue between FY2022 and FY2023 and the reduction in energy consumption due to the planned closure of Horsley Park Plant 3 in NSW and the mothballing of our Western Australian brick plants.

## Brickworks Building Products North America

Extensive upgrades to the Sergeant Bluff and Adel plants (both in Iowa) were completed during the year. These upgrades were focussed on providing additional output to meet growing market demand and included works to expand kiln capacity and upgrades

to the kiln car fleet and dryers. At Adel, the second kiln was activated, including the conversion of the kiln to use natural gas.

BBP North America has now developed energy reporting for natural gas, electricity and liquid fuels used in mining and manufacturing. During FY2023 this was expanded to also include all fleet fuels to cover all material energy sources. Energy consumption has been back calculated for our operations in North America to provide year on year trends.

During FY2023, energy usage was 2.02PJ across 7 operating clay brick factories owned by BBP North America. All North American brick factories are fuelled by natural gas and contribute to 88% (1.76PJ) of the operation's energy consumption.

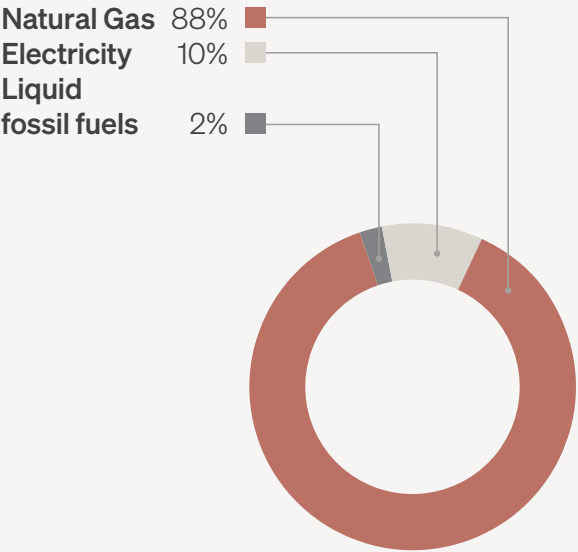
### Energy Efficiency in North America

The plant rationalisation program continued during FY2023, with the closure of the Caledonia (Ohio) in the first half and then Marseilles (Illinois) in the second half. Following these closures, the plant rationalisation is now largely complete and has resulted in a reduction in operating brick plants to 7 (from 16), an increase in plant utilisation to 72% (from 46%) and a more modern and fuel-efficient fleet, with the average age of kilns reduced to about 20 years (from more than 40 years).

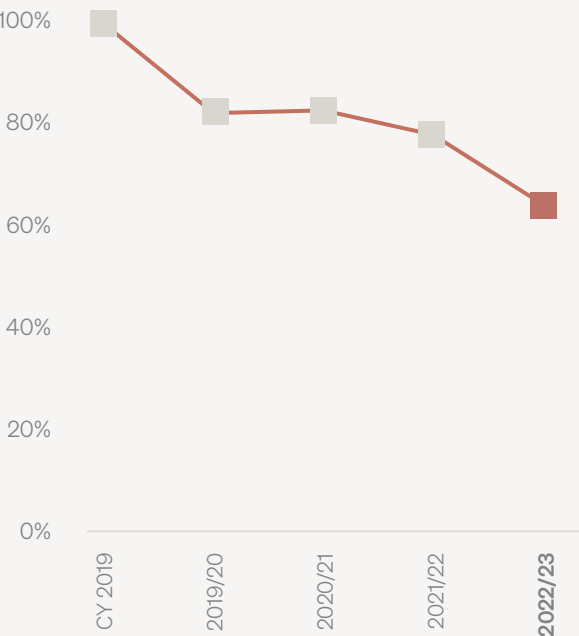
<sup>4</sup> Restated from FY2022 report to include retail and fleet energy consumption.



BBP North America FY2023 Energy Mix



BBP North America Natural Gas Efficiency compared to 2019 calendar year base line (GJ/'000 Standard brick equivalent)



This has led to an 18.1% improvement in gas efficiency from the 2019 calendar year to FY2023 and a 7.9% improvement compared to FY2022.<sup>5</sup>

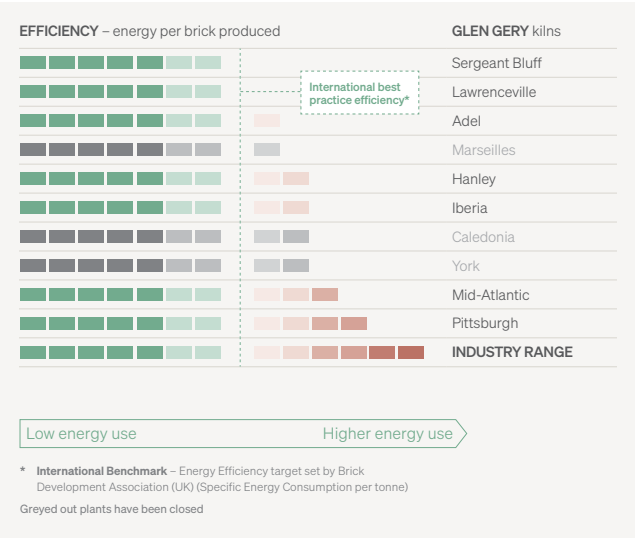
BBP North America Natural Gas Efficiency (GJ/'000 Standard brick equivalent) compared to 2019 calendar year base line

Extensive upgrades to the Sergeant Bluff and Adel plants (both in Iowa) were completed during the year. These upgrades were focussed on providing additional output to meet growing market demand and included works to expand kiln capacity and upgrades to the kiln car fleet and dryers. At Adel, the second kiln was activated, including the conversion of an old previously un-used kiln from petcoke to natural gas.

In addition, production of handmade and thin bricks was consolidated to the Mid-Atlantic and Pittsburgh plants respectively (both in Pennsylvania). This will provide more efficient and sustainable production methods to support improved quality and higher production output to meet the growing demand for these products.

Further investment into energy efficiency and recovery will drive North American kilns towards international leading energy efficiency benchmarks.

Brickworks Building Products – North American Natural Gas and Electricity Usage



<sup>5</sup> Energy improvement for the 2019 calendar year to FY2022 restated from 8.6% to 10.4%.



## Energy intensity by revenue

Since FY2020, energy intensity by revenue has improved by 36% in BBP North America to 4.5 TJ per million dollars (AUD) of revenue. Energy intensity decreased by 9.7% from FY2022, reflecting improved revenue and reduced energy consumption due to the planned consolidation of manufacturing sites including the closure of Marseilles plant this year and York and Caledonia in FY2022.

### Methodology for energy calculations

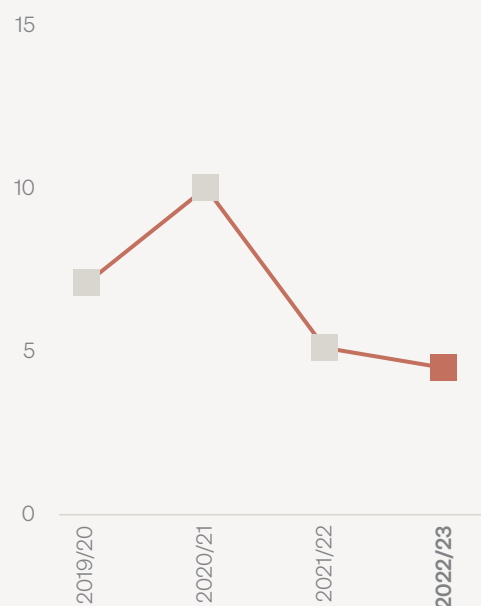
Reported energy consumption is for the reporting period 1 July 2022 to 30 June 2023. Methodologies for calculating energy and energy efficiencies are further described in Appendix 2.

### Ongoing Energy Efficiency

Energy efficiency is a focal point, managed using audits, regular maintenance and upgrades. Heat recovery systems are used in all Australian brick manufacturing facilities. Gas efficiency opportunities KPIs are reviewed on a regular basis. The KPI trend reporting will continue to trigger additional energy efficiency actions to maintain efficiency.

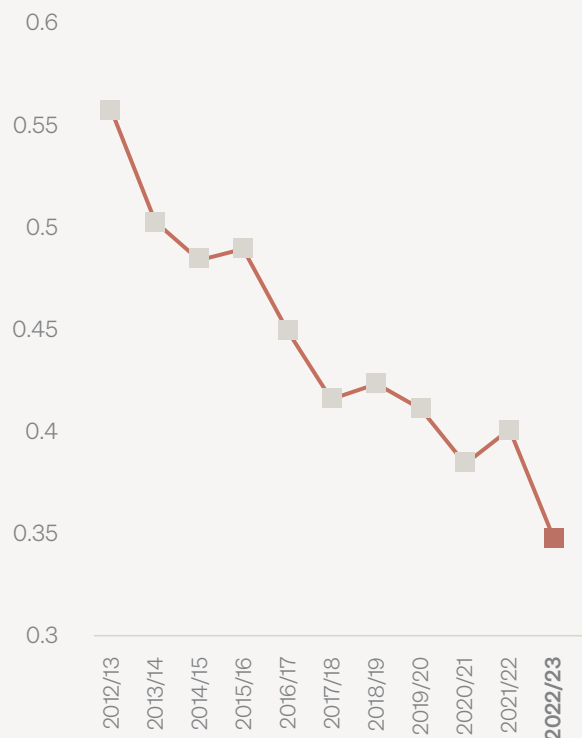
## BBP North America Energy Intensity

(TJ/\$M Revenue)



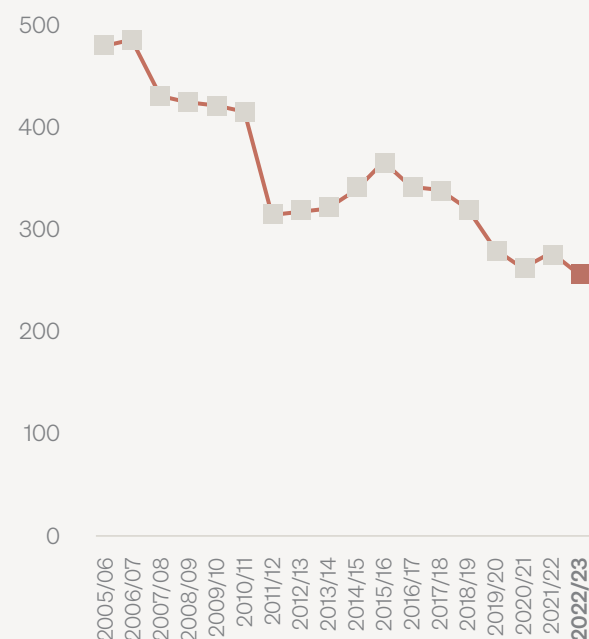
## BBP Australia Carbon Intensity

(ktCO<sub>2</sub>-e / \$M Revenue)



## BBP Australia Greenhouse Gas Emissions Since 2005

(ktCO<sub>2</sub>-e)



## Carbon

Brickworks continues to reduce greenhouse gas intensity across the business. In 2018 Brickworks acquired businesses within North America and have been working towards reporting full greenhouse gas inventory globally. During FY2023 Brickworks completed the greenhouse gas calculations for the North American operations for historical years from FY2020 through to FY2022 (including fleet emissions) covering all material Scope 1 and Scope 2 greenhouse gas sources. Brickworks has also announced a greenhouse gas emissions target which is described further in Climate strategy.

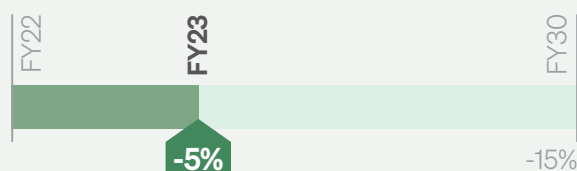
### Performance against Carbon Target

As described in the Climate Strategy section of this report, Brickworks has announced a new carbon target: to achieve a 15% reduction in Scope 1 and 2 greenhouse gas emissions by 2030, from a 2022 baseline, across our combined Australian and North American operations.

In FY2023, BBP total Scope 1 and 2 greenhouse gas emissions was 400 kilotonnes of carbon dioxide equivalent (ktCO<sub>2</sub>e) for both Australian and North American operations. Of these emissions, 97% are attributed to brick manufacturing operations.

### CARBON

15% reduction in Scope 1 and 2 greenhouse gas emissions by 2030, from a 2022 baseline, across our combined Australian and North American operations



Greenhouse gas emissions have decreased in FY2023 by 5% compared to FY2022. This is due to the closure of various plants across the group, including:

- ▶ The permanent closure of Horsley Park Plant 3, following the completion of Horsley Park Plant 2 in New South Wales.
- ▶ The discontinuation of brick manufacturing operations in Western Australia, which involved the closure of the Bellevue plant in November 2022 and the Cardup plant in April 2023.
- ▶ The ongoing plant rationalisation program in North America, which included the closure of the Caledonia (Ohio) plant in the first half of FY2023 and the subsequent closure of the Marseilles (Illinois) plant in the second half.



## BBP Global Carbon Emissions Since FY2022 (ktCO<sub>2</sub>-e)

	2021-22	2022-23
Scope 1	327	317
Scope 2	96	83
<b>Total</b>	<b>423<sup>6</sup></b>	<b>400</b>

This is further broken down by region below.

## Brickworks Building Products Australia

Since FY2013, greenhouse gas intensity by revenue has improved by 37% in BBP Australia to 0.35 kilotonne CO<sub>2</sub>-e per million dollars (\$AUD) of revenue.

Carbon intensity for Australia was lower (8.6%) than the previous year, reflecting increased revenue from FY2022 to FY2023 and lower emissions due to plant closures.

Carbon emissions have followed a general downward trend, with a 46% decrease compared to the base year 2005/06 (Scope 1 and 2). The decrease is attributed to efficiencies gained from alternate fuels, manufacturing consolidation, equipment upgrades and operational improvements.

In FY2023, our Australian operations emissions were 196,002 tonne CO<sub>2</sub>e (Scope 1) and 60,967tonne CO<sub>2</sub>e (Scope 2), an 8% decrease on the previous year due to closure of the three brick manufacturing plants in Australia.

Brickworks Australia's greenhouse gas emissions and energy data is publicly available on the Clean Energy Regulators website [www.cleanenergyregulator.com.au](http://www.cleanenergyregulator.com.au).

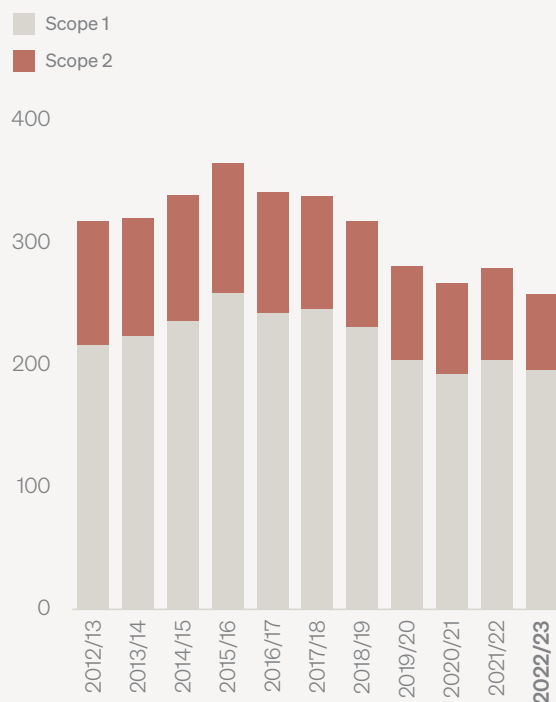
## Biofuels

In FY2023, 11% of BBP Australia's energy came from renewable or alternative energy sources such as landfill gas or sawdust. These biofuels allow us to avoid the greenhouse gas emissions that would have been released if we used natural gas.

Austral Bricks Horsley Park, NSW, Plant 21 has used landfill gas since 2013, and Plant 23 since 2014. The combustion of landfill gas emits 10 times less carbon than natural gas. Horsley Park used 171,000 GJ of landfill gas throughout the year, avoiding approximately 7,700 tonnes of carbon, equivalent to the energy used in over 1,300 homes for one year.<sup>7</sup>

The decrease in biofuels in FY2023 is mainly attributed to a reduction in landfill gas usage due to the closure of Plant 23 in NSW. In spite of this decrease, we continue to actively advance various feasibility studies for a series of projects designed to significantly boost the utilisation of bioenergy. These opportunities encompass harnessing additional landfill gas

## BBP Australia Total Greenhouse Gas Emissions (ktCO<sub>2</sub>-e)



resources, integrating alternative organic raw materials, and generating on-site bioenergy through anaerobic digestion.

Sawdust is the main fuel source at Austral Bricks Longford, Tas and is a waste acquired from various Tasmanian sawmills. The site used 11,970 tonnes or 124,500 GJ of sawdust throughout the year. While the use of sawdust is less energy efficient than natural gas, its bioenergy component means that net carbon emissions from the combustion of sawdust is 40 times lower than natural gas, avoiding 6,260 tonnes of carbon, equivalent to removing approximately 2,100 cars from the road each year.<sup>8</sup>

More information on our biofuels strategies is available in the Climate Strategy section.

## Renewable Electricity

Our Rockhampton (Qld) and Oakdale (NSW) masonry sites continue to have solar generation capacity. The 113kW and 240kW solar systems for Oakdale were installed prior to commencing manufacturing, reducing our Scope 2 emissions by 23%. 55.5kW solar system was installed and commissioned at our Rockhampton plant in February 2022. While the

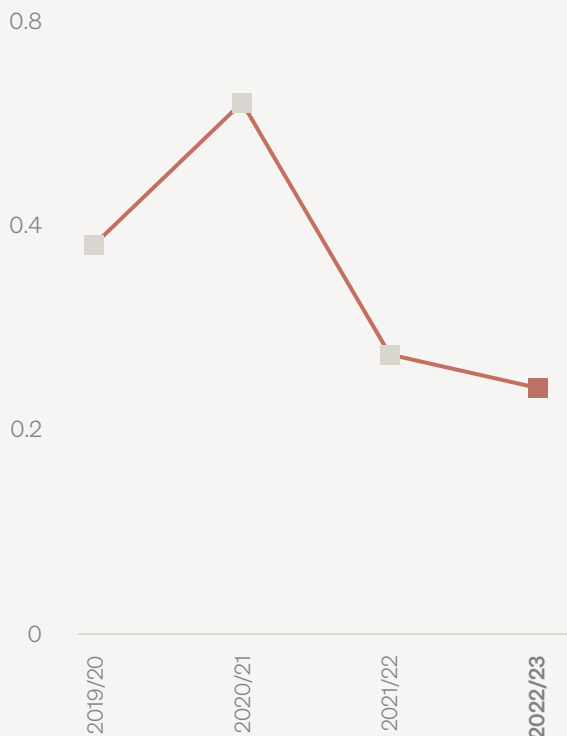
<sup>6</sup> Restated for FY2022 from 417 ktCO<sub>2</sub>e to 422 ktCO<sub>2</sub>e to include all retail sites and fleet emissions for North America.

<sup>7</sup> Based on 123.1GJ per household (ABS, Energy Accounts Australia, Latest release, 2020-21 financial year).

<sup>8</sup> Assuming a less fuel efficient car that emits around 3 tCO<sub>2</sub>e per year. <https://www.energy.gov.au/households/transport>.

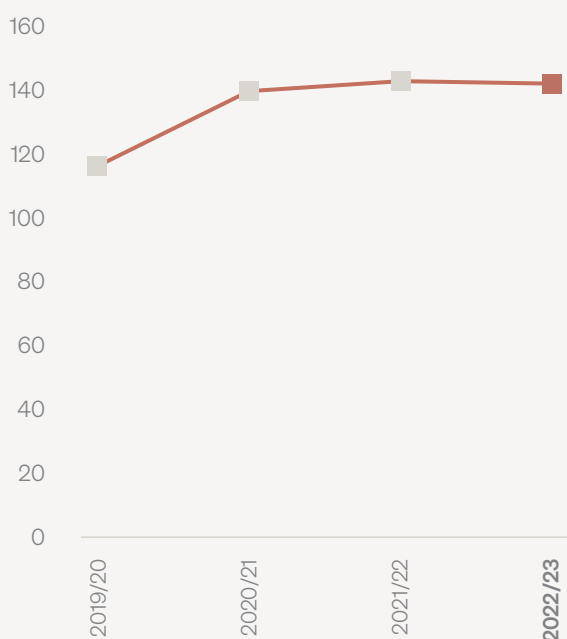
### BBP North America Carbon Intensity

(ktCO<sub>2</sub>-e / \$M Revenue)



### BBP North America Greenhouse Gas Emissions Since FY2020

(ktCO<sub>2</sub>-e)



Rockhampton site was not producing during FY2023, the solar system reduced Scope 2 emissions for the offices by an estimated 71%.

In Victoria, we are continuing to progress with preparation and approvals for solar power generation capacity at our major Wollert brick facility.

### Brickworks Building Products North America

Since FY2020, greenhouse gas intensity by revenue has improved in BBP North America by 37% to 0.32 kilotonne CO<sub>2</sub>e per million dollars (\$AUD) of revenue.

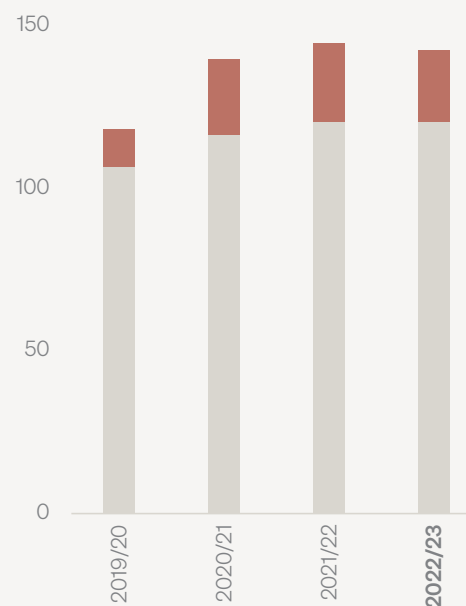
Carbon intensity by revenue for North America was 11% lower than the previous year, reflecting increased revenue from FY2022 to FY2023 and lower emissions due to plant closures.

Carbon emissions have followed a general upward trend in North America due to the acquisition of multiple businesses between FY2020 to FY2022. Brickworks' plant rationalisation program continued throughout FY2023 including the closure of the Caledonia plant (Ohio) in the first half of FY2023 and then Marseilles plant (Illinois) in the second half of the year. This resulted in a 1% decrease in emissions compared to FY2022. In FY2023 our North American operations emissions were 120,825 tonne CO<sub>2</sub>e (Scope 1) and 22,355 tonne CO<sub>2</sub>e (Scope 2), a 1% decrease on the previous year.

### BBP North America Total Greenhouse Gas Emissions

(ktCO<sub>2</sub>-e)

Scope 1  
Scope 2



## Scope 3 carbon emissions

Brickworks is continuing to build a Scope 3 inventory of its material sources including cement. Life-cycle emissions data is currently available for all Australian made clay bricks through the Climate Active Carbon Neutral Certification Product Disclosure Statements available on the Climate Active website (<https://www.climateactive.org.au/buy-climate-active/certified-members/austral-bricks>).

We have also published an Environmental Product Disclosure (EPD) for Austral Masonry Gympie which is available on the EPD Australasia website (<https://epd-australasia.com/>). We are continuing to develop an expanded library of EPDs for our products.

## Hydrogen

There remain technical and commercial challenges in the short to medium term for the conversion to zero-emission fuels such as hydrogen. However, hydrogen remains a technology that is a potential future fuel source. Over the long term, being a substantial consumer of gas, this fuel has the potential to assist Brickworks in lowering its greenhouse gas emissions.

## Methodology and reporting period

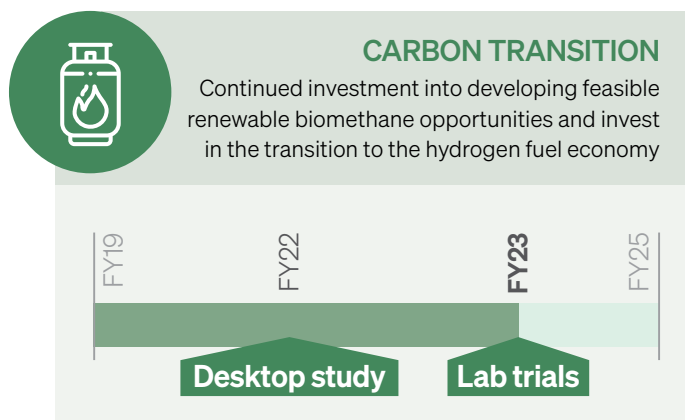
Australian greenhouse gas emissions are reported and audited for the Australian National Greenhouse and Energy Reporting Scheme (NGERS). Scope 1 and Scope 2 carbon emissions are determined using the methodology and factors outlined within NGERS. Reported carbon emissions are for the reporting period 1 July 2021 to 30 June 2022.

Although Brickworks' North American operations are not required to report carbon emissions to the U.S. regulator, the greenhouse gas inventory for our North America operations was reported and audited for the first time in FY2022 using the Greenhouse gas protocol and US EPA Emission Factors for Greenhouse Gas Inventories.

Brickworks North America has now developed greenhouse reporting methodologies for all material sources of greenhouse gas emissions.

Methodologies used for calculating greenhouse gas emissions are further described in Appendix 2

A copy of the Limited Assurance report for energy and carbon data is contained within Appendix 4.



Brickworks is investing in the transition to a hydrogen fuel economy through desktop and lab-scale trials, in partnership with Murdoch University. In FY2022 a preliminary desktop study was completed by Murdoch University to understand the effect of and ability to use hydrogen in the brickmaking process. This study identified plant infrastructure considerations under multiple scenarios for hydrogen use.

During FY2023, Brickworks supplied Murdoch University with a range of laboratory equipment for conducting essential testing on the effect of hydrogen into the brickmaking process in their laboratories. Anticipated results from this testing are expected to be received in FY2024 which will close out this project.

## Brickworks Partners with AGL Hydrogen Study

Brickworks has joined with AGL Energy and other South Australian and major natural gas buyers to examine a potential green hydrogen plant in South Australia that could serve domestic and export markets with clean fuel. The study is one of several early-stage proposals AGL Energy are completing for large-scale green hydrogen production around Australia.

The feasibility study, being carried out by independent advisory firm GHD Advisory, will map key operational and commercial plans for the project, outline the development of a production timeline and is expected to be completed by the end of the year.

*AGL ASX announcement 17 June 2022*

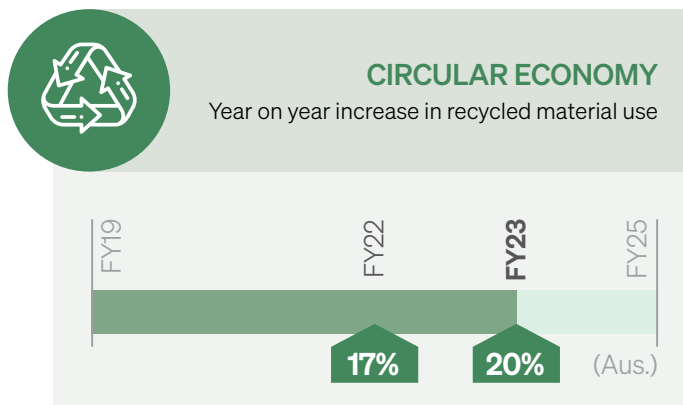


# Resources

## Waste and Water

### Waste

Brickworks' target for 2025 is a continuous improvement of recycled material use in our building products. This is a step we are taking towards progressing towards a circular economy. Waste reuse is a key focus area for the brick and concrete businesses to reduce material costs, and to increase resource efficiency to close the loop on a circular economy.



Brickworks has made continuous improvements to its measurement records in recent years, which have enabled the Company to further quantify recycled content use. This has helped Brickworks to track its progress towards its sustainability goals and to make informed decisions about how to increase the use of recycled materials in its products. We are continuing to further improve our recycled content reporting processes to improve accuracy and traceability.

### Recycled Content – Australia

A total of 474,600 raw tonnes of recycled materials were used, which is equivalent to 20% of the total weight of our Australian

building products produced. This has increased from 17% recycled content in FY2022, mainly due to improved record keeping of waste clay material from construction sites.

We have also revised our recycled content reporting processes this year which has resulted in a more conservative percentage recycled content reported. We will continue to further improve our recycled content reporting processes to improve accuracy and auditability.

### Virgin Excavated Natural Materials

During FY2023, 342,100 tonnes of raw waste clay material from construction projects also known as Virgin Excavated Natural Materials (VENM) was recycled into bricks, 46% increase from last year's usage on the previous years of 234,206 tonnes recorded. This is mainly due to improvements in measurement records that allowed further quantification of recycled content use.

### Sawdust

Natural gas is substituted with sawdust at our Austral Bricks Longford Plant in Tasmania. The sawdust is a waste product sourced from multiple Tasmanian sawmills. This site uses sawdust as the main kiln fuel. In FY2023, 11,971 tonnes of sawdust was used at Longford providing 74% of the site's energy requirements. This is a slight decrease in usage due to a maintenance shut down at our Longford Plant. Some of our other sites, such as Rochedale are also starting to use sawdust as an onboard fuel.

### Fly Ash and Bottom Ash

Brickworks uses fly ash and bottom ash as cement substitutes at five of its concrete product facilities. In FY2023, the Company used 58,745 tonnes of ash products, a 16% increase from the previous year.

Fly ash and bottom ash are byproducts of coal combustion. They are non-hazardous and can be used as cement substitutes in concrete. Concrete made with ash products has similar properties to standard concrete but uses less cement.

Grog

Grog is a term used in clay brickmaking to describe fired and unfired production waste. 100% of grog produced at our Australian brick factories is returned to the raw material mix and used as a substitute for quarried material. Grog reuse in Australia was 73,800 tonnes, a 20% decrease from last year. This decrease is due to the closure of Bellevue in Western Australia which had used significant grog volumes in FY2022.

Recycled content – North America

Glen-Gery provides a range of products with recycled content. Adel, Hanley, Iberia, Marseilles, Landmark and Sergeant Bluff plants all produce products with pre-consumer recycled content. Recycled content reduces the amount of material we have to extract from our quarries. Grog is also reused in some of our North American operations. 7,445 tonnes of grog was recycled back into the product mix in North America during FY2023. Further work is being completed to quantify total recycled content in North America.

Waste Management

Brickworks is committed to minimising the amount of waste sent to landfill from its manufacturing facilities. To achieve this, Brickworks reuses production waste whenever possible and provides recycling bins at its sites to enable source separation of recyclable materials.

Production waste that Brickworks reuses includes brick grog and unfired offcuts. These materials are recycled back into the manufacturing process. Brickworks also collects a variety of recyclable materials, including metals, cardboard, oil, concrete, batteries, ink cartridges, paper, and comingled waste streams.

Hazardous Waste

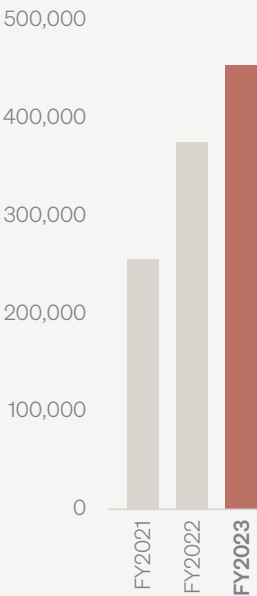
Brickworks is committed to the safe handling and disposal of hazardous waste. Our normal activities generate minimal hazardous waste, such as batteries, globes, hydrocarbons, used gas cylinders, and small quantities of spent chemicals. We provide our sites with the appropriate facilities and services to ensure that hazardous waste is disposed of in accordance with waste legislation.

Hazardous waste management is captured within our Environmental Management System. Waste management requirements are included in the monthly environmental inspection checklist for each operational site.



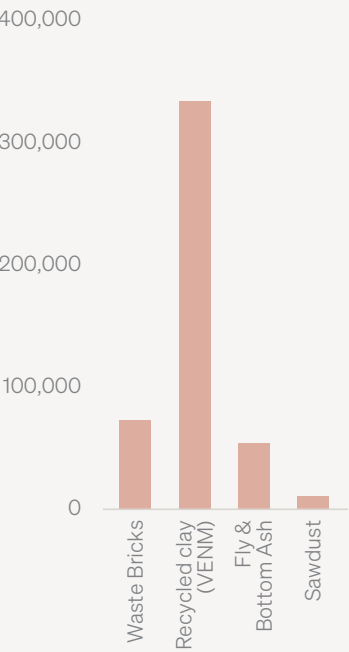
Recycled content of Building Products Australia

(Recycled content, tonnes)



Recycled materials used in FY2023 Building Products Australia

(Recycled content, tonnes)





## Water

Fresh water is a limited and often restricted resource across all states of Australia and North America and is critical to Brickworks' production process.

### Approach

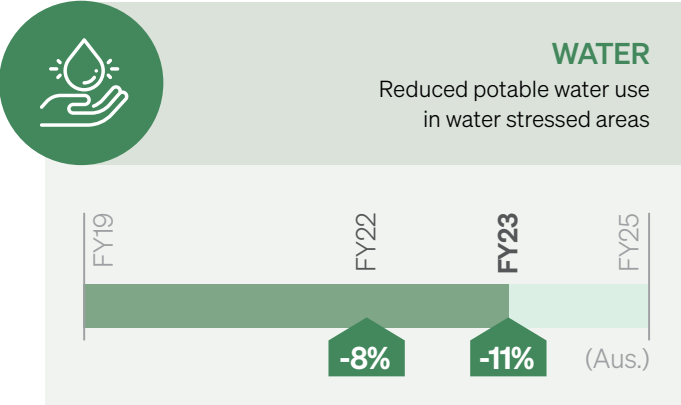
Brickworks' 2025 target is to reduce potable water usage in water stressed areas.

Water resource management is most important in water stressed areas. The World Resources Institute (WRI) ranks water stress, drought risk and riverine flood risk in the Aqueduct Water Risk Atlas. Brickworks' Australian and North American factory and quarry locations are mapped onto the WRI Aqueduct Water Risk Atlas.

The majority of our Australian and North American sites are located in low to medium-low risk areas, with only one operation located in the high water-risk area. Water efficiency at this one hard rock quarry is a key focus for the water efficiency program.

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%	52%	8%	1%	0%

Potable water use is monitored and reported to management monthly through the national operations reporting system. Brickworks prioritizes the use of non-potable water at its quarrying and manufacturing facilities, with runoff and bore water the major alternative water supplies. Recycled water, including runoff, is captured and reused on-site for activities

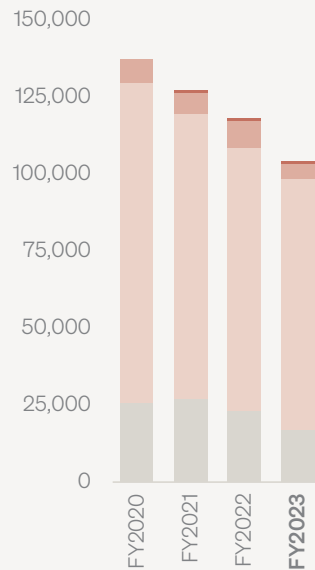






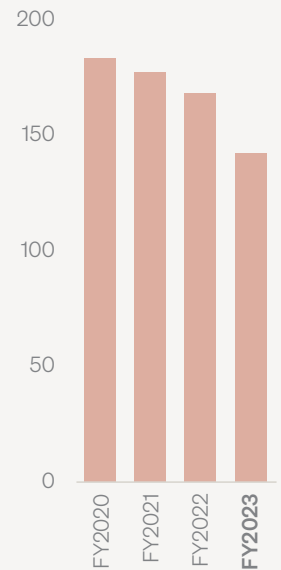
**Total Potable Water Use in Australia by Water Risk Area (kL)**

Low Med-high  
Low-med High



**Total potable water use intensity by revenue – Australia (m<sup>3</sup>/\$million AUD)**

Total water use intensity



such dust suppression. Mains (potable) water is used when other options are unavailable or not of sufficient quality for batching slurry and glaze treatments.

Potable water savings are driven through Brickworks' Environmental Water Program, which identifies and tracks key projects through site specific management plans. Water efficiency at this one hard rock quarry is a key focus for the water efficiency program.

## Performance

Mains water usage is collected on a monthly basis and reported quarterly to the management team.

Projects to reduce potable mains water identified last year are now producing potable water savings during FY2023. Water reduction initiatives included rainwater tank installations, identification of recycled water sources and repair of water leaks through water meter monitoring.

During FY2023, Brickworks used a total of 163 ML of potable mains water in FY2023 globally. Of this, 103ML of potable mains water was used at sites in Australia, a 17% reduction in potable mains water use compared to FY2022 and a 17% decrease since the release of our strategy in FY20. Our North American

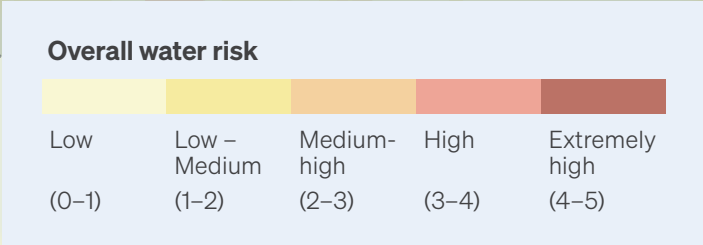
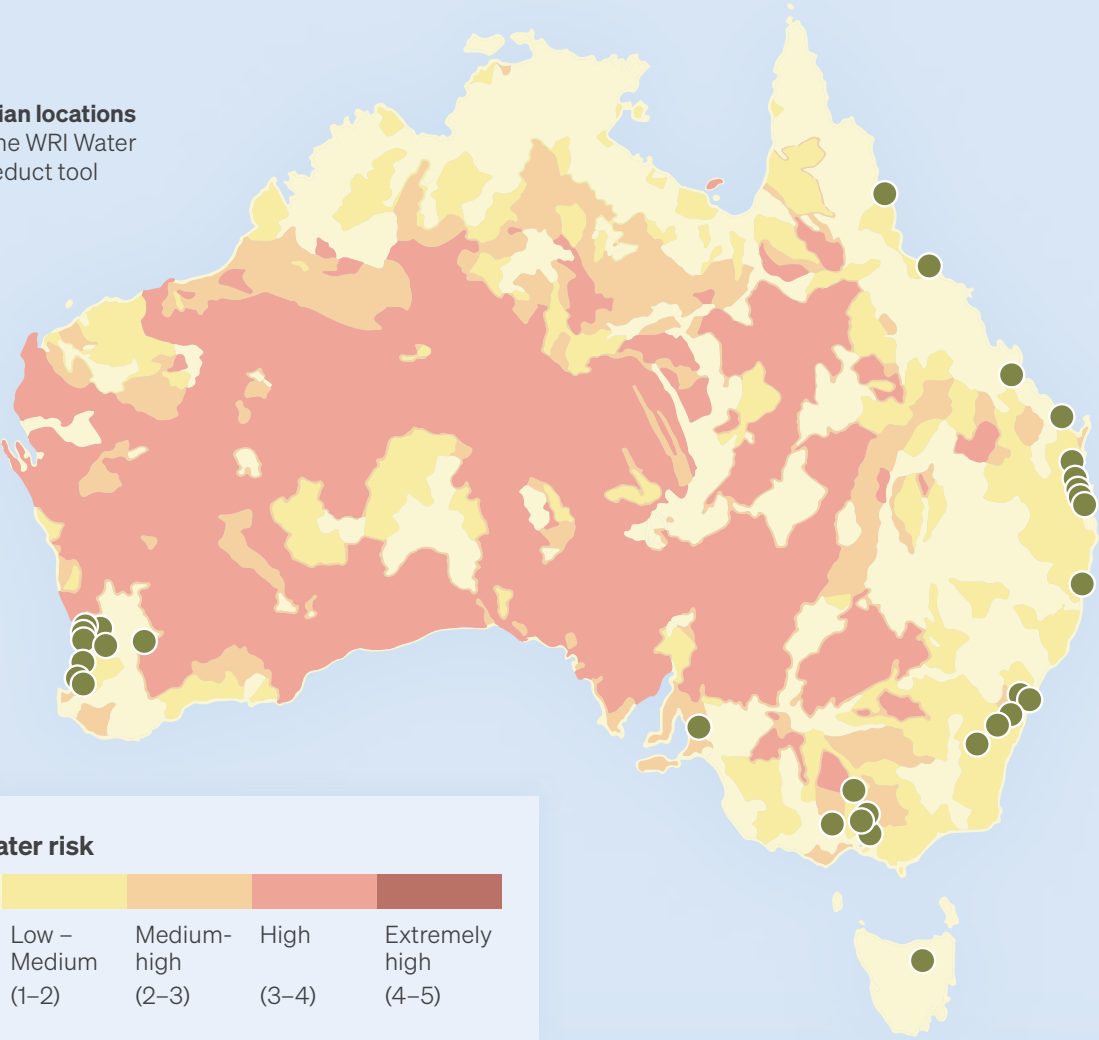
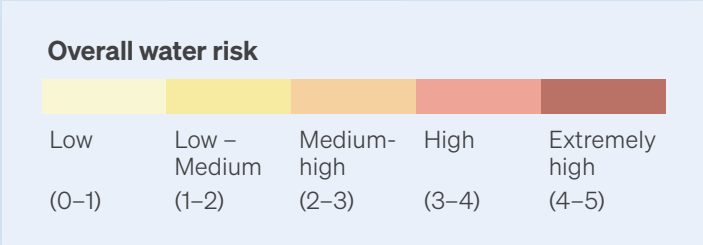
operations consumed 60ML of potable mains water in FY2023. This is the first year that data has been collected for our North American operations.

Austral Bricks Golden Grove plant, South Australia, is located within the WRI medium-high water risk area. The site identified excess quarry sump water as a non-potable water source and has purchased rainwater tanks which also accept wash-down water from a slurry wash-out bay. This project has resulted in a 36% decrease in potable water usage for FY2023 compared to FY2022.

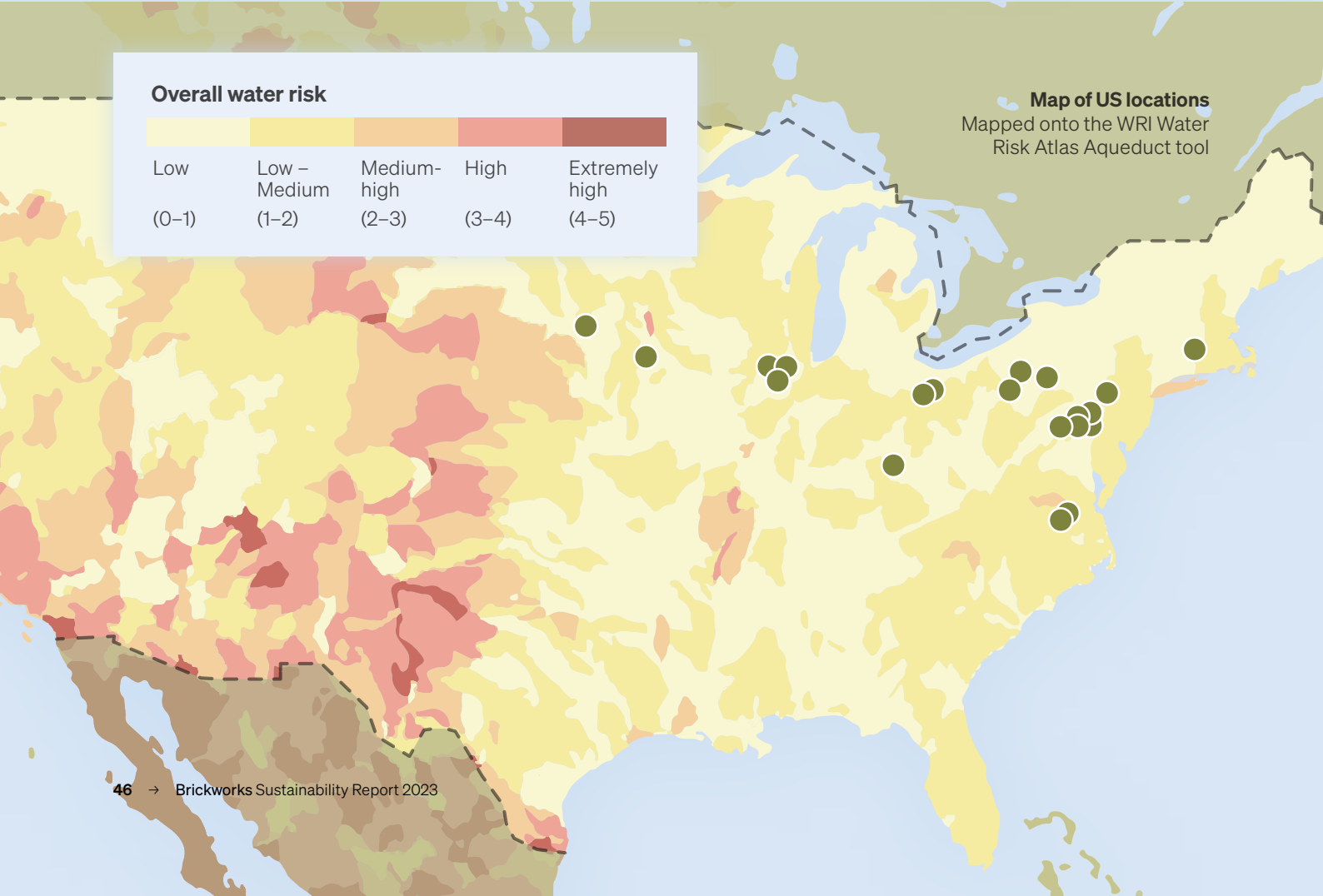
Brickworks' has only one site located within a high-risk water area. It is located in the wheatbelt region of Western Australia. During FY2023, the site used 6kL of potable water, representing 0.01% of the total potable water use in Australia. This is due to no production during FY2023. An investigation into alternative water sources such as bores or sump water will be completed when production restarts.

Total potable water intensity for Brickworks Building products globally was 134kL of potable mains water per million dollars of revenue (AUD). This is the first year North America has been included in this number. Potable water use intensity in Australia for FY2023 was 141kL of potable water per million dollars of revenue (AUD) which is a reduction of 16% from last year and 23% reduction since we released our sustainability strategy in FY20.

**Map of Australian locations**  
 Mapped onto the WRI Water Risk Atlas Aqueduct tool



**Map of US locations**  
 Mapped onto the WRI Water Risk Atlas Aqueduct tool



# Biodiversity and Progressive Rehabilitation

Brickworks recognises that its activities have an impact on the natural environment. Brickworks is committed to meeting applicable regulations and development conditions in place to protect and manage biodiversity and habitat.

Biodiversity is included within Brickworks responsibility for environmental protection as outlined in our environment policy. This policy is located on the Brickworks website. Although biodiversity is not considered a material issue or risk, biodiversity impacts are identified on a site-by-site basis.

Through our Safety Health and Environment Management system (aligned to ISO14001:2014) we identify environmental aspects and impacts at all operational sites and conduct regular monitoring and management activities. Where clearing is permitted and necessary, we follow detailed clearing procedures and undertake progressive rehabilitation to approved performance criteria.

Progressive rehabilitation is a key strategy for minimising environmental risk, end-of-life closure costs and achieving increased efficiency by reducing double handling of rehabilitation materials.

The area of progressive rehabilitation completed for FY2023 was 47,400 m<sup>2</sup> including 6,200 trees planted in Australia and 168,875 m<sup>2</sup> in North America. Progressive rehabilitation is driven across the business by adding available land reviews to annual rehabilitation planning.

An area of 443,100 m<sup>2</sup> was relinquished at the Horsley Park Plant 23 quarry in New South Wales to facilitate the new Oakdale East industrial site Stages 2 to 4.

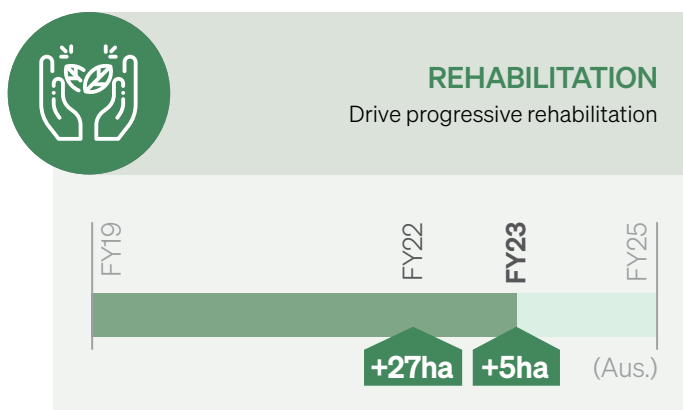
We have significant experience in rehabilitating our sites. Many of our quarries are located in centralised urban areas and are often transferred into the Property Trust Joint Venture with Goodman at end of life for final rehabilitation into industrial estates. Where possible, we aim to enhance the local environment through initiatives such as land rehabilitation, water sensitive urban design, green corridors and using native species in landscaping.



North America

## Annual Progressive Rehabilitation

Rehabilitation of areas within our North American quarries occurs annually to minimise exposed area and significantly reduce the risk of dust generation, erosion and turbid surface water.





## Understanding emerging biodiversity frameworks

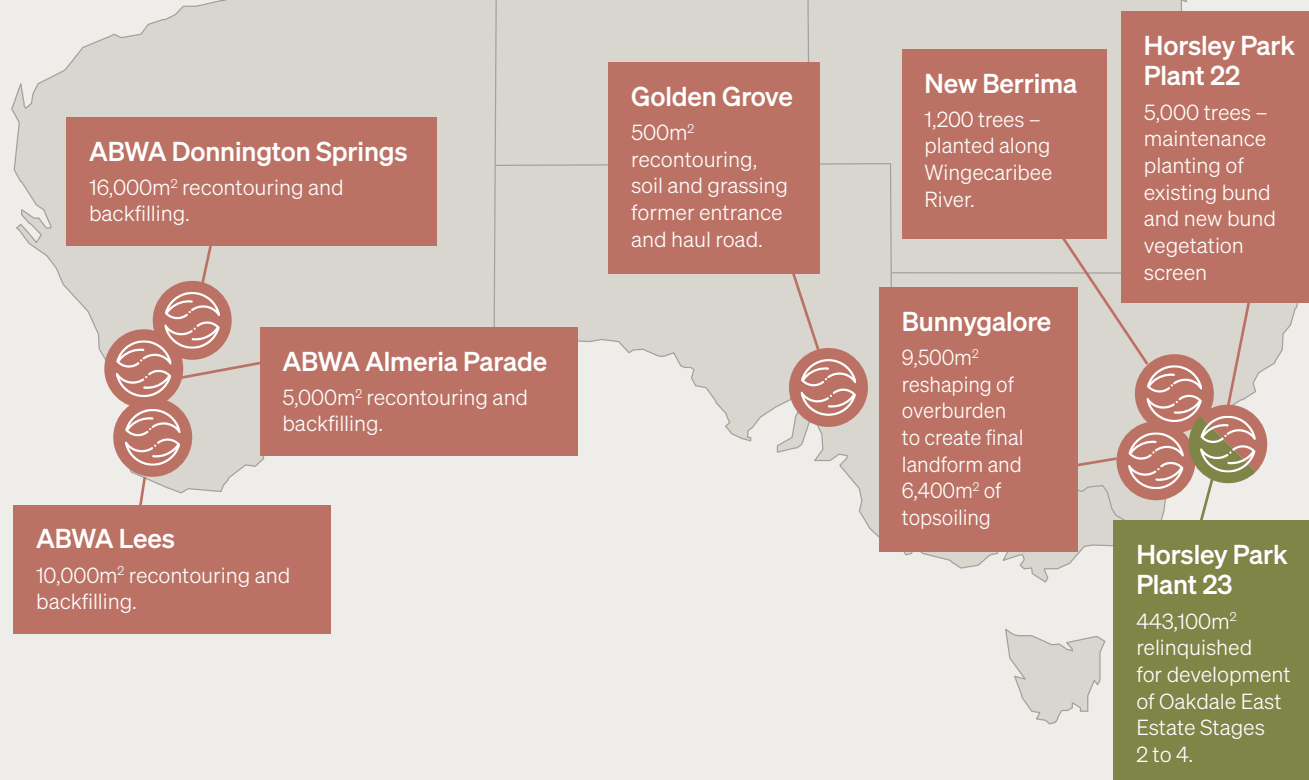
We continue to work with our consultant partners, raising awareness and understanding of emerging nature-related risk and opportunity management and disclosure frameworks.

**Bull Road**  
Seeding project



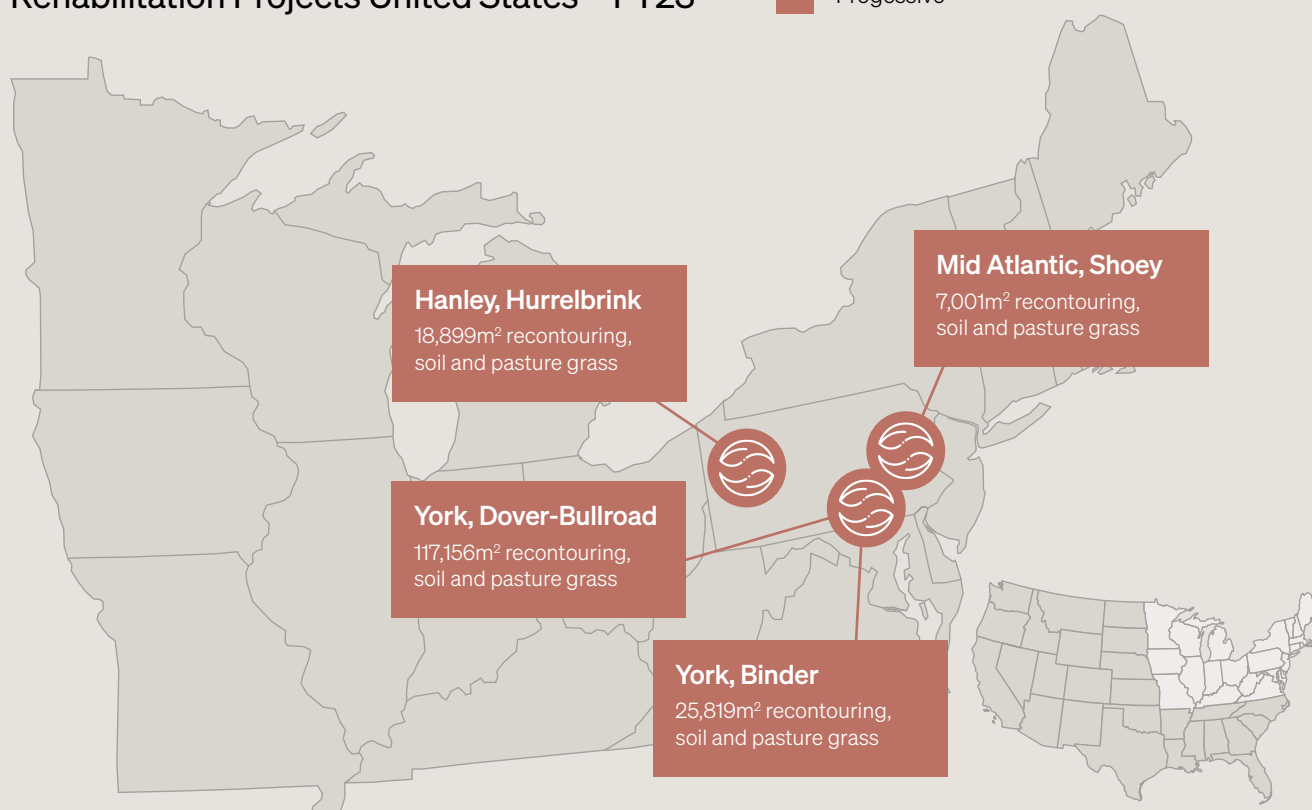
## Rehabilitation Projects Australia – FY23

Progressive  
End of Life



## Rehabilitation Projects United States – FY23

Progressive



# Goodman Brickworks Property Trust

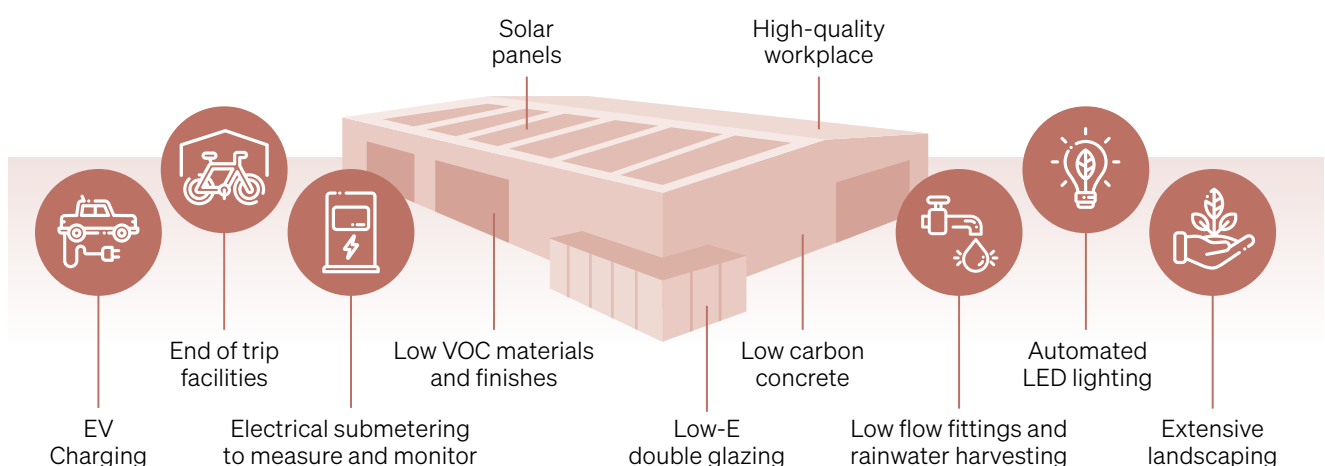
## Sustainability

On surplus land assets, Brickworks has developed extensive industry property assets in conjunction with joint venture partner Goodman Group.

Goodman is a leader in environmental social governance (ESG) with a long-term, people-focused approach that looks to achieve positive outcomes for their business, stakeholders and the communities in which they operate. Goodman has implemented its 2030 sustainability strategy which covers all its partnerships around the world, including the Goodman Brickworks Joint Venture (JV). An example of this successful partnership is the development and operations at the Oakdale Industrial Estate, NSW.

The Oakdale Industrial Estate is Sydney's next generation industrial estate. It is an established industrial precinct, ideally located within western Sydney's logistics hub of Eastern Creek, Kemps Creek and Horsley Park. Set over 440 hectares, the estate offers a huge number of development opportunities for brand new, purpose-built warehouse, distribution, and logistics facilities from 4,000 m<sup>2</sup>.

Goodman's 2030 sustainability strategy includes several specific environmental, social and governance targets, including the ambition to have carbon neutral operations by 2025, using 100% renewable energy and targeting 400MW of solar PV installed globally by 2025.







Highlights for the Oakdale Industrial Estate include:

- ▶ Sustainable design initiatives incorporated into the developments including:
  - ▶ LED lighting
  - ▶ Solar PV
  - ▶ Electric vehicle charging
  - ▶ Translucent roof sheeting
  - ▶ Energy and water monitoring
  - ▶ Drought tolerant landscaping
  - ▶ Rainwater harvesting with smart irrigation systems
  - ▶ Water Sensitive Urban Design
  - ▶ Estate-wide Biodiversity Management Plan
- ▶ 5 Star Green Star Design & As Built v1.2 rating for Building 1A, Oakdale South.
- ▶ In FY2023, a portfolio-wide Green Star Performance rating was extended to all seven buildings at Oakdale Central. A total of 244,764 sqm has now been certified under the tool, achieving a 2-star Green Star rating.
- ▶ Approximately 5.8 MW of solar PV installed to date across the estate including the 1.7MW system on Building 5A Oakdale South, leased to DHL. An additional 1MW is currently contracted for install over the coming months.
- ▶ In FY2023, a physical climate resilience assessment at Oakdale Industrial Estate was completed. The intent was to determine the vulnerability to current climate exposures, the current mitigation strategies in place, and opportunities to improve risk mitigation associated with climate-related weather events.
- ▶ An onsite café at Oakdale Central, providing a convenient food and beverage option for staff and visitors.
- ▶ A master planned (DA lodged) café at the entry to Oakdale West.
- ▶ Assessment of energy and water efficiency measures are underway across the stabilised buildings at Oakdale Industrial Estate.
- ▶ Strategic partnership with DHL on sustainability measures, including smart building technology and embodied carbon reduction measures.

- ▶ Strategic partnership with customers such as Amazon, Australia Post, EBOS Group, Maersk on sustainability initiatives such as Green Star certification, low carbon construction, EV charging and solar PV.
- ▶ The precinct is centrally located with good access to the M7 and M4 Motorways.

## Decarbonising the built environment

- ▶ Goodman has committed to measuring, reducing, and offsetting the upfront embodied carbon in its new developments globally. A large component of the embodied carbon footprint in new buildings is concrete and steel, representing up to 70%.
- ▶ A carbon budget has been assigned for each new development, and a target of 10% reduction of embodied carbon, against an industry baseline.
- ▶ Oakdale West Building 4E, workshop area, was selected for a low carbon concrete trial in an effort to understand the opportunity to reduce upfront embodied carbon associated with the ground floor slab of our facilities.
- ▶ Oakdale South Building 2A and 2B were among the first industrial developments certified as carbon neutral under Climate Active's Building Upfront Carbon product certification in FY2023. The development resulted in approximately 17,292 tonnes of upfront embodied carbon. Purchased carbon offsets are with high quality local and international nature-based solutions projects.
- ▶ Oakdale West Building 2B also achieved carbon neutral certification under Climate Active's Building Upfront Carbon product certification in FY2023. The development resulted in approximately 13,711 tonnes of upfront embodied carbon. Australia Post is the sole occupant of the facility.
- ▶ Goodman is investigating additional measures that could lead to further carbon reductions, including refining panel size, thickness, mix design, reinforcement, and material supply chain.





# Our people and community

Sustaining a strong culture driven by diverse and talented people is critical to our long-term success



# Our Global Workforce

## Culture and Values

Brickworks continues its commitment to cultivating a culture that aligns with our We Are Brickworks values and behaviours. To enable this, we focus on delivering initiatives that ensure our people feel respected, recognised, and motivated to excel.

Our formal recognition programs celebrate our employees who exemplify our company values and demonstrate excellence. Our quarterly Culture Champion Awards acknowledge the positive impact our employees make on our workplace culture and inspire others to follow their lead in living our values. Annually, we also have the Managing Director's Excellence Awards and Employee of the Year Awards. These significant award programs recognise the exceptional contributions of our people to the success of Brickworks.

From May 2023 we commenced the roll-out of face-to-face Code of Conduct training, placing a strong emphasis on promoting respect in the workplace and ensuring that all employees are fully aware of our company's expectations and standards. This training also ensures that all our people are aware of our established channels to report concerns, including an option to provide this anonymously. Further, a range of online compulsory e-Learning modules, such as the Code of Conduct, are updated and released annually to ensure the entire workforce population understands what is expected of them and can positively contribute to our workplace culture.

Leveraging the OfficeVibe engagement survey platform, we released a custom survey to gauge our employee experience and perceptions of our company's values and culture. Of those who participated in the survey 88% indicated that they were proud to work at Brickworks and 83% felt that their personal values aligned with the Company's values. This result supports that our practice of screening for values alignment in our recruitment and selection processes is proving beneficial.

Overall, the survey outcome was favourable, though we continue to review the anecdotal feedback to identify opportunities to improve our culture moving into the next year.

One year ago, Brickworks North America launched its "We Are Brickworks" culture campaign that simultaneously introduced 7 Culture Values. The organisation spent the next 12 months embedding these Values into the performance management and hiring processes. In January 2023, employees were invited to complete an Engagement Survey to assess the effectiveness of this initiative and receive feedback on how to improve the Company and its culture.

Surveys were completed online by salaried and plant hourly employees. Over 60% of the 980 Brickworks North American employees participated in the survey. Overall, salaried employees provided a more favourable average rating score than the plant hourly participants (3.9 vs 3.5 on a 5-point scale).

## Employee Engagement

At Brickworks we recognise that fostering a positive work environment and striving to achieve high employee engagement levels is crucial for ensuring the well-being of our people and supporting the overall growth and success of the Company.

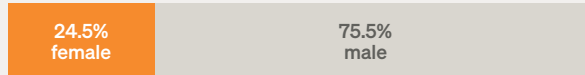
In February 2023 Brickworks launched OfficeVibe, an engagement survey platform capturing fortnightly pulse checks on employee satisfaction and engagement levels. This initiative has allowed us to gain valuable insights into the experiences and perceptions of our employees and enabled managers to review and respond to feedback in real-time whilst the system maintains employee's anonymity. The collection of this data is supporting Brickworks to address key concerns and identify areas for improvement.

Since its launch, Brickworks has been sustaining a very good overall engagement rating of 7.4/10 and a positive average employee net promotor score (12 eNPS). The platform also

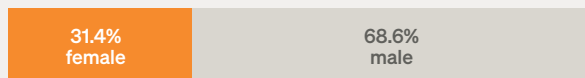
# Our workplace AUSTRALIA



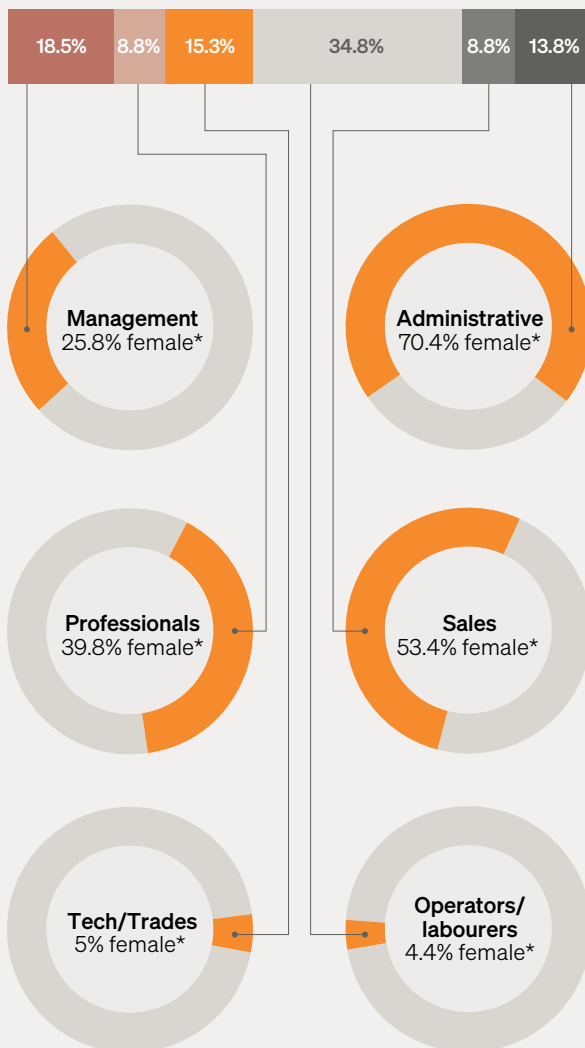
## Brickworks workplace: gender diversity overall



## Brickworks workplace: Senior Executive gender diversity



## Brickworks workplace: employee categories\*



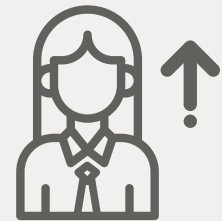
**1,093**  
Total workforce



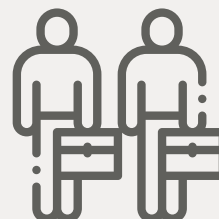
**43.3**  
Average age of employees



**24.5%**  
Female employees  
(no change from FY22)



**31.4%**  
Female senior executives  
(up from 26.5% in FY22)



**34.3%**  
Employees aged 50 and over



**8.9**  
Average years of service

**Note:** Female % is a fraction of each profile type.

\* from WGEA data 2023

provides functionality that enables our people to send cards of appreciation and/or praise, known as Good Vibes. This informal recognition channel is actively used with over 1,200 Good Vibes shared since the launch of OfficeVibe.

To foster transparency and effective communication Brickworks continues to present two company update nights during the year. These events provide an opportunity for all staff members to come together and by sharing these insights, we encourage a sense of ownership and alignment among our employees, which contributes to their overall engagement and commitment to our shared vision.

Creating a sense of community and connection is important at Brickworks. We continue to bring our people together regularly for Social Club activities, end of year celebrations, site-based BBQ lunches and through our monthly newsletter, we celebrate and honour significant years of service, share staff interviews, and acknowledge personal and family milestones. By providing a platform for our employees to be seen and appreciated, we foster a culture of support, recognition, and genuine care.

In the past 4 years, Brickworks North America has integrated 5 companies, revolutionized the brick market by opening Design Studios and promoting brick as fashionable and trending, while consolidating industry manufacturing capacity, improving production capabilities, and reducing the age of its factories. With all the change that has occurred, the Company is encouraged by the level of engagement and alignment of the feedback received from across the organisation.

There are always areas for improvement. The message from employees seems clear, for example:

- ▶ While we have spent millions of dollars each year on tools and infrastructure, there is more work to be done to overcome the lack of investment during the years preceding Brickworks.
- ▶ At a high level, employees understand the vision and direction of the Company and how they contribute to its success. The company may benefit from expanded cross functional collaboration, increased training and development, and improved efficiencies to address concerns regarding communication and work-life balance.

Sharing the feedback with managers to review and discuss the results for their area has been critically important to ensure the message is validated, clear and not assumed. Managers have worked with their teams to share the results and prepare the appropriate Action Plans to focus on specific areas where they can begin acting to create positive change.

## Employee Retention

We firmly believe that our employees are our greatest asset, and their long-term commitment and growth within Brickworks contributes to our success.

We take pride in our ability to foster long-lasting relationships with our employees which is reflected in our average tenure of more than 8 years for this FY period. Furthermore, 41% of our people have been employed with us for 8 or more years, further demonstrating the loyalty and dedication our employees have to Brickworks.

To achieve significant tenure at Brickworks we recognise the importance of investing in our people and keeping them engaged through internal mobility and promotional opportunities. We support multidisciplinary careers that enable our employees to explore new roles and challenges while staying within the Company and retaining their knowledge. This approach strengthens our talent pool, provides growth for our people, and reinforces a sense of belonging.

During the 2023 WGEA reporting period, 83% of our positions were filled either through internal appointment or promotions, supporting our approach to retaining internal talent, where achievable. Alongside this, we continue our annual practice of conducting salary reviews, industry benchmarking and providing short and long-term incentive benefits for our workforce, ensuring they are remunerated fairly for their contribution.

Unfortunately, FY2023 saw the gradual closure of our precast operation and moth-balling of Austral Bricks Western Australia sites. Through this period, we remained dedicated to supporting and transitioning our people through this change by offering redeployment options, access to outplacement support services and fair redundancy packages.

The decision to enact these business closures, ultimately has an impact on our overall turnover for the year. However, our voluntary turnover (resignations and retirements) in Australia is currently 19.8% which is higher than we would like. Our focus into the next year will be to improve retention by continuing our efforts to review data from our exit interviews and engagement surveys and identifying opportunities to improve employee satisfaction.

In North America, overall turnover decreased by 8 percentage points and voluntary turnover decreased by 7.5 percentage points. The overall turnover would have been more favourable if not for the closure of the Marseilles manufacturing facility and salaried workforce reduction. Improvement to voluntary

## Employee Turnover

	Aus. FY2022	Aus. FY2023*	North America FY2022	North America FY2023	Global FY2022	Global FY2023
Voluntary	17.9%	19.8%	33.5%	26.0%	25.0%	22.6%
Total	19.6%	32.7%	46.1%	38.2%	31.7%	35.2%

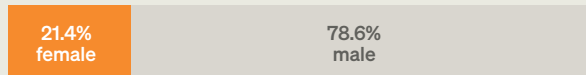


# Our workplace

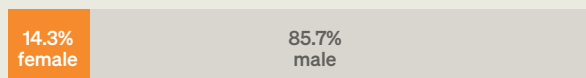
## NORTH AMERICA



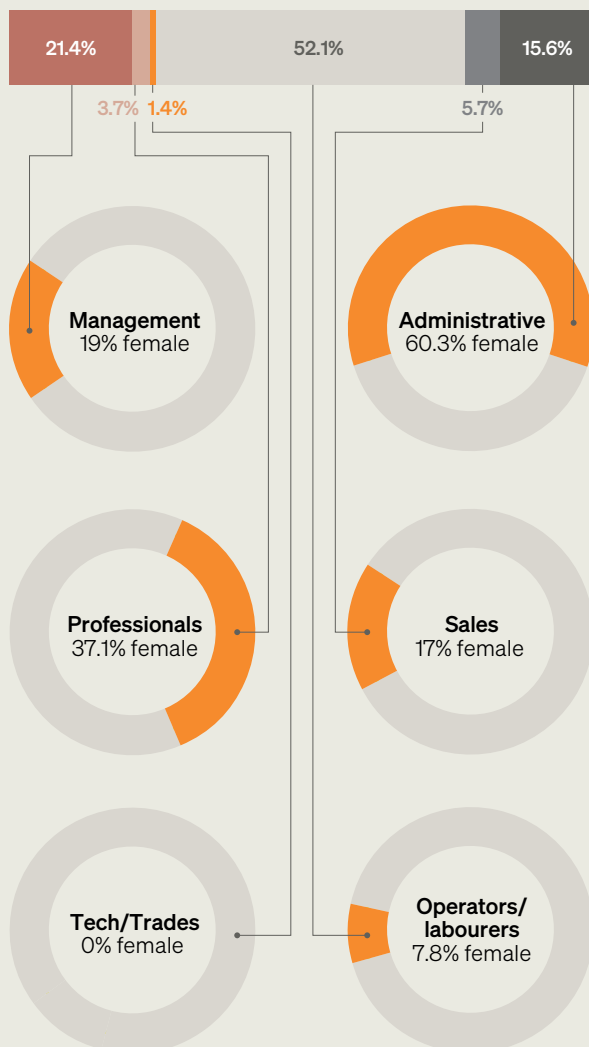
### Brickworks workplace: gender diversity overall



### Brickworks workplace: Senior Executive gender diversity



### Brickworks workplace: employee categories



Note: Female % is a fraction of each profile type.



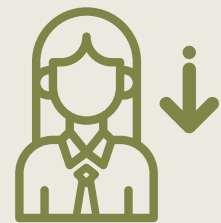
**934**  
Total  
workforce



**45.8**  
Average age  
of employees



**20.9%**  
Female  
employees  
(down from 22% in FY22)



**14.3%**  
Female senior  
executives  
(down from 21% in FY21)



**43.8%**  
Employees aged  
50 and over



**10.8**  
Average years  
of service



Intake of some of our Cadets and Graduates along with senior managers

turnover is attributed to efforts resulting from remuneration reviews, training investments, and engagement survey and exit survey actions.

## Talent Pipelines

We remain focused on ensuring a strong and steady pipeline of talent within the business and achieve this through connection with external secondary and tertiary institutions; via a range of talent program offerings; and through a continued commitment to internal promotions.

Brickworks was proud to sponsor the attendance of Australian high school STEM students at the 2023 International Science and Engineering Fair (ISEF) in Dallas, USA. We also continue to maintain relationships with universities across the country to ensure a stream of students into our related talent programs:

- ▮ Industrial Training Program – a 60-day work placement opportunity to support students in gaining industry experience as part of their course requirements. This short program may feed into the broader Cadet Program. In the FY2023, 6 students were enrolled in this Australian program.
- ▮ Cadet Program – a 1 to 2 year paid employment offering for those in their penultimate or final year. Working on a casual basis around university scheduling, students can

gain additional experience in their field of study and will be involved in both business rotations and project work to extend their skillset.

- ▮ Graduate Program – this 2-year structured program and dedicated period of learning for those students, either via the Cadet Program or directly after graduation, who wish to pursue an accelerated pathway into leadership roles. In FY2023 we have 5 Graduates enrolled, with 3 of them streaming across from the FY2022 Cadet Program.

We also offer electrical, fitter and roof tiler Apprenticeships, available to both external applicants and employees seeking a career change, and currently employee 15 Apprentices.

This past year we started to ramp up our succession planning activities, following a best-practice model to ensure robust development plans are in place and reviewed regularly for potential successors to leadership and other key roles within the business.

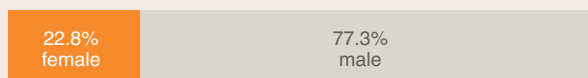
These activities feed into our Leadership Development Program, another structured yet tailored offering to support a pipeline of talent moving into three tiers of leadership, accommodating supervisors, middle management and executive level roles.

Employees are further supported in their development journey through our structured Mentoring Program – a popular initiative

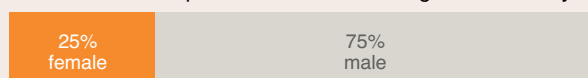
# Our workplace GLOBAL



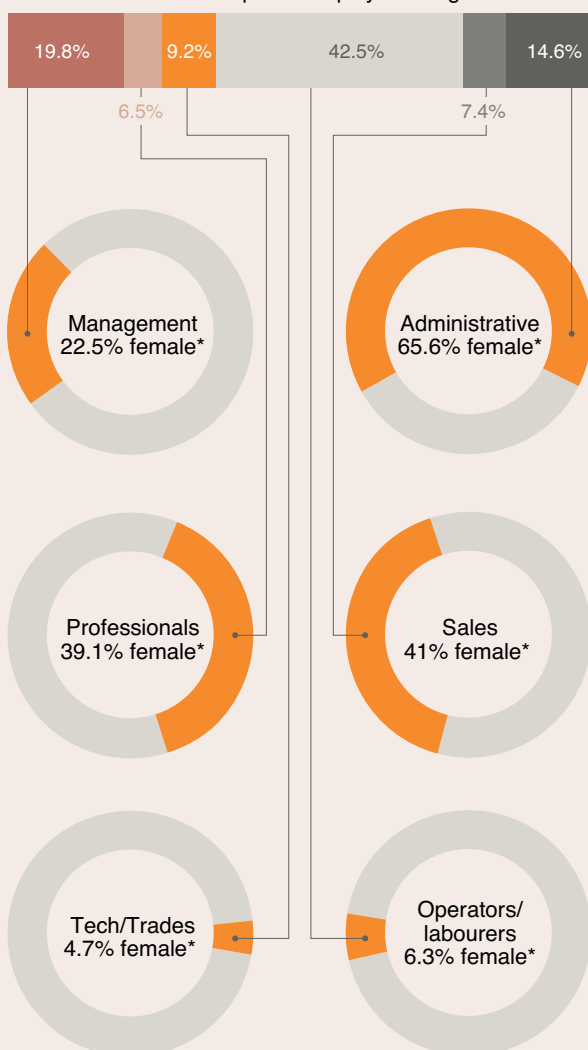
Brickworks workplace: gender diversity overall



Brickworks workplace: Senior Executive gender diversity



Brickworks workplace: employee categories\*



*Note: Female % is a fraction of each profile type.*



**2,027**

Total  
workforce



**44.5**

Average age  
of employees



**22.8%**

Female  
employees



**25%**

Female senior  
executives



**38.2%**

Employees aged  
50 and over



**9.9**

Average years  
of service



# 2023 Mentoring Program Attracts Record Participants

We are pleased to announce the launch of our 2023 Mentoring Program.

This is the second time running the internally developed mentoring program at Brickworks, with a record number of participants. We are excited to continue the program which supports our commitment to employee development and aligns with our company values – Care, Collaborate, Exceed, Innovate, Integrity, Lead and Inclusive.

The 2023 Mentoring Program has seen a peak in interest with a total of 82 participants with 47 mentoring partnerships. We are fortunate to have a great deal of knowledge, skills and experience within Brickworks that can be shared across the company through the Mentoring Program Journey.



Our female roof tiling apprentice is raising the roof for other female trade apprentices

in place since 2018. This year we were pleased to receive a record number of applications – 82 in total, comprising of mentors and mentees. Of these, 11 were female mentors, and 17 female mentees.

In the FY2024, we plan to develop a Transition to Retirement Program that will allow for a knowledge transfer before departure, to capture what often equates to a long tenure of experience in critical roles

North America continued its commitment to the Emerging Professional Development Program, or more popularly called the “Brew Crew,” which is a graduate development program that provides employees with building a professional skillset, reputation, and network in our organisation. These employees are newer entrants into the workforce, specifically less than 5 years of experience. Ideally, candidates have graduated with a degree from an accredited institution.

Participants in the program are exposed to training that develops their professional skills, promote company awareness as well as encourages organisational engagement. Training is held online for 1 ½ hours once a month and ranges from topics such as Emotional Intelligence, Increasing Personal Accountability and Workload Management.

The program has been expanded to include 3 levels: Brew Crew, Brew Masters, and Brew Alumni. Each level expands the development of emerging professionals providing them with expanded networking, mentoring, and learning opportunities focused on the business and their careers.

In 2023, North America introduced the Glen-Gery Technical Academy, which offers employees with the opportunity to further develop their skills in the trades. Employees could express their interest in continuing their education through course work at accredited trade schools and technical institutions, and through hands-on application on the job. Partnerships have been created near each manufacturing plant location to provide instruction in the areas of Millwright, Electrical, and PLC Controllers.

Classes begin in the September 2023 for the 10 employees offered to entry into the program out of 17 employees who expressed interest and participated in an assessment process. The remaining 16 employees will be provided entry level training to develop their mechanical and electrical aptitude in preparation for the next cohort.

## Learning and Development

BricBrickworks continues its strong commitment to employee growth and development through the provision of regular performance and development discussions between managers and their teams; ongoing encouragement for all staff of 2 hours each week utilised for training; and through our structured talent programs. Employees engage in a range of externally facilitated short courses as well as complete certifications and qualifications aligned with their work. Our employee development practices have been added to our website to promote our offering and include staff testimonials.

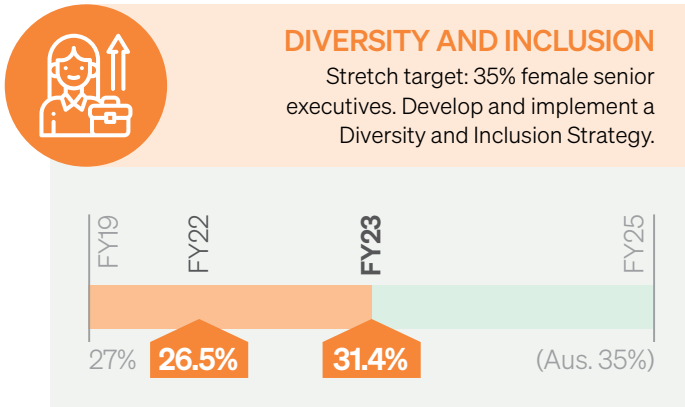
Employees are invited to monthly ‘Lunch and Learn’ sessions covering a broad range of topics from webinars on work / life balance to expert facilitator-led sessions on superannuation and will and estate planning.

Throughout the year succession planning activities have played a key role in accelerating high potential employees in readiness for future roles, securing a strong pipeline of leaders in years to come.

A dedicated learning and development function was also established internally in FY2023 to coordinate and strategically plan training and education initiatives – creating a suite of content for regular roll-out to employees and ensuring learning and development remains a key and continued priority for Brickworks.

Diversity, Equity and Inclusion

At Brickworks we have continued to extend our diversity, equity and inclusion (DEI) initiatives, achieving many of our diversity goals since the inception of our diversity strategy. Training on how to advance gender diversity was internally developed and rolled-out to people managers across the group in June. We are pleased to report an increase in female representation in the executive and manager cohorts and remain committed to meeting our stretch targets for gender diversity at all levels in the coming years.



Our commitment to flexible work arrangements remains strong with increased participation across our business supporting the needs of those with caring responsibilities, disability, and generally in offering a work/life balance.

We continue our focus on equal employment opportunities, ensuring fair and equitable recruitment and selection practices, and are in the process of reviewing all internal policies and procedures to ensure legislative compliance and alignment with International Labour Organisation (ILO) conventions and requirements. Code of Conduct sessions are being rolled-out nationally to ensure all employees understand their responsibilities regarding bullying and harassment to support a respectful and inclusive work environment for all, and managers are kept abreast of all relevant legislative change. To further support positive messaging in this regard and reinforce Brickworks' commitment to a safe and respectful workplace, banners and signs have been implemented in offices, retail spaces and factories around the business.

A diversity and inclusion survey was published in May seeking input from willing employees (with full anonymity) to gauge the make up of our population and assist in determining the focus of future DEI initiatives. As a result of this survey, dedicated quiet rooms are being created to serve as private spaces for breast-feeding, meditation and prayer, as required by our staff.

We promote and come together to celebrate and raise awareness for a calendar of events such as Harmony Week, the World's Biggest Morning Tea, Jersey Day in support of organ and tissue donation awareness, and International Women's Day – this year getting behind 'Dress for Success', with staff donating quality work attire to women in the community seeking to enter or re-enter the workforce. Nationally, Brickworks employees donated 751 individual pieces to support this important initiative.

HIA International  
Women's Day Luncheon





# Brickworks Helps Women Dress for Success

International Women's Day (IWD) 2023 was recognised and celebrated across the business with a series of morning teas and a large group donation to Dress for Success.

Dress for Success is a global non-profit improving the employability of disadvantaged women, helping them become financially independent. They achieve this by providing professional clothing and accessories, plus a network of support and development tools. Brickworks donated a total of 751 items, collected from our generous staff across the country.



In the coming year we seek to build on our progress, including the creation of a 'Return to Work Program' supporting parents after a period of parental leave, as well as development of a Reconciliation Action Plan.

In North America, our culture is a testament to the values that our employees foster from their own personal experiences. As a company, we want to tap into the richness of those experiences to create a collaborative and inclusive environment.

As such, in 2023, we created a Diversity and Inclusion Committee; whereby, Ambassadors have an opportunity to provide recommendations on ways to promote awareness and engagement, and to create a calendar of events to encourage participation. The committee is dedicated to fostering a culture of acceptance and belonging for all employees, where diversity of thought, background, and identity is embraced and leveraged to drive innovation. The more inclusive we are, the better our work will be for our employees, customers, and stakeholders.

## Employee Wellness

Our Employee Assistance Program (EAP) provider services have been promoted widely across the business. The services are available to all employees and their immediate families and

are both free and confidential. The offering includes a manager support service for people managers, and more broadly for all employees, support and advice on topics such as relationships, finances, work, family and health. In addition to counselling, other channels of information are available including learning modules, podcasts, and articles. We have also leveraged a monthly series of webinars supplied by our EAP provider, sharing these with the employee group via a 'Lunch and Learn' platform.

During our annual Sales and Manufacturing Conference, attendees completed a Mental Health and Well-being Index and results were reviewed and discussed with action items determined to uplift awareness and capability in ensuring employees experience a psychologically safe working environment. One such action item was for key people managers to complete Mental Health First Aid training which was initiated immediately after the conference.

In addition, a national calendar of events has been determined for promotion throughout the year with Mens Health Week and R U OK? Day key events publicised with active involvement from the employee group.

To further consult with our staff, a Mental Health and Well-being survey was developed and issued to measure employee opinion. Seventy-eight percent of participants reported that the culture



of Brickworks supports mental health and well-being, and 98% know how to access resources to support their mental health and well-being.

The healthcare plan in North America includes many preventive care services, including colorectal cancer screenings, to help employees live healthy and be well. At risk employees received free confidential in-home colorectal cancer screening test kits from our health insurance partner. Colorectal cancer is the second leading cause of cancer deaths in the United States.

## Workplace Relations

Brickworks respects the rights of all our employees to the Freedom of Association and reaffirms the requirements of the Fair Work Act 2009 (Cth) which protects freedom of association in the workplace by ensuring that persons are free to become, or not become, members of industrial associations, are free to be represented, or not represented, by industrial associations, and are free to participate, or not participate, in lawful industrial activities.

Brickworks has 31% of the manufacturing workforce covered by union enterprise agreements. The remaining breakdown of the manufacturing workforce has 35% covered by non-union enterprise agreements, with the remaining 34% covered by individual agreements and Awards.

Brickworks' approach in the last 12 months has been to collaboratively work with all the relevant representatives and employees. This is to ensure the optimum outcomes are achieved for both the employees and employers, in the provision of fair and equitable workplace conditions and wages, that promulgate a sustainable outcome for the whole business.

North America operates 8 manufacturing plants, 4 union and 4 non-union. During FY2023, one collective bargaining agreement was successfully negotiated and executed at the Adel, IA Plant.

The number of union plants decreased from the prior year due to the closing of the Marseilles, IL Plant.

Brickworks Supply Centres, the distribution business in North America, has 6 CBA's, covering 9-yard locations, consisting of 38 truck drivers and yard workers. During FY2023, two CBAs were successfully negotiated and executed at the South Bend, IN and Naperville, IL locations.

## Percentage of Employees Covered by Collective Bargaining Agreements

	Australia <sup>1</sup>	North America <sup>2</sup>	Global
Collective Bargaining Agreement	77.5%	61.0%	69.4%
No Agreement	22.5%	39.0%	30.6%

## Composition of Collective Bargaining Agreements

	Australia <sup>1</sup>	North America <sup>2</sup>	Global
Union Based	46.2%	100%	69.4%
Non-Union Based	53.8%	0%	30.6%

1 Wages Employees Australia

2 Labour / Distribution Employees North America

## Compliance

A number of Fair Work conciliations have resulted in settlements, with no fines or non-monetary sanctions received in FY2023.



# Health and Safety

There is no task that we undertake that is so important that we can't take the time to find a safe way to do it.

## Strategy

Brickworks is committed to mitigating health and safety risks for its employees, contractors, and the wider public. Central to this commitment is Capable Safety Leadership, a cornerstone in nurturing a robust safety culture and establishing a comprehensive framework for identifying and managing health and safety risks.

The development of Brickworks centralised health and safety database enables the facilitation of advanced data analytics and reporting features across the Australian and North American operations. This also leads to an expansion in record compilation, incorporating photo attachments, while simultaneously automating action management workflow processes with all information accessible from any smart device.

Brickworks has devised operation-specific guidelines, from material sourcing to manufacturing and distribution. These protocols ensure strict adherence to industry standards, with a strong emphasis on efficiency, safety, and quality across the production process. This focused approach distinctly demonstrates Brickworks' dedication to achieving excellence in its industry. The company's pursuit of improved safety standards is supported by the Brickworks Health and Safety Management System. This system not only outlines explicit roles, responsibilities, and accountabilities but also sets ambitious targets to realise its health and safety policy commitment. With a mature management system aligned with ISO 45001 standards, Brickworks underscores its commitment to maintaining a safe environment and safeguarding the well-being of all stakeholders.

The well-being of individuals within Brickworks sites remains a primary focus. The company's commitment to fostering a health and safety-oriented culture drives the efforts to reduce

safety incidents through ambitious targets, meticulous risk assessments, process refinements, and continuous training. This comprehensive approach reinforces the dedication to achieving company safety goals while fostering a workplace culture that prioritises the well-being of employees and contractors.

Brickworks demonstrates commitment to contractor safety through clear objectives, stringent pre-screening and induction procedures, meticulous permit-to-work focus, and integrated safety protocols. Regular evaluations and risk management strategies endeavour to establish a secure contractor work environment. The company's strict adherence to safety guidelines within contractual agreements further emphasises its commitment to safety.

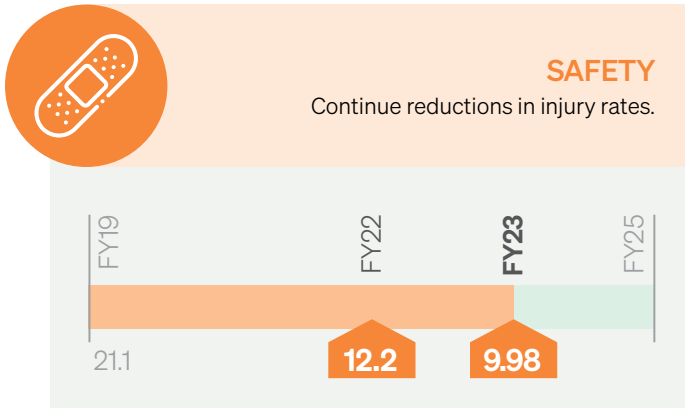
Key initiatives in FY2023 were the expanding presence of safety program focused on the measurement and reporting of safety lead indicator activities, nurturing safety competence, and fostering a culture of safety behaviours. In line with this effort, Brickworks carry out random fit-for-work assessments to identify any workers under the influence of alcohol, drugs, or other substances in the workplace. Additionally, the Company has instituted a psychosocial health program, reinforced by a team of over 150 qualified Mental Health First Aiders, which contributes to augmenting employee well-being.

Ongoing health and safety training for employees is ensured through a training framework, supported by an online training platform, and external courses, equipping employees with the knowledge and skills to mitigate risks. Yearly employee appraisals emphasise development, reflecting the Company's dedication to health and safety and the professional growth of their employees which is important as Brickworks strives to nurture a generative safety culture.

Brickworks also enforces comprehensive emergency preparedness procedures, addressing diverse scenarios from natural disasters to man-made crises, safeguarding personnel, facilities, and communities. Frequent drills and training empower the workforce to adeptly respond to emergencies, demonstrating dedication to operational security and community welfare. Additionally, regular external safety system audits are conducted to ensure the effective implementation of these safety measures throughout the organisation.

Regrettably a fatal accident occurred in July when an employee of a contractor operating at Austral Masonry's Cairns site lost his life. The incident occurred during the processing of waste products and was managed by a reputable concrete recycling company. Notably, this fatality is excluded from our statistics as Brickworks had no direct operational control or management over this incident.

Our 2025 strategy target is for continued reductions in injury rates for company employees, contractors, and others.

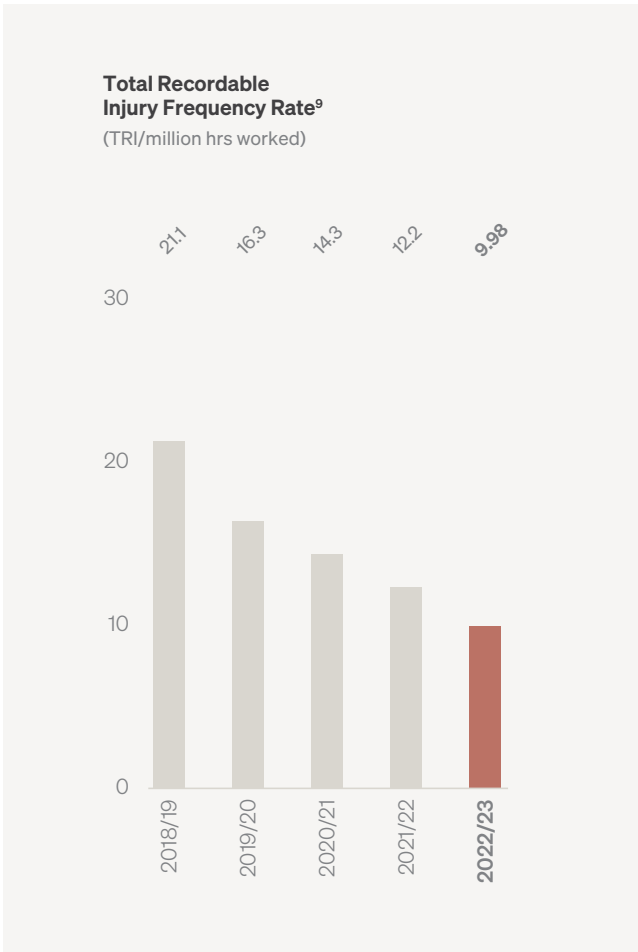


### Performance (Group)

Since the acquisition of the North American operation in December 2018, Brickworks has continuously improved its consolidated total recordable injury frequency rate. Notably, in FY2023, this rate decreased from 12.21 to 9.98, showcasing further progress.

This achievement can be largely attributed to the successful integration of Australian health and safety technologies and initiatives into the North American operations. What's particularly encouraging is the enthusiastic adoption of these new safety management systems by the US team.

It's worth noting that the reported frequency rate data currently does not encompass contractor injuries. Nevertheless, robust endeavours are in progress to formulate these rates, with an emphasis on upholding data precision and quality. In the fiscal year 2022–23, the Company documented a total of seven

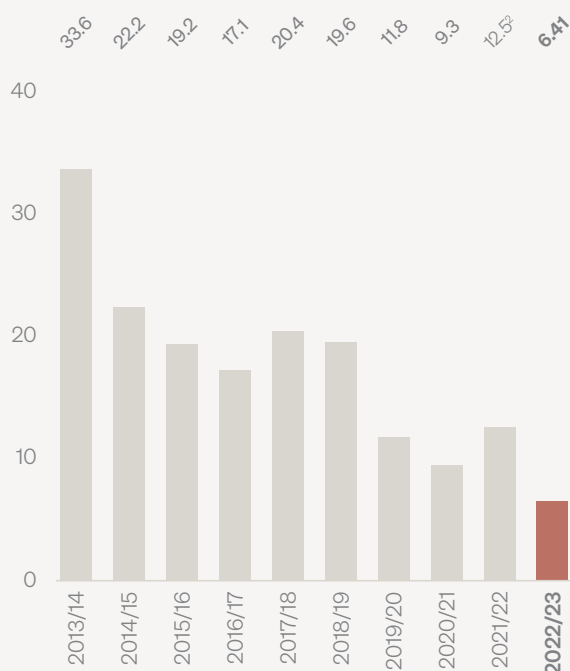


9 FY2022 restated to include injuries that occurred in FY2022 but were reclassified during FY2023. Previously stated figures for FY2022 – Consolidated 5 LTI, 46 MTI, LTIFR (1.8), TRIFR (11.7).



## Total Recordable Injury Frequency Rate (Australia)<sup>10</sup>

(TRI/million hrs worked)



recordable contractor injuries, which marked a decrease from the prior year's figures. Notably, there were fifteen such injuries reported during 2021–22. In terms of the severity of contractor injuries, one recordable injury resulted in a temporarily life-altering outcome, alongside six class three injuries, which were non-life-altering injuries.

## Performance (Australia)

The total recordable injury frequency rate (TRIFR) stood at 6.41, marking a decrease from the TRIFR of 12.51 recorded in the preceding year.

Brickworks remains committed to its safety strategy, focussing on the presence of safety, lead indicators, targets, training, and management accountability to foster enhanced health and safety outcomes. During FY2023, significant milestones were achieved, including the completion of over 23,636 eLearning Safety courses by both company employees and contractors. Additionally, 800 random tests for alcohol, drugs, and other substances were conducted, while maintaining a roster of over 150 qualified mental health first aiders. The year also saw the undertaking of 2,491 workplace inspections, all contributing to the comprehensive safety framework.

Brickworks' rigorous approach to identifying and effectively managing health and safety risks resulted in the control of over 1887 identified hazards during FY2023. Furthermore, the

organisation maintains a robust near-miss reporting culture, evident by the near-miss frequency rate (NMFR) of 14.66 for FY2023.

In relation to recordable injuries at Brickworks, the severity is classified into three categories for workers: Class 1 signifies injuries resulting in permanent life alteration, Class 2 denotes injuries that are temporarily life altering, and Class 3 encompasses injuries that do not cause life alteration. In the context of Brickworks employees during FY2023, no Class 1 injuries were reported. Among the total recordable injuries, 23 percent fell under Class 2, while the remaining 77 percent were classified as Class 3 injuries that did not result in life alteration.

For contractors, there were no Class 1 injuries. Within the total recordable injuries, 14 percent were categorised as Class 2, and the remaining 86 percent were designated as Class 3 injuries that did not lead to life alteration.

## Respirable Dust and Silica

At Brickworks, we have implemented stringent measures to effectively mitigate the risks associated with respirable dusts and fibres. Our commitment to worker health extends beyond governmental regulations, encompassing a comprehensive program maintained across all Brickworks sites. This program includes both static and worker exposure monitoring, as well as engineering controls to minimise risks. This nationwide monitoring

<sup>10</sup> FY2022 restated to include injuries that occurred in FY2022 but were reclassified during FY2023. Previously stated figures for FY2022 – Aus 1 LTI, 24 MTI, LTIFR (0.4), TRIFR (11.1).

## Presence of safety awards

Brickworks has introduced a new safety award that recognises the workplace with the best presence of safety indicators based on our online platform statistics. This encourages our teams to focus on improving their leading safety indicators such as hazard identification and control, safety device checks, safety training, safety contacts and workplace inspections.

initiative is closely supervised by two highly qualified in-house occupational hygienists who ensure its effectiveness. Brickworks places a particular emphasis on managing silica dust, actively taking measures to reduce emissions and prevent the transmission of dust from various sources. Additionally, we prioritise worker health protection through the utilisation of advanced, specialised respirator fit testing equipment. This initiative aims to attain the highest level of respiratory protection for our workforce.

### Key Highlights FY2023 – Australia

- ▶ No employee, fatalities have been recorded over the last three years.
- ▶ Executive and middle management Health and Safety training and legal briefings.
- ▶ Computerisation and reporting of health and safety management system data in Australian and North American operations.
- ▶ a psychosocial health program, supported by a team of over 150 qualified Mental Health First Aiders.
- ▶ The growth of the presence of safety program driving safety capacity in Brickworks through visible lead safety indicators.

### Performance (North America)

The Total Recordable Injury Frequency Rate (TRIFR) for the period was 13.8, reflecting a 16.9 percent increase from the FY2022 frequency rate of 11.81. In analysis of these statistics, it becomes evident that 40 percent of the recorded injuries were attributed to newly hired workers. The substantial turnover observed at Brickworks NA, leading to frequent recruitment of new employees, has clearly contributed to this pattern, with 40 percent of recordable incidents involving individuals with less than one year of onsite experience. In response to this, a strategy to manage this risk has been implemented.

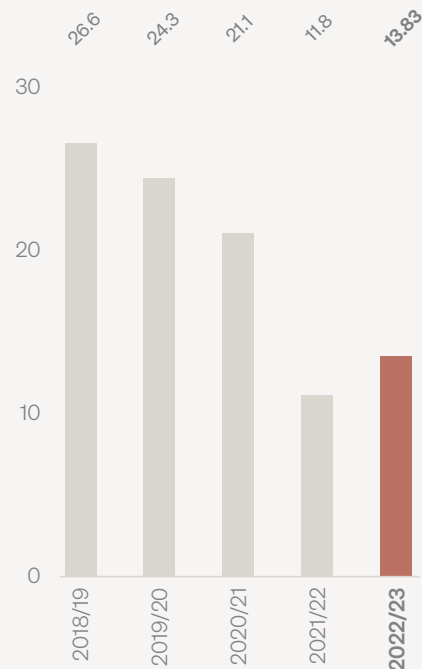
The introduction of the North America Safety Health Environment Management System in November 2022 marked a significant milestone in our safety strategy. This system utilised lead indicators, specific targets, and management accountability to shape the safety culture and set clear safety expectations.

Throughout the year, we achieved notable milestones in our safety efforts, including:

- ▶ Completion of 37,052 eLearning safety training sessions by our dedicated employees.

### Total Recordable Injury Frequency Rate (North America)<sup>11</sup>

(TRF/million hrs worked)



- ▶ Execution of 1,806 safety interactions led by our vigilant supervision and leadership teams.
- ▶ Conducting 198 workplace inspections across our nine manufacturing facilities to ensure safety compliance.
- ▶ Performing peer audits at eight manufacturing locations to assess the presence of safety lead indicators and adherence to SHEMS programs and OSHA regulations.

Remarkably, we identified and successfully controlled a total of 3,680 hazards across Brickworks NA locations, with 3,476 hazards effectively mitigated. These accomplishments underscore our commitment to fostering a safer and more secure environment for our employees and stakeholders.

The ongoing deployment of the Safety Health and Environment Management System has yielded several important initiatives. These include the introduction of a Management of Change program, the implementation of Bloodborne Pathogens safety measures, Heat Stress Prevention and Management protocols, a Silica Management Program, Non-Conformance Reporting procedures, and enhanced Contractor Management and Forklift Safety guidelines. It's important to emphasize that all related program documents are readily accessible in both English and Spanish. This commitment ensures that our diverse workforce can easily access and comprehend these materials, promoting inclusivity and effective communication in matters of safety and environmental management.

<sup>11</sup> Restated to include injuries that occurred in FY22 but were reclassified during FY23. Previously stated figures for FY 2022 - US 4 LTI, 22 MTI, LTIFR (1.9), TRIFR (12.3).



Furthermore, we are pleased to announce that the Pennsylvania Department of Labor and Industry has approved the renewal of our Certification for the Workplace Safety Committee, effective as of July 30, 2023.

## Contractor Management

Brickworks NA initiated a comprehensive process, aligned with Australia's contractor management safety program, to oversee the well-being of our contracting partners. This process encompassed several crucial steps, including:

- ▮ Establishing criteria for preferred, qualified contractors.
- ▮ Creating a comprehensive contractor safety orientation program.
- ▮ Implementing a requirement for contractors to provide a safe work method statement (SWMS) for their planned tasks.
- ▮ Establishing dedicated contractor sign-in stations within all our manufacturing facilities.

These measures were carefully designed to ensure that contractors are well-prepared and informed about safety protocols and procedures before they are granted a permit to commence their work. This approach is instrumental in enhancing safety, promoting good health, and fostering an environment of overall well-being throughout our operations.

## Forklift Safety

We have implemented a comprehensive Forklift Safety Program with the primary goal of reducing the risks of physical injuries and property damage in areas where forklifts are utilised. This program also prioritises the protection of our employees from potential hazards that may arise due to the improper or unauthorised use of forklifts. In our commitment to ensuring the safe and proficient operation of all forklift equipment, we proactively organised comprehensive training sessions. These training programs were skilfully executed by a well-regarded third-party vendor, and importantly we conducted them not only within our manufacturing facilities but also at our supply

center locations. By engaging external experts, we diligently worked toward certifying our forklift operators to meet the most stringent safety standards.

## Respirable Dust and Silica

We continue to utilise a third-party contractor for silica sampling. We have implemented multiple measures to minimise silica exposure, including issuing Powered Air-Purifying Respirators (PAPRs) to all employees exposed to silica at or above the permissible exposure limit. Additionally, we are actively exploring other controls to further reduce silica exposure.

## Key Highlights FY2023 – North America

- ▮ Zero employee or contractor fatalities reported in FY2023.
- ▮ No contractor or labour hire MTIs/LTIs (Medical Treatment Injuries/Lost Time Injuries) for FY2023.
- ▮ Successful launch of the Safety Health and Environment Management System.

## Safe + Sound Week

All our North American locations participated in Safe + Sound Week the week of 15 August, 2022. Safe + Sound Week is an Occupational Safety and Health Administration (OSHA) nationwide event held each August that recognises the successes of workplace health and safety programs and offers information and ideas on how to keep America's workers safe.

Employees received rapid cards each day with subject information on ladder safety, heat stress awareness, and pedestrian safety and were asked to sign a Commitment to Safety poster. The week ended with a celebratory lunch.



# Community Engagement

Maintaining positive relationships with stakeholders is paramount to business success. Brickworks is embedded in local communities where the business operates, with many employees living in the local area. With a reliance on local goods, services, markets and natural resources, developing mutually beneficial relationships helps business and communities.

Brickworks has strong attendance at community forums, such as consultation for development applications and community group meetings. Company representatives maintain strong relationships with legislative and regulatory authorities and are involved with industry groups to promote issues, such as sustainable building products.

Brickworks is growing their community engagement plans at relevant sites, identifying the socio-political context, community concerns and expectations and when and how to engage. In FY2023, we completed 109 recorded community activities in Australia. Engagement activities included stakeholder meetings, site visits, investigating and resolving complaints, donations and other forms of support for community members and projects. These events help us strengthen and maintain community relationships.

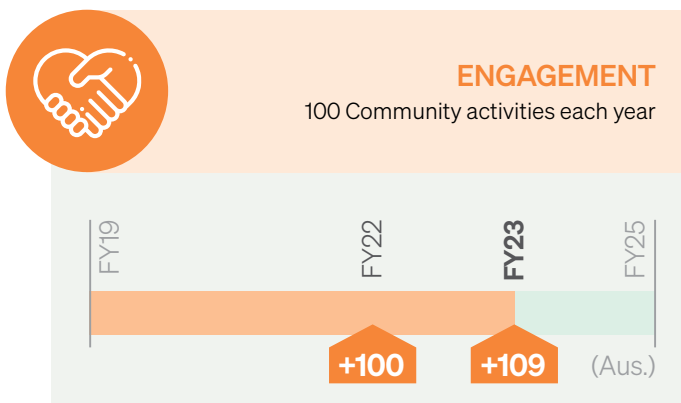
In October 2022, our North American operations established an Employee & Community Engagement Committee. The main function and goal of this committee is to support and enhance the community around us through charitable acts across the country. The Committee's objectives demonstrate the Brickworks Core Values and encourages the Brickworks employees to participate in activities within their local communities.

Within the last 9 months, the committee has accomplished three different initiatives: a food drive, holiday gift donation, and wildflower seed packet distribution project for all employees in celebration of Earth Day.



## Austral Bricks VIC helps Mirvac Raising \$600k for Salvos

Austral Bricks VIC are proud sponsors for the Mirvac Transformation House and have donated bricks and Mortex to build the exterior of the house.





Brickworks partners with

## Greater Indy Habitat for Humanity

Greater Indy Habitat for Humanity provides life-changing opportunity for Indianapolis families. Brickworks has donated towards this project, by supplying these homes with 1,500-2,000 along with lintels, mortar and delivering the product to the sites.



Brickworks

## Students 'Try a Trade'

High school students from across Queensland including Wacol, Cairns and Townsville 'learn a trade for the day' at our local manufacturing sites. This was a great opportunity to connect local trades with young potential recruits, enable student to try trade before signing up for an apprenticeship and encourage more people to consider these trades as a carer options, to combat labour shortages.



Bowral Bricks

## 100th Birthday Community Day

Bowral Bricks celebrated its birthday with the community. Local station 2ST Radio broadcast their show live from the event and stories were shared about the history of the site. Members of the local community were entertained by a face painter and balloon artist and were treated to complimentary food and beverages. Each attended received a Bowral 100th Birthday tote bag including the 100 Years of Bowral Bricks Publication and locally made chocolate.



SES and Bowral Bricks

## Training Drills

The SES held a training drill onsite with Austral staff. They simulated an emergency and completed the drill involving staff members and the emergency equipment onsite.





**Fish Lane Town Square**  
Bowral Bricks in Capitol Red and  
Nubrik clay pavers in Custom Colour



# Community Support

Brickworks is committed to social responsibility in our communities, and we aim to make a valued contribution to our communities.

## Children's Cancer Institute

Brickworks is a long-standing partner with Children's Cancer Institute (CCI), the only independent medical research institute in Australia dedicated to research into the causes, cure and prevention of childhood cancer, so that they can reach their ultimate goal of one day curing every child of cancer.

Brickworks became partner of CCI in 2002 with the first pledge made towards the CCI Capital Appeal of \$70,000. To date, Brickworks' total partner value exceeds \$4.8 million dollars, comprising of direct and indirect sources of revenue, including corporate and staff donations, state fundraising, sponsorships and supporting CCI events.

The reporting period for the CCI partnership is the 2022 calendar year and the team at Brickworks raised \$260,815, helping CCI move closer to achieving the vision of curing all children with cancer.

One of the highlights for early 2023, was the '86k for a Cure' campaign where Brickworks became presenting partner for this national community initiative. This sponsorship, along with teams in every state and 52 staff, focussed on wellbeing and getting active by walking or running 86k in March as well as fundraising, which contributed an incredible \$88,857.

Brickworks staff also offer their time and efforts to drive a range of other fundraising activities for CCI, including the Diamond Ball, CEO Dare to Cure. State-based Golf Days and Build for a Cure initiative.

### COMMUNITY SUPPORT

Supporting charities like the Children's Cancer Institute



## Staff donations

The ongoing company support for CCI's work has been supplemented with staff donations, primarily through the Casual Friday program. In return for a payroll donation of \$2 per week, staff are issued with a 'Care for Cancer Kids' shirt to wear with their casual clothes on Fridays. 2022 saw the Brickworks staff contribute an amazing \$53,064 through the Casual Friday program with Brickworks matching this, thereby doubling the donation and impact.

*“Every week 20 children are diagnosed with cancer in Australia. At Children’s Cancer Institute, our vision is to save the lives of these children and improve their long-term health through research.”*

*“We don’t just hope to cure all children of cancer. We will do it. This vision is only possible with commitment from longstanding partners such as Brickworks. Heartfelt thanks to the entire Brickworks’ team for its generous support of our work.”*

**Anne Johnston**, Director Marketing & Fundraising, Children’s Cancer Institute

**Stoney Rise Wines Cellar Door**

Daniel Robertson Hawthorn in London  
and Bowral Bricks in Bowral Blue





**Stoney Rise Wines Cellar Door**  
Daniel Robertson Hawthorn in London  
and Bowral Bricks in Bowral Blue



# Responsible Business

We continue to lead the way through design, style, innovation, sustainability and collaboration.



# Innovation and Sustainable Products

## Meeting Customer Expectations

Today, the world is changing more rapidly than ever before. Architects, builders and customers are increasingly working to address the challenges associated with developing sustainable buildings, reusing waste products, reducing carbon emissions and developing smart, resilient cities.

Brickworks' product development process is customer driven, responding to consumer preferences. Our deep manufacturing capabilities and product knowledge combine with strong architects, builders and customer relationships to identify and optimise new product development.

Our focus is to provide a wide range of thermal mass product options with high recycled content and lower embodied carbon across roofing and walling products. This will be delivered through our sustainable product innovation strategy and targets.

Customer expectations for sustainable building products are described through design principles for more sustainable homes including leading standards such the Greenstar Homes Guide by Green Building Council of Australia, LEED for Homes by U.S. Green Building Council, building codes, regulations and planning measures.

Brickworks' Sustainable Home Guide outlines how our products contribute to GreenStar Homes and LEED for Homes. Brickworks offers a range of products that help designers achieve sustainable design ratings, including National Home Energy Rating (NatHERS) used in the NSW Building Sustainability Index BASIX, Green Star Homes and LEED for Homes.

Brickworks recognises the importance of accurately measuring embodied carbon in building products and incentivising carbon emission reductions. The inclusion of Climate Active products in planning measures offers customers a range of carbon neutral products today, supported by a robust Australian Government certification scheme which requires participants to commit to emission reductions strategies and targets.

## Sharing thermal mass research with NSW Department of Planning BASIX team

The Building Sustainability Index (BASIX) aims to deliver equitable, effective water and greenhouse gas reductions across the state. BASIX is one of the strongest sustainable planning measures to be undertaken in Australia.

BASIX uses the National House Energy Rating Scheme (NatHERS) to assess home energy rating schemes. Brickworks provides leading research on thermal design enabling reduced lifetime energy use, including 'Best Building Products for Higher NatHERS Ratings' based on independent research from the University of Newcastle.

Brickworks was able to share vital thermal research on the benefit of thermal mass with the BASIX team, as well as the opportunity to include lower carbon products into the BASIX embodied carbon product assessment as a cost effective low-emission building product option.

Brickworks is a member of the Green Building Council of Australia. Brickworks was a founding partner and financial supporter of Materials and Embodied Carbon Leaders' Alliance (MECLA) and Chair of Other Materials Working Group & Project Control Group member. This will help align materials indexes

# What customers want in sustainable building products

Design principles for more sustainable home are informed by leading standards such as Green Star Homes by Green Building Council of Australia and LEED for Homes by U.S. Green Building Council.

(More information can be found from Brickworks Sustainable Home Guide at [www.brickworks.com.au](http://www.brickworks.com.au))

## Highlights of how Brickworks products contribute to GreenStar Homes and LEED for Homes

### An energy efficient home



#### Home energy use

Thermal mass products such as bricks and roof tiles can reduce heating and cooling bills by 40% annually using cavity brick compared to lightweight construction. This is because they act like a thermal battery, absorbing heat during high temperatures and releasing them during cooler temperatures.

#### Support home renewable energy

Bristle Roofing partners with specialist energy providers in the solar field to provide solutions to their customers. Brickworks offer training sessions for architects and designers in understanding solar opportunities and incorporating solar into home design.

#### Carbon Neutral, lower embodied carbon and higher recycled content products

Carbon Neutral products offset carbon emissions from homes. Brickworks has introduced a carbon offset opt-in program for all Austral bricks and pavers, certified under the Australian Government's Climate Active Program. In addition to offering carbon neutral products, Brickworks also continues to reduce carbon emissions towards our 2030 carbon target.

### A healthy home



#### Reduce material toxicity

Brickworks products are the natural healthy choice as they emit zero toxic Volatile Organic Compounds.

#### Moisture management

Brickworks products are the naturally healthy choice as they breathe and allow moisture to escape. Bricks and roof tiles are also maintenance free, and do not rot or rust.

#### Air quality

Brickworks products are breathable, allow moisture to escape, and are natural and healthy.

### A resilient home



#### Resilience

Make your home design durable for the long term. Only Austral Bricks and Bristle Roofing\* products are guaranteed for 100 years.

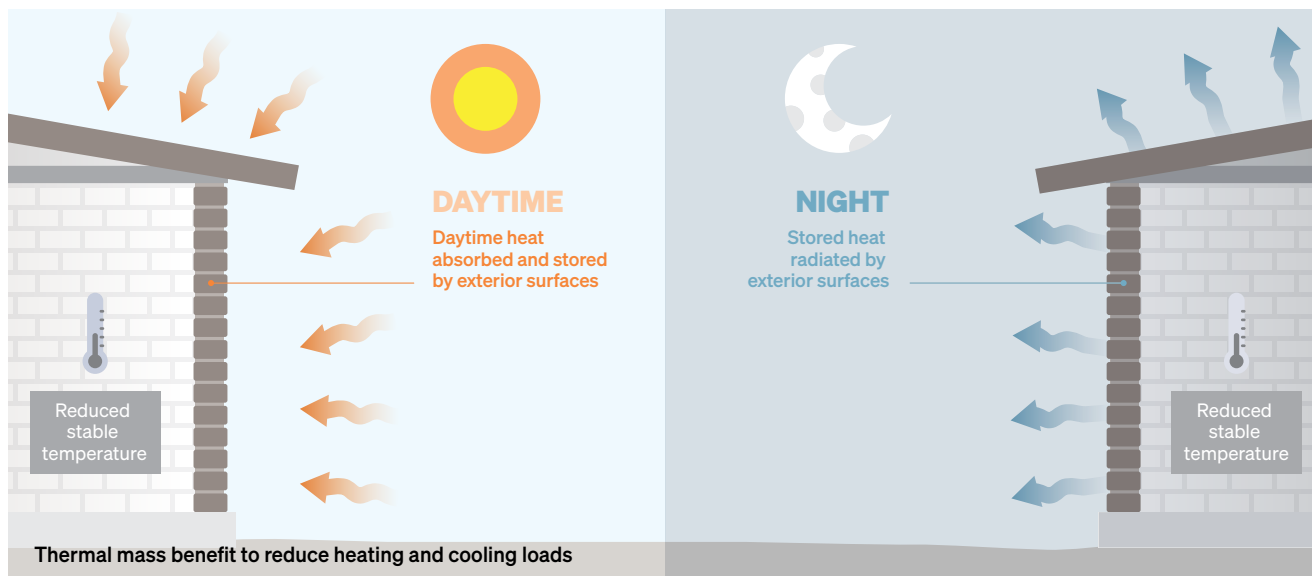
#### Heat resilience

Testing shows roof tiles will reflect more heat away from the home than other commonly used roofing materials. Roof tiles are available in more colour and profile combinations than any other commonly used roofing product in Australia. Bristle Roofing Light Collection provides an elegantly light range of appealing natural tones.

#### Water resilient

Water run-off from terracotta and concrete tiled roofs is safe to use. Austral Grasspave permeable pavement can contribute to water sensitive urban design by reducing impervious areas which can lead to poor stormwater quality and flow.





with the national standard used by the National Australian Built Environment Rating System (NABERS), already used extensively by the NSW Government and industry to provide sustainability measurements for commercial and retail buildings.



## Naturally Sustainable products

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 warranty. Bricks are recyclable into products such as roadbase and into the manufacture of new bricks.

### Clay Bricks – Sustainability Features

Thermal mass	✓
Low maintenance	✓
Fire-resistant	✓
Long service life	✓
Non-toxic	✓
Recyclable	✓

Thermal mass products such as bricks and roof tiles can reduce heating and cooling bills by 40% annually using cavity brick compared to lightweight construction.<sup>12</sup> This is because they act like a thermal battery, absorbing heat during high temperatures and releasing them during cooler temperatures.

<sup>12</sup> A Study of the Thermal Performance of Australian Housing, University of Newcastle, 2011–2017

## Sustainable Product Innovation Strategy and Targets

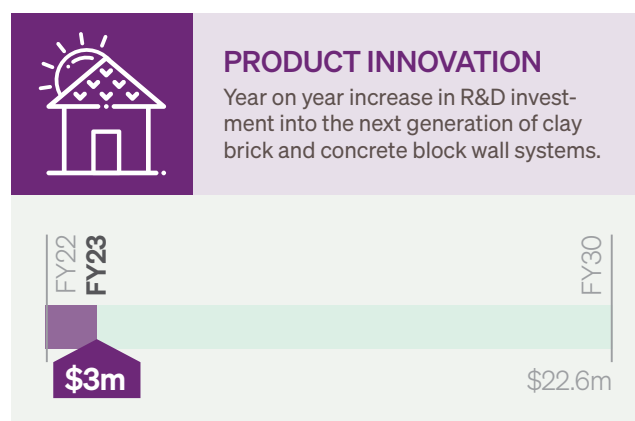
Paired with low carbon energy sources, innovation in raw materials and product design, manufacturing efficiency and the generation and purchase of carbon offset, bricks will continue to play a key role in leading environmental building design. Our sustainable product innovation strategy focus is to provide a wide range of thermal mass product options with high recycled content and lower embodied carbon across roofing and walling products.

Brickworks will use our product strengths to develop the next generation clay brick and concrete block wall systems.

By continuously innovating, we can create a more sustainable future for generations to come.

Brickworks' commitment to innovation into manufacturing excellence and raw material optimisation means our products are produced in some of the world's leading energy efficient kilns. In FY2022, Brickworks invested \$3 million into research and development for kiln efficiencies, light weight products and different fuel types.

Brickworks' new product innovation target is a year-on-year increase in investment into research and development into the next generation clay brick and concrete block wall systems.

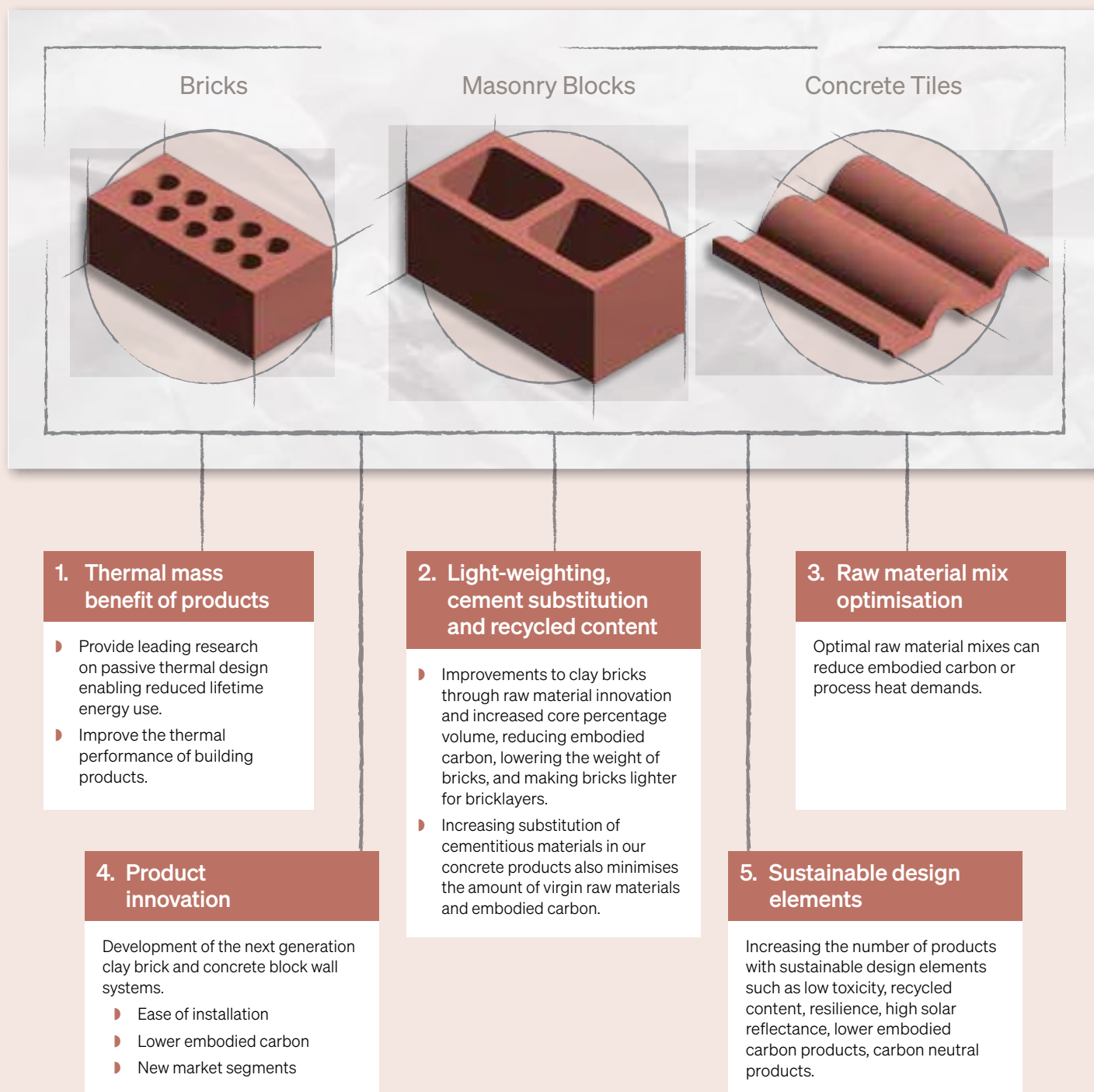


# Research and **development**

Into the next generation clay brick and concrete block wall system

## Sustainable Innovation Focus Areas

Our focus is to provide a wide range of thermal mass product options with high recycled content and lower embodied carbon across roofing and walling products.



Brickworks continues to make incremental improvements to our clay bricks through ongoing research to increase the core percentage volume to lower the weight of bricks. Development of new core patterns will reduce the amount of clay, the energy needed to fire the bricks, the fuel required for delivery and will make the bricks lighter for bricklayers.

The addition of reclaimed or recycled materials into our clay bricks has lowered the energy demand during manufacture, reduced product weight and minimised the amount of virgin raw materials required. Substitution of cementitious materials in our concrete products minimises the amount of virgin raw materials and embodied carbon.

By 2030, Brickworks and our partners will invest over \$22.6 million into research and development into our sustainability innovation strategy focuses areas, to drive the sustainable design elements of products and reduce embodied carbon. These innovation focus areas include: the thermal mass benefit of products, light-weighting, cement substitution and higher recycled content, raw material optimisation to reduce embodied carbon and increase recycled content, product innovation and sustainable design elements.

During FY2023, 24 research and development projects were successfully completed and embedded into production including new products and efficiency gains. These successful projects highlight the continued potential for significant advancements across our five sustainability innovation focus areas, further outlined below. Highlights include:

- ▶ **Thermal mass** – Investment into updating critical thermal mass research demonstrating benefits from thermal mass with the University of Newcastle.
- ▶ **Light-weighting, lower cement and higher recycled content** – This year we launched GB Aura, a stunning premium range of masonry blocks with 17% recycled content and was awarded a prestigious \$1.6 million research grant collaboration to develop reduced embodied carbon lightweight concrete products.
- ▶ **Raw material optimisation** – Demonstration of energy-saving raw material mixes for brick manufacturing, being rolled across Austral Brick operations.
- ▶ **Product innovation** – During FY2023, Brickworks launched two light-weight brick facing systems Thin Tech and Tru Brix in Australia.
- ▶ **Sustainable design elements** – We have increased our sustainable products verified as sustainable by third party labels to 25% of product volume in Australia. This is equivalent to 19% of our product across both Australia and North America.

## Sustainable Product Innovation Progress

### Innovation focus 1:

#### Thermal mass benefit of products

The significant benefit of thermal mass building materials to leading environmental building design is a strength of Brickworks' products and a key focus of our innovation strategy. We are committed to providing leading research on thermal design, enabling reduced lifetime energy use.



#### THERMAL DESIGN

We will provide leading research on passive solar thermal design, enabling reduced lifetime energy use.

Brickworks provides leading research on thermal design enabling reduced lifetime energy use, including 'Best Building Products for Higher NatHERS Ratings' based on independent research from the University of Newcastle. This research highlights that bricks and brick veneer enable higher ratings in the National House Energy Rating Scheme (NatHERS) than lightweight, increasing GreenStar Home ratings. We are currently updating this research to include energy efficiency comparisons based on the latest 7 Star NatHERS energy rating under the National Construction Code 2022 (NCC).



Brickworks is actively working to align the scope of this critical thermal research to changes contained in the National Construction Code 2022 residential energy efficiency provisions due for implementation in October 2023 which include an increase in the thermal performance of homes to the equivalent of a 7 Star energy rating.





To address this problem, Brickworks has partnered with the University of Newcastle with a commitment of \$250,000 to further progress thermal research by incorporating 7 Star Home designs into the 2011–2017 study ‘A Study of the Thermal Performance of Australian Housing Phase 2’.

This new project involves the re-commissioning of the four experimental housing modules on the University of Newcastle campus developed in a previous housing thermal performance study. For each module walling system (insulated brick veneer, cavity brick, insulated cavity brick and lightweight), modifications and adjustments have been made to the building fabric (slab, walls, ceiling and roof where appropriate) to achieve the necessary 7 Star performance. The thermal performance of each of the modified modules will be monitored and analysed in a manner similar to the previous investigation for a 12-month period.

## Innovation focus 2: Light-weighting, cement substitution and recycled content

The second key sustainable innovation focus area is light-weighting, cement substitution and recycled content.

### *Lighter bricks through increased voids*

Brickworks’ dedication to excellence means our products are fired in some of the leading energy-efficient kilns, with ongoing research to reduce brick weight through enhanced core percentage and innovative core patterns, resulting in savings on clay, energy, fuel, and ease for bricklayers.

Using enhanced clay materials, our Queensland and NSW brick factories have increased core content for some products from 27–28% to 41%, reducing material use by 18%, cutting energy consumption, and maintaining/improving product quality while increasing kiln capacity. These gains are being rolled out across selected Austral Brick products.

### *Lightweight Masonry Blocks*

Brickworks continues to work towards lightweight lower carbon masonry products. This year we added an additional high recycled content and lightweight masonry block range to our existing Alpalite lightweight concrete block mixes.

## Longer Term Sustainable Product Innovation

# Phase Change Material Project – Western Sydney Partnership

During FY2021, Brickworks and research partner Western Sydney University investigated innovation to improve the thermal performance of building products with Heat Storage Phase Change Materials (PCMs).

PCMs are materials capable of storing and releasing energy based on the temperature of the environment in which they are situated. PCMs possess the ability to change their state, solid to liquid and liquid to solid, within a certain temperature range. These materials absorb energy during the heating process as phase change takes place, and this energy can be transferred to the environment in the phase change range during a reverse cooling process.

Lighter products are not only reducing transportation costs but also significantly alleviating the physical strain on brick and block layers, providing a substantial advantage.

### *Increased recycled materials*

During FY2023, 20% of raw materials was recycled content in Australia, up from 17% in FY2022.

The addition of reclaimed or recycled materials into our products has reduced product weight and minimised the amount of virgin raw materials required.

The newly launched GB Aura is a stunning premium range of masonry blocks with 17% recycled content.

### *Cement substitution lowering embodied carbon*

Substituting cementitious materials in our concrete products minimises virgin raw materials and embodied carbon. Ongoing research focuses on improving building materials by utilising sources like natural clay, crushed rocks, and specific fly ash types. The goal is to enhance mixing methods for stronger, more efficient materials while reducing conventional cement use and embodied carbon.

Our central goal is to innovate concrete engineering by incorporating tiny mineral particles, optimizing rock and component arrangement, and improving products like blocks, roof tiles, and brick mortar. These innovations promise significantly increased strength, enhanced fire resistance, and improved temperature stability while reducing environmental impact, particularly in terms of embodied carbon.



## Prestigious grant to develop lighter and stronger concrete using waste additives

In FY2023, Brickworks received a prestigious \$1.6 million research grant to collaborate with QUT Associate Professor Yunfei Xi on reducing embodied carbon in lightweight concrete products.

The \$1.05 million ARC grant, supplemented by \$0.55 million from QUT, enabled the recruitment of a dedicated laboratory technician and two PhD students for research on Brickworks' calcined materials and green cement development.

The collaboration with QUT and Professor Xi aims to create a lower embodied carbon concrete mix using local resources and waste products, reducing greenhouse gas emissions and enhancing product sustainability.

This partnership secured the ARC grant in a highly competitive field, making Brickworks and QUT the sole recipients from QUT in the first round of the ARC Mid-Career Industry Fellowship scheme.

This effort builds on a three-year Advance Queensland Fellowship grant from 2017-2020, which focused on advanced clay brick mix design, resulting in energy savings and premium product development.

Besides project funding, QUT provides access to world-class expertise in clay and mineral materials characterisation and specialised materials analysis facilities. This collaboration has resulted in a team of materials specialists with five journal publications on clay materials characterization and international recognition from organisations like the American Ceramic Society for their publication quality.



## Continued product development to increase recycled content

GB masonry have developed a premium range of masonry blocks, GB Aura, that utilises recycled materials. Incorporating recycled fly ash and glass into the product mix to create a stunning Masonry Product, with 17% recycled content. This product was released in early 2023. Brickworks published an Environmental product disclosure for all our GM masonry products in FY2023.

## Recycled Glass in Roof Tile Research

At Brickworks, we recognise that investing in focused research is key to practical advancements for our business. Our commitment to funding research comes from both internal resources and external sources such as Sustainability Victoria, supporting research into the use of recycled glass into our roof tiles. This commitment is ongoing and continues to evolve.

In FY2023, Brickworks was awarded a prestigious \$1.6 million research grant collaboration to develop reduced embodied carbon lightweight concrete products, in collaboration with QUT associate professor Yunfei Xi.

### Innovation Focus 3: Raw Material Optimisation

Our third key sustainable innovation focus area is raw material mix optimisation. Optimal raw material mixes can reduce embodied carbon or process heat demands.

Brickworks commitment to innovation continues to be rewarded by significant developments in energy savings and premium product development. Ongoing research into traditional clay materials has provided us with a deep understanding of their physical and chemical properties. This knowledge allows us to successfully develop raw material optimised mixes which require less process heat energy, reducing the embodied carbon of bricks.

The critical element to the raw material mix optimisation is a lower clay percentage. This is enabled by our new Pugmaster clay mixing systems, which increase the density, strength, and resilience in our raw material mixes.

These improved raw material mix designs boost production capacity and improve heat exchange enabling the successful incorporation of on-board fuels such as sawdust waste and low-grade coal fines. These innovations reduce the total energy demand as well as reducing the embodied carbon from manufacturing.

Our Queensland brick operation is in the process of adopting energy-saving clay mixes. These mixes have already shown substantial reductions in energy consumption based on successful trials. We are currently in the process of shifting all our factories towards using the next generation of energy-saving clay mixes.

## Upskilling our Manufacturing Team

In support of our research efforts, Brickworks has been nurturing internal expertise by assembling a team of managers with specialised skills and research backgrounds. They are instrumental in challenging conventional practices and, in collaboration with academic experts, driving sustainability initiatives to reduce our carbon footprint.

### Innovation Focus 4: Product Innovation

Our fourth key sustainable innovation focus area is product innovation. Brickworks is committed to the development of the next generation clay brick and concrete block wall system. Product innovation is focused on improving the ease of installation and increasing penetration into new market segments.

Glen-Gery Wall Systems powerfully extend the options of designers, architects and builders by providing products and solutions beyond the brick. Glen-Gery systems have been developed to overcome antiquated limitations of space, time and budget while simplifying installation. Systems include Thin Tech, Tru-Brix, Precast and Tilt-up and Terraçade Façade System.

## Supporting Home Renewables Australian engineered roof solar tiles

Bristle Roofing partners with Volt, a specialist energy provider in the solar field, to provide solutions to their customers. Volt solar tiles integrate with selected Bristle Roofing's tiles.

With Volt, solar tiles are now affordable and accessible for homeowners who want clean and affordable energy to power their homes, and who want to invest in a quality rooftop solar system that is safe and built to last in the harsh climate conditions that we face.







## Australian launch of two new light-weight brick facing systems

### **Thin Tech** – *Stretch the boundaries of brickwork*

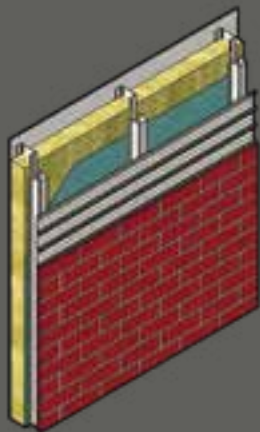
The Austral Bricks Thin Tech® system is a strong, durable thin brick veneer system designed in Australia. Each thin brick is secured by hooks to mechanically interlock thin brick to the panel.

Austral Bricks Thin Tech 100-year warranty on brick colour fastness and durability and 50-years on the system.

### **Tru Brix** – *Lighten the load not the look*

The Tru-Brix™ system makes real brick available for projects where full-size brick isn't economical or practical.

Austral Bricks Tru-Brix is offered with extended warranties lasted up to fifty years on the rail and 100 on the bricks.



During FY2023, Brickworks launched two light-weight brick facing systems Thin Tech and Tru Brix in Australia. These systems stretch the boundaries of brickwork. These light-weight systems makes real brick available for projects where full-size brick isn't economical or practical.

## Innovation Focus 5: Sustainable Design Elements

Our customers select our carbon neutral bricks as sustainable products for thermal comfort, durability, low maintenance, organic texture and access to a carbon neutral product.

Our fifth key sustainable innovation focus area is therefore to increase the number of products with sustainable design elements such as low toxicity, recycled content, resilience, high solar reflectance, low embodied carbon and carbon neutral products.

Categories defining sustainable products include

- Low carbon (Climate Active Carbon Neutral, use of renewable or alternative energy, low carbon products),
- Recycled content products (masonry products reducing cement content by the use of alternatives such as bottom-ash, fly-ash, glass, recycled bricks waste or recycled raw materials).
- Good and best practice products provide GreenStar credits, follow the GreenStar Responsible Products framework and/or are Living Building Challenge compliant.

In FY2022, over 6% of product volume in Australia was verified as sustainable by third party labels, which has now increased to 25% of Australian product volume. This has exceeded our target to double our volume of products manufactured in Australia that hold leading sustainable qualities from a FY2019 baseline of 1% volume.

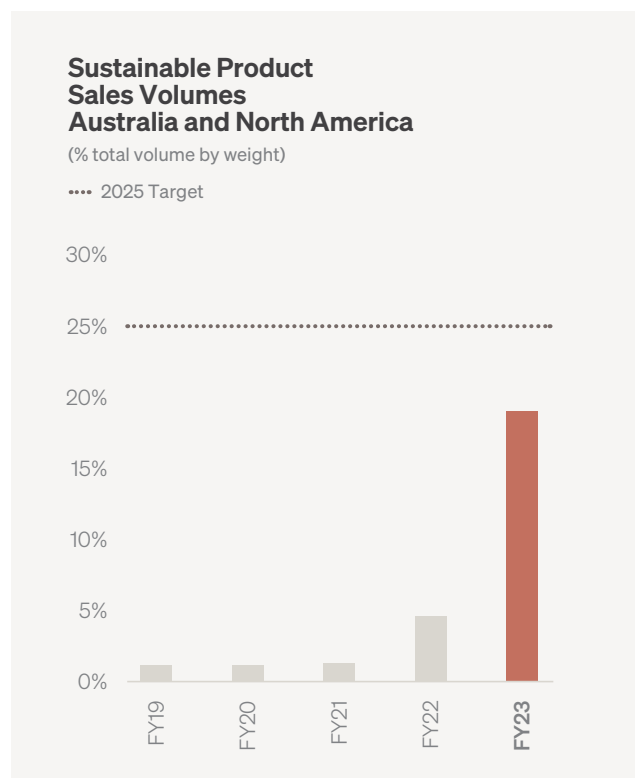
Brickworks also sees significant opportunities to increase verified sustainable products in our North American business. Therefore, we have updated our new sustainable product target is to increase the volume of verified sustainable products to 25% by 2025 across Australia and North America.



In FY2023 we verified the following products and claims:

- ▶ Masonry products produced at Oakdale: 10–20% of the total energy used in the manufacturing of masonry products at Oakdale, NSW is solar energy through the Good Environmental Choice Australia (GECA) label and
- ▶ Austral Bricks and Pavers produced at Rochedale products are now labelled under Declare as Living Building Challenge Red list free.

This has increased our sustainable products verified as sustainable by third party labels to 25% of product volume in Australia which is equivalent to 19% of our product across both Australia and North America. We are continuing to verify our sustainable products and have identified 57% of the product volume in our Australian portfolio have environmental or social benefits. There are also a range of opportunities across our North American products including recycled content and diversified façade options.



## Carbon Neutral Products

Since FY2021, Brickworks customers can apply for carbon neutral bricks on all our Austral bricks and pavers to complement their projects with sustainable credentials. The carbon neutrality is verified through our Climate Active certification.

This year Daniel Robertson celebrates the milestone of 10 Years of manufacturing Climate Active-certified carbon neutral products.

# Verifying our sustainable products

Verified sustainable products allow our customers to qualify for credits in sustainable building design and construction certification.

## Lower Carbon Products

- ▶ Climate Active Carbon Neutral
- ▶ Use of renewable energy
- ▶ Lower Carbon products

### Verified products:

**Climate Active Carbon Neutral**  
Daniel Roberston Longford  
Brickworks Australia Customer  
Opt-in Carbon Neutral bricks



**Made with Renewables**  
**10–20% Solar**  
Oakdale and Rockhampton  
Masonry Blocks and Pavers



### Verification to come:

**Sculptured Sands**  
Part fired with biogas



**Lower Carbon Masonry Blocks**  
Yatala and Caloundra



**Made with Renewables 10%+**  
+ Future solar investigations

## Recycled Content Products

- ▶ Recycled content in Bricks
- ▶ Recycled content in Masonry
- ▶ Recycled Bricks

### Verified products:

**GB masonry**  
Aura products



### Verification to come:

**>20% recycled content bricks**  
Rochedale and Horsley Park



**Masonry with recycled content**



**North America recycled content**





## Health and Wellbeing Benefits

Recognition of health and wellbeing benefits by frameworks such as:

- ▶ GBCA Responsible Product Framework
- ▶ Declare

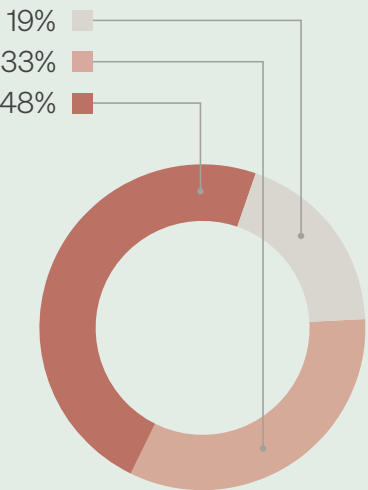
### Verified products:

Bowral Bricks  
Nubrik Range  
Wollert  
Rochedale Bricks and pavers

**Declare.**

## Sustainable Products Volume

Verified  
To be verified  
Next focus



# Environmental Building Design

The built environment has substantial environmental and social impacts. Sustainable building design offers greater energy and resource efficiency over the operational lifetime of a building. Building product companies have an important role to facilitate innovation through providing durable and naturally sustainable products.

Brickworks is one of the world's leading manufacturers of quality building products. Our purpose has sustainability at our core – to create beautiful products that last forever. The built environment is the fabric of our cities and our lives and Brickworks' products form part of this ever-changing fabric. Our sustainability strategy focuses on the opportunity to make buildings and cities safe, resilient and sustainable.

Our central sustainability commitment is to drive leading environmental building design through thermal design, lifecycle education and providing sustainable products.

## Sustainable Buildings are Resilient

At Brickworks, we see a strong future for bricks, masonry and roof tiles. They are critical enablers of the achievement of the UN Sustainable Development Goal 11, "Make cities and human settlements inclusive, safe, resilient and sustainable" and, supported by continued demand, presents a strong opportunity to transition to a low-carbon, circular economy.

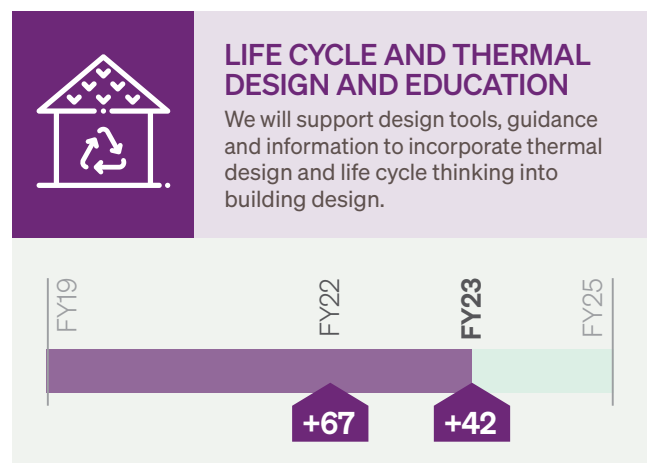


**Make cities and human settlements inclusive, safe, resilient and stable.**

Our bricks and concrete products are manufactured to provide resilience. They are durable, fire-proof, contain thermal mass for energy efficient design, excellent acoustic properties and no indoor air emissions (VOCs); and our clay bricks hold a 100-year guarantee.

## Life Cycle Education

Our sustainability strategy focuses on the opportunity to make buildings and cities safe, resilient and sustainable. Design that incorporates sustainability brings greater energy and resource efficiency over the operational lifetime of a build.



Brickworks Australia hosted 10 formal CPD events, attracting 260 attendees and hosted an additional 9 events with Industry Partners focused on sustainability topics in FY2023. Brickworks North America hosted 32 seminars and training sessions. Brickworks CPDs and seminars cover a range of topics, including Energy Efficiency and Code Compliance, Sustainable and life cycle design.

Other relevant events undertaken throughout the year included:

- ▶ The Enduring Design Masterclass, a partnership between Prince's Trust Australia, the University of Queensland, and supported by Brickworks, designed to equip participants with a strong, hands-on grounding in the diverse traditional building cultures of Australia and reconnect them with enduring design principles that have stood the test of time.
- ▶ Seasonal Design Studio events, hosted by Brickworks Australia in collaboration with Parlour and National Association of Women In Construction (NAWIC), using education and advocacy to promote gender equity in architecture and design.
- ▶ Supporting graduate Architects and Landscape Architects through the Emerging Architects and Graduate Network (EmAGN) and Australian Institute of Landscape Architects (AILA). Collaborating for events like the Generation Exchange series, sustainability masterclasses and design competitions.
- ▶ The ClarkeHopkinsClarke speaker series, "Run From Poverty," held at Melbourne Design Studio, featured discussions on making a positive impact in the world. Ticket sales raised \$30,000 to empower children and combat poverty.

## Strategic Partnerships

Sustainable building materials are more important than ever before, as we look to meet present and future demand. Brickworks collaborates across the design and construction value chain to promote leading environmental building design and to share expert insights gained from research. Our strategic partnerships allow us to monitor trends and to keep pace with changes in regulatory frameworks. This enables our focus on meeting the requirement for a more sustainable built environment.

In FY2023 we collaborated with the following organisations in leading lifecycle education, sustainable manufacturing, gender equity in architecture, and environmentally sustainable design:

- ▶ The Materials and Embodied Carbon Leaders' Alliance bringing together the drive to reduce embodied carbon in the building and construction industry.
- ▶ Green Building Council of Australia demonstrating our commitment to the sustainable transformation of the built environment.
- ▶ Australian Institute of Architects including the Climate Action and Sustainability Taskforce (CAST) working group.
- ▶ Australian Institute of Landscape Architects, who leads a dynamic and respected profession, creating great places to support healthy communities and a sustainable planet.
- ▶ Enduring design education via Robin Boyd Foundation. This year, we expanded our work with the Robin Boyd Foundation to run a design competition open to all Australian Universities. Students were asked to redesign a dwelling, incorporating best practice sustainability and addressing issues such as density and engagement with first nations culture.
- ▶ Nightingale Housing through sponsorships. Nightingale Housing is a not-for-profit organisation that provides apartments that are socially, financially and environmentally sustainable. Brickworks is proud to be a preferred supplier to Nightingale.
- ▶ Gender Equity in Architecture through ongoing partnership with Parlour. A space to speak bringing together research, informed opinion and resources, generating debate and discussion, expanding the spaces for women in Australian architecture.
- ▶ Housing Industry Association and supporting sustainable homes.
- ▶ Other organisations: Manufacturing Australia, Institute of Quarrying Australia, Energy Users Association Australia, Think Brick, Australian Roofing Tile Association (ARTA), Australian Sustainable Business Group, Australian Environmental Business Network, and the American Chamber of Commerce (AmCham).





## Raising the Awareness of Clean Energy

At Brickworks, our challenge is to reduce the energy intensity in the manufacturing process. To achieve this, we regard the use of biofuels as a key enabler.

This is a critical enabler of the achievement of the UN Sustainable Development Goal 7 “Clean Affordable and clean energy” and UN Sustainable Development Goal 13 “Climate Action”.

As one of Australia’s industry leaders, we plan to pursue realisable projects, driving the development of bio energy projects to become a leading player in the energy transition in the “hard to abate” manufacturing sector.



Raising the profile of successful bioenergy projects aligns with the Australian Renewable Energy Agency (ARENA) Bioenergy Roadmap goals.

*‘Renewable industrial heat generation benefits from technologies that are mature and in use throughout the world. It is well established in Australia and can still grow. However, low visibility and non-economic barriers impede its development in Australia.’*

– Australian Renewable Energy Agency (ARENA) Bioenergy Roadmap

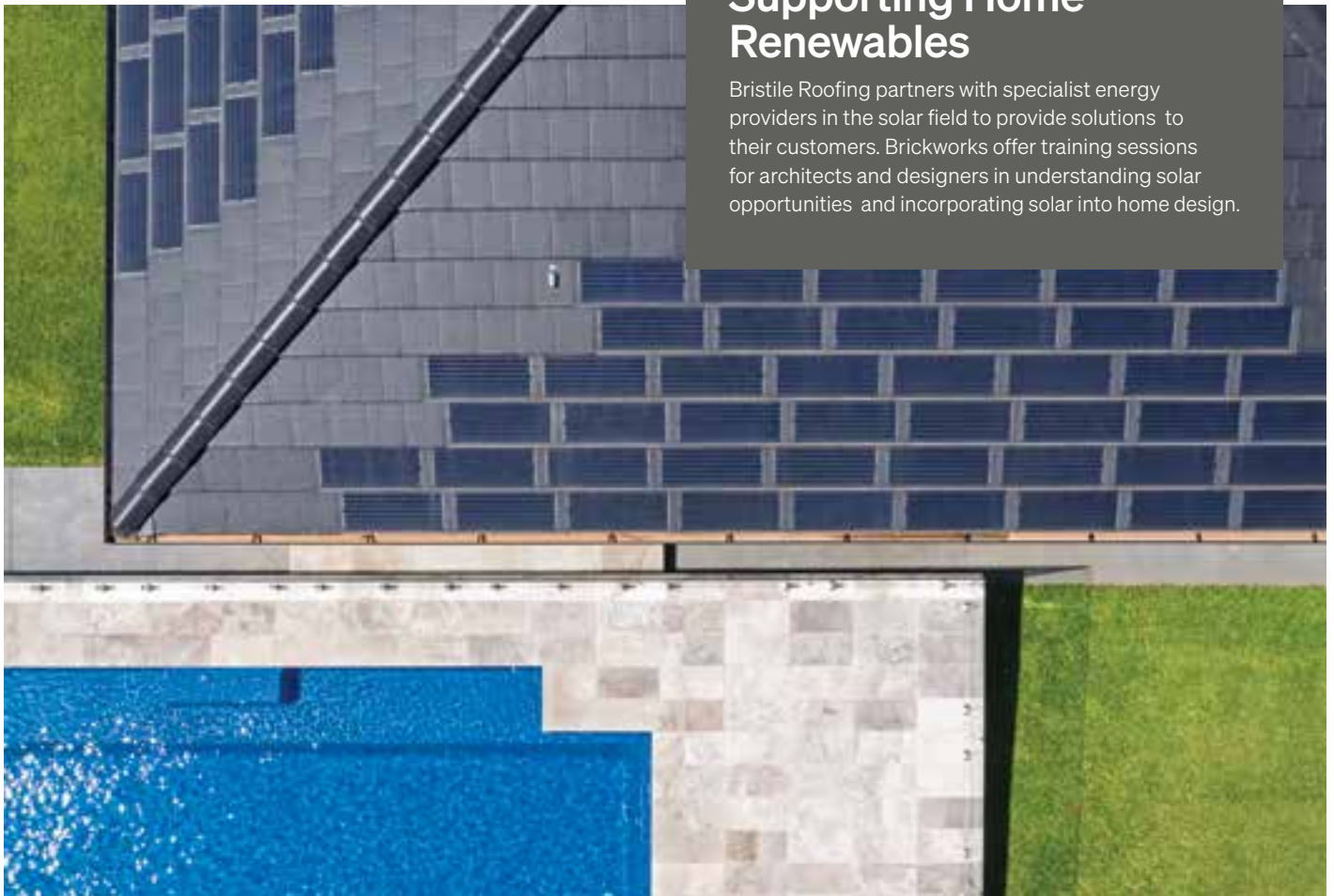
In FY2023 we collaborated with Bioenergy Australia to support the Renewable Gas Alliance Renewable Gas Challenge.

Brickworks:

- ▶ Supports the development and deployment of biomethane as a decarbonisation pathway,
- ▶ Identifies the lack of policy currently supporting biomethane projects, and
- ▶ Calls for urgent certification of biomethane to allow the buyer to recognise the emission reduction.

## Supporting Home Renewables

Bristle Roofing partners with specialist energy providers in the solar field to provide solutions to their customers. Brickworks offer training sessions for architects and designers in understanding solar opportunities and incorporating solar into home design.





# Risk Management

To ensure robust and effective risk management systems are in place and operating effectively, the Board, through the Audit and Risk Committee (ARC), determines the risk profile for the Company. It ensures that business initiatives are consistent with its risk appetite, reviews the controls and systems in place to continually mitigate risk, and oversees reporting and compliance requirements.

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A Risk Management Framework has been implemented, consistent with each element of the Australian Risk Management Standard AS/NZS3100:2018. Key elements of the framework development include integration, design, implementation, evaluation and improvement.

Brickworks' Board has adopted a Risk Management Framework that identifies risk appetite for the Group across six different categories (Legal, Health & Safety, Customer Service, Financial, Reputation and Environment/Sustainability), and then considers how each identified risk is placed within that framework.

### Risk identification and management process

#### Brickworks Board

Determines risk profile for the company

#### Audit and Risk Committee

Recommends risk profile to the Board

#### Risk Management Framework (Group Risk & Internal Audit)

(consistent with the Australian Risk Management Standard AS/NZS3100:2018)

Building Products | Group | Land and Development | Investments

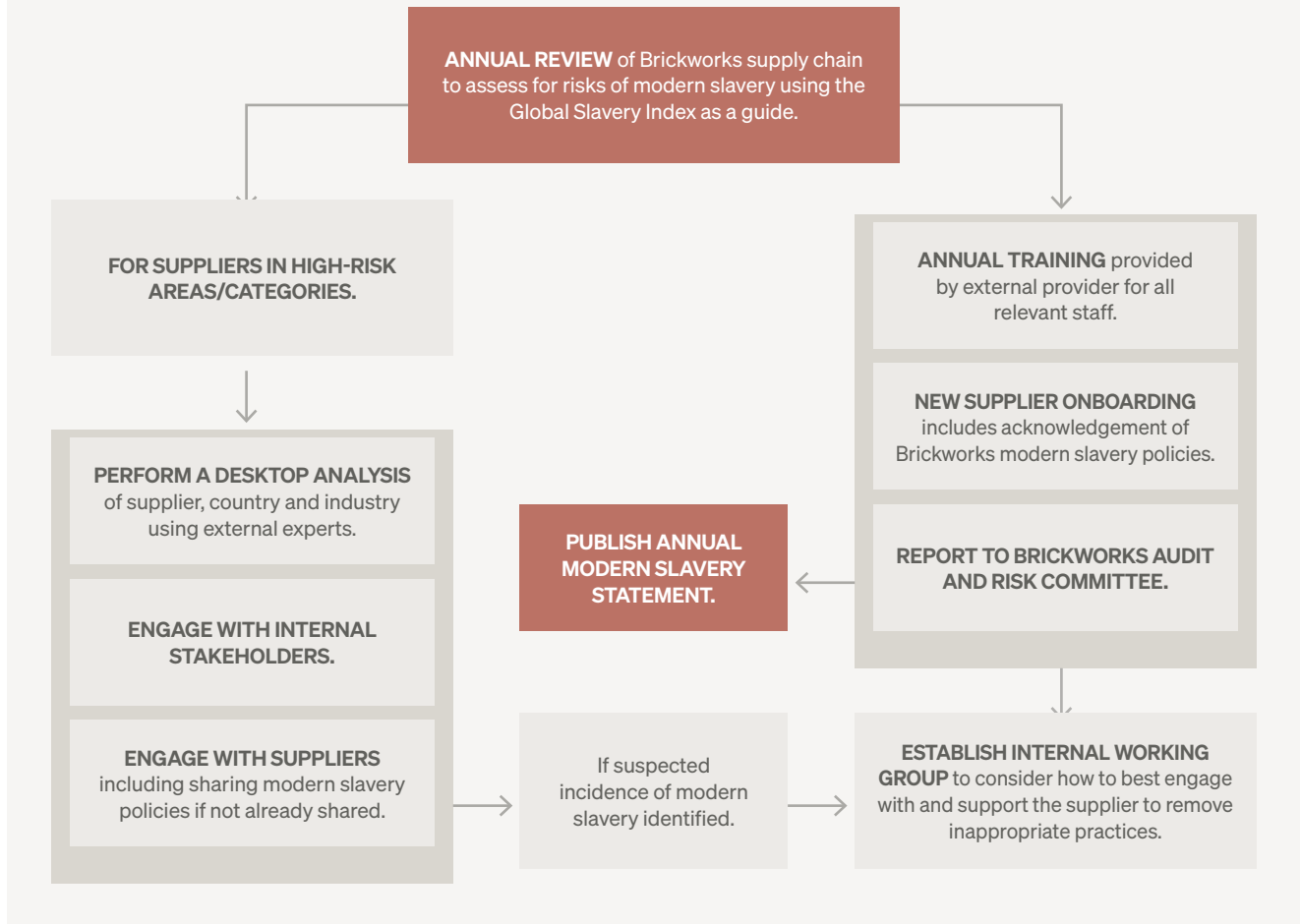
Annual risk management framework review and update

#### Risk appetite categories

Customer Services | Environment/Sustainability  
Health & Safety | Financial | Legal | Reputation



## Modern Slavery Framework



That framework involves assessment of the likelihood of an event occurring, the potential impact of each event, and the controls and processes in place to continually mitigate each risk.

Risk management is a priority for senior management. Details of risk management and the significant risks that may impact the achievement of the Group's business strategies and financial prospects are included in the Brickworks FY2023 Annual Report and the Corporate Governance Statement which can be downloaded from [www.brickworks.com.au/investors/group-overview#corporate-governance](http://www.brickworks.com.au/investors/group-overview#corporate-governance).

## Procurement – Modern Slavery and Supply Chain

Brickworks is committed to respecting and supporting the dignity, well-being and human rights of employees and the supply chain. Brickworks is committed to working collaboratively with its partners and suppliers to ensure business is conducted in an honest and ethical manner. This includes identifying and addressing modern slavery and human rights risks throughout the business and supply chain.

During FY2023, Brickworks engaged experts to assist with further development of its modern slavery management program. Targeted reviews were conducted on some tier 1 & tier 2 suppliers in high-risk geographies. These suppliers were engaged by management who shared Brickworks' modern slavery policy, and the intention to work collaboratively with the supply chain to identify and eradicate any instances of modern slavery.

## Cyber security risk

The Group has assessed its main cyber security threat as phishing to obtain sensitive company or private information or a virus attack which compromises the system. Investment in technology has increased and risk controls include the use of a VPN and antivirus software to safeguard against incoming viruses from personal computers. Preventative measures include regular system penetration tests and employee training with new leading-edge end-point protection software and firewall protection in place. A disaster recovery plan is in place across the organisation.



# Governance

The Brickworks' Board is committed to developing and maintaining good corporate governance and the Company recognises that this is best achieved through its people and their actions.

The company's long-term future is best served by ensuring that its employees have the highest levels of honesty and integrity. These employees are retained and developed through fair remuneration, appropriate long-term incentives and equity participation in the Company. It is also critical to the success of the Company that an appropriate culture is nurtured and developed, starting from the Board itself. A Corporate Governance Statement can be found on Brickworks' investor website [investors.brickworks.com.au](https://investors.brickworks.com.au). The statement has been prepared in line with the principles of the ASX Corporate Governance Council's "Corporate Governance Principles and Recommendations (4th Edition)".

Brickworks has policies and procedures in place that ensure the highest standards of corporate governance, abiding by all Australian laws and the requirements of regulatory authorities in each state.

## Board Succession Planning and Diversity

Brickworks recognises the importance of gender diversity in a board. The Board currently comprises seven directors, including two female directors representing 29% and with the retirement of Michael Millner in November 2023, female representation on the board will increase to 33%. Brickworks goal is to have not less than 30% of its directors of each gender by 2025.

## Board Independence

The Brickworks Board currently consists of four independent members and three non-independent members.

## Code of Conduct

Brickworks staff are guided by the Brickworks Code of Conduct. The purpose of the code is to set standards of conduct expected of Brickworks employees. The Code applies to all directors, officers and employees of Brickworks Limited and its controlled entities.

The Code of Conduct is based on the Brickworks values, which underpin the way in which the team acts and behaves at Brickworks. They describe what's important to us, and guide interactions with colleagues, customers, suppliers, contractors and the community.

The Brickworks core values are:

- ▶ **Care:** Sustainably Safe
- ▶ **Collaborate:** Succeed Together
- ▶ **Exceed:** Passionately Play to Win
- ▶ **Integrity:** I Do What I Say
- ▶ **Innovate:** Everyone, Everywhere, Everyday
- ▶ **Lead:** Inspire People
- ▶ **Inclusive:** Connected Through Diversity

Brickworks employees should be respectful, professional and act with honesty and integrity to maintain high ethical standards and uphold Brickworks reputation. High standards of conduct will serve to enhance Brickworks reputation for fair and responsible trading and encourage appropriate behaviour across the business.

All staff are required to undertake annual training on the Code of Conduct through an on-line learning platform. Staff completion of the module is tracked and reported internally.

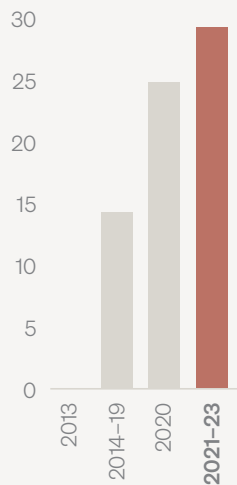
### Board Membership

Tenure of Directors



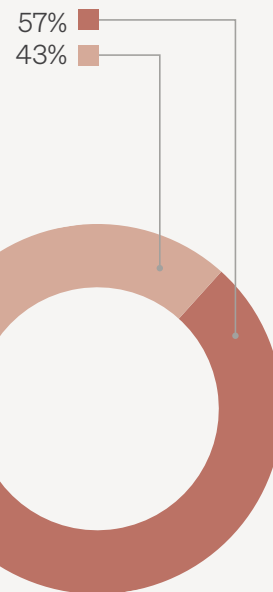
### Gender Diversity

% of Female Directors



### Board Independence

Independent  
Non-Independent



## Anti-Bribery and Corruption and Whistle-blower Policies

The Anti-Bribery and Corruption, and Whistle-blower Policies were introduced in May 2019. All staff are required to undertake annual on-line training to demonstrate their understanding of the policies. The Whistle-blower Policy provides a mechanism which encourages concerns to be raised about misconduct or any improper state of affairs or behaviour that is inconsistent with the Group's culture, values or policies.

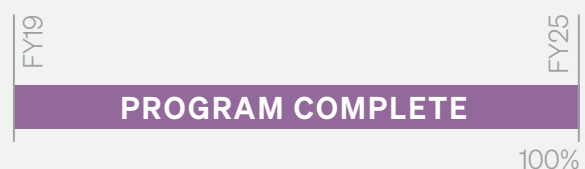
Be Honest @ Brickworks is an anonymous avenue for staff to raise concerns of suspected or actual misconduct. Staff are encouraged to make a report if they see or suspect something wrong such as theft, fraud, dishonesty, harassment, unethical behaviour, workplace safety and environmental hazards or misconduct.

The Be Honest @ Brickworks reporting platform is easily accessible 24/7 from the Company's intranet page, and posters containing the contact details are located in all work centres. The platform is administered by Deloitte's Risk Advisory Service.

Brickworks aims to continually improve its performance in business ethics management to align with best practice.

### GOVERNANCE

Business Ethics and Whistleblower Programs



### Public Policy

Brickworks Political Donations Policy prohibits the making of Political Donations at any time on behalf of the Brickworks Group, or otherwise, using funds of the Brickworks Group. No political donations were made during FY2023.





Whitton Lane

# Sustainability Disclosure

Our disclosure approach is based on the robust framework and reporting standard set out in the Global Reporting Initiative, to ensure our stakeholders are well informed of our material sustainability issues.



# Stakeholder

## Engagement

Stakeholder engagement is an important part of Brickworks' materiality assessment process. Engaging with internal and external stakeholders supports the Company's understanding of the most significant sustainability issues.

During FY2023, Brickworks a materiality assessment update was completed including reviewing of stakeholder groups by considering the individuals and entities that would be affected by, or interested in the Company's operations, products and management. These stakeholder groups are set out in the following table.





## Brickworks Internal and External Stakeholders Groups

Stakeholder Group	Areas of Interest			Key methods of engagement	
<b>Employees</b>	<ul style="list-style-type: none"> <li>Management</li> <li>Employees</li> </ul>	<ul style="list-style-type: none"> <li>Business performance</li> <li>HR</li> </ul>	<ul style="list-style-type: none"> <li>Corporate governance</li> <li>WHS</li> </ul>	<ul style="list-style-type: none"> <li>Employee Materiality Survey</li> <li>Newsletters</li> <li>Conferences</li> </ul>	<ul style="list-style-type: none"> <li>Team meetings</li> <li>Performance reviews</li> <li>Sustainability Strategy</li> </ul>
<b>Customers</b>	<ul style="list-style-type: none"> <li>BKW Business Development Managers (customer perspectives)</li> <li>Architects</li> <li>Developers</li> <li>Customers</li> </ul>	<ul style="list-style-type: none"> <li>Price</li> <li>Quality</li> <li>Reliability</li> <li>Innovation</li> <li>Eco credentials</li> <li>Wellness</li> <li>Reputation</li> </ul>	<ul style="list-style-type: none"> <li>Ethical practices</li> <li>Care</li> <li>Disclosure</li> <li>Building waste</li> <li>Affordable housing</li> </ul>	<ul style="list-style-type: none"> <li>Customer satisfaction surveys,</li> <li>Events (International speaker, Continuous Professional Development presentations), Newsletters,</li> <li>Brochures</li> </ul>	<ul style="list-style-type: none"> <li>Website,</li> <li>Education</li> <li>Materiality survey (customer insights provided by Business Development Managers)</li> <li>Sustainability Strategy</li> </ul>
<b>Investors</b>	<ul style="list-style-type: none"> <li>Investors</li> <li>Analysts</li> <li>Shareholders</li> <li>Proxy Advisors</li> </ul>	<ul style="list-style-type: none"> <li>Business performance</li> <li>Sustainability</li> <li>Environmental performance</li> <li>Climate related issues</li> </ul>	<ul style="list-style-type: none"> <li>Health and safety</li> <li>HR</li> <li>Regulatory compliance</li> <li>Risk management disclosure</li> </ul>	<ul style="list-style-type: none"> <li>AGM</li> <li>Annual Report</li> <li>Meetings</li> <li>ASX Updates</li> </ul>	<ul style="list-style-type: none"> <li>Sustainability Strategy</li> </ul>
<b>Government</b>	<ul style="list-style-type: none"> <li>Local government</li> <li>State government</li> <li>Federal government</li> </ul>	<ul style="list-style-type: none"> <li>Compliance</li> <li>New and emerging legislation</li> <li>Carbon and energy</li> <li>Investing in new technology</li> </ul>	<ul style="list-style-type: none"> <li>Environmental performance</li> <li>WHS performance</li> <li>HR / EEO / Employment performance</li> <li>Planning issues</li> </ul>	<ul style="list-style-type: none"> <li>Meetings</li> <li>Training</li> <li>Audits and inspections</li> <li>Reporting</li> </ul>	<ul style="list-style-type: none"> <li>Sustainability Strategy</li> </ul>
<b>Industry</b>	<ul style="list-style-type: none"> <li>Competitors</li> <li>Similar Industry/ companies</li> </ul>	<ul style="list-style-type: none"> <li>Trends</li> </ul>		<ul style="list-style-type: none"> <li>Analysis of documents</li> <li>Gap analysis</li> </ul>	<ul style="list-style-type: none"> <li>Sustainability Strategy</li> </ul>
<b>Community Groups</b>	<ul style="list-style-type: none"> <li>Local community group organisations</li> <li>Neighbours</li> </ul>	<ul style="list-style-type: none"> <li>Communications</li> <li>Local employment and economy</li> </ul>	<ul style="list-style-type: none"> <li>Environmental performance</li> <li>Disclosure</li> </ul>	<ul style="list-style-type: none"> <li>Group meetings</li> <li>Local events</li> </ul>	<ul style="list-style-type: none"> <li>One on one discussions</li> <li>Complaints management</li> <li>Newsletters</li> <li>Site tours</li> </ul>
<b>Sustainability organisations</b>	<ul style="list-style-type: none"> <li>World Business Council for Sustainable Development</li> <li>Australian Sustainable Business Group</li> <li>Green Building Council and MECLA</li> </ul>	<ul style="list-style-type: none"> <li>Climate risk</li> <li>Materials use</li> <li>Social licence to operate</li> </ul>		<ul style="list-style-type: none"> <li>Survey</li> <li>Webinars</li> <li>Meetings</li> <li>Training</li> </ul>	<ul style="list-style-type: none"> <li>Newsletters</li> <li>Subscriptions</li> <li>Sustainability Strategy</li> </ul>

# Materiality Assessment Process

The purpose of a materiality assessment is to determine the most material sustainability topics relevant to Brickworks, its business and its stakeholders. Materiality is determined by assessing the significance of Brickworks' actual and potential impacts and prioritising the most significant.

Brickworks' previous materiality assessment was conducted in 2019, with a re-fresh performed in 2021 to confirm the material topics remained relevant. The 2023 materiality assessment is the first assessment performed in alignment with the updates to the Global Reporting Initiative (GRI) Material Topics 2021 Standard, which focuses for the first time on positive and negative impacts.

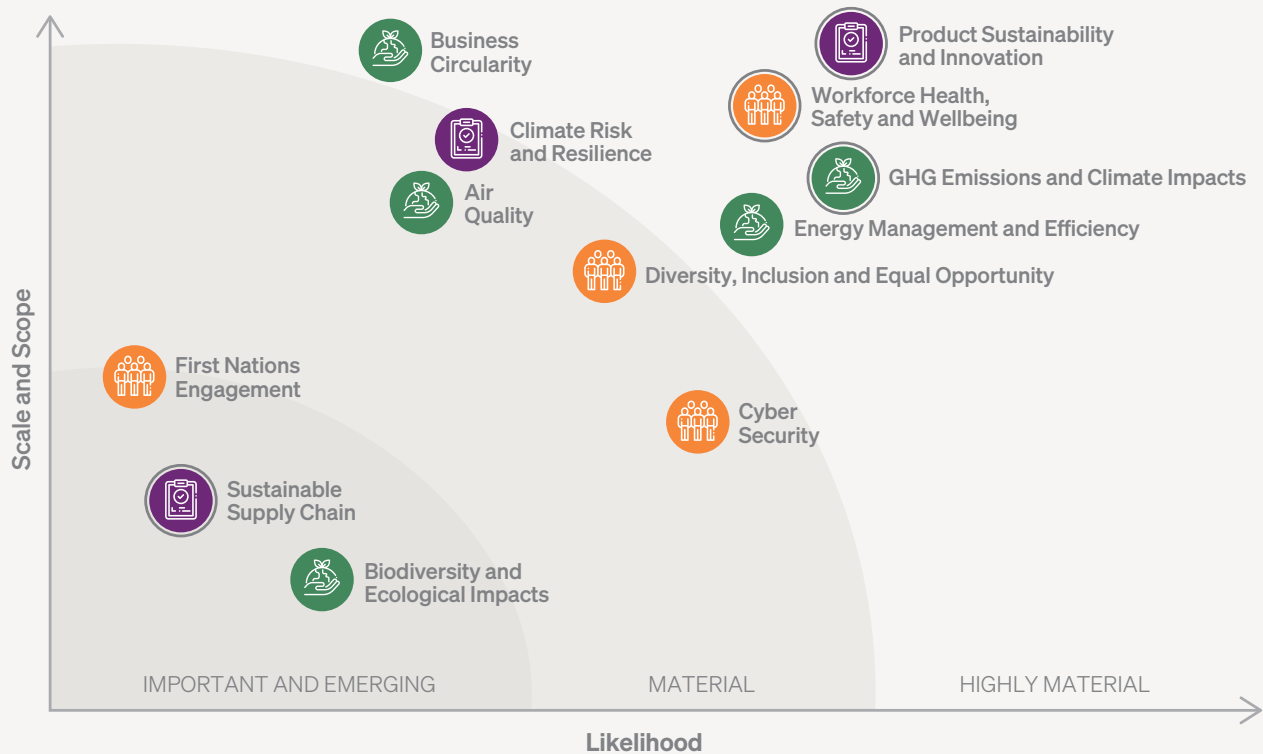
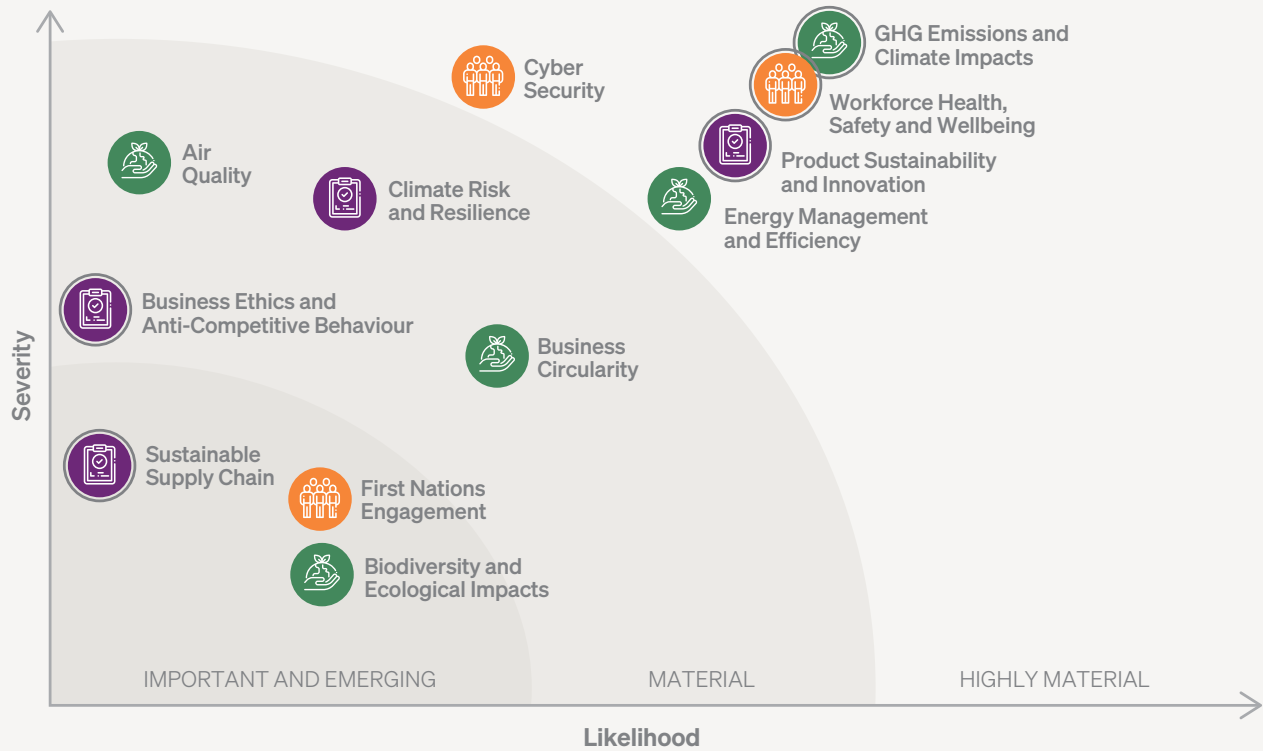
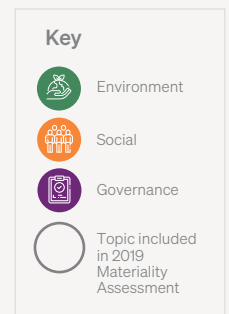
The following four step assessment process was applied to:

- ▮ Identified a long list of ESG material topics from:
  - ▮ Desktop review of relevant documentation (e.g. standards, previous Brickworks material assessment, building sector sustainability developments, risk register)
  - ▮ Peer benchmarking to understand topics addressed by peers
- ▮ Stakeholder engagement with 16 senior internal stakeholders with extensive knowledge of our customers, investors and the industry (Australia and North America) using surveys and via interviews. This helped validate and prioritise the material topics to Brickworks, and develop the short-list of most material topics.
- ▮ Completed assessment and determined the most material topics – there were 5 each for positive and negative impact (as plotted on the material matrixes).
- ▮ Communicated the results to the Executive Leadership Team.

A Materiality Matrix provides the visual overview of how significant issues were prioritised and ranked according to their positive and negative impacts. For positive impacts, significant issues were prioritised in accordance with the two dimensions recommended by the Global Reporting Initiative (GRI) Standards: likelihood (x-axis) and scale and scope (y-axis). For negative impacts, significant issues were prioritised in accordance with the two dimensions recommended by the Global Reporting Initiative (GRI) Standards; likelihood (x-axis) and severity (y-axis).

Brickworks consulted with selected internal and external stakeholders to validate the issues identified during stakeholder engagement. Brickworks' most material sustainability issues were validated as:

- ▮ GHG Emissions & Climate Impacts
- ▮ Energy Management & Efficiency
- ▮ Business Circularity
- ▮ Workforce Health, Safety & Wellbeing
- ▮ Cyber Security
- ▮ Product Sustainability & Innovation







Whitton Lane  
Project



# Appendices



# Appendix 1: Data Summary

Data summary of key metrics referenced against the Sustainability Accounting Standards Board (SASB): Extractives and Minerals Processing Sector, Construction Materials Standard 2018 where applicable.

■ Aligned    ■ Partially aligned    ■ The metrics covered by assurance for FY2023

## Health and Safety

Metric	Report Section	SASB metric	Units	FY2021	FY2022	FY2023
Total recordable injury rate (TRIFR) for full time employees (per million hours)						
Consolidated	Health & Safety	■ EM-CM-320a.1	Rate	14.25	12.17 <sup>13</sup>	■ 9.98
Australia	Health & Safety		Rate	9.34	12.48 <sup>13</sup>	6.41
North America	Health & Safety		Rate	21.11	11.84 <sup>13</sup>	13.83
Near miss frequency rate (NMFR) for full time employees (per million hours)						
Australia	Health & Safety	■ EM-CM-320a.1	Rate	–	20.05	■ 14.66
Number of reported cases of silicosis	Health & Safety	EM-CM-320a.2	Number	Management approach set out in H&S Section		

## Our Global Workforce

Metric	Units	Australia	North America	Consolidated
Key Employment Data				
Total Workforce	FTE	1,093	934	2,027
Total female breakdown	% female	24.5%	20.9%	22.8%
Female Senior Executives	% female	31.4%	14.3%	25.0%
Average age of employees	years	43.3	45.8	44.5
Employees aged 50 and over	%	34.3%	42.8%	38.2%
Average length of service	years	8.9	10.8	9.9
Workplace profile <sup>14</sup>				
Management	% female	25.8%	19.0%	22.5%
Professionals	% female	39.8%	37.1%	39.1%
Tech/Trades	% female	5.0%	0%	4.7%
Administration	% female	70.4%	60.3%	65.6%
Sales	% female	53.4%	17.0%	41.0%
Operators/ Labourers	% female	4.4%	7.8%	6.3%
Employee Turnover				
Voluntary	%	19.8%	26.0%	22.6%
Total	%	32.7%	38.2%	35.2%
Coverage of Collective Bargaining Agreements				
Collective Bargaining Agreement	%	77.5%	61.0%	69.4%
No Agreement	%	22.5%	39.0%	30.6%
Composition of Collective Bargaining Agreements				
Union Based	%	46.2%	100%	69.4%
Non-Union Based	%	53.8%	0%	30.6%

<sup>13</sup> Restated to include injuries that occurred in FY2022 but were reclassified during FY2023. Consolidated TRIFR from 11.7 to 12.17; Australia TRIFR from 11.1 to 12.48; North America TRIFR from 12.3 to 11.84.

<sup>14</sup> Female % is a fraction of each profile type.



## Greenhouse gas emissions

Metric	Report Section	SASB metric	Units	FY2021	FY2022	FY2023
Total Scope 1 and 2 Emissions						
Consolidated	Carbon		ktCO <sub>2</sub> -e	404	423	400
Australia	Carbon		ktCO <sub>2</sub> -e	264	278	■ 257
North America	Carbon		ktCO <sub>2</sub> -e	140	144 <sup>15</sup>	■ 143
Scope 1 Emissions						
Consolidated	Carbon	■ EM-CM110a.1	ktCO <sub>2</sub> -e	311	327	317
Australia	Carbon		ktCO <sub>2</sub> -e	193	206	■ 196
North America	Carbon		ktCO <sub>2</sub> -e	117	121 <sup>15</sup>	■ 121
Scope 2 Emissions						
Consolidated	Carbon		ktCO <sub>2</sub> -e	93	96	83
Australia	Carbon		ktCO <sub>2</sub> -e	71	72	■ 61
North America	Carbon		ktCO <sub>2</sub> -e	23	24 <sup>15</sup>	■ 22
Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets	Climate strategy	■ EM-CM-110a.2	–	–	–	–
Performance against emission reduction target						
Percentage carbon emissions compared to FY2022	Carbon	■ EM-CM-110a.2	%	–	Baseline	-5%

## Energy consumption

Metric	Report Section	SASB metric	Units	FY2021	FY2022	FY2023
Total energy consumed						
Consolidated	Energy	■ EM-CM-130a.1	PJ	6.17	6.53	6.14
Australia	Energy		PJ	4.15	4.45	■ 4.12
North America	Energy		PJ	2.01	2.08	2.02
Natural gas						
North America	Energy		PJ	1.78	1.81	■ 1.76
Percentage grid electricity,						
Consolidated	Energy	■ EM-CM-130a.1	%	8.5%	8.6%	8.5%
Percentage alternative <sup>16</sup>						
Consolidated	Energy	■ EM-CM-130a.1	%	4.6%	4.8%	4.5%
Percentage renewable <sup>17</sup>						
Consolidated	Energy	■ EM-CM-130a.1	%	3.7%	3.4%	2.8%
Percentage biofuels of total energy consumed						
Australia	Energy		%	13%	12%	■ 11%
Natural gas efficiency improvement						
AUS (baseline FY2018)	Energy		%	7.4%	7.0%	■ 6.7% <sup>18</sup>
US (baseline CY19)	Energy		%	–	10.4% <sup>19</sup>	■ 18.1% <sup>18</sup>
Total gas efficiency improvement						
AUS (baseline FY2018)	Energy		%	5.5%	6.2%	■ 6.5% <sup>18</sup>

<sup>15</sup> Restated to include all retail sites and fleet emissions for North America;

<sup>16</sup> Alternative energy includes biofuels excluding landfill gas which is classified as renewable energy.

<sup>17</sup> Renewable energy includes landfill gas and renewable electricity.

<sup>18</sup> Basis for calculating Total and Natural gas efficiency improvement has limited assurance.

<sup>19</sup> Restated from 8.6% to 10.4% based on consultant invoice review of CY19 natural gas energy used by our North American operations.

## Environmental compliance

Metric	Report Section	SASB metric	Units	FY2021	FY2022	FY2023
Number of Environmental fines and penalties						
Consolidated			Number	2	2	■ 0 <sup>20</sup>
Australia	Environment		Number	0	1	0
North America	Environment		Number	2	1	0 <sup>20</sup>
Cost of environmental fines and penalties						
Consolidated	Environment		\$AU <sup>21</sup>	\$3,761	\$3,877	■ \$0 <sup>20</sup>
Australia	Environment		\$AU	\$0	\$1,094	\$0
North America	Environment		\$USD	\$2,500	\$1,850	\$0 <sup>20</sup>

## Water

Metric	Report Section	SASB metric	Units	FY2021	FY2022	FY2023
Total potable water withdrawn / consumed						
Consolidated	Resources – Water	■ EM-CM-140a.1 <sup>22</sup>	ML	–	–	158
Australia			ML	121	117	103
North America			ML	–	–	55
Percentage recycled	Gap	EM-CM-140a.1	%	–	–	–
Percentage consumed in regions with High or Extremely High Baseline Water Stress	Resources waste and water	■ EM-CM-140a.1	%	0.01%	0.12%	0%

## Waste

Metric	Report Section	SASB metric	Units	FY2021	FY2022	FY2023
Amount of waste generated	Resources – Waste	EM-CM-150a.1	t	Management approach set out in Resources section		
Percentage hazardous	Resources – Waste	EM-CM-150a.1	%	Management approach set out in Resources section		
Percentage recycled	Resources – Waste	EM-CM-150a.1	%	Management approach set out in Resources section		
Percentage recycled content	Resources – Waste					
Australia	Resources – Waste		% by tonne of production	12%	17%	20%

20 Since 31 July 2023, Glen Gery was fined \$7,800 USD in September 2023 relating to unauthorised stormwater discharge as disclosed to the regulator for which full corrective action has been taken.

21 USD converted to AUD based on exchange rate at the time.

22 Total potable mains water based on utility invoices.

## Biodiversity

Metric	Report Section	SASB metric	Units	FY2021	FY2022	FY2023
Description of environmental management plan(s) implemented at active sites	Biodiversity and Progressive Rehabilitation	■ EM-CM-160a.1	n/a	Biodiversity and Progressive Rehabilitation Section		
Terrestrial acreage disturbed	Gap	EM-CM-160a.2	acres	–	–	–
Impacted area restored						
Progressive rehabilitation						
Consolidated	Biodiversity and Progressive Rehabilitation	■ EM-CM-160a.2	m <sup>2</sup>			216,275
Australia			m <sup>2</sup>	25,527	270,173	47,400
North America			m <sup>2</sup>	–	–	168,875

## Products

Metric	Report Section	SASB metric	Units	FY2021	FY2022	FY2023
Percentage of products that qualify for credits in sustainable building design and construction certifications						
Consolidated		■ EM-CM-410a.1	% by tonne of production	–	–	19%
Australia	Product and innovation		% by tonne of production	–	6%	25%
North America			% by tonne of production	–	–	0%
Percentage recycled content						
Australia			% by tonne of production	12%	17%	20%
Total addressable market and share of market for products that reduce energy, water, and/or material impacts during usage and/or production	Gap	EM-CM-410a.2	Reporting currency, Percentage (%)	–	–	–
Total amount of monetary losses as a result of legal proceedings associated with cartel activities, price fixing, and anti-trust activities		EM-CM-520a.1	Reporting currency	Nil	Nil	Nil
Production by major product line	Confidential	EM-CM-000.A	Metric tonnes (t)	–	–	–

## Air quality

Accounting Metric	Unit	SASB Code	Reference
NO <sub>x</sub> (excluding N <sub>2</sub> O)	Metric tonnes (t)	■ EM-CM-120a.1	Brickworks Website
SO <sub>x</sub>	Metric tonnes (t)	■ EM-CM-120a.1	Brickworks Website
Particulate matter (PM10)	Metric tonnes (t)	■ EM-CM-120a.1	Brickworks Website
Dioxins/furans	Metric tonnes (t)	■ EM-CM-120a.1	Brickworks Website
Volatile organic compounds (VOCs)	Metric tonnes (t)	■ EM-CM-120a.1	Brickworks Website
Australia	Metric tonnes (t)	■ EM-CM-120a.1	Brickworks Website
North America	Metric tonnes (t)	■ EM-CM-120a.1	Brickworks Website



# Appendix 2: Basis of preparation definitions

The information and indicators prepared for this sustainability report are prepared on the following basis (unless specifically stated otherwise for the specific information reported):

- ▶ The boundary of the Sustainability Report covers sites where Brickworks Limited has operational control.
- ▶ The reporting period for most topics is 1 August 2022 to 31 July 2023, aligned with the Brickworks' financial year. An exception is energy and carbon data, where the reporting period for all (including North America) is 1 July 2022 to 30 June 2023, aligned with the National Greenhouse and Energy Reporting (NGER) Scheme in Australia.
- ▶ Indicators have been prepared on the basis below (and within the reporting boundary and reporting period stated above).

## Energy and Carbon

### Scope 1 and 2 greenhouse gas emissions

Australian Scope 1 and 2 emissions are prepared in accordance with the requirements of the National Greenhouse and Energy Reporting (NGER) Scheme, with the following key determinations:

- ▶ Fuel combustion emissions, including natural gas combustion, are measured based on invoices for fuel delivered to sites under our operational control during the period. Some sources of fuels are adjusted for inventory where stocktakes are completed. Emissions are estimated indirectly using Method 1 that applies standard energy content factors and emissions factors per unit of fuel type specified in the NGER Scheme.
- ▶ Emissions relating to calcination is estimated using Method 1A per section 4.22A of the NGER Measurement Determination. This is an indirect estimation method where the quantity of clay material used in the process at sites under our operational control is measured and standard state-based emissions factors per unit of clay material specified in the NGER Scheme are applied to estimate emissions.
- ▶ Scope 2 emissions are prepared using location-based methodology. They are based on vendor invoices for grid-electricity delivered to sites under our operational control during the period and applying state-based grid-electricity emissions factors for the year ended 30 June 2023 specified in the NGER Scheme.

North American Scope 1 and 2 emissions are prepared in accordance with the guidance of the Greenhouse Gas protocol, with the following key determinations:

- ▶ Estimations for all material emissions at sites under our operational control. Material emissions are sources with potential of exceeding 5% of our total emissions estimate. Minor sources not meeting this criteria not necessarily being measured and estimated.
- ▶ Fuel combustion emissions, including natural gas combustion, are measured based on invoices for fuel delivered to the sites under our operation control during the period, and emissions estimated indirectly using US

EPA emissions factors per unit of each fuel type. Noting that minor estimation of amount of fuel combusted has been applied where invoices were unavailable, accounting for less than 1% of estimated Scope 1 emissions.

- ▶ Mobile fuel combustion emissions are estimated using estimates using distance travelled. Brickworks utilises available mileage data for each vehicle and motor vehicle consumption factors as published by the US Energy Information Administration (EIA).
- ▶ Emissions relating to calcination is estimated using The 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 3: Industrial Process and Product using a default ratio for limestone (also referred to as calcite) and dolomite. This is an indirect emissions estimation method, where mass of carbonate material calcined at operations under our operational control is measured and standard emissions factors for the mass of each type of material are applied to estimate emissions.
- ▶ Scope 2 emissions are prepared using location-based methodology. They are based on vendor invoices for grid-electricity delivered to operations under our operational control during the year and applying the relevant US EPA grid-electricity emissions factor to estimate emissions.

### Energy consumed

Energy consumed includes natural gas combustion, other fuel consumption and electricity consumption.

For Australia, energy consumed (including for natural gas and bio-fuels consumption) is prepared in accordance with the criteria for energy consumption specified in the NGER Scheme, including:

- ▶ Consumption of low or zero carbon energy under our operational control, such as biofuels, that do not result in significant greenhouse gas emissions.
- ▶ Consumption of own energy produced that is consumed on site under our operational control (and which may or may not result in greenhouse gas emissions) – such as for example our renewable energy production at Oakdale and Rockhampton, which is consumed on site.
- ▶ Fuel (including natural gas and biofuels) consumption, as well as grid electricity consumption are measured based on invoices for energy delivered to sites under our operational control during the year, and total energy (as well as total natural gas and total bio-fuels) consumed measured in giga joule (GJ) is estimated based on standard energy content factors provided by the NGER Scheme.

For North America, energy consumption is prepared as part of preparing our greenhouse gas estimate and is measured based on fuel (including natural gas and diesel) consumption, as well as grid electricity consumption. Fuel and electricity is measured based on invoices for energy delivered to sites under our operational control during the year, and total energy (as well as total natural gas and total bio-fuels) consumed measured in giga joule (GJ) is estimated based on standard energy content factors provided by the US EPA.

## Natural gas consumed

Natural gas used at all sites (GJ) is measured based on invoices for energy delivered to sites under our operational control during the year.

## Percent biofuels of total energy consumed (Australia only)

Biofuels are as defined in the NGER Scheme under the broad categories of primary solid biomass fuels, biogas captured for combustion and liquid biofuels. Biofuels used by Brickworks at sites under our operational control are landfill gas, sawdust, charcoal, sugars, vegetable based oils, biodiesel and ethanol.

Percent biofuels is the amount of biofuels (as defined above) as a proportion of total energy consumed (GJ) in Australian operations.

## Total and Natural gas efficiency improvement

Improvement is expressed as a percentage improvement in gas efficiency at sites under our operational control compared to baseline year, with the following key determinations:

- ▶ Natural gas used at our brick manufacturing plants (GJ) divided by production as measured in thousand standard brick equivalents ('000 SBE).
- ▶ Total gas includes natural gas, landfill gas and sawdust (GJ) divided by production at our brick manufacturing plants as measured in thousand standard brick equivalents ('000 SBE). Sawdust is included as it is the main source of energy for our Longford plant replacing natural gas.
- ▶ Baseline total and natural gas efficiency for Australia is based on FY2018 as this is the target defined in the published strategy on our website.
- ▶ Baseline natural gas efficiency for North America is calendar year 2019 as this is the first full 12 months of data that has been collected.

## Health and Safety

### Total Recordable Injury Frequency Rate (TRIFR)

TRIFR is the number of Loss time injuries (LTIs) and Medical Treatment Injuries (MTIs) recorded during the year ended 31 July 2023 among workers at sites under our operational control multiplied by 1,000,000 and divided by the total number of hours worked by our employees during the year ended 31 July 2023 – expressing the total recordable injury frequency rate (TRIFR) per million hours worked. It excludes contractor injuries and hours.

A LTI is a work-related injury or illness which results in the worker losing time off work for a period of one complete shift or greater, the day (consecutive or not) after the injury or occupational illness.

A MTI is a work-related injury or illness which results in the worker seeking medical attention from a doctor and subsequent referral to a Physiotherapist, Dentist, etc. and not losing time off work for a period of one complete shift or greater. On site treatment of employees by a Physiotherapist as part of the Company's wellbeing program is not classed as a medical treatment injury. If a medical practitioner provides a level of treatment that is equivalent to that of a first aider, and does not administer more advanced medical care, then the case should not be categorised as medical treatment; instead, it should be classified as a first aid treatment case.

First aid treatments are not counted as a recordable injury but must be reported. The calculation of the Total Recordable Injury Frequency Rate (TRIFR) should not include first aid or injury without treatment injuries.

### Near-Miss Frequency Rate (NMFR)

NMFR is the number of near miss incidents recorded during the year ended 31 July 2023 among workers at sites under our operational control multiplied by 1,000,000 and divided by the total number of hours worked by our employees during the year ended 31 July 2023 – expressing the near miss frequency rate (NMFR) per million hours worked. It excludes contractor injuries and hours.

A near miss is anything which could have resulted in an injury or illness to employees, contractors, or visitors and / or damage to property or the environment, but on this occasion, did not. These incidents are reported to a supervisor or manager, and recorded in the site's Hazard Register.

Our Australian NMFR is based on recorded incidents only. It is acknowledged that whilst we encourage all near-miss incidents to be recorded, there may be unrecorded near-miss incidents.

## Environmental Performance

### Total number and cost of significant environmental fines and penalties

Environmental fines and penalty Notices are defined as all Environmental or Mining Notices issued to our operations under our operational control by regulators or the courts with financial penalties and paid during the year ended 31 July 2023. Penalties received regarding property notices are excluded.

### Significant instances of non-compliance (Environment)

Significant instances of non-compliance are determined by Brickworks to be incidents that are reportable to regulators according to environment or mining legislation or licence conditions which result in either prosecution, penalty notice (fine) or directive notice. Directive notices include non-monetary sanctions, and directives to cease or remediate an unlawful activity.

# Appendix 3: Sustainable Development Goals

The United Nations Sustainable Development Goals (SDGs) are a call for action to promote prosperity while protecting the planet. We contribute to many of the 17 SDGs which have connection to our business, reflected in our “Build for Living: Towards 2025” strategy and enhanced targets. We have highlighted the sustainable development goals where we believe our actions have the greatest potential to make a real and lasting difference. The alignment of our business strategy and sustainability approach with these highlighted SDGs are outlined in the following table. Our industry is resource-intensive and we are aware of the challenges we face to ensure we manage our potential adverse impacts and maximise our opportunities. We are committed to building and strengthening the wide range of partnerships needed to support these goals. We will further align our processes with the SDGs.

## Sustainable Development Goals Our Commitments

 		<b>Energy Efficiency</b> – Stretch target: 10% increase in gas efficiency at Austral Bricks plant by 2030.
		<b>Carbon Transition</b> – Continued investment into developing feasible renewable biomethane opportunities and investment in the transition to the hydrogen fuel economy.
		<b>Carbon</b> – 15% reduction in Scope 1 and 2 greenhouse gas emissions by 2030 from a 2022 baseline, across our combined Australian and North American operations.
 		<b>Product Innovation</b> – Year on year increase in R&D investment in the next generation of clay brick and concrete block wall systems.
		<b>Life Cycle and Thermal Design and Education</b> – We will support design tools, guidance and information to incorporate thermal design and life cycle thinking into building design.
		<b>Sustainable Products</b> – Increase the volume of verified sustainable products to 25%.
 		<b>Air Quality, Emission Control</b> – Over \$2 million investment in emission abatement.
		<b>Water</b> – Reduce potable water use in water stressed areas.
		<b>Circular Economy</b> – Year on year increase in recycled material use.
		<b>Rehabilitation</b> – Drive progressive rehabilitation.
		<b>Supply Chain</b> – Continuing to reduce supply chain risks.
		<b>Life Cycle and Thermal Design and Education</b> – We will support design tools, guidance and information to incorporate thermal design and life cycle thinking into building design.



# Appendix 4: Auditor Assurance Statement

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## Independent limited assurance report to the Directors of Brickworks Limited

### What we found: Our Limited Assurance Conclusion

GHD Pty Ltd (GHD or we) was engaged by Brickworks Limited (Brickworks) to undertake a limited assurance engagement in respect of the following selected matters presented in the Data Summary provided in Appendix 1 of Brickworks' Sustainability Report 2023:

For Australian operations	For North American operations
<ul style="list-style-type: none"><li>– Scope 1 and 2 greenhouse gas (GHG) emissions (respectively, and in total) for the year ended 30 June 2023.</li><li>– Total energy consumed for the year ended 30 June 2023.</li><li>– Percentage biofuels of total energy consumed for the year ended 30 June 2023.</li><li>– The basis for calculating total gas and natural gas efficiency improvement percent for the year ended 30 June 2023.*</li><li>– Near Miss Frequency Rate (NMFR) for full time employees (per million hours) for the year ended 31 July 2023.</li></ul>	<ul style="list-style-type: none"><li>– Scope 1 and 2 GHG emissions (respectively, and in total) for the year ended 30 June 2023.</li><li>– Total natural gas consumed for the year ended 30 June 2023.</li><li>– The basis for calculating natural gas efficiency improvement percent for the year ended 30 June 2023.*</li></ul>
At Brickworks Group-level (consolidated)	
<ul style="list-style-type: none"><li>– Total Recordable Incident Frequency Rate (TRIFR) for full time employees (per million hours) for the year ended 31 July 2023.</li><li>– Number of environmental fines and penalties for the year ended 31 July 2023.</li><li>– Cost of environmental fines and penalties for the year ended 31 July 2023.</li></ul>	
* Assurance of the basis for calculating gas efficiency improvement percent focussed only on whether the calculation is appropriate and whether it is based on immediate supporting evidence without assuring the completeness and accuracy of such supporting evidence.	

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that the selected matters are not prepared, in all material respects, in accordance with the Basis of Preparation provided in Appendix 2 of Brickworks' Sustainability Report 2023.

### Reporting Criteria

The Reporting Criteria used by Brickworks for preparing the selected matters are set out in the Basis of Preparation provided in Appendix 2 of Brickworks' Sustainability Report 2023.

### Brickworks' Responsibility for the Sustainability Report 2023

Brickworks is responsible for the preparation of its Sustainability Report 2023, including the preparation of the selected matters in accordance with the Reporting Criteria. This responsibility includes selection of appropriate Reporting Criteria and the design, implementation, and maintenance of internal control relevant to the preparation of the Brickworks Sustainability Report 2023 that is free from material misstatement, whether due to fraud or error.

GHG quantification is subject to inherent uncertainty because of incomplete scientific knowledge used to determine emissions factors and the values needed to combine emissions of different gases.

### The basis of our conclusion: standards-based limited assurance

We conducted our limited assurance engagement in accordance with Standards on Assurance Engagements ASAE 3000, *Assurance Engagements other than Audits or Reviews of Historical Financial Information* (ASAE 3000); and ASAE 3410, *Assurance Engagements on Greenhouse Gas Statements* (ASAE 3410), issued by the Auditing and Assurance Standards Board.

### Our responsibility

Our responsibility is to express limited assurance conclusions on the selected matters based on the procedures we have performed and the evidence we have obtained. ASAE 3000 and ASAE 3410 require that we plan and perform this engagement to obtain limited assurance about whether the selected matters are free from material misstatement.

A limited assurance engagement undertaken in accordance with ASAE 3000 and ASAE 3410 involves assessing the suitability of Brickworks' use of the Reporting Criteria as the basis for the preparation of the selected matters, assessing the risks of material misstatement of the selected matters whether due to fraud or error, responding to the assessed risks as necessary in the circumstances, and evaluating the overall presentation of the selected matters. A limited assurance is substantially less in scope than a reasonable assurance engagement in relation to both the risk assessment procedures, including an understanding of internal control, and the procedures performed in response to the assessed risks.

### What we did: Our assurance procedures

The procedures we performed were based on our professional judgement and included enquiries, observation of processes performed, inspection of documents, analytical procedures, evaluating the appropriateness of quantification methods and reporting policies, and agreeing or reconciling with underlying records. Our procedures included:



GHD Pty Ltd | ABN 39 008 488 373

- Through process owner enquiries and review of system documentation, obtaining an understanding of Brickworks' reporting processes relevant to the selected matters and evaluating whether they appear appropriate for preparing the selected matters in accordance with the Reporting Criteria.
- Obtaining an understanding of Brickworks' determination of its reporting boundary and performed testing to confirm it appears to have been appropriately implemented.
- Undertaking site visits at three sites, being Wollert (Victoria), Mid-Atlantic (Pennsylvania) and Adel (Iowa) performing site personnel interviews, conducting a site walk-over and reviewing site-based documentation. This was done to test and assess whether the identification of reportable activities, data collection methods, activity (source) data recording and relevant assumptions were appropriately applied to the sites. Sites sampled for testing were chosen taking into consideration their GHG emissions relative to total GHG emissions, propensity for safety incidents, and sites selected by prior assurance provider.
- Testing Brickworks' calculations of energy, natural gas and biofuels consumed, GHG emissions, safety frequency rates being based on the activity data and applying appropriate conversion and emissions factors in accordance with the Reporting Criteria.
- Performing scans on a sample basis of publicly available information in respect of possible environmental fines and penalties incurred by Brickworks.
- Checking Brickworks' presentation of the selected matters in its Sustainability Report 2023, including that they were prepared in accordance with the findings from our limited assurance engagement.

#### **Our Independence and Quality Control**

We have complied with the relevant ethical requirements relating to assurance engagements, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality, and professional behaviour.

GHD applies Auditing Standard ASQM 1 *Quality Management for Firms that Perform Audits or Reviews of Financial Reports and Other Financial Information, or Other Assurance or Related Services Engagements* (ASQM1), and accordingly we maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements.

#### **Inherent limitations**

There are inherent limitations in performing assurance; for example, assurance engagements are based on selective testing of the information being examined and because of this, it is possible that fraud, error, or non-compliance may occur and not be detected. An assurance engagement is not designed to detect all misstatements, as an assurance engagement is not performed continuously throughout the period that is the subject of the engagement and the procedures are performed on a test basis.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had we performed a reasonable assurance engagement. Accordingly, we do not express a reasonable assurance opinion about whether the selected matters have been prepared, in all material respects, in accordance with Brickworks' Basis of Preparation provided in Appendix 2 of the Sustainability Report 2023.

Our engagement did not include assurance of other information within Brickworks Sustainability Report 2023 other than the selected matters, including no assurance provided in respect of previous years' comparative numbers for the selected matters.

We understand that Brickworks may publish a copy of our assurance report on its website. We do not accept responsibility for the electronic presentation of our assurance report on Brickworks' website. The security and controls over information on Brickworks' web site is not evaluated or addressed by us as the independent assurance practitioner. The examination of the controls over the electronic presentation of this assurance report on the Brickworks web site is beyond the scope of our limited assurance engagement.

#### **Restricted use of our limited assurance report: Only Brickworks may rely upon it**

This limited assurance report has been prepared for a specific purpose agreed with Brickworks, including assisting Brickworks' Directors in approving the Brickworks Sustainability Report 2023 prepared by Brickworks' management. Whilst we accept that Brickworks may publish this limited assurance report in its Sustainability Report 2023 as evidence of the assurance it has obtained, our limited assurance report is not suitable to rely on for anyone else for any purpose. Accordingly, we expressly disclaim and do not accept any responsibility or liability to any party other than Brickworks for any consequences of reliance on this limited assurance report for any purpose.



Leon H. Olsen  
Registered Greenhouse and Energy Auditor Category 2 (Audit Team Leader)  
GHD Pty Ltd  
Level 15, 133 Castlereagh Street, Sydney, NSW, 2000  
28 September 2023

Austral Bricks  
La Paloma miro





# BRICKWORKS

Contact details for  
questions relating to  
the content of this Report

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