

# BORAL REVIEW

INCORPORATING BORAL'S 2018 SUSTAINABILITY REPORT



2018

An annual publication for Boral's shareholders, employees and other stakeholders

- Substantial 49% increase in statutory net profit after tax to \$441 million
- Headwaters acquisition synergies exceeding target
- Significant reduction in carbon emissions intensity and more to come

A close-up photograph of a man, identified as Robbie, smiling. He is wearing a white hard hat with the Boral logo, safety glasses, and a yellow high-visibility work shirt with a blue collar. The shirt has a name tag that reads "ORMEAU QUARRY UPGRADE PROJECT" and "ROBBIE", and a Boral logo on the chest. A black walkie-talkie is clipped to his shirt. The background is blurred, suggesting an outdoor industrial setting.

## Building a great business and delivering growth

For our customers, employees, shareholders and all stakeholders

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## ABOUT THIS REPORT

The Boral Review provides a summary of the Company's performance on material sustainability issues and financial results for the year ended 30 June 2018.

Boral Limited's statutory results are reported under International Financial Reporting Standards (IFRS). Earnings before significant items is a non-IFRS measure reported to provide a greater understanding of the underlying business performance of the Group. Significant items are detailed in note 2.6 of the financial statements and relate to amounts of income and expense that are associated with significant business restructuring, business disposals, impairment or individual transactions.

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The Boral Review has not been subject to audit; however, it contains disclosures which are extracted or derived from the financial statements for the year ended 30 June 2018. All dollar amounts referred to are in Australian dollars unless otherwise specified.

**BORAL LIMITED**  
ABN 13 008 421 761

A glossary of key terms used in the report is on page 53.

# Continuing Boral's transformation

FY2018 marked a significant year in Boral's transformation, with the successful integration of the Headwaters business into Boral North America, together with further gains in Boral Australia and consolidation of recent years' significant growth in USG Boral.

This year, we delivered underlying profit after tax<sup>1</sup> of \$473 million, a significant 38% increase on the prior year. We also achieved acquisition net synergies of US\$39 million, ahead of our initial US\$30–35 million target, and we have increased our four-year synergy target to US\$115 million.

Our strategy to deliver improved performance and sustainable growth is progressing well and delivering value for Boral's stakeholders.

## Year at a glance

### 30 August 2017

Boral reported a 28% increase in net profit after tax<sup>1</sup> to \$343 million for the year ended 30 June 2017.

### 25 October 2017

Boral priced US\$950 million of Guaranteed Senior Notes. The Notes were used to repay a portion of the bridge loan facility for the Headwaters acquisition and for general corporate purposes.

### 2 November 2017

At the Annual General Meeting, Dr Brian Clark, Kathryn Fagg and Paul Rayner were re-elected as Directors. The resolution to adopt the Remuneration Report was well supported with 96.04% of shareholder votes cast in favour.

### 8 December 2017

USG Boral announced a US\$20 million investment in a plant in Ho Chi Minh City, Vietnam to expand production and meet growing demand for high-quality plasterboards.

### 13 February 2018

Boral reported a 44% increase in net profit after tax<sup>1</sup> of \$214 million for the six months ended 31 December 2017.

### 29 March 2018

Boral priced a US\$300 million senior, unsecured note issue. The proceeds, in addition to existing cash, were used to refinance notes maturing in April 2018.

### 24 April 2018

Boral completed the sale of its Prospect Masonry property to ISPT Pty Ltd and provided updated divisional earnings guidance for Boral Australia and Boral North America.

### 10 May 2018

Boral announced it agreed to sell its Concrete and Quarries business in Denver, Colorado for US\$127 million, reflecting Boral's strategy in the US to focus on growing the building products and fly ash businesses. The transaction closed on 2 July 2018.

### 28 May 2018

Boral announced new agreements with Mirvac to include an additional 278 hectares of land in the development arrangements for Boral's Donnybrook property in Victoria. It is expected that the transaction could deliver well in excess of \$200 million of proceeds for Boral over the next 20 years, subject to market conditions.

### 20 June 2018

Dr Brian Clark announced his retirement as Chairman and Non-executive Director due to health reasons, effective 30 June 2018. The Board appointed current Non-executive Director Kathryn Fagg to succeed Dr Clark as Chairman, effective 1 July 2018.

The Board also announced the appointment of Peter Alexander as the first North American-based Non-executive Director, effective 1 September 2018.

1. Excluding significant items.

# Results at a glance

Year ended 30 June (A\$ million unless stated)	FY2018	FY2017
Revenue	5,869	4,388
EBITDA <sup>1,2</sup>	1,056	720
EBITA <sup>1,2</sup>	749	472
EBIT <sup>1</sup>	688	460
Net interest <sup>1</sup>	(104)	(51)
Profit before tax <sup>1</sup>	585	409
Tax <sup>1</sup>	(111)	(67)
<b>Net profit after tax<sup>1</sup></b>	<b>473</b>	343
Net significant items	(32)	(46)
<b>Statutory net profit after tax</b>	<b>441</b>	297
Net profit after tax and before amortisation <sup>1</sup>	514	350
Cash flow from operating activities	578	413
Gross assets	9,510	9,381 <sup>6</sup>
Funds employed	8,183	7,774
Liabilities	3,780	3,940 <sup>6</sup>
Net debt/(cash)	2,453	2,333
Stay-in-business capital expenditure	375	288
Growth capital expenditure	51	52
Acquisition capital expenditure	–	3,637
Depreciation and amortisation	368	260
Boral employees	11,898	11,499
Total employees including in joint ventures	17,131	16,475
Revenue per Boral employee, \$ million	0.493	0.382
Net tangible asset backing, \$ per share	1.99	1.79 <sup>6</sup>
EBITDA margin on revenue <sup>1</sup> , %	18.0	16.4
EBIT margin on revenue <sup>1</sup> , %	11.7	10.5
EBIT return on funds employed <sup>1,3</sup> , %	8.4	9.2
EBIT return on average funds employed <sup>1,4</sup> , %	8.6	7.6
Return on equity <sup>1</sup> , %	8.3	6.3
Gearing		
Net debt/equity, %	43	43
Net debt/net debt + equity, %	30	30
Interest cover <sup>1</sup> , times	6.6	9.1
Earnings per share <sup>1</sup> , ¢	40.4	33.7
Dividend per share, ¢	26.5	24.0
Employee safety <sup>5</sup> : (per million hours worked)		
Lost time injury frequency rate	1.6	1.5
Recordable injury frequency rate	8.7	8.1

Figures may not add due to rounding.

1. Excludes significant items.

2. Excludes amortisation of acquired intangibles.

3. Return on funds employed (ROFE) for FY2017 is based on average monthly funds employed to better reflect the impact of the Headwaters acquisition. Based on 30 June 2017 funds employed, ROFE for FY2017 would be reported as 5.9%.

4. Calculated as EBIT (before significant items) on the average of opening and closing funds employed for the year.

5. Injuries per million hours worked for employees and contractors. FY2018 includes all businesses regardless of equity interest whereas prior years data only includes 50%-owned joint ventures. FY2018 includes Headwaters businesses.

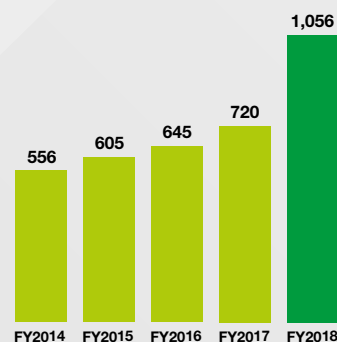
6. Restated following finalisation of acquisition accounting for Headwaters. Refer Note 6.3 of the full year financial report for the year ended 30 June 2018.

7. In accordance with AASB 133, historical earnings per share has been revised to reflect the bonus element in the equity raising completed in December 2016.

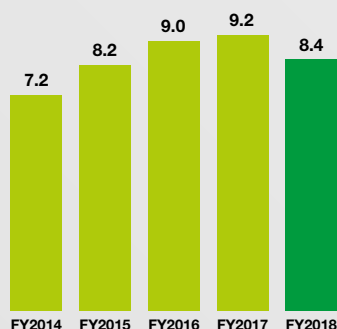
8. Includes Boral's 50% share of underlying revenue from USG Boral and Meridian Brick joint ventures, which are not included in Group reported revenue.

9. GHG emissions data for 100%-owned operations and Boral's share of 50%-owned joint venture operations – it excludes some joint ventures which in aggregate are not deemed to have material emissions. Emissions intensity based on Group reported revenue adjusted to include 50% of underlying revenues from USG Boral and Meridian Brick joint ventures which are equity accounted.

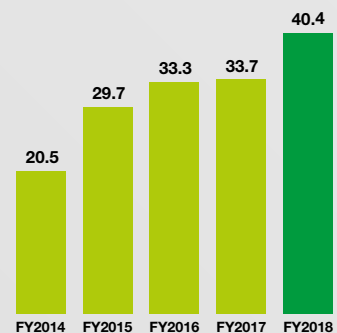
EBITDA<sup>1,2</sup> (A\$m)



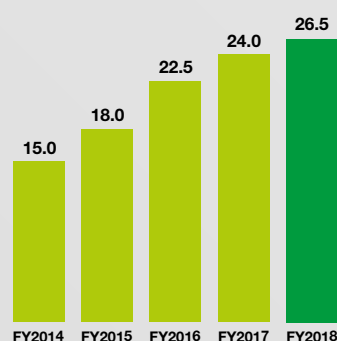
Return on funds employed<sup>1,3</sup> (%)



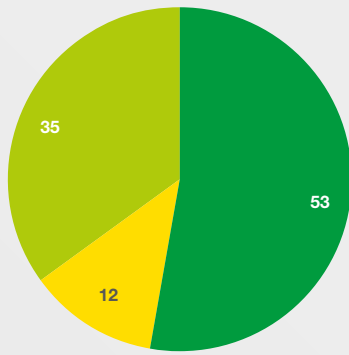
Earnings per share<sup>7</sup> (¢)



Dividends per share (¢)

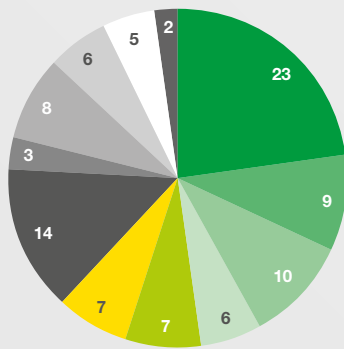


### Revenue by division<sup>8</sup> (%)



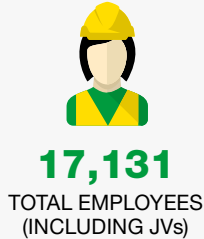
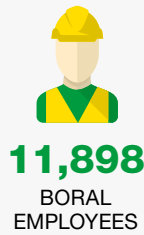
- Boral Australia
- USG Boral
- Boral North America

### Revenue by market<sup>8</sup> (%)



- Australian roads, highways, subdivisions and bridges and other engineering
- Australian non-residential
- Australian detached dwellings
- Australian multiple dwellings
- Australian alterations and additions
- Asia and Middle East
- USA single-family residential
- USA multi-family residential
- USA repair and remodel
- USA non-residential
- USA infrastructure
- Other

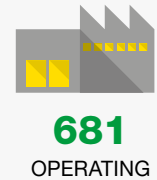
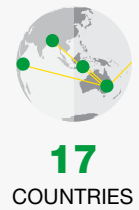
### Our people



### Women in management

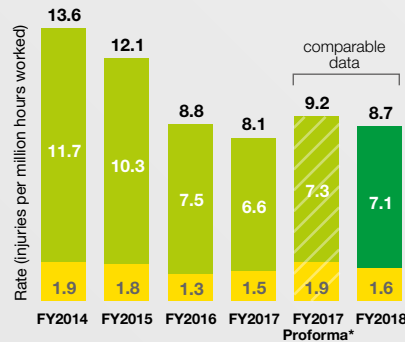


### Sites



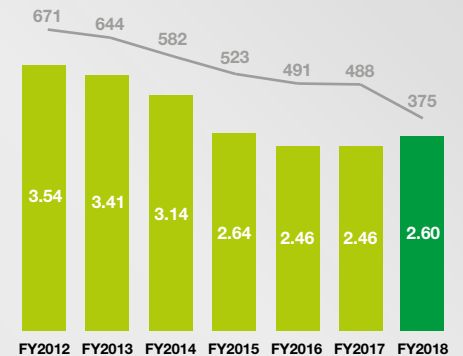
### Recordable injury frequency rate (RIFR)<sup>5</sup>

- MTIFR
- LTIFR



### Greenhouse gas emissions<sup>9</sup>

- Absolute emissions (million tonnes CO<sub>2</sub>-e)
- Emissions intensity (tonnes CO<sub>2</sub>-e per A\$m revenue)



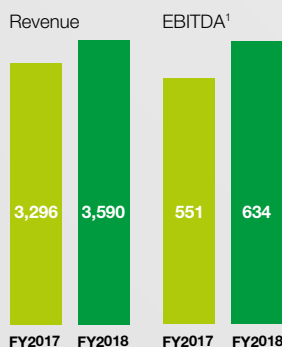
\* Proforma. All entities, including Headwaters data prior to Boral acquisition, and joint ventures within USG Boral.

### Three focused operating divisions

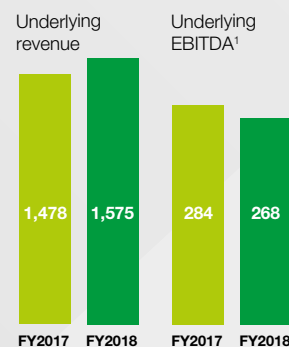
Boral North America's results include the discontinued Denver Construction Materials business

- Boral North America (continuing operations)
- Denver Construction Materials (discontinued)

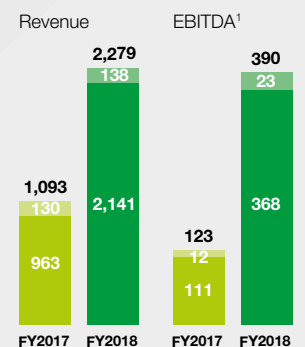
### Boral Australia (A\$m)



### USG Boral (A\$m)



### Boral North America (A\$m)



# From the Chairman



**“As Boral’s new Chairman, I am committed to the long-term creation of value for all of our stakeholders and will work with my fellow Directors and Boral’s Executive team to deliver this.”**

KATHRYN FAGG, CHAIRMAN

## Leading Boral

After four years on the Board, I am honoured to be in my new role as Chairman from 1 July 2018.

Of course the pleasure of taking up this role is coupled with sadness around Dr Brian Clark’s early retirement as Chairman at the end of June, after 11 years on the Board including two and a half years as Chairman.

I wish Brian a long and happy retirement with his wife Sandy, and a return to full health. Brian’s contribution to Boral has been invaluable. I thank him for his leadership, dedication and support.

As Chairman, I am committed to supporting Boral’s people and steering the business so that the great work undertaken through Mike Kane’s leadership, to transform Boral into a higher performing and more sustainable business, can continue.

In Boral I see people who are highly motivated, focused, committed and expert in their industries – and a culture that has safety at the forefront, and supports collaboration, innovation and respect.

## Clear strategic direction

I am impressed with Boral’s three strong divisions – Boral Australia, Boral North America and USG Boral. Boral Australia is a leading business that is performing well. Our strategy to strengthen our integrated construction materials position is aligning well with the multi-year pipeline of major infrastructure work in Australia.

The successful USG Boral joint venture in Australia, Asia and the Middle East, formed in March 2014, remains a long-term organic growth platform for Boral. With the announced acquisition of our joint venture partner USG Corporation by Knauf, we are considering several exciting options for Boral including moving forward with 100% ownership or continuing in an expanded joint venture.

Boral North America is very well placed in fly ash and building products, providing highly attractive growth opportunities in US markets.

With FY2018 marking the first full year of ownership of the Headwaters business in North America, the Board remains very positive about the acquisition. The compelling opportunity that we saw in the acquisition and the undeniably strong fit with Boral’s existing business, are reflected in the outperformance of synergy delivery. Our year one target was to deliver US\$30–35 million of synergies; we delivered US\$39 million. Our initial year four synergy target was for US\$100 million; we have now increased this target to US\$115 million.

The acquisition has doubled our position in the USA. It has increased Boral’s product offerings, geographic breadth, and diversification across broader and growing US construction markets.

## Substantial earnings growth

Within each division I see some impressive results – and there is more expected from each of our divisions in FY2019.

Results for the year ended 30 June 2018 saw a substantial 47% increase in net profit after tax before amortisation and significant items to \$514 million. This substantial growth was underpinned by the full year contribution from Headwaters, together with higher earnings from Boral Australia and a solid result from the USG Boral joint venture. Sales revenue of \$5.9 billion was up 34% on the prior year, and earnings before interest, tax, depreciation and amortisation (EBITDA)<sup>1</sup> of \$1,056 million was up 47%, reflecting a full 12 month contribution from Headwaters and strong growth from Boral Australia.

Net debt at 30 June 2018 was \$2.45 billion compared to \$2.33 billion at 30 June 2017, in part due to Headwaters acquisition costs. Proceeds from the divestment of Denver Construction Materials, which closed in July 2018, will further reduce net debt from \$2.45 billion to \$2.28 billion. Boral remains well within its funding covenants, and our balance sheet remains robust.

The Board declared a final dividend of 14.0 cents per share, which was 50% franked, for a full year dividend of 26.5 cents per share. This represents a payout ratio for the full year of 66%, in line with our dividend policy of between 50% and 70% of earnings before significant items, subject to the Company’s financial position.

## A strong safety culture

Boral's safety performance has improved significantly in recent years and remains strong relative to peers. Restating our FY2017 safety numbers to include Headwaters retrospectively and all joint ventures, Boral's recordable injury frequency rate (RIFR)<sup>2</sup> of 8.7 in FY2018 has reduced by 6%.

At last year's Annual General Meeting, we reported that in September 2017, a supplier's driver delivering diesel to our Concrete operation in Alexandria in Sydney was struck by one of Boral's concrete agitator vehicles on site, and later died from his injuries. Across Boral, we were devastated by this tragic incident.

Prompted by this incident, the Board undertook a thorough review of the organisation's response and our practice to keep safety and remuneration outcomes separate. Details of the considerations and conclusions of the Board are provided on page 62 of the Annual Report 2018.

## The Board

While my appointment as Chairman followed the earlier than expected retirement of Brian Clark, we were well prepared because of our ongoing orderly Board succession planning.

At this year's Annual General Meeting, Catherine Brenner retires by rotation and after eight years as a Director has decided not to stand for re-election. Catherine has made an outstanding contribution to the Board and will leave Boral with our thanks, enormous respect and best wishes.

Over recent years, we have identified opportunities to strengthen certain Board skills and experience over time. As part of that skills expansion and ongoing Board renewal, in June we announced the appointment of our first North American-based Non-executive Director, Peter Alexander, effective 1 September 2018.

Peter is a seasoned former chief executive with more than 28 years of senior executive experience in US building materials and distribution, technology products and services. His experience and knowledge of the North American building and construction markets, combined with his experience in business integration, operations, capital allocation and technology, will serve us well.

Boral's Board benefits from diversity of gender, tenure and experience across a range of sectors, functions and professions. There is a depth of building products and construction materials operational knowledge and experience, as well as financial, M&A and strategy experience.

While several of us have direct experience operating businesses in Asia and good working knowledge of the markets in the region, we recognise that there would be value in having an Asia-based Director with industry experience on the Board. We are continuing to monitor the market and consider potential candidates.

In FY2018, the Board continued its program of site visits to see first-hand how we are managing safety, quality, operations and employee engagement. In September 2017, the Board spent a week in various parts of the North American business to better assess the integration program and progress against synergy delivery.

In May 2018, the Board spent a week in USG Boral operations in Singapore and South Korea, visiting sites and hearing from local management teams. We left with a clearer understanding of the challenges and opportunities in their businesses and their plans to capture growth.

## Shareholder engagement

Over the past few years, as Chairman of the Remuneration & Nomination Committee, I have joined Brian Clark in Boral's proactive investor engagement program. During these meetings, we have gained a clearer understanding of stakeholder perspectives and we have been better placed to consider their feedback in our decision making, particularly in relation to remuneration.

Since becoming Chairman, I have held a further series of investor meetings during which we have discussed strategy, governance, safety, climate-related risks and opportunities, and remuneration amongst other issues.

Our 2018 Remuneration Report on pages 55 to 77 of Boral's Annual Report, reflects some of the feedback we have received in recent years.

## Boral's people

The Board's confidence in Mike Kane's leadership remains strong. Last year we said that the Board, following consultation with Mike, expects he will continue in the role for another three to five years. That view is unchanged, so we expect Mike Kane will remain as CEO for another two to four years from now. In the meantime, our CEO succession development program continues and we are confident that at the appropriate time we will have well-developed internal candidates to consider.

On behalf of the Board, I thank Mike and all of Boral's people for their relentless focus on safety and their efforts to be number one in the eyes of our customers, to overcome obstacles and to harness growth.

**Kathryn Fagg**  
Chairman

## Board of Directors



**KATHRYN FAGG**  
Chairman effective  
1 July 2018



**DR BRIAN CLARK**  
Retired as Chairman  
30 June 2018



**MIKE KANE**



**JOHN MARLAY**



**CATHERINE BRENNER**



**KAREN MOSES**



**DR EILEEN DOYLE**



**PAUL RAYNER**



**PETER ALEXANDER**  
Appointment effective  
1 September 2018

1. Excluding significant items.

2. Per million hours worked, includes employees and contractors in 100%-owned businesses and all joint venture operations.

# Message from Mike Kane

CEO &  
Managing Director

**“Our strategy has been to reduce our exposure to products that are manufactured in energy-intensive, high cost operations; to invest in higher growth, lighter-weight products; and to ensure our more focused businesses are well positioned for long-term sustainable performance.”**

MIKE KANE, CEO & MANAGING DIRECTOR

## Our strategy for the long-term

Boral's purpose is to help our customers *Build something great* by supplying them with high-quality, sustainable building products and construction materials across our international markets.

Around the world we have different offerings in different regions, but we are always operating in the same types of construction materials and building products markets.

We have grown substantially in recent years, but Boral has also become a more focused business.

We are an integrated construction materials player in Australia; a gypsum-based product leader throughout Asia, the Middle East and Australasia; and a leading supplier of fly ash and building products in North America.

Our strategy has been to reduce our exposure to products that are manufactured in energy-intensive, high cost operations; to invest in higher growth, lighter-weight products; and to ensure our more focused businesses are well positioned for long-term sustainable performance.

As CEO, delivering on this strategy, including positioning Boral for the long-term, is the most important part of the job – after safety.

The decisions we make today are securing Boral's future for decades to come. This includes investing in new quarries, and plant and equipment so that we have the resources and capacity over time. It also includes considering the risks of future policy, social and environmental changes to our business and factoring these insights and potential financial impacts into our decision making today.

In the case of USG Boral, it's about carefully considering whether to acquire USG's share of the joint venture and return to 100% Boral ownership, or work with another joint venture partner if it's better for Boral's long-term prospects. This opportunity has been triggered by Knaufl's agreement to purchase USG. We are currently in discussions with industry players and rigorously assessing our options.

Our decision to acquire Headwaters, which closed in May 2017, was very much a long-term decision. We recognised that the substantial investment would dampen our returns on funds employed in the near term, but it gives us the scale to compete in attractive high growth markets over the longer term and significantly strengthens our ability to deliver above cost of capital returns through the cycle.

## A year of significant progress

The FY2018 result reflects the early rewards of our long-term strategy.

With a more focused, strengthened construction materials business in Boral Australia, we are reaping the benefits of strong construction markets particularly infrastructure activity on the east coast. We have seen a substantial earnings lift from Boral North America as a result of the additional earnings from the Headwaters business and delivery of strong year one synergies. And from USG Boral, we have seen a consolidation of recent growth years to deliver solid results despite some one-off cost impacts.

Our group EBITDA<sup>1</sup> result of \$1.06 billion was up 47% and EBITDA margins on revenue of 18.0% were up from 16.4% in the prior year.

Boral Australia delivered an EBITDA of \$634 million, a 15% increase on FY2017 driven by strong growth in infrastructure, higher non-residential activity, higher contribution from Property and solid margins. Excluding Property earnings of \$63 million, EBITDA was up 8% year-on-year.

USG Boral delivered an underlying EBITDA of \$268 million, which was down 6%. While Australia and South Korea, our two largest businesses, delivered historically high revenues and strong margins, and China delivered higher earnings, the result was impacted by one-off costs and softer results in Thailand, Indonesia, India and Vietnam. We expect to see earnings rebound in FY2019. Boral's 50% share of post-tax earnings from the joint venture for FY2018 was \$63 million, 9% lower than last year.



Boral North America reported EBITDA of A\$368 million for continuing operations (which means we excluded the A\$23 million EBITDA from Denver Construction Materials, which was divested in July 2018); this compares with A\$111 million in FY2017. On a prior year proforma basis, EBITDA was up 7%.

The integration of the Headwaters acquisition during the year progressed very well. First year delivered synergies of US\$39 million exceeded our initial US\$30–US\$35 million target, and we have increased our year four synergy target by 15% to US\$115 million.

While our business is not immune to unfavourable weather impacts and operational disruptions, the full year results confirm that our transformation strategy is progressing well, and that Boral can deliver significant earnings with highly attractive margins.

Safety is my first priority and the first priority for everyone in Boral.

In FY2018, Boral's LTIFR<sup>2</sup> of 1.6, which was broadly steady on 1.5 last year, consolidated several years of improvement. The result includes an additional 4,500 employees and contractors in our safety statistics with the inclusion of Headwaters and all joint venture operations this year. Previously, we only included 50%-owned joint ventures. Headwaters and the Meridian Brick joint venture performed below Boral's US legacy businesses; however, Headwaters delivered a massive reduction in medical cases and lost work days relative to their prior year performance.

### A strong FY2019 outlook and beyond

In FY2019, we expect further gains from Boral Australia, improving results from USG Boral and strong growth from Boral North America. More specifically:

- From Boral Australia we expect to deliver high single-digit EBITDA growth or more in FY2019, excluding Property in both years. If we include our estimated \$20 million of earnings from Property in FY2019, we expect EBITDA to remain at least in line with the prior year, which is a strong operational outlook given property sales contributed \$63 million in FY2018. Volumes from infrastructure and non-residential activity, and margin improvements are expected to more than offset the impacts of a moderating residential construction sector.
- Earnings from USG Boral are expected to grow by around 10% or more in FY2019, coming from improvements in China, Indonesia, Thailand and India. Our largest businesses – Australia and South Korea – are expected to continue to perform at strong levels, however, with residential construction forecast to moderate in Australia and South Korea, the gains in other countries are expected to be slightly offset.
- Boral North America is expected to increase EBITDA by around 20% or more in FY2019, reflecting further significant synergies of around US\$25 million in FY2019, together with operational improvements and market growth, assuming more normal weather patterns.

We are focused on delivering another great result in FY2019 at the same time as delivering on our medium term promises.

In Boral Australia, we are continuing to tender for more infrastructure project work that is in the pipeline, and we are working to further strengthen margins through a combination of price and cost initiatives, including optimising our supply chains.

In North America, we have four-year synergy targets to deliver and a fly ash growth strategy that includes plans to increase our annual supply of fly ash by 1.5–2.0 million tons in three years. This will be great for Boral, for our customers, our contracted utilities, and the environment.

1. Earnings before interest, tax, depreciation and amortisation, and excluding significant items.  
 2. Lost time injury frequency rate per million hours worked for employees and contractors in 100%-owned businesses, including Headwaters, and all joint venture businesses regardless of equity interest in FY2018. Prior year data only includes 50%-owned joint ventures and excludes Headwaters.

And as previously mentioned, USG Boral will either become a new and expanded joint venture or return to a 100% Boral owned business. As part of the joint venture shareholders' agreement, we have commenced a process to establish the fair market value of USG's interest, which will take several months, after which we will be in a better position to decide on the best outcome for Boral.

This is an exciting time for Boral. Together with more than 17,000 motivated and hard-working Boral employees I am looking forward to the challenges and opportunities ahead.

**Mike Kane**  
 CEO & Managing Director

## Executive Committee



**JOE GOSS**  
 Divisional Chief Executive,  
 Boral Australia



**ROSALINE NG**  
 Chief Financial Officer



**DAMIEN SULLIVAN**  
 Group General Counsel



**FREDERIC DE ROUGEMONT**  
 CEO, USG Boral



**LINDA COATES**  
 Group Human Resources  
 Director



**MICHAEL WILSON**  
 Group Health, Safety and  
 Environment Director



**DAVID MARINER**  
 President & CEO,  
 Boral North America



**KYLIE FITZGERALD**  
 Group Communications and  
 Investor Relations Director



**TIM RYAN**  
 Group Strategy and M&A  
 Director (reporting to Chief  
 Financial Officer)



**ROSS HARPER**  
 Executive General  
 Manager, Cement  
 (reporting to Divisional  
 Chief Executive, Boral  
 Australia)



**DOMINIC MILLGATE**  
 Company Secretary

# How we create value

Our purpose is to **Build something great™** across our international markets with high-quality, sustainable building products and construction materials

## Inputs

- People and culture
- Raw materials and suppliers
- Energy and fuel
- Funding and finance
- Distribution
- Technology and physical infrastructure
- Markets and customers
- Stakeholder relationships

Governance

Best practice  
LEAN principles

Manufacturing and processing

Operational excellence

Recycling

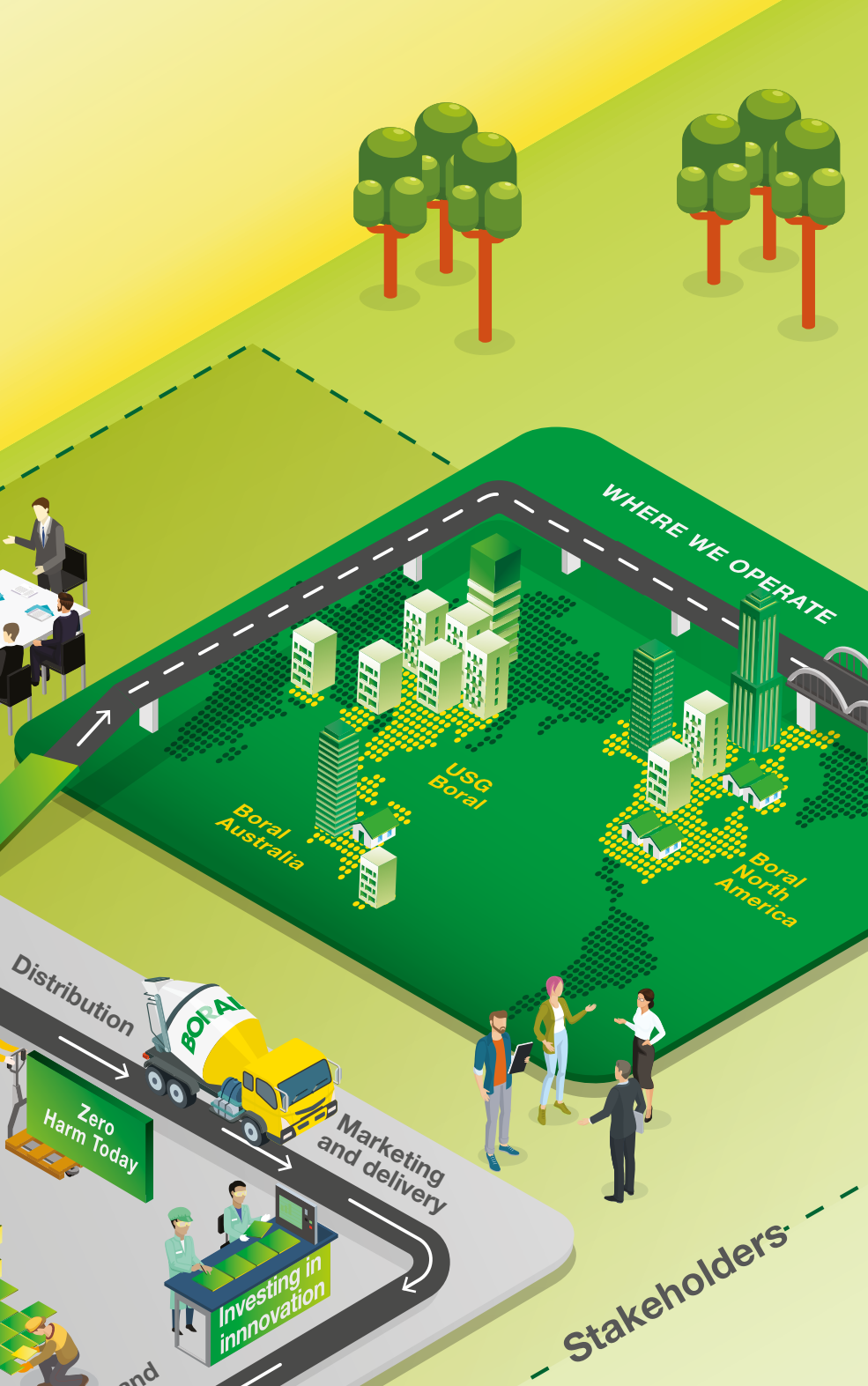
VALUE  
CHAIN

Product life cycle

Land rehabilitation  
and end use

Product  
use

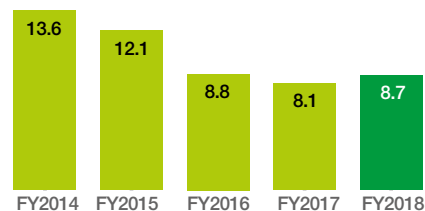
Quarrying and  
extraction



## Outputs

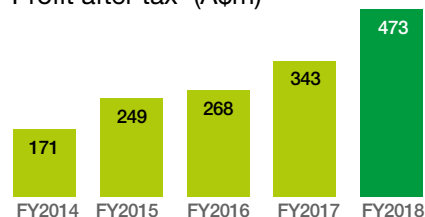
### HEALTH AND SAFETY

Recordable injury frequency rate<sup>1</sup>



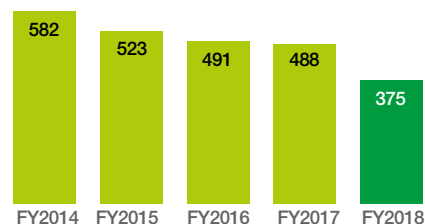
### FINANCIAL RESULTS

Profit after tax<sup>2</sup> (A\$m)



### ENVIRONMENTAL FOOTPRINT

GHG emissions intensity<sup>3</sup>  
(tonnes of CO<sub>2</sub>-e per A\$m revenue)



## The value we create



**OUR PEOPLE**  
A safe, diverse, challenging, rewarding workplace



**CUSTOMERS**  
High performing, innovative, safe sustainable products



**INVESTORS**  
A long-term sustainable business, targeting returns that exceed the cost of capital



**OUR COMMUNITIES AND ENVIRONMENT**  
A socially responsible approach to reducing our impacts

1. Injuries per million hours worked for employees and contractors in 100%-owned businesses, including Headwaters, and all joint venture businesses regardless of equity interest in FY2018. Prior years data only include 50%-owned joint ventures and excludes Headwaters.

2. Excluding significant items.

3. For Boral's 100%-owned operations and Boral's share from 50%-owned joint venture operations – excludes some joint ventures which in aggregate are not deemed to have material emissions. Group reported revenue adjusted to include 50% of underlying revenues from USG Boral and Meridian Brick joint ventures which are equity accounted.

# How we govern

Our approach is underpinned by an effective governance structure, constructive and open engagement with our stakeholders, and transparent reporting on our material issues

## Listening to what our stakeholders want

**Investors**

- Long-term sustainable business with clear strategy
- Strong financial returns
- Well managed risks, including climate impacts
- Reliable communications and external reporting
- Strong corporate governance
- Appropriate remuneration framework

**Customers**

- Safe, reliable, sustainable products
- Innovative solutions
- A business we can trust and which understands us

**Employees**

- Safe workplace
- Fair and equitable pay
- Diversity
- Positive culture
- Development and training

**Government and regulators**

- Compliance with licences and standards
- Legal and ethical conduct

**Communities**

- Ethical and safe behaviour
- Contributes to the community
- Environmentally responsible
- Responsible supply chain
- Minimal noise, dust and traffic impacts

**Suppliers**

- Ethical and fair conduct
- Well defined and fair payment terms
- Clear and transparent communication



Annual General Meeting

Site visits

Community liaison groups

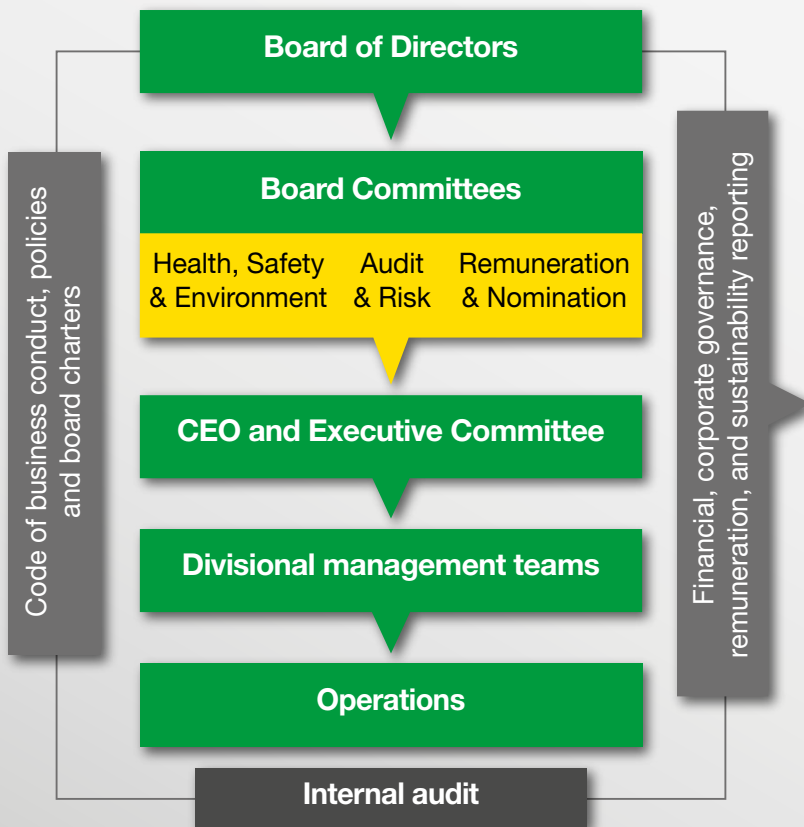
Media

Website, email and digital communications

Perception studies and surveys



## Strong corporate governance



## Reporting on our material issues

	Pages <sup>1</sup>
Financial reporting	AR BR
Corporate Governance Statement	AR 34-47
Remuneration Report	AR 55-77
Summary of our key risks and responses	AR 18-19 BR 12-13
Sustainability Report	BR 14-39
Business conduct	17
Diversity and inclusion	19
Workplace relations and human rights	19
Health and safety	20-25
Climate-related impacts	26-32
Environmental and community impacts	33-35
Supply chain	36-37
Product innovation	37-38
Divisional reviews	BR 40-51

1. Boral Annual Report 2018

Boral Review 2018



# Responding to a changing world

To deliver on our goals, we recognise the need to continually monitor external factors that could impact Boral's long-term growth and sustainability.

We have identified a range of near- and longer-term risks and challenges across our business. We carefully manage these risks and, when necessary, adapt our strategies to drive success.

Here we highlight some of the actions we are taking in response to the challenges we face.

Page references indicate where the topics are covered throughout this report.

Further information about risk identification and management at Boral can be found in the Corporate Governance Statement contained in the Annual Report 2018. Boral's Risk Management Policy is also available on our website.

RISKS	
	<p><b>Health, safety, environment (HSE) and social risks</b></p> <ul style="list-style-type: none"> <li>• Heightened community expectations</li> <li>• Injury and accidents</li> <li>• Environmental damage</li> <li>• Regulatory requirements</li> <li>• Community impacts</li> <li>• Climate-related impacts</li> <li>• Workplace relations and human rights</li> <li>• Conduct risk, anti-corruption</li> </ul>
RESPONSES	
BORAL GROUP	<ul style="list-style-type: none"> <li>• Group-wide <b>commitment to Zero Harm</b></li> <li>• Global <b>HSEQ policies and minimum standards</b> to inform divisional strategies and procedures <b>20 21</b></li> <li>• HSE <b>performance monitoring, reporting</b> and accountability frameworks <b>20</b></li> <li>• Monitoring <b>regulatory changes</b></li> <li>• Progressive adoption of TCFD recommendations including early development of <b>climate-related scenario</b> analysis to better quantify risks, align mitigation strategies and identify opportunities <b>26 32</b></li> <li>• Group-led diversity program <b>19</b></li> <li>• <b>Leadership development</b> and suite of capability building activities <b>19</b></li> </ul>
BORAL AUSTRALIA	<ul style="list-style-type: none"> <li>• <b>Zero Harm</b> and wellbeing initiatives <b>24</b></li> <li>• <b>Heavy vehicle safety</b> management to meet <b>Chain of Responsibility compliance</b></li> <li>• <b>Safe Systems of Work</b> focused on safety leadership and decision making <b>22</b></li> <li>• <b>Community consultation</b> programs and initiatives to minimise impacts of operations <b>33</b></li> <li>• <b>Flood mitigation and environmental rectification</b> programs <b>29</b></li> <li>• Proactive <b>engagement with regulators</b></li> <li>• <b>Workplace relations</b> supported by proactive engagement with unions and specialist advisers <b>19</b></li> <li>• National <b>Safety Information Management system</b></li> </ul>
USG BORAL	<ul style="list-style-type: none"> <li>• <b>HSE standards applied consistently</b> across Asia, Australia and the Middle East (where standards are often higher than in-country practices) <b>21</b></li> <li>• <b>Safety engagement program</b> including communications, leadership workshops, tool box talks and dedicated safety culture month</li> <li>• <b>Use of CCTV</b> to aid incident investigations and improvements <b>47</b></li> <li>• Regionally led environmental improvements</li> <li>• <b>Anti-corruption measures</b> including clear accountability, policies, training, audits <b>17</b></li> </ul>
BORAL NORTH AMERICA	<ul style="list-style-type: none"> <li>• <b>Safety integration plans</b> developed for acquired businesses to achieve Boral's safety standards <b>25</b></li> <li>• <b>Ongoing review</b> of safety exposure and compliance, including audits</li> <li>• <b>Dedicated capital</b> investment for safety enhancement projects <b>25</b></li> <li>• <b>Executive-led</b> safety initiatives and near-miss reporting underway</li> <li>• <b>Environmental risk reviews</b> performed on acquired assets to meet internal and external standards</li> <li>• <b>Safety and recovery plans</b> for major weather events</li> </ul>

## Industry and market risks

- Structural and cyclical demand changes
- Political and regulatory change
- Macro-economic conditions
- Inflationary impacts from rising input costs
- Movements in foreign exchange rates
- Future resource constraints
- Changes to materials and construction methods
- Changing demographics and urbanisation

- US debt utilised to limit impacts of foreign exchange rate movements
- **Staged debt maturity** profile
- **Adequate liquidity** via committed undrawn facilities and cash
- Energy inputs hedged and interest rates **swapped to reduce cyclical impacts**
- **Diversification** to reduce impacts of individual geographies and markets
- **Group procurement** to optimise cost base
- **Increased investment in R&D**, innovation and customer-centric programs **38**
- Third-party managed **whistleblowing hotline**, monitoring and reporting in all jurisdictions **17**

- Leveraging demand shift to major infrastructure through **investments in quarries, asphalt and concrete** operations and **strengthened project capability** **42**
- Central oversight and tracking of **major projects** to target participation strategies
- **Strengthening import capability** with construction of a clinker import terminal in Victoria
- **Operational Excellence** program and cost reduction initiatives to offset inflation
- **Supply chain transformation** focused on standardisation and optimisation **43**
- **Investment in quarry assets**, with Deer Park (Vic) nearing completion and Orange Grove (WA) and Ormeau (Qld) underway **41 43**

- **Capacity planning** to respond to demand changes including upgrades in India and Vietnam **46**
- **Product leadership** and **differentiation strategy** underpinning performance **47**
- **Securing gypsum supply** through acquisition of reserves and exclusive supply agreements
- Long-term **resource supply contracts**, eg paper

- **Repositioning of portfolio** from high fixed cost, energy-intensive products to lighter building products, with more variable cost base **6**
- **Improvement of brick business** through the Meridian Brick Joint Venture
- **Network optimisation initiatives** to enhance returns
- **Diversified exposure** to US construction markets
- Continued monitoring of US Government policies including **tax, labour and infrastructure policies**
- **Synergy plans** to reduce costs, produce efficiencies, and capture further market growth

## Competition risks

- New capacity and market entrants
- Customer concentration
- Pricing dynamics
- Regulatory requirements
- Technology/R&D and product innovation

- Centralised **competition law training**
- Monitoring and reporting **regulatory changes and industry trends**
- **Transformation Action Group** to foster new ways to make and sell new and existing products
- **Utilisation of technology** for more targeted sales and marketing
- Dedicated regionally based **R&D teams** focused on **product innovation** **38**

- **Innovation hub** focused on identifying and implementing new technologies and processes **38**
- **Commercial Excellence** program and customer centricity programs to improve service and margin growth **38**
- Maintaining **Australian Building and Construction Commission (ABCC) compliance** to enable bids on Federally funded work
- Investment in **downstream concrete and asphalt** network to optimise exposure to growth markets **41**

- **Innovation investment** to further strengthen competitive advantage, eg Sheetrock® 2.0, Ensemble™ **37**
- **Differentiation** strengthens response to new capacity and market entrants
- **Expanded product portfolio** delivering enhanced revenue and earnings
- Best in class **architectural specification**
- **Sales and Marketing Excellence** includes new product integration and pricing strategies
- Country focused **cost saving initiatives**

- Dedicated **Integration and Synergy Delivery program**
- **Cost reduction and margin improvement** initiatives including **LEAN**
- **Divisional procurement** initiatives
- Regionally focused product **price analytics and sales strategies**
- **Business systems implementation**, standardisation, and uplift
- **National R&D Center** to bring new technologies and products to market **51**

## Business interruption

- Plant and systems failure
- Cyber security
- Weather impacts
- Reserves and resources
- Supply chain failure
- Business conduct/reputational damage
- Digital disruption

- **Business continuity planning** with regular crisis simulations
- **Disaster recovery plans** in place for critical IT systems and operational equipment
- Formal bottom-up **enterprise risk management processes** in place **27**
- **Reserves planning** and **capital optimisation**
- Standardised **Cyber Security strategy** with cyber security training programs and Board reporting
- Centralised **Code of Conduct training** and associated policies **17**
- Centrally managed **data breach** monitoring and response processes

- Boral Digital Services utilising **agile processes and cloud-based** application and storage
- **Targeted technology enhancements to improve operational systems**
- Monitoring and **preparedness for weather affected disruption** including water management plans, flexible workforces and additional equipment **29**
- Dedicated **property and environmental experts** to support compliance and meet stakeholder expectations **20**

- Revised **governance structures** to manage culture and performance of third-party agreements and joint ventures
- New **IT implementation in key regions**
- Multi-year roll-out of Sheetrock® technologies has resulted in a **modern, upgraded plant network**
- **Investment in cyber security controls and monitoring**
- National Institute of Standards and Technology (NIST) **security framework**

- **Long-term availability of fly ash** monitored and future sources identified including reclaim **50**
- **Prioritisation of capital investment** aligned with product and market growth, with a focus on increasing fly ash storage **50**
- Streamlining and **upgrading IT systems** and investment in **cyber security** controls and tools
- Ongoing **code of conduct**, competition law, and other legal training
- **Geographically balanced portfolio lessens the impact of regional weather events**

# Managing sustainability



Fly ash reclaim project at Montour, Pennsylvania

**“At Boral, we are making decisions today that will underpin our success for decades to come. We recognise that embedding sustainability in our business strategy and decision making is fundamental to creating value over the long-term.”**

**MIKE KANE,**  
CEO & MANAGING DIRECTOR

## Our strategy

We recognise that our commitment and progress in managing sustainability outcomes is vital to our business success and meeting the expectations of our stakeholders. We strive to deliver shareholder returns above our cost of capital through the cycle, while creating value for our customers, employees, suppliers and the communities in which we operate.

Our approach to value creation is represented on pages 8–9. We strive to position Boral to sustainably create value for all our stakeholders by:

- delivering innovative, superior performing and more sustainable products and solutions that respond to a changing world and better meet our customers' needs
- driving safety performance towards world's best practice and investing in our people to enable them to deliver on our strategy
- reducing our environmental footprint and building our resilience to climate impacts, and
- being a socially responsible member of the communities in which we operate.

In recent years, we have substantially reshaped our business portfolio to improve our financial performance and to respond and adapt to changing commercial, technological, and environmental factors. We have exited high fixed cost manufacturing businesses and invested in growing our more lightweight, variable cost and lower carbon products. We are increasing our investment in innovation to enable us to expand our products and solutions that have a lower carbon footprint and thereby positively contribute to an effective transition to a lower carbon economy.

We monitor and report on our sustainability performance to drive progress and continuous improvement and are responding to increasing expectations of our stakeholders on the disclosure of our sustainability risks and opportunities. We are progressively adopting the recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD) and are strengthening our approach to managing and reporting on modern slavery risks in our operations and supply chain.

In FY2019, we will review the United Nations Sustainable Development Goals (SDGs) with a view to identifying those SDGs that we can materially impact within our sphere of influence, and incorporate these in our sustainability management approach and reporting.



## Sustainability goals and commitments

Our sustainability goals and commitments help align our priorities through our organisation and drive a focus on continuous improvement.

**Our overarching goal is to deliver Zero Harm Today. This means we target zero injuries to our people and seek to eliminate adverse environmental impacts. Where elimination of environmental impacts is not possible, we seek to minimise these and, wherever practicable, secure improved environmental outcomes.**

We also have an emissions intensity target and other environmental goals outlined on page 30.

In other areas, we have clearly articulated plans and goals, including in our diversity program. Our diversity goals are detailed and reported against in our Corporate Governance Statement (see [boral.com/corporate\\_governance](http://boral.com/corporate_governance)).

## Sustainability governance

**Sustainability governance is embedded in how we govern, as illustrated on pages 10–11.**

Our approach is underpinned by an effective governance structure, constructive and open engagement with our stakeholders, and transparent reporting on our material issues.

The Board maintains oversight of sustainability matters, including identification of material issues and external reporting. The Board Health, Safety & Environment (HSE) Committee provides focused leadership, support and oversight of the activities of management.

The CEO & Managing Director is accountable for the management of sustainability issues and delegates this responsibility to Boral's Executive Committee. Day-to-day responsibility for sustainability rests with line managers and is embedded into Boral's Group and business-level strategies.

Managing sustainability, including safety, is considered an integral component of leadership and is linked to employment and considered in reviewing performance and setting fixed remuneration increases. We therefore do not link remuneration incentives with safety performance or other sustainability metrics.

During the year, the Board reviewed whether Boral's separation of safety and remuneration incentives remained appropriate, and concluded that it remains a very important element of Boral's culture to avoid linking incentive payments with safety outcomes. The Board retains discretion to adjust executive remuneration outcomes if there is evidence of a breakdown in management oversight and processes leading to poor safety outcomes. Further explanation of the safety and remuneration review is provided on page 62 of the Annual Report 2018.

Boral's governance approach is further detailed in the Annual Report 2018 (pages 34–47). Our governance of climate-related impacts is outlined on page 27.

## Reporting on our material issues

The content of this Sustainability Report is defined through our biennial materiality assessment undertaken to review sustainability risks and opportunities, which forms part of our broader risk management processes. This materiality assessment ensures that issues that are important to our long-term success, as well as to our employees, customers, suppliers and the communities in which we operate, are being addressed and transparently reported on.

In 2017, we engaged Ernst & Young (EY) to undertake a materiality assessment to validate our areas of focus. The scope of this work encompassed internal stakeholder interviews, desktop peer and media analysis, external industry and sector analysis, and consideration of relevant sustainability trends.

The results from EY's assessment were materially consistent with existing areas of management focus, and the outcomes of risk assessment processes.

The issues identified as material and the relevant sections of this report addressing these issues are outlined on page 11. Boral's material issues are also captured in our risks and responses summary on pages 12–13, which has been developed using Boral's Group Risk Identification and Management processes disclosed in our Corporate Governance Statement in the Annual Report 2018 (pages 34–47).

## Stakeholder engagement

Engaging with our stakeholders is vital for us to understand what is most important to them, and directs our efforts and resources to address areas of priority. A summary of the issues that are important to them and the ways in which we engage and seek their feedback is included on pages 10–11.

**Our approach is underpinned by an effective governance structure, constructive and open engagement with our stakeholders, and transparent reporting on our material issues.**

# Managing sustainability



Purga Quarry, Queensland



Boral Annual Report and Boral News

## Our approach to reporting

**We are committed to transparent communication of our sustainability strategy and performance. This Sustainability Report provides information on the sustainability issues assessed as material to Boral.**

In addition to this Sustainability Report, we also communicate with our stakeholders on aspects of sustainability through:

- the Corporate Governance Statement and Directors' Report (including the Remuneration Report) in our Annual Report 2018 – see [boral.com/Annual\\_Report\\_2018](http://boral.com/Annual_Report_2018)
- our website, which includes detailed energy, carbon and other emissions data, policies, information on sustainable products and community engagement programs
- case studies and features in our Boral News magazine – see [boral.com/boral\\_news](http://boral.com/boral_news)
- Boral's 2018 public report, lodged with the Workplace Gender Equality Agency.

### Feedback on our reporting

During the year, we engaged with numerous large investors and other stakeholders to better understand their use of our Sustainability Report and our disclosures through the CDP (formerly the Carbon Disclosure Project), and other third-party surveys, as well as their key areas of focus.

This feedback highlighted that the information provided through our Sustainability Report, website and other Company reports are the primary sources of information and the most valued. We have therefore focused our efforts and resources on enhancing disclosures in this Sustainability Report and suspended participation in the CDP, which is underutilised by our stakeholders.

We have incorporated key information previously included in our CDP Climate Change responses in this Sustainability Report and at [boral.com/energy\\_and\\_emissions](http://boral.com/energy_and_emissions), and are progressively adopting the recommendations of the TCFD, as encouraged by the CDP. This Sustainability Report also incorporates key information previously included in our CDP Water and Forests responses.

We welcome feedback from our stakeholders on our reporting via [info@boral.com.au](mailto:info@boral.com.au).

### Reporting scope

This Sustainability Report covers Boral's wholly owned operations and joint ventures that were at least 50% owned by Boral for the year ended 30 June 2018, unless otherwise stated. Sustainability data for Headwaters, acquired in May 2017, has been consolidated from 1 July 2017.

In FY2018, our safety data was broadened to include employees and contractors in all businesses, including our interests in all joint ventures regardless of ownership interest or management control. Prior year safety data only includes 50% owned joint ventures and has not been retrospectively adjusted.

### 16 BORAL REVIEW 2018

### Assurance

We engaged EY to provide independent assurance of selected metrics and related information included in this Sustainability Report including:

- Scope 1 and 2 greenhouse gas emissions and energy consumption by fuel source for our Australian operations
- significant environmental infringements and penalties
- lost time injury frequency rate (LTIFR)
- recordable injury frequency rate (RIFR)
- workforce statistics by occupation, age and length of service
- female representation by position.

EY's assurance statement is on page 52.

## Business conduct

Working with integrity, respect and fairness is fundamental to how we do business. We expect all employees and people representing Boral to meet the highest ethical standards as well as observing both the letter and spirit of the law.

Demonstrating strong ethical principles in all that we do is vital to our reputation and our ability to deliver long-term value to all of our stakeholders, including shareholders, customers, employees and communities.

**Our Code of Business Conduct (Code) and supporting policies set out the high ethical standards we expect everyone across our international operations to adhere to, including third parties with whom we do business – suppliers, contractors and distributors.**

Our commitment to anti-corruption compliance is reflected in our Code, which prohibits bribery and corruption in all forms, whether direct or indirect. Our anti-corruption measures include clear policies, accountability, training, reporting and audit review. Conduct risk and corruption risk are also assessed through our enterprise risk management review process.

We complement our policy and risk management framework with clear communication and training on the Code and associated policies in our induction training and ongoing refresher training programs. The USG Boral joint venture conducts additional risk-based anti-corruption training and has established an externally managed anti-corruption audit program.

The Board and senior management take breaches of the Code or other misconduct very seriously. We have consistent and transparent policies and practices in place to address any non-compliance with our Code and supporting policies. Formal consequences include additional training, impact on reward and promotion, formal warnings and termination. In FY2018, 35 employees in Boral Australia and Boral North America were dismissed for breach of policy or misconduct, including breaching safety requirements. These matters were considered isolated incidents and not systemic.

We provide easy and clear avenues for our people to report ethical concerns and improper behaviour. In addition to internal reporting channels – via senior management, human resources, internal audit and legal – we provide an external independent whistleblowing service, known as FairCall. Reports via FairCall can be made on an anonymous basis, and we are committed to maintaining the independence, impartiality and confidentiality of the reporting and investigative processes. The Company Secretary reports on these matters to the Board Audit & Risk Committee.

Boral's policies prohibit political donations or affiliations.



**Demonstrating strong ethical principles in all we do is vital to our reputation and our ability to deliver long-term value to all of our stakeholders.**

## Industry associations

We work with a number of industry associations for various reasons including as a conduit to industry best practice, for workforce relations advice, or to advocate to government and the community on behalf of industry.

In general, the policy positions of our industry associations are to support regulation in the national and industry interest and encourage business to sustainably prosper and remain competitive.

We recognise that our associations represent the interests of many members and there may be some areas of policy that do not fully align with Boral's positions. When appropriate, we work with our industry associations to help them understand our Company's position.

**In relation to energy and climate policy, we have not identified any major positions held by our industry associations that are materially inconsistent with Boral's position.**

We support:

- a national approach to climate and energy policy to ensure that least-cost carbon emissions abatement is targeted while ensuring reliable and competitive energy can be delivered
- climate and energy policies that do not unduly erode the competitiveness of domestic-based businesses.

We also acknowledge the Paris Agreement and support mechanisms to achieve its objectives, including a national approach to climate and energy policy.

Boral's major industry associations are:

- Business Council of Australia
- Cement Industry Federation
- Cement, Concrete & Aggregates Australia
- AMMA Australian Resources and Energy Group
- American Coal Ash Association.

Further information is available at [boral.com/industry\\_associations](http://boral.com/industry_associations).

# Our people



**Building an engaged, diverse and capable workforce, led by talented and effective leaders, is vital to delivering long-term sustainable value for our stakeholders.**

## Our workforce profile

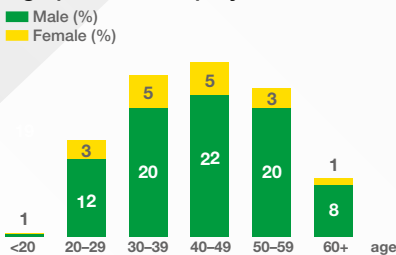
As at 30 June 2018, we had 17,131 full-time equivalent employees including in joint ventures (JVs), and approximately 8,700 contractors working in 17 countries.

Full-time equivalent	FY2018	FY2017	FY2016
Boral employees	11,898	11,499 <sup>1</sup>	8,334
Boral contractors	~5,200	~4,800	~4,800
JV employees <sup>2</sup>	5,233	4,976	3,724
JV contractors <sup>2</sup>	~3,500	~3,400	~3,400

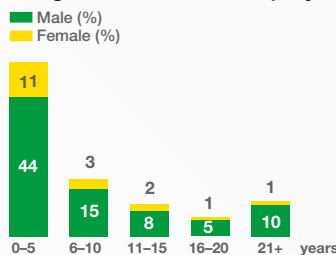
At end FY2018	Boral total	Boral Australia <sup>3</sup>	USG Boral <sup>3</sup>	Boral North America <sup>4</sup>
Women in Boral	<b>18%</b>	14%	18%	23%
Average length of service	<b>8.1 yrs</b>	9.0 yrs	9.3 yrs	6.8 yrs
Average age	<b>43.4 yrs</b>	44.9 yrs	40.7 yrs	43.3 yrs
20+ year veterans	<b>12%</b>	13%	15%	9%
Employee turnover for FY2018	<b>20%</b>	17%	8%	29%*

\* Reflects consolidation of Headwaters and Boral's legacy businesses. Compares to a FY2017 proforma employee turnover of 24%.

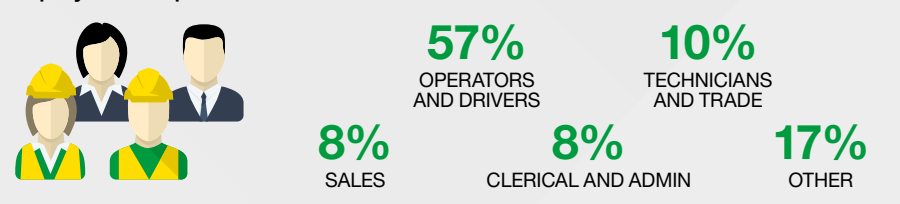
### Age profile of employees



### Length of service of employees



### Employee occupations



## Employee engagement

We are committed to supporting the wellbeing of our employees and improving employee engagement. Better employee engagement means better productivity, better retention and a more positive and creative culture. Biennial surveys are used by our divisions to measure employee engagement and identify opportunities for improvement.

In FY2018, Boral Australia undertook its third McKinsey Organisational Health Index<sup>5</sup> survey. The top quartile score of 72/100 was an improvement from a score of 70/100 in 2015, and 59/100 in our first survey in 2013. Boral Australia continues to perform in the top quartile for strategic direction and leadership, with improvement in accountability, coordination and control, and external orientation. Three focus areas were identified to further improve engagement: customer centricity, innovation and people development and recognition.

As previously reported, USG Boral's 2017 AON Hewitt Employee Engagement Survey covered 11 countries and 91% of its workforce. The third quartile score in 2017 of 56/100 was a six-point improvement on 2015. The business is planning its 2019 surveys to measure improvements against targeted initiatives, particularly around collaboration, learning and development, and empowerment.

In Boral North America, we continued to use "pulse" surveys to gather feedback from employees on areas of concern and opportunities for improvement. In FY2018, initiatives implemented to improve engagement centered on more structured and targeted communication from leadership.

1. Included 4,016 full time equivalent employees from Headwaters and excluded employees from Boral Bricks in North America which were included in JV employees.  
 2. Includes USG Boral, Meridian Brick and other small Australian-based joint ventures.  
 3. Excluding joint ventures.  
 4. Including Meridian Brick joint venture.

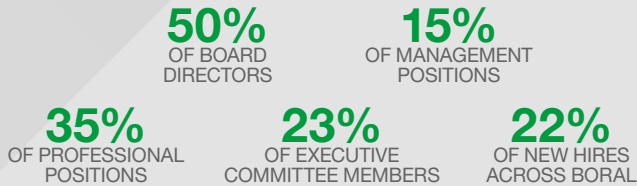
## Diversity and inclusion

A diverse workforce helps us deliver higher performance by fostering a more creative, flexible and innovative culture by bringing together diversity of thought, background and experiences. It also enables us to better understand and serve our customers through reflecting the diversity of our communities.

We have an established Diversity and Inclusion Plan, with Boral's Diversity Council supporting the delivery of targeted outcomes. The Plan incorporates six elements: leadership, communication and education, system and process design, gender equality and pay equity, generational diversity, and Indigenous relations.

Focus areas in FY2018 included: raising awareness of the impact of unconscious bias, increasing representation of women, particularly in leadership roles, and pay equity outcomes, with the female to male average base salary ratio<sup>6</sup> in Boral Australia favourable at 1.01:1.00.

### Women represent



We support Aboriginal and Torres Strait Islander employment, programs and communities. In FY2018, we continued to retain approximately 85% of Indigenous employees in Australia through our Indigenous employment program.

**Our 2019 REFLECT Reconciliation Action Plan**, which has been submitted to Reconciliation Australia, extends and broadens our existing approach. The Plan outlines practical actions aimed at strengthening relationships, respect and opportunities for Indigenous communities. These practical actions include increasing the number of Aboriginal and Torres Strait Islander employees across our workforce, further building on the work undertaken through our Indigenous employment program since 2006.

## Workplace relations and human rights

We are committed to advancing respect for, and promotion of, internationally recognised human rights across our global operations, as outlined in our Human Rights and Labour Policy. This includes contributing to the elimination of all forms of forced, compulsory or child labour and having workplaces free from harassment, bullying, discrimination and unlawfulness.

We support the rights of our employees to freedom of association, to choose to unionise and to collective representation, regardless of their location or function. We are committed to working honestly and transparently with labour unions and undertake negotiations in good faith. In Australia, we have some 79 enterprise agreements covering about 3,700 employees.

Our grievance mechanisms are accessible, accountable and fair, enabling concerns to be raised without fear of recrimination. This includes Boral's independent external whistleblowing service, FairCall, where people can raise anonymous concerns.

In FY2018, we established a Human Rights and Modern Slavery Working Group to support work being undertaken to further develop our approach to modern slavery and human rights across our operations and supply chain. The working group, comprising members of Boral's Executive Committee and key functional roles, assessed Boral's approach to modern slavery in light of proposed Australian Government reporting criteria and the United Nations Guiding Principles on Business and Human Rights.

Key focus areas relating to our workforce for FY2019 include reviewing and enhancing Boral's Human Rights and Labour Policy and publishing it externally, refreshing our broader policy framework, and increasing awareness of modern slavery through targeted training.

Our approach to mitigating the risk of modern slavery in our supply chain is outlined on page 36.

## Training and development

Our approach to training and development is focused on developing effective leaders to coach and mentor high-performing and engaged teams, and providing our workforce with a wide range of targeted training and development.

Our zero|one|ten Leader, General Manager, Emerging Leader, Leadership Pathways and Show Leadership in the Workplace programs had over 400 participants this year. In addition, the first group of senior leaders completed the General Manager Leadership Development Program established in FY2017, through our partnership with the Australian Graduate School of Management. Together with placements, coaching and mentoring, these programs work to develop high-quality leaders.

The zero|one|ten Leader program, focused on providing frontline leaders with core leadership skills, was recently launched and will see more than 1,000 leaders across Australia participate in this foundational program in FY2019.

Boral's Executive Committee, divisional leadership teams and other managers have also been participating in a bespoke, multi-year development program designed to help our leaders to be more effective by being more self-aware and others focused.

In FY2018, 6,500 people completed Certificates II, III or IV, diploma qualifications, units of competency, and tailored learning solutions and training modules in areas like chain of responsibility, sales and marketing, surface extraction, laboratory skills, driving operations and work health and safety.

## Employee wellbeing

We recognise that a workplace that supports work and family responsibilities is important, and this includes accessing flexible work arrangements where possible. Our Flexibility and Flexible Working Arrangements Policy provides a framework to support workplace flexibility. In FY2019, we will be deploying the Work Flexibility Playbook to train and educate managers and employees on workplace flexibility.

Boral also offers employees and immediate families free, confidential, professional counselling services through the Boral Employee Assistance Program (BEAP) to help address issues that may affect their work and personal life.

5. Benchmarked against a global database of 1,500 companies.

6. Calculated as the average base cash salary for females as a proportion of the average base cash salary for males, as used in the Workplace Gender Equality Agency Confidential Report.

# Health, safety and environmental management



## ZERO HARM TODAY

**Our goal is to achieve Zero Harm Today. We strive to achieve this by identifying, understanding and eliminating conditions and behaviours that have the potential to result in injury to people or harm the environment.**

Where eliminating adverse environmental impacts is not possible, we aim to minimise any harmful effects from our operations, which means that we typically target performance exceeding our environmental compliance requirements.

### Our approach

**Visible and proactive leadership, robust governance, accountability and effective frameworks and systems are all essential to driving a culture focused on our goal of Zero Harm Today.**

Boral's CEO & Managing Director and senior executives regularly spend time at our operations, which provides an opportunity to discuss safety and environmental management challenges directly with site teams.

Divisional management teams and the corporate Health, Safety and Environment (HSE) function report on HSE performance, risks and management actions to the Board's HSE Committee on a quarterly basis and to Boral's Executive Committee on a monthly basis.

More serious HSE incidents, including near-miss events, are directly communicated to the CEO & Managing Director, with CEO-led incident review meetings held for serious HSE incidents (including near-miss events) involving relevant divisional executives, the Group HSE Director and local line management.

Divisional leadership teams are responsible for implementing divisional HSE strategies. Accountability and management of day-to-day HSE matters rests with line managers, with support from divisional HSE specialists who provide expert technical advice and coaching, and a small corporate HSE team. This team, headed by the Group HSE Director, is responsible for policy, governance and functional leadership, in consultation with divisional specialists.

HSE performance and actions are communicated at sites through forums including daily pre-start meetings, and at larger sites those meetings are supplemented with monthly HSE meetings.

HSE issues and risks are reviewed and assessed as part of due diligence processes on all potential acquisitions and, commensurate with HSE risks, new or expansion projects.

### HSE strategy

Our priorities and approach to managing HSE are guided by four Group-wide strategic objectives and supported by 14 contributing programs outlined in the table on page 21.

Each division is responsible for implementing its own HSE strategies and improvement plans, consistent with Boral's Group-wide HSE strategy.

# HSEQ Management System

In FY2018, our Group-wide Health, Safety, Environment and Quality Management System (HSEQ MS) continued to evolve to meet business needs, with all standards reviewed and enhanced to be more universally applicable across the organisation.

Boral's HSEQ MS provides the standards, guidelines and tools that enable us to achieve continuous performance improvement, robust governance and, where appropriate, standardised processes, while providing our operation teams flexibility on how they meet minimum requirements. We actively engage with our workforce to drive continuous improvement in our HSEQ MS and to ensure our standards and tools are both practical and workable in the workplace. Our HSEQ MS also incorporates a risk-based approach to supplier safety management.



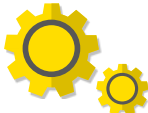

In our USG Boral joint venture, adoption of Boral's HSEQ MS has facilitated rapid improvement of its management system and upgraded critical controls and processes.

Our HSEQ MS has enhanced our capacity to certify operations to external standards.

Boral Australia's operating activities have ISO 9001 (Quality) certification at 362 sites, with the Asphalt business maintaining AS/NZS 4801 certification at 38 locations, and 26 Asphalt sites in NSW and Queensland being ISO 14001 (Environment) certified.

## Progress against our HSE programs

The table below provides a summary of progress achieved in FY2018 against our HSE strategic objectives.

 <p><b>OBJECTIVE 1</b> <b>Capable and confident leaders</b></p>	 <p><b>OBJECTIVE 2</b> <b>Engaged, empowered and competent workforce</b></p>	 <p><b>OBJECTIVE 3</b> <b>Fit-for-purpose HSEQ systems and processes</b></p>	 <p><b>OBJECTIVE 4</b> <b>Maintaining our license to operate and grow</b></p>
<p><b>PROGRAMS</b></p> <ul style="list-style-type: none"> <li>Leading Zero Harm Today</li> </ul>	<ul style="list-style-type: none"> <li>Operationalising HSE</li> <li>Fitness for work and life</li> <li>Contractor safety and engagement</li> </ul>	<ul style="list-style-type: none"> <li>Serious harm prevention</li> <li>Knowledge and sharing</li> <li>Reporting and information</li> <li>Self-insurance</li> <li>Personal and property security</li> </ul>	<ul style="list-style-type: none"> <li>Healthy workplaces</li> <li>Driver safety</li> <li>Regulatory and stakeholder engagement</li> <li>Climate impacts adaptation and resilience</li> <li>Environmental compliance</li> </ul>
<p><b>PROGRESS</b></p> <ul style="list-style-type: none"> <li>✓ Clear mandate to all our business leaders that safety is the most important priority</li> <li>✓ Boral Australia launched zero one ten Leader program to further develop operational leaders</li> <li>✓ Group-wide Safety Climate Survey underway to provide frontline leaders with information on their own team culture to inform site improvement plans</li> </ul>	<ul style="list-style-type: none"> <li>✓ Improved suite of HSE training material focused on operational responsibilities and induction available across Boral Australia through learning management system</li> <li>✓ In USG Boral:               <ul style="list-style-type: none"> <li>– Program under way across all plants leading to better understanding of “at risk” conditions</li> <li>– CCTV review program standardised, leveraging employee engagement and collaborative reviews of potential risk</li> <li>– “SafeStart” behavioural program being rolled out in parallel with reinstating “iCARE” leadership behaviours</li> </ul> </li> <li>✓ Supplier safety strategy established across Boral incorporating pre-qualification process and implemented in Boral Australia</li> </ul>	<ul style="list-style-type: none"> <li>✓ Comprehensive review and update of Safe Systems of Work process completed, with rollout commenced in Boral Australia</li> <li>✓ Early work to improve productivity tools and content management systems to establish a globally accessible “HSEQ knowledge hub”</li> <li>✓ Continuing to collaborate with a research partner to enhance data analysis of incidents via artificial intelligence to further focus preventative strategies</li> <li>✓ Self-insurance application in NSW successful (complementing self-insurance in South Australia)</li> <li>✓ Incident and hazard reporting module for workers' compensation claims management implemented across Boral Australia</li> <li>✓ Implementing new physical security standards in Quarries business</li> </ul>	<ul style="list-style-type: none"> <li>✓ Smoke-free pilot site established in Quarries business</li> <li>✓ Upgraded heavy vehicle safety improvement program implemented across Boral Australia</li> <li>✓ Group-wide strategic review of climate-related risks and opportunities guiding business strategies and scenario analysis of Cement business – refer to pages 26–32</li> <li>✓ Alternative fuels facility commissioned at Berrima cement plant in NSW – refer to case study page 30</li> <li>✓ Environmental compliance audit program delivering benefits in Boral Australia, with reduced penalties and infringements incurred in FY2018</li> </ul>

# Health and safety



The team at Ormeau Quarry, Queensland

## Is Zero Harm possible?

**Zero Harm is not a long-term ambition – it's a goal for today. We firmly believe that Zero Harm Today, and every day, is achievable and that is what we strive for.**

We know through experience that all tasks can be done without causing injury, with the right equipment, process and behaviours. On average, our people work a total of more than 620,000 days every month free of injury.

We recognise, however, that errors in decisions and actions do occur that result in incidents – reinforcing the need for a continued focus on prevention. Recognising the importance of individual behaviours, we continue to adopt some of the latest thinking on cognitive safety, particularly in relation to eliminating serious harm risks, to further drive improvement programs.

## Preventing serious harm

Since FY2015, Boral has participated in a project conducted by DEKRA Insight, a leading global safety consultancy and research centre, facilitating sharing of metrics and programs by safety-focused multi-national companies to improve identification and prevention of incidents that cause fatalities, or life-threatening and life-changing injuries.

Over the past three years, we have reduced the rate of serious harm events and their precursors by more than 70% through implementing programs that leverage the learnings gained through our participation in this global research project.

Through the project, we identified that serious harm events and their precursors accounted for 0.7% of our reported incidents in Australia and USG Boral, and 73% of those incidents were near-misses that did not result in loss, but had the potential to do so had only one circumstance changed (eg proximity of a person to a hazardous incident).

In FY2018, we continued this work, completing a comprehensive review and update of the systems and processes that guide our people to plan and undertake work safely (Safe Systems of Work), incorporating best practice behavioural science principles and learnings from extensive consultation across our operations. The program piloted in our Cement business and will be rolled out across Boral Australia in FY2019.

## Using leading indicators to prevent incidents

We are increasingly using leading indicators of safety performance to monitor the efficacy of processes designed to prevent incidents; these indicators include training, behavioural and procedural observations, and corrective and preventative actions.

For example, in Boral Australia we routinely report progress against our hygiene monitoring and HSE audit programs, hazard and near-miss reporting frequency, and higher risk action closure. In Boral North America, we continue to monitor safety observations, which are an indicator of the cultural focus and priority given to safety.

While leading indicators tend to vary across our businesses, at a Group level we monitor hazard, near-miss and regulatory intervention reporting. **In FY2018, hazards reported increased 19% to more than 91,000, while near-misses reported increased by 37% to more than 16,000 compared to the prior year.**



## Safety outcomes

After nearly four years without a fatality, we deeply regret the death of a delivery driver at our Concrete operation in Alexandria, Sydney, in September 2017. A supplier's driver, delivering diesel to the site, died after he was struck by one of Boral's agitator vehicles on site.

Immediately following the incident, all sites were alerted, and vehicle and pedestrian management risks across all of our sites were considered. Boral Australia is also considering further risk mitigation measures such as introducing additional technology to monitor vehicle and pedestrian movements on-site.

We are also saddened by the death of an off-duty contract employee at our Dutch Quality stone plant in Mt Eaton, Ohio in the US, who was killed in a two-vehicle collision on a public road outside our site in November 2017. While not work-related, it does not lessen the shared loss and our response to investigate and learn from this tragic incident.

To increase transparency, in FY2018 we commenced including all Group entities in our safety measures, irrespective of equity interest or management control. This compares to prior years when we included joint ventures where our equity interest was 50% or more. Consequently, we now include joint ventures within USG Boral.

FY2018 safety data also includes the Headwaters business, which when acquired in May 2017 was not as advanced in its safety journey as Boral.

After more than a decade of significant improvement in our safety data, FY2018 reported safety results broadly plateaued at relatively low levels largely due to the inclusion of new businesses, comprising over 4,500 employees and contractors.

Our recordable injury frequency rate (RIFR<sup>1,2</sup>) of 8.7 was modestly higher than 8.1 in FY2017, but a greater than 50% improvement from FY2012, and our lost time injury frequency rate (LTIFR<sup>1</sup>) of 1.6 was broadly in line with 1.5 last year.

On a proforma basis, restating FY2017 data to include the additional businesses, our RIFR improved by 6% and our LTIFR by 16% in FY2018.

On a divisional level:

- Boral Australia reported a RIFR of 11.3, comparable to 11.2 in FY2017.
- Boral North America reported a RIFR of 8.9, an increase from 6.7 last year, reflecting the inclusion of Headwaters in FY2018. Boral North America's legacy business RIFR was steady on last year at 6.7.



The Headwaters business reported a RIFR of 10.7, a substantial improvement from 14.6 the prior year. See page 25.

- USG Boral's reported RIFR of 4.5 remains relatively strong, and this is the best performing division in Boral. This year's result is softer than the 3.6 reported in FY2017 partially due to the inclusion of minority-owned joint ventures and partially due to a modest increase in injuries.

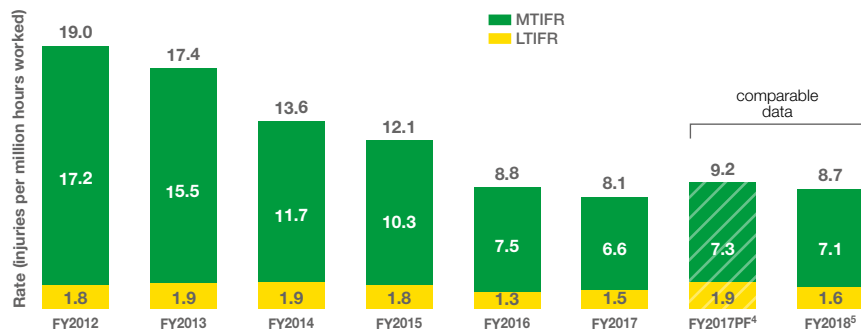
Boral's overall Group RIFR on a comparable basis to prior years (excluding Headwaters and minority held joint ventures), was 8.4.

Percentage hours lost<sup>3</sup>, which monitors the severity of our more serious injuries by the total time lost, increased modestly from 0.04% in FY2017 to 0.05% in FY2018.

Hours away on restricted or transferred duties<sup>3</sup>, a more holistic measure of the effect of all recordable injuries, improved to 0.18% from 0.22%. This suggests that injuries were generally less severe or responded better to treatment and return to work programs – a positive outcome for our injured people and the organisation.

Boral measures its safety performance for employees and contractors combined, which we believe is a true measure of performance. This can, however, make benchmarking challenging, as not all organisations report contractor data. In addition, Boral includes all entities irrespective of equity interest or management control, whereas other organisations typically include only entities in which they have management control.

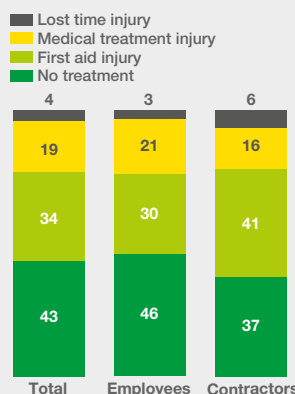
### Boral Group recordable injury frequency rate (RIFR<sup>1,2</sup>)



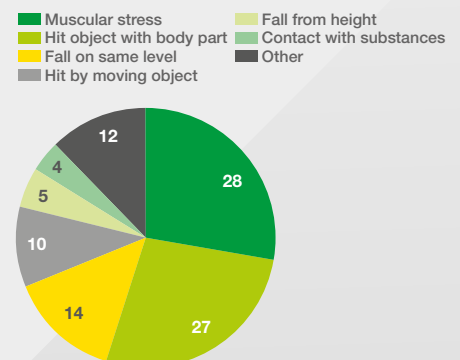
## Injury analysis

Injury analysis assists in the development of corrective action plans, training and process redesign.

### Injury treatment<sup>6</sup> (%)



### Mechanism of injury<sup>6</sup> (%)



1. Per million hours worked for employees and contractors in 100%-owned businesses including Headwaters, and all joint ventures businesses regardless of equity interest in FY2018. Prior years data only includes 50%-owned joint ventures and excludes Headwaters.  
 2. RIFR is the combined lost time injury frequency rate (LTIFR) and medical treatment injury frequency rate (MTIFR).

3. Defined as a percentage of total hours affected against total hours worked – for employees only.  
 4. Proforma. All entities, including Headwaters data prior to Boral acquisition, and joint ventures within USG Boral.  
 5. All entities, including full year Headwaters data, and joint ventures within USG Boral.  
 6. Boral Australia reported injuries in FY2018.

# Health and safety

## Health and wellbeing

Beyond our safety goal of Zero Harm Today, we are committed to supporting the physical and mental wellbeing of our people – this helps them to be safer and more effective at work and in their personal lives.

We provide a range of programs for the health and wellbeing of our people including occupational hygiene programs, health and fitness checks, drug and alcohol support, quit smoking programs, a confidential counselling service and health seminars.

In FY2018, we extended our “Stop for Safety” day mental health awareness and support program more broadly across our operations following the success of the program in NSW last year – this has included translating materials into 11 languages for adoption by USG Boral. Boral Australia is developing a Mental Health Strategy focused on preventative interventions that is expected to be implemented in FY2019.

We piloted the first cigarette smoke-free site in our Quarries business, joining other sites across the Group that have adopted a smoke-free policy.

## Sharing safety learnings across Boral

Leveraging our safety learnings across our global network of operations is critical to continually improving our safety practices and outcomes.

We share learnings from serious incidents via safety alerts and learnings documents. These are centrally maintained and distributed based on relevance to sites for discussion and action at morning toolbox talks.

Learnings that have broader organisational implications are discussed at cross-divisional meetings and, where appropriate, integrated into systems changes and training material revisions.



## Outperforming Australian industry safety benchmarks

While our goal remains Zero Harm Today and we continually strive to achieve this, it is valuable for us to benchmark the safety performance of our businesses.

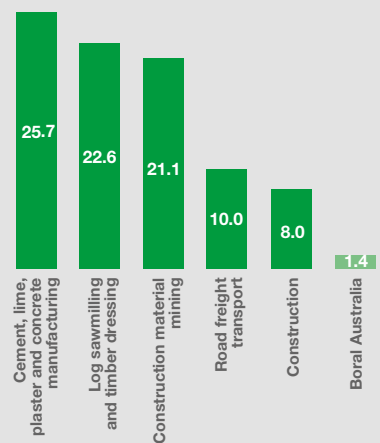
Based on Safe Work Australia’s latest injury statistics reports, the broader industries in which Boral Australia operates experience serious lost time injuries between five and 18 times more frequently than Boral’s workers.

Boral Australia’s operations pour concrete and lay asphalt across major projects and construction sites; have around 80 quarries and more than 300 manufacturing operations producing cement, concrete, asphalt, bricks, roof tiles and timber products; and manage a fleet of more than 2,500 heavy vehicles.

Boral Australia’s LTIFR<sup>1</sup> for serious injuries is 1.4, which compares to industry averages ranging from 8.0 to 25.7 across construction, road freight

transport, construction material mining, log sawmilling and timber dressing, and cement, lime, plaster and concrete product manufacturing.

**Boral Australia’s LTIFR relative to Australian industry averages<sup>2</sup>**



## Leveraging technology to deliver a safer workplace

Technology is increasingly playing an important role in delivering solutions to improve the safety of our workplaces and work practices.

This year, Boral won an industry safety award for developing a brake-activating sensor on an asphalt roller, which is triggered to stop the asphalt roller when a worker wearing an electronic tag comes within a metre of it.

Boral Australia’s Asphalt business worked with proximity sensor supplier Strata to develop and link the sensor system to the braking and hydraulic systems on the asphalt equipment. It is an adaptation of similar systems in use in above and below ground mining operations.



## Managing our heavy vehicle road transport risks

With a fleet of more than 2,500 heavy vehicles, reducing road safety risks including the incidence of vehicle rollovers, is a key focus for Boral Australia.

We have made considerable progress to reduce the risk of heavy vehicle rollovers through improved truck design and driver training since 2012. Despite these improvements, we identified that further reduction in rollover frequency rates was required to deliver best practice performance. In early FY2018, Boral engaged an international expert in

heavy vehicle transport to review its performance against world best practices and identify improvements.

To date, significant work has been undertaken to implement key recommendations, including improved standard operating procedures and driver safety training, rollover avoidance training, improved communication and haulage contractor management. These initiatives are already delivering positive results, with rollover incidents significantly reduced in FY2018.

## Training our people and maintaining accountability

Delivering safety training to all our workforce is vital to achieving an effective safety-driven culture. Boral's safety training programs and initiatives include internal leadership courses and training for frontline managers, supervisors and operators. Training ranges from inductions and safe work practice through to behavioural-based programs. In FY2018, over 9,000 workers received safety training.

Boral's learning management system, My Learning Space, helps our people manage their own learning and competency requirements and helps our managers to monitor this as a leading safety measure.

Once appropriately trained, our people are held accountable and are required to take full responsibility for their safety and the safety of those around them. Poor management of safety or safety breaches are taken very seriously. For example, between FY2015 and FY2018, 78 employees in Australia and the USA, including 12 in FY2018, were terminated for poor safety management and breaches.

## Improving Headwaters' safety performance

The acquisition of Headwaters in May 2017 more than doubled the size of our US-based workforce and nearly tripled our US operating sites, adding more than 4,000 employees across 170 operating sites.

While Boral North America's legacy business and Headwaters were culturally well aligned and delivering improved safety outcomes in recent years, Headwaters' injury performance was inferior to Boral's.

Improving Headwaters' safety performance has been at the forefront of our integration activities. We developed a focused improvement plan leveraging shared leading practices and prioritising high risk areas, and have embedded Boral's Zero Harm Today goal through proactive leadership and safety training. In the initial months of ownership, we invested close to US\$10 million of capital to upgrade machinery guarding and other safety equipment at Headwaters' sites.

In FY2018, Headwaters reported a RIFR<sup>3</sup> of 10.7 and a LTIFR<sup>1</sup> of 1.6 for employees and contractors, an impressive 27% and 59% improvement respectively over FY2017 RIFR and LTIFR of 14.6 and 3.9 for employees only. This compares to Boral North America's legacy business, which reported a RIFR of 6.7 and a LTIFR of 0.8 in FY2018<sup>4</sup>.



Metal guarding installed at the Light Building Products Elkland plant, Pennsylvania

1. Lost time injury frequency rate per million hours worked.
2. Safe Work Australia, Table 2.1 – Number, frequency rate and incidence rate of serious claims by industry (2011–12 to 2015–16), based on Safe Work Australia's definition of LTIFR which is based on workers' compensation claims for work-related injuries that resulted in five or more days of lost time from work. Boral Australia LTIFR of 1.4 calculated on the same basis.
3. Recordable injury frequency rate per million hours worked.
4. For employees and contractors, including the Meridian Brick joint venture.

# Climate-related impacts



Stormwater management system at Ormeau Quarry, Queensland

## ABSOLUTE GHG EMISSIONS (SCOPE 1 AND 2)



**2.6m**  
TONNES CO<sub>2</sub>-e

**↑5%** IN FY2018    **↓27%** SINCE FY2012

## GHG EMISSIONS INTENSITY (SCOPE 1 AND 2)



**375**  
TONNES CO<sub>2</sub>-e  
PER A\$M REVENUE

**↓23%** IN FY2018    **↓44%** SINCE FY2012

## Our approach

### Climate-related impacts and the transition to a low carbon economy affect our operations, customers and supply chains.

We recognise that as a global manufacturer of construction and building products, we are a significant emitter of carbon, particularly through our clinker manufacturing operations in Australia, which account for 49% of our total emissions of 2.6 million tonnes of CO<sub>2</sub>-e.

Since FY2012, we have reduced our absolute (Scope 1 and 2) greenhouse gas (GHG) emissions by 27% through actively re-aligning our portfolio towards lighter-weight products and less carbon-intensive businesses, reducing clinker manufacturing in Australia in favour of imports from larger scale, more modern and efficient operations in Asia<sup>1</sup>, and investing in energy efficiency and alternative fuels programs.

We are committed to continuing to develop appropriate strategies to identify, manage and respond to climate-related risks and opportunities across our business. This encompasses building the resilience of our portfolio to climate impacts through adapting and responding to market, policy and technological changes by creating innovative solutions and products that support a smooth transition to a low carbon future.

We strive to provide transparent disclosure of those risks and opportunities, and how we manage and respond to climate impacts, to help investors and others understand our business. **We are progressively adopting the recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD) to improve both our approach in assessing and managing climate-related risks and opportunities and our related external reporting.**

The TCFD recommendations are focused on the financial impact of climate-related risks and opportunities and focus on four core elements of how organisations operate: governance, strategy, risk management, and metrics and targets. We have outlined how we manage our climate risks, and the metrics and targets we use to monitor performance. We have actively monitored and reported our emissions across our international operations for the past 13 years, and since 1991 for our Cement business<sup>2</sup>.

Following engagement with numerous large investors and other stakeholders, we have incorporated key information previously included in our CDP Climate Change responses over the following pages, with detailed carbon emissions and energy consumption data available at [boral.com/energy\\_and\\_emissions](http://boral.com/energy_and_emissions). Further information on our approach to reporting is outlined on page 16.

1. Following the closure of Boral's clinker manufacturing plant at Waurm Ponds, Victoria, in 2013, clinker has been imported from Asia. The emissions intensity of our Waurm Ponds clinker manufacturing operations in FY2013 was 0.98 tonnes CO<sub>2</sub>-e per tonne of production. The emissions intensity of our imported clinker, included as Scope 3 emissions, is 0.95 tonnes CO<sub>2</sub>-e per tonne of production, including shipping to the Port of Geelong (a 3% reduction in emissions).  
2. Early years of emissions reporting was through the Cement Industry Federation – this was later expanded to include company reporting.

## Strategy

Boral acknowledges the physical and financial risks associated with climate-related impacts and the potential impact on our business from a global transition to lower carbon energy sources.

Such a global transition may impact our business through the pricing of energy, the availability of raw materials such as clinker, gypsum and fly ash, and construction industry standards and customer preferences for lower carbon solutions, which present both risks and opportunities. The key transition and physical climate-related risks and opportunities faced by Boral and the mitigation strategies we are adopting are further explored on pages 28–29.

As part of our business strategy, we have been reducing our exposure to high fixed cost, energy- and emissions-intensive operations.

**We have been growing through shifting our portfolio to lighter-weight building products that have more scalable manufacturing and more variable costs, and are less energy-intensive to produce.**

We have been closing cement manufacturing kilns and exiting the bricks business, which has underpinned reductions in our absolute GHG emissions and emissions intensity of 27% and 44% respectively over the past six years.

This repositioning of the business has both reduced Boral's risks associated with the transition to a lower carbon economy and our exposure to energy costs. In FY2018, total energy and fuel costs accounted for around 7% of Boral's cost base<sup>3</sup>.

With cement being highly emissions-intensive and an important input into downstream concrete production and in some building products, we are continuing to look at ways to reduce future cement-related carbon emissions.

## Risk management

Climate-related risks are incorporated into Boral's risk identification and management process, which includes a formal bottom-up, organisation-wide risk management process undertaken on a yearly basis. This process is managed by Group Risk & Internal Audit. A summary of our risks and responses, including climate-related risks, is included on pages 12–13.

To supplement the annual risk review process, in 2017, a targeted Climate-related Risks and Opportunities Strategic Review was undertaken across Boral's businesses using the recommended framework set out by the TCFD. This process identified more specific climate-related risks and opportunities which are included on pages 28–29. The outcomes of this review were presented to the Board HSE Committee.

Sustainability risks are embedded into Group and business-level strategies.

In FY2018, our Cement business accounted for 59% of Boral's GHG emissions. Details of how our alternative fuels project at Berrima Cement Works is reducing carbon emissions is included on page 30.

More broadly, we continue to focus on energy efficiency improvements, and the use of waste materials and biofuel development to reduce our own operational emissions.

Within our supply chain, the biggest role Boral is likely to play in reducing GHG emissions is by increasing the use of fly ash as a cement substitute in the ready mix concrete industry in the US, where Boral is the largest broker of fly ash.

The World Business Council for Sustainable Development Cement Sustainability Initiative<sup>4</sup> identifies a reduction of the clinker to cement ratio through the use of alternative cementitious materials such as fly ash and slag as an important key mitigation lever in reducing carbon emissions associated with cement production. Substituting cement with fly ash during ready mix concrete production achieves the same result. The important role our Fly Ash business has in reducing the US concrete industry's carbon emissions is further explored on page 29.

To gain a better understanding of the potential climate-related transition risks and opportunities, Boral's Cement business has commenced scenario analysis work focused on clinker production and imports. Three climate scenarios have been developed, and these are informing the development of appropriate response strategies to potential climate transition risks. This includes two-degree scenarios as recommended by the TCFD and consistent with Paris Agreement temperature targets. This work is currently being completed and reviewed internally. Further information on the scenario analysis work is provided on page 32.

## Governance

The full Board maintains oversight of Boral's response to climate-related risks and opportunities, including risk identification and management, strategy and external reporting. In addition, the Board HSE Committee is responsible for reviewing and monitoring the effectiveness of Boral's policies, systems and governance structure in identifying and managing HSE risks that are material to the Group, as well as compliance with legal and regulatory requirements associated with HSE matters. The Board HSE Committee considers energy and climate-related issues at each of its meetings.

The Board Audit & Risk Committee is responsible for satisfying itself that a sound system of risk oversight and management exists and that internal controls are effective. It meets at least four times per year and receives an annual report on our organisation-wide risks, which include climate-related risks and opportunities. Further details of the roles and responsibilities of the Board HSE and Audit & Risk Committees are in the Corporate Governance Statement in the Annual Report.

While the full Board maintains oversight of Boral's climate-related risks, the CEO & Managing Director is accountable for the management of Boral's risks in relation to climate impacts and delegates responsibility to the Executive Committee.

The Executive Committee, which includes the CEO & Managing Director, is individually and collectively accountable for assessing and managing these risks. Divisional Chief Executives and the Group HSE Director have specific responsibilities in respect of climate-related risks and opportunities.

3. Includes cost base of USG Boral and Meridian Brick joint ventures, which are equity accounted.

4. World Business Council for Sustainable Development, Cement Sustainability Initiative, <https://www.wbcscement.org>

# Climate-related impacts

## Risks and opportunities

**Climate-related risks encompass both risks relating to the transition to a lower carbon economy and physical risks.**

We have outlined Boral's key risks and opportunities based on the Climate-related Risks and Opportunities Strategic Review undertaken in 2017 and the scenario analysis work currently being completed by the Cement business.

## Risks

TRANSITION RISKS – MEDIUM AND LONG-TERM

**Increased energy costs from changes in carbon or energy policy.** The potential introduction of regulatory pricing mechanisms and/or trading systems in Australia, and the countries from which we import clinker, would most impact our more energy-intensive Cement business. Exposure to a carbon cost in our Cement business would, however, be mitigated to the extent that the industry is afforded assistance as an emissions-intensive trade exposed industry.

Changes in energy policy in the countries in which we operate and from which we import key raw materials may result in increased energy and raw material costs.

Our strategy is to continue to shift our product portfolio towards less energy-intensive businesses. We have programs in place to continue to reduce our energy costs where our exposures are highest. For example, our alternative fuels program in Cement is expected to initially replace 25,000 tonnes of coal and up to 50,000 tonnes of coal in coming years.

In USG Boral, the introduction of Sheetrock® technology over the last few years reduced emissions intensity associated with manufacturing of plasterboard by about 20%, in part through reducing energy required for drying the plasterboard, and there are further improvement opportunities planned.

**Potential reduction in fly ash supply in North America as coal-fired power utilities curtail over time.** The US Energy Information Administration (EIA) is projecting coal to contribute 24% of the country's electricity generation mix in 2040 or, if the Clean Power Plan is enacted, approximately 19%. At these levels, the amount of fly ash going to landfill should reduce, however not materially impact, the fly ash available for the construction industry. Refer to the case study on page 29 for how Boral intends to support growth in fly ash demand.

**Supply chain impacts from environmental policy.** Pollution concerns, particularly in Asia, may result in temporary and/or permanent closures of energy-intensive manufacturing facilities. This has the potential to affect the supply balance and price of raw materials such as imported clinker used in our Cement business, synthetic gypsum used by USG Boral and slag and fly ash used by Boral Australia in producing low-carbon concrete such as ENVISIA®.

For our Cement business, we are leveraging the scenario analysis work to develop appropriate response strategies and are incorporating these risks into our broader strategic planning. USG Boral's strategic planning process includes developing appropriate gypsum supply options.

**Changes in construction industry standards on materials efficiency** and regulation of existing products in buildings and large construction and infrastructure projects, as well as **shifts in consumer preferences** may result in demand shifts towards low carbon construction materials. This may require fast tracking capital expenditure and R&D investment in low carbon product solutions.

We are investing in developing lower carbon building materials solutions such as ENVISIA® low carbon concrete, WarmPave asphalt and high-recycled content TrueExterior® Siding & Trim products and are piloting USG-developed Sheetrock® EcoSmart Panels.



Berrima Cement Works alternative fuels facility, NSW



## Leveraging our Fly Ash business to reduce carbon emissions

Fly ash is a residue generated by coal-fired power stations. As a substitute cementitious material used in the manufacture of concrete, fly ash has multiple benefits. It enhances the strength, impermeability and durability of concrete, is typically cheaper than cement, and mitigates carbon emissions associated with cement production.

We currently sell around 7–7.5 million tons (6.4–6.8 million tonnes) of fly ash per annum. The replacement factor of Portland cement by fly ash in ready mix concrete generally varies between 1:1 and 2:3, depending on the properties of the ash and desired performance of the concrete. Therefore, for every 1 million tonnes of fly ash we can bring to market and sell as a cement substitute, we could eliminate 0.67–1 million tonnes of CO<sub>2</sub>-e being produced<sup>2</sup>.

Fly ash substitution of Portland cement in concrete is currently ~16% in the US, and compares to ~50% in European markets. So there is considerable opportunity for higher substitution if we can increase supply of fly ash.

Our strategy is to increase the amount of fly ash we bring to market by reducing the amount of ash that would otherwise go to landfill and by reclaiming ash that is currently in landfill across the US, which is estimated to exceed 1 billion tons<sup>3</sup>.

Initiatives underway to increase our supply of fly ash include improved network optimisation, increased use of beneficiation technologies and new ash storage facilities to reduce ash going to landfill, reclamation of landfilled ash and potentially importing excess fly ash from countries where it is abundant. We are aiming to increase available fly ash for sale over the next three years by 1.5–2 million tons per annum.

PHYSICAL RISKS – SHORT-TERM AND ONGOING

**Increased severity of extreme weather events** such as cyclones, severe storms and floods may result in business interruption due to plant damage; supply chain, transport and logistics impacts; and delays in customer deliveries and demand. For example, Boral North America was impacted by two hurricanes in late 2017, which had an adverse US\$10 million impact on FY2018 earnings<sup>1</sup>.

Across our operations, as we have been building new plant and equipment, we have been investing in our water management systems to allow our operations to better withstand floods, storm deluge and other extreme weather conditions. Such measures include investing in pumping equipment to improve our recovery response at quarries following high rainfall events, investing in generators to provide backup power supply during storms, and building sophisticated settlement ponds and closed loop site water systems that allow us to continuously re-use process water while minimising environmental impacts.

**Changes in precipitation patterns and unseasonal weather variability**, including rising mean temperatures, may impact water security, result in bushfires and adversely impact the prosperity of local economies.

Although water is not considered a material risk at a Group level, at an individual site level, either too little water during drought periods or too much water is a risk. Measures implemented to better manage excess water due to storms and flooding are outlined under extreme weather events above.

## Opportunities

PRODUCTS AND SERVICES

**Capturing growth opportunities from a transition to a lower carbon economy.** Our North American Fly Ash business is well positioned to harness future growth opportunities from increasing substitution of cement in the manufacture of concrete, thereby reducing carbon emissions in the broader supply chain. Refer to the adjacent case study.

We continue to invest in science-based materials product innovation to provide creative solutions that meet our customers' preferences and support the transition to a lower carbon economy. In FY2018, we invested A\$17 million in R&D through our innovation centres in the USA, Australia and Thailand. Our product solutions include ENVISIA®, a high performing concrete with lower carbon emissions than standard concrete; TrueExterior® Siding & Trim products comprising up to 70% fly ash – a coal combustion by-product that would otherwise go to landfill; and USG-developed Sheetrock® EcoSmart Panels being piloted at our Pinkenba plant.

ENERGY SOURCE

**Reduced energy costs through energy efficiency initiatives and alternative fuels use in cement manufacturing.** Our alternative fuels facility at Boral's cement operations in Berrima will reduce our energy costs and carbon footprint through reducing coal consumption – refer to page 30 for further details. Boral Australia is developing plans that will enable it to firm up targets and goals regarding energy efficiency improvements and renewable energy.

RESILIENCE

**Using Boral Timber residue by-products as biofuel.** We have recently announced a \$1.2 million feasibility study, co-funded by the Australian Renewable Energy Agency, to determine the technical and financial viability of converting up to 50,000 tonnes per annum of sawmill residues from our Herons Creek hardwood sawmill, in NSW, into renewable diesel and bitumen using world-first technology. If the feasibility study is successful, the transport-grade diesel and bitumen produced could potentially supply up to 15% of Boral's annual needs.

1. Defined as earnings before interest, tax, depreciation and amortisation.  
 2. Assumes one tonne of cement produced results in one tonne of carbon emissions.  
 3. Sources: American Coal Ash Association estimates ~1 billion tons of fly ash is currently landfilled. The US Environmental Protection Agency (EPA) estimates that ~1.5 billion tons of total coal ash has been landfilled or impounded.

# Climate-related impacts

## OUR GOALS AND TARGETS

A FURTHER  
**10–20%**  
REDUCTION IN  
EMISSIONS INTENSITY  
BY 2023

A REDUCTION OF  
**1.1–1.5**  
million tonnes  
CO<sub>2</sub>-e IN SUPPLY CHAIN  
THROUGH INCREASED  
FLY ASH SUPPLY BY 2022

CURRENTLY  
**9%**  
DELIVER ANNUAL  
GROWTH  
IN SHARE OF REVENUE  
FROM LOW CARBON,  
HIGH-RECYCLED  
PRODUCTS

## Metrics and targets

**Our Scope 1 and 2 emissions have reduced by 27% since FY2012 to 2.6 million tonnes of CO<sub>2</sub>-e<sup>1,2</sup>.**

**Our emissions intensity has reduced by 44% since FY2012 to 375 tonnes of CO<sub>2</sub>-e per A\$ million of revenue<sup>1,2,3</sup>.**

### Our approach to reducing emissions

We are confident that Boral's emissions intensity will continue to reduce over the coming years, as we know that our future will be focused on less emissions-intensive operations than our past, and we continue to reduce emissions through efficiency programs and product development. At times, however, our absolute emissions may increase as production increases to meet demand and through acquisition, as was the case in FY2018.

We have an emissions-intensive cement manufacturing plant at Berrima accounting for ~60% of Boral's total emissions, and a bricks business in Western Australia and bricks joint venture in the USA together accounting for ~10% of our emissions.

We have no intention to invest in new cement or brick kilns, and these manufacturing operations are unlikely to be in Boral's portfolio in the long-term, which would result in our Scope 1 and 2 emissions reducing by around 70%.

However, we cannot put targeted dates around the life of these operations, which will be determined by economic drivers.

**Over the next five years, we are aiming to further reduce the emissions intensity of our operations by 10%–20%, delivering a total emissions intensity reduction of 50–55% since FY2012.** This targeted trajectory reflects higher expected growth in our less energy- and emissions-intensive businesses in North America and Asia relative to our more mature business in Australia. It does not capture the potential exit of non-core brick operations, other divestments or possible acquisitions.

In Australia, we are a member of the Cement Industry Federation (CIF). The CIF policy is to support the Federal Government's national target to reduce emissions by 26–28% by 2030, and the CIF has been working with the World Business Council for Sustainable Development and its current roadmap to reduce emissions.

The 27% reduction in Boral's absolute GHG emissions over the past six years reflects our portfolio re-alignment towards less emissions-intensive operations through divestments and plant closures, the shift to imported clinker and our investment in more energy efficient technologies and alternative fuels programs.

Boral Australia, as part of its divisional sustainability strategy, is establishing aspirational goals and targets regarding energy efficiency improvements and renewable energy.

**We are also focused on growing the contribution of our low carbon and high-recycled content products which accounted for 9% of Group revenue in FY2018.** Our low carbon and high-recycled content products and businesses include Boral North America Fly Ash and TrueExterior® Siding & Trim, and in Boral Australia, ENVISIA® concrete, WarmPave and Boral Recycling.

Initiatives to further expand the revenue contribution of low carbon and high-recycled content products include:

- increasing fly ash sales in North America, including through higher penetration of fly ash in ready mix concrete
- enhancing our capability and response to product development to better align with customer needs and expectations
- improving our marketing of low carbon products
- increasing the recycling of our own waste into products
- piloting Sheetrock® EcoSmart Panel production at our Pinkenba plant, Queensland, which will see 25% less water, less energy and 20% fewer carbon emissions during plasterboard manufacturing.

## Berrima alternative fuels program

At our Berrima cement kiln in NSW, we have recently constructed a new alternative fuels facility which will use waste by-products from other industries. The use of alternative fuels will reduce coal consumption, reducing the carbon intensity of cement produced at Berrima, while also reducing materials going to landfill.

Alternative fuels used will include wood waste such as untreated sawdust, pallets, bark chips and mill off-cuts, commercial waste such as paper, cardboard, packaging and some plastics, and tyre chips.

The alternative fuels program will initially replace 25,000 tonnes of coal a year, reducing coal-related emissions by 26,000 tonnes CO<sub>2</sub>-e per annum.

In coming years, we are working towards replacing up to 30% of coal use at the site, equal to around 50,000 tonnes, with up to 100,000 tonnes of alternative fuels a year.

At a total investment of \$11 million, including a \$4 million NSW State Government grant, the program is expected to deliver ~\$3 million in annual cost savings.



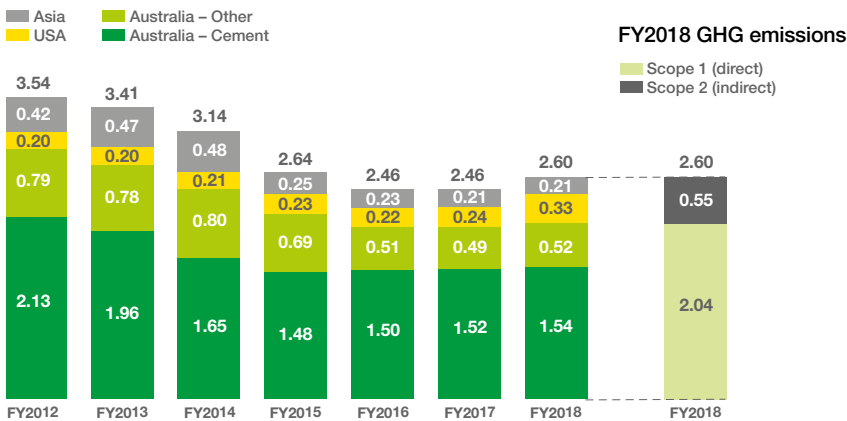
## Greenhouse gas emissions

In FY2018, Boral's absolute (Scope 1 and 2) emissions of 2.6 million tonnes of CO<sub>2</sub>-e increased by 5% compared to the prior year, reflecting the inclusion of the acquired Headwaters business in North America and modestly higher emissions from Boral Australia and USG Boral<sup>1,2</sup>.

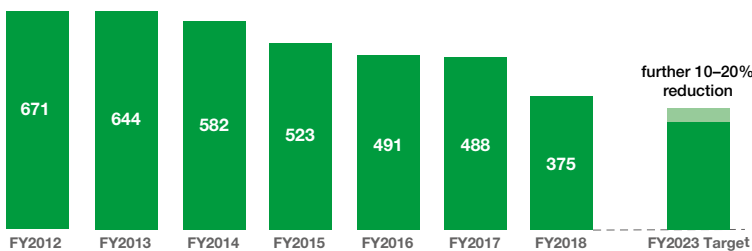
In line with our strategy, Boral's emissions intensity reduced by 23% to 375 tonnes of CO<sub>2</sub>-e per A\$ million of revenue, with the acquired Headwaters businesses being substantially less energy- and carbon-intensive than our traditional businesses<sup>1,2,3</sup>.

Absolute emissions were up 1% in Cement, 5% higher in the remainder of the Australian operations, 1% higher in Asia and up 35% in the US. The substantial increase in US emissions reflects the inclusion of Headwaters, as well as underlying growth in production volumes driven by stronger demand. The modestly higher emissions in Australia and Asia reflect overall higher activity levels driven by stronger demand across both regions.

### GHG emissions from operations<sup>1,2,4</sup> (million tonnes CO<sub>2</sub>-e)



### GHG emissions intensity from operations<sup>1,2,3</sup> (tonnes CO<sub>2</sub>-e per A\$m revenue)



This year, we focused on improving data collection of our Scope 3 emissions to more reliably report on our most material indirect emissions. While we have further work to do in collecting carbon information from suppliers, early indications suggest our **key Scope 3 emissions** which relate to clinker imported into Australia by Boral Cement and the purchase of cement in our US building products businesses (Stone, Roofing, Block) **are in the order of 1.2 million tonnes per annum**.

**Looking more broadly at the role Boral plays in the supply chain, our FY2018 fly ash sales in North America resulted in ~5.2 million tonnes of avoided CO<sub>2</sub>-e per annum<sup>5</sup>, resulting in a net Scope 3 positive impact of 4.0 million tonnes of CO<sub>2</sub>-e per annum for these cementitious materials.**

**With plans to increase available annual supply of fly ash by 1.5-2.0 million tons over the next three years, we are targeting a further reduction of 1.1-1.5 million tonnes of CO<sub>2</sub>-e in the supply chain by 2022.**

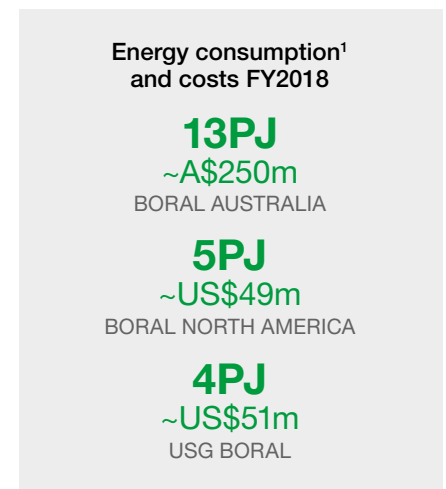
Further data on Boral's energy consumption, GHG and other emissions can be found at [boral.com/energy\\_and\\_emissions](http://boral.com/energy_and_emissions).

Definitions of Scope 1, 2 and 3 emissions are included on page 53.

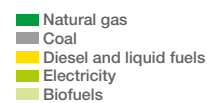
## Energy consumption

In FY2018, our operations consumed 22 petajoules of energy<sup>1</sup>, up 7% on last year, reflecting the acquisition of Headwaters and increased production volumes across our three divisions. Boral's Cement operations accounted for 31% of the Group's energy consumption.

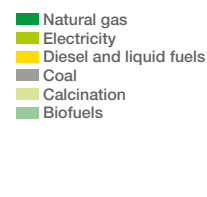
Expenditure on energy increased 28% to A\$380 million, compared to FY2017. This reflects the acquisition of Headwaters, increased fuel, electricity and gas unit costs, as well as higher underlying energy consumption across all three Boral divisions.



### Energy by fuel source<sup>1,4</sup>



### GHG emissions by source<sup>1</sup>



1. Data provided for GHG emissions and energy consumption is for 100%-owned operations and Boral's share of 50%-owned joint venture operations – it excludes some joint ventures which in aggregate are not deemed to have material emissions.  
 2. USG Boral Asia emissions data for FY2017 has been restated using local electricity emissions factors where available.  
 3. Group reported revenue adjusted to include 50% share of underlying revenues from USG Boral and Meridian Brick joint ventures, which are equity accounted.

4. Figures may not add due to rounding.

5. We have used a conservative conversion factor to estimate CO<sub>2</sub>-e emissions displaced as a result of fly ash substitution of cement in ready mix concrete, assuming that for every one tonne of fly ash approximately 0.8 tonne of CO<sub>2</sub>-e is displaced. This conversion rate accounts for varying qualities of fly ash, and therefore substitution rates of 1.25 tonnes of fly ash per tonne of cement in ready mix concrete and assumes one tonne of cement produced results in one tonne of carbon emissions.

# Climate-related impacts

## Scenario analysis

We have commenced scenario analysis to assess the implications, including financial risks, of a transition to a lower carbon economy on Boral’s Cement business.

We have focused on our Cement business as it is our most emissions-intensive and more likely to be impacted by domestic and global policy changes.

We are testing the resilience of our Cement operations by modelling three different future climate transition scenarios out to a 2030 horizon. The scenarios draw on historical relationship assumptions and future expectations focused around four key levers – carbon policy, construction policy and industry standards on construction materials efficiency, energy policy and energy efficiency, and environmental policies.

## Developed scenarios

The scenarios chosen reflect a balance between sufficient stress testing and most probable policy transitions in respect of the four key levers. As with any modelling of possible long-term future states, there are inherent limitations, as it is difficult to predict which, if any, of the scenarios might eventuate.

The three scenarios being considered are a Reference Case, which incorporates a modest future policy transition, a Globally Aligned and a Regionally Differentiated scenario. The latter two scenarios are aligned with the Paris Agreement two degrees celsius (2°C) economy and leverage existing projections from the Internal Energy Agency (IEA) as recommended by the TCFD. Each scenario considers a range of future domestic and international economy-wide emissions pricing net of any local assistance to emissions-intensive sectors.

<b>Reference Case (3–4°C economy)</b>	<p>Domestic and global attempts to address climate impacts lead to some policy shifts, however, these are insufficient to stabilise global temperatures to below 3°C to 4°C above historic levels.</p> <p>With the progressive retirement of coal-fired power plants through to 2050, energy demands are increasingly met by renewable energy and alternative fuels such as solid waste derived fuels.</p> <p>The construction sector attempts to advocate the use of greener construction materials, however, policies do not provide a clear pathway and market acceptance is slow. As a result, there is limited uptake of substitutes to replace carbon intensive Portland cement, as well as few uses of timber to replace concrete.</p>
<b>Globally Aligned carbon policy (2°C economy)</b>	<p>Global cooperation leads to ambitious action to achieve the 2°C climate goal. In Australia, coal-fired power plants are rapidly decommissioned by 2035. Internationally, coal becomes less important as a source of energy. Successful breakthroughs in renewable energy technologies are swiftly deployed, as is the use of alternative fuels.</p> <p>The construction sector makes several advancements in its industry standards. Strong policies and market acceptance favour the growing use of high-blend cements in place of Portland cement, while cement use as a whole is reduced by deploying timber as an alternative construction material to concrete, and through designing structures that use concrete more efficiently.</p>
<b>Regionally Differentiated carbon policy (2°C economy)</b>	<p>Varying pace of decarbonisation leads to regional divergence in policy to achieve the 2°C climate goal. While some countries adopt stronger policy actions than others, Australia’s policy actions result in a more gradual transition over a longer period.</p> <p>With progressive closure of coal-fired power plants out to 2050, fossil fuels continue to be the primary source of energy in Australia, with increasing use of alternative fuels but limited penetration by renewable energy and no resultant change in energy price. Conversely, other countries push ahead with the development and implementation of renewable energy, as a result experiencing a decrease in overall prices of energy as renewables compete with coal.</p> <p>Though the construction sector implements policies for the use of other cements and construction materials, market acceptance is moderate. This leads to a modest increase in the use of high-blend cements, timber instead of Portland cement and concrete, and the beginnings of more concrete-efficient design structures.</p>

All three scenarios assume that China continues the closure of old-technology and sub-scale kilns into 2020 due to a variety of reasons including health, pollution and overcapacity, impacting the supply and price of clinker exports.

## Scenario analysis – process, status and next steps

Sponsored by Cement’s Executive General Manager, coordinated by the Group environmental team, and with the assistance from external adviser EY, the scenario analysis is being undertaken by a 12-person working group, including Group Audit and Risk, environmental, sustainability and strategy managers.

While work is still underway, the team has developed the scenarios and assessed the implications for Boral. The findings and insights from this first phase of work have been presented and are being reviewed by the Executive Committee and the Board, with further refinements to the analysis being made.

The Cement scenario analysis is proving to be a useful tool that is formalising and testing our current expectations and direction for the Cement business, including opportunities for growth and changes that will be required to our current operating models.

The scenario analysis work will help inform strategic discussions and decision making and be incorporated into Boral’s planning processes. More specifically, it is providing a greater understanding of the relative influence of different policy levers and carbon pricing outcomes on:

- our decision to manufacture or import clinker
- the demand for clinker and other cementitious materials, and
- capital investments required by the Cement business.

In FY2019, we will complete our Cement scenario analysis and consider whether to apply a similar process, where it makes sense to do so, in other parts of the business to further assess Boral’s transition and physical climate risks.

Through our annual and sustainability reporting, we will continue to inform our stakeholders of the risks and opportunities that we identify.

# Environmental and community impacts



Boral Recycling Widemere facility, NSW

## Our approach

**Our policy is to eliminate adverse environmental impacts and where elimination is not possible, seek to minimise any harmful effects from our operations.**

At an absolute minimum, this means complying with environmental legislation, regulations, standards and codes of practice applicable to each of our businesses.

We recognise that effective management of our sites, including complying with our site-based planning approvals, is critical to our reputation and meeting community expectations.

We manage our quarries and land assets responsibly, planning strategically to mitigate and manage our impacts across the full life cycle of our extraction and processing sites – from development applications through to rehabilitation and end-use planning and development.

We are also committed to meeting our responsibilities to the local communities in which we operate. This means managing our operations to avoid negative impacts on local stakeholders and proactively addressing community concerns through open and constructive engagement programs. Operational issues that can impact local communities include traffic, noise, dust, odours, water, waste, quarry end use, and impacts on biodiversity, heritage and culture.

As outlined in Boral's Environment Policy, we are committed to:

- Reducing greenhouse gas emissions from our processes, operations and facilities.
- Reducing waste in all forms including through the efficient use of energy, conservation of water, minimising and recycling waste materials and energy, prevention of pollution, and effective use of virgin and recovered resources and supplemental materials.
- Protecting biodiversity values at and around our facilities.
- Openly and constructively engaging with communities surrounding our operations.

## Community engagement

Our stakeholder engagement programs are underpinned by ongoing communications, consultation and contribution to the local community.

At key sites we have Community Consultation Committees that include elected community representatives which meet with interested residents and stakeholders. We communicate through online information resources, newsletters, mail, advertising, community inspections, community meetings and site tours.

For example, during the year, we held guided tours for the community at our Hall, Talbragar and Seaham quarries in NSW and Orange Grove and Midland Brick quarries in Western Australia. This provides an opportunity for the public to understand our operations, and for Boral to receive feedback on any issues, including our impact on local communities. Government representatives also participated in site tours around our concrete and quarry operations on the Gold Coast, Queensland.

We have been acknowledged as an industry leader in community engagement. This year, we received the Community Leadership Award at the NSW Cement Concrete & Aggregates Australia 2017 Innovation Awards. The award recognised Boral's comprehensive stakeholder engagement program at Marulan that uses feedback from local residents to guide community relations plans, incorporates public reporting on commitments, and is focused on actively contributing to the local community through initiating and organising local events.



Community meeting at Hall Quarry, NSW

# Environmental and community impacts

## Environmental compliance

We target zero environmental infringements across our ~680 operating sites and strive to continuously improve our environmental management and performance.

We continue to strengthen our internal controls to improve compliance with increasingly stringent regulatory requirements in Australia, including through an online information management system for environmental licence conditions.

During the year, we conducted 55 environmental compliance audits, developed 89 new site-based action plans and reviewed 246 existing site-based action plans for effectiveness across our Australian operations. Boral North America completed 29 environmental compliance audits, focusing on operations acquired through Headwaters.

Formal regulatory notifications are reviewed by our internal legal and HSE functions and reported to Boral's Executive Committee. Any material issues are reported to the Board HSE Committee, even if no penalty results.

In FY2018, we were charged with six regulatory infringements related to environmental contraventions in Australia and the US that resulted in total fines of \$82,273. The number of infringements and fines is significantly lower than in the prior year despite our substantially enlarged footprint following the acquisition of Headwaters, reflecting an increased focus on compliance.

The infringements relate to non-compliant:

- water quality discharge from the Chinderah concrete plant, NSW
- supply of concrete outside of approval conditions from the Mount Kuring-gai concrete plant, NSW
- use of kiln exhaust at Meridian Bricks JV Salisbury plant, North Carolina
- disposal of solvent wastes at Atlantic Shutters Latta plant, South Carolina

- disposal of solid or viscous materials to sewer at Oceanside roofing plant, California
- permitting of a raw material feed and gas flare at Meridian Bricks JV Terre Haute plant, Indiana.

In addition, we have one set of agreed undertakings relating to vegetation clearing at the Loch Catherine Colliery in NSW.

In November 2016, the NSW Resources Regulator (Regulator) commenced investigations relating to the clearing of approximately one third of a hectare of vegetation regrowth along a pre-existing drift at the Loch Catherine Colliery, which the Regulator deemed to be undertaken without the relevant consent. The Loch Catherine Colliery is located on the same mining lease as Boral's Medway Colliery, although never operated by Boral. While Boral undertook this clearing as part of closure works and on the basis that we held the appropriate approvals, the Regulator deemed that Boral's activities were not permitted.

Boral entered into an enforceable undertaking in relation to this matter that was accepted by the Regulator in March 2018. The Regulator's published decision noted that Boral's actions were neither malicious nor in deliberate contravention of its regulatory obligations. Boral's obligations under this undertaking include training of relevant staff, conducting compliance audits and making a \$50,000 contribution to a conservation project managed by a not for profit organisation. Boral expects to incur approximately \$133,000 in complying with its obligations.

Infringements and penalties	FY2018	FY2017	FY2016	FY2015
Number	6	10	9	3
Fines <sup>1</sup>	\$82,273	\$111,083	\$33,888	\$11,658
Penalties <sup>1</sup>	\$0	\$30,000	\$250,000	\$0
Undertakings	\$133,000	\$133,556	\$0	\$0

1. Fines are directly issued by the Regulator and penalties by a court hearing.

## Biodiversity management

Protecting the diversity of plant and animal species at and around our operational sites is a core component of our land management efforts.

Some examples of the many initiatives to protect biodiversity at our own sites include:

- collaborating with the Royal Botanic Garden Sydney in research on the endangered Illawarra Socketwood population at our Dunmore Quarry in NSW
- partnering with Sleepy Burrows Wombat Sanctuary to capture and relocate wombats found at our Peppertree Quarry in NSW
- maintaining koala fodder plantations at Narangba and Petrie quarries in Queensland
- conservation work to provide habitat for the threatened legless lizard and spiny rice-flower at Deer Park Quarry in Victoria
- construction of a bird island habitat as part of our rehabilitation of wetlands at our Dunmore Quarry in NSW.

Through our community partnership with Conservation Volunteers Australia, we support conservation and education initiatives in our local communities, including native vegetation initiatives in local reserves and schools. Refer to page 39 for more detail.

## Cultural heritage

We are committed to protecting places and items of cultural significance to local Indigenous groups across our Australian operations. We work alongside Indigenous peoples to protect cultural heritage, including across our sites subject to Cultural Heritage Management Plans. Some of this work includes:

- engaging local Aboriginal groups to undertake cultural heritage surveys, including at 13 quarry sites in Queensland
- salvage excavation works at Peppertree Quarry in NSW which were completed in March 2018, with identification of nearly 100,000 Aboriginal artefacts.



Ormeau Quarry, Queensland

## Waste and recycling

Throughout Boral's operations, some materials are commonly re-used back into our production processes, including concrete washout, recycled asphalt pavement (RAP), and plasterboard waste from production and building sites. This beneficially uses materials that would otherwise require disposal.

A large proportion of Boral's recycled and low carbon products revenue, totalling 9% of Group revenue, is derived from external waste products. This includes our Fly Ash and Boral Recycling businesses. Opportunities for the re-use of production by-products or waste material continue to grow and are actively being pursued.

In Boral Australia, we are developing plans and looking for opportunities that will help us firm up targets to reduce waste generated across all product lines over the coming five years.

Boral's businesses deal with only low amounts of hazardous waste, and this is managed in accordance with government regulations.

We only use relatively small amounts of packaging, as the vast majority of our products are delivered in bulk. Boral businesses in Australia that do use some packaging, such as Midland Brick, are signatories to the Australian Packaging Covenant. Boral Cement, through its membership of Cement Concrete & Aggregates Australia, is also a signatory.

## Water management

**Water is a valuable resource and good quality fresh water is essential to our concrete, construction material and plasterboard operations. We use water in manufacturing, and for dust suppression, cleaning and sanitation. Our quarry and asphalt operations are able to use recycled, brackish and/or process water.**

Boral's global operations consumed about 4 gigalitres of municipal supplied water, steady on last year.

At our larger sites, including our quarry operations, we also capture rainfall or stream flow which is largely used for dust control purposes. In Boral Australia, we are developing systems that will enable us to collect data on captured rainfall and are developing plans that will underpin an overall improvement in water efficiency.

At a Group level, management of water is not considered a material risk. Individual Boral sites may, however, be exposed to water risk from time to time, either from too little or too much water, and we assess the potential impacts on our stakeholders of water-related risks where this is relevant.

Most of our Boral North America operations have federal or state government stormwater management permits with very stringent limits. To reduce the risk of non-compliance, we have been implementing a program of upgrading stormwater management infrastructure.

Across the Group, a relatively small amount of used process water is discharged to sewer for treatment by water authorities in line with our existing licensing conditions at relevant sites. We have well established internal compliance systems for prevention of pollution of discharged waters, as well as numerous regulatory controls through licensing and permitting.

In recent years, we have had several penalties regarding water discharges. These are largely traceable to rainfall deluge events, which we are moving to better respond to as part of our approach to climate-related risks.

When developing or purchasing new facilities, our due diligence assessment includes scenario analysis of the quantity and quality of water, assessment of the risks of potential water discharges, and, where relevant, river catchment assessments to ensure sufficient water availability and supply.

## Berrima Colliery closure

Our Berrima Colliery in the Southern Highlands of NSW ceased coal extraction in October 2013, after nearly a century in operation.

The colliery was placed in care and maintenance mode while Boral works on an agreed closure plan process with the local community, local council, NSW Environment Protection Authority (EPA), NSW Resources Regulator, as well as other relevant state and local agencies.

This process includes ongoing monitoring and testing of groundwater that naturally runs through the disused mine, and water quality in the Wingecarribee River, upstream and downstream of the mine's licensed discharge point.

To reduce higher concentrations of naturally occurring minerals evident at the discharge point since mining ceased, since December 2017 we have been trialling an underground water treatment system following consultation with the

EPA. This has resulted in a noticeable improvement in the visual appearance of the Wingecarribee River downstream of the discharge point, and is returning indicators closer to longer-term levels.

We continue to work closely with the EPA and other relevant agencies – and with the local community – to develop an agreed closure plan for the old colliery, and to help with this, we have recently expanded the existing Closure Working Group to include additional community representatives.

# Supply chain and customers

Working with our suppliers. Photo supplied by Orica

## Our supply chain

As an international building and construction materials company with operations across 17 countries, our supply chain includes more than 8,500 suppliers and contractors, and represents a total annual spend of more than \$4.0 billion. We recognise that through the purchase of goods and services we indirectly impact the workers in our supply chain, their communities and the environment.

We expect our suppliers and contractors to uphold the same high ethical standards as our people and abide by Boral's Code of Business Conduct.

We have been revising our supply chain governance and policy framework in line with rapidly changing stakeholders' expectations and best practices. During the year, we introduced Boral's Sustainable Procurement Policy that aims to align our practices with the world's first International Standard for Sustainable Procurement ISO 20400 and sets out our minimum sustainability procurement requirements for purchasing goods and services across our supply chain. This provides our customers and other stakeholders with confidence that our products and services are sourced and produced in an ethically and environmentally responsible way.

Our Sustainable Procurement Policy outlines our commitment to recognising, assessing and managing modern slavery risk, promoting diversity and inclusion through partnerships with social enterprise businesses, and requires suppliers to comply with our Supplier Code of Conduct and Indigenous Procurement Policy.

Our Supplier Code of Conduct requires suppliers to adhere to minimum standards relating to health and safety, environment and labour, including prohibiting the use of child labour and complying with applicable modern slavery legislation.

We monitor supply chain risks by assessing suppliers' performance and their alignment to Boral standards through a pre-qualification questionnaire and evaluation processes. In Australia and USG Boral, a sanction screening process is used to identify any areas of risk by association with elements such as financial crime, fraud, and human rights abuse. In Australia, we engage a third-party service to register and monitor compliance of suppliers to our pre-qualification requirements.

### Modern slavery

**We are committed to combating modern slavery in society and strengthening our approach to most effectively identify and address this risk across our supply chain.**

While we have not identified any evidence of modern slavery in our supply chain, we continue to refine our approach in light of proposed Australian Government modern slavery legislation.

We established a Human Rights and Modern Slavery Executive Working Group, composed of members of Boral's Executive Management team and key functional roles, to support this work.

Modern slavery includes trafficking in persons and slavery like practices, such as servitude, forced labour, child labour, and instances of deceptive recruitment.

Our Sustainable Procurement Policy and Supplier Code of Conduct issued during the year strengthened our policy framework, directly addressing the risk of modern slavery in our supply chain. We are also collaborating with global peers to ensure our approach reflects industry best practice.

Our planned actions for FY2019 include:

- enhancing and formalising our modern slavery risk assessment and risk management process, including tailored risk mapping of our supply chain to identify key risk areas
- establishing an effective modern slavery due diligence program for high risk areas and a clear process for implementing corrective action
- building capability of our procurement team and business leaders through targeted training initiatives
- establishing appropriate grievance mechanisms, including extending Boral's external whistleblowing service to suppliers
- further refining our monitoring of compliance and reporting to the Board.

### Promoting Indigenous suppliers

We are committed to increasing the participation of Indigenous suppliers in our supply chain in Australia, as outlined in our Indigenous Procurement Policy and 2019 Reconciliation Action Plan.

Our corporate membership of Supply Nation provides practical support in meeting this objective as well as helping us meet the Indigenous procurement requirements under Australian federal and state government contracts.

We recently awarded our stationery supplies contract for Australia to Muru Office Supplies, an Aboriginal and Torres Strait Islander business, and engaged an Indigenous owned recruitment agency, EveryTrade Group.

## Expanding our supplier diversity

As a member of Social Traders, we actively pursue opportunities to expand our supplier diversity and partner with social enterprises – businesses that intentionally aim to benefit the community by tackling social problems, providing access to employment and training or helping the environment.

During the year, we were nominated for an award by Social Traders for our partnership with TRY Build, a social enterprise business focused on providing training to young people facing barriers to education and employment. Boral engaged TRY Build to construct an office and amenities building at its new West Melbourne concrete plant from repurposed shipping containers.

## Sustainable sourcing of timber and paper

Boral's most material exposure to deforestation risks is through our Timber business in Australia and the use of paper for lining plasterboard in USG Boral.

Boral Timber is committed to only sourcing timber from sustainably managed forests through an accredited scheme. Forestry Corporation of NSW, the largest manager of commercial native and plantation forest in NSW, and supplier to Boral Timber, is certified to meet the Australian Forestry Standard (AFS). AFS is an independently audited forest management standard that provides assurance it is managing NSW forests in a sustainable way. Boral Timber's hardwood products are certified to the AFS Chain of Custody standard that provides customers assurance that our products are sourced from certified, legal and sustainable resources by tracking products back to their source of supply.

USG Boral used about 160,000 tonnes of paper for lining plasterboard in FY2018. All paper purchased is certified by Forest Stewardship Council (FSC) as recycled paper. In Australia, our paper supplier is accredited under the FSC Chain of Custody certification and the low proportion of softwood timber used in the production of this paper is predominantly plantation forest thinnings and sawmill residues.



Boral supplying ENVISIA® concrete to Crown Sydney, Barangaroo  
Photo provided by Crown Resorts

## Our customers

As building material technologies and consumer preferences continually change, we have a critical part to play in delivering more effective and sustainable solutions to building the homes and cities of tomorrow. We actively work to better meet the needs of customers, support their objectives and deliver more sustainable product solutions.

We highlight some of the ways we are achieving this below.

### Offering low carbon, recycled and waste by-product solutions

We use external waste and by-products or secondary resources in a range of our products. Our North American Fly Ash business uses a coal combustion by-product to provide building products manufacturers low carbon cost-effective alternatives to conventional materials which offer significant performance advantages. We are a pioneer in the development of new construction material technologies, providing our customers with products that enhance the strength, impermeability and durability of concrete.

Boral TrueExterior® Siding & Trim products comprise up to 70% fly ash and deliver durability and workability advantages to alternative products.

Boral Recycling is one of the largest construction and demolition materials recyclers in NSW, processing more than one million tonnes annually of concrete, asphalt and bricks from demolitions, recycling centres and concrete batch plants. Achieving more than 99% resource recovery rates, our products include recycled roadbase, aggregate and manufactured sand products.

### Meeting customers' sustainability goals

We collaborate with our customers to strive to meet their sustainability goals. For example, during FY2018, we supplied low carbon concrete, ENVISIA®, to meet the Green Building Council of Australia's Green Star specification requirements of Crown Sydney at Barangaroo, rated Green Star 3, and Darling Harbour Live, rated Green Star 2.

### Next generation Sheetrock® plasterboard

We are currently piloting USG-developed Sheetrock® EcoSmart Panels at our Pinkenba plasterboard plant in Queensland. EcoSmart Panels are lighter weight with stronger sag performance and deliver improved sustainability attributes with 25% less water and 20% fewer carbon emissions used in manufacturing.

### Innovative plaster replacement system

USG Boral's EasyFinish™ System combines the use of USG Boral's non-combustible plasterboard with a specially formulated bonding compound to deliver an improved construction method for wall partitions in Asia. The simple installation process more than doubles productivity compared to cement plaster walls, enabling customers to achieve a premium finish in a fraction of the time.

### Improving our customer experience

We actively partner with our customers and strive to improve their experience including by adopting innovative approaches to business and technology opportunities. Across our Australian construction materials businesses, we are delivering streamlined digital solutions that simplify how customers plan and manage their projects, making it easier for them to do business with us. We explore some of the ways we are doing this on page 42.

# Supply chain and customers



USG Boral R&D Centre in Saraburi, Thailand

## Investing in innovation

During the year, we invested A\$17 million in R&D across our three innovation centres in the USA, Australia and Thailand. Our R&D teams are helping Boral deliver superior building product solutions and disruptive innovations in building materials to better serve our customers and develop new markets.

Our Australian Innovation Factory at Maldon, NSW is focused on research and technology in cement, concrete and alternative binders such as fly ash. At our North American Innovation Factory in San Antonio, Texas, our efforts have focused on developing the next generation of poly-ash composite materials supporting

the Lightweight Building Products business. These products aim to provide superior performance compared to conventional products and strive to incorporate recycled content. Refer to pages 43 and 51 for more detail.

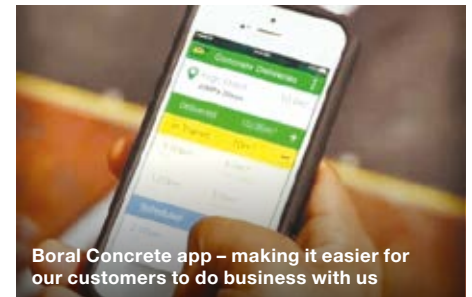
USG Boral's R&D Centre in Saraburi, Thailand leverages USG's world class technology capability to drive innovation in gypsum-based products and systems, including products that have superior performance, energy efficiency, acoustics and fire protection.

## Driving transformation and innovation in Australia

In FY2018, Boral Australia established a Transformation and Innovation team to support our commitment to deliver sustainable growth and build a culture of performance excellence.

Our team of strategy, technical experts and project specialists is focused on developing a platform to realise Boral Australia's aspiration of becoming the undisputed leader in construction materials through four strategic enablers:

- **Supply Chain Transformation:** Transforming our supply chain to deliver customer centricity and value
- **Innovation:** Creating customer value by commercialising innovative ideas in a fast track environment
- **Commercial Excellence:** Establishing systems to help our people become more commercial
- **Customer Experience:** Improving our customers' experience.



Boral Concrete app – making it easier for our customers to do business with us

## Product stewardship

We are committed to responsibly managing the health, safety, environmental and social aspects of our products from product development through to end-of-life.

In FY2018, we commenced work on establishing a common Boral Product Stewardship Framework focused on managing the risks across the life cycle of our products. The framework will provide a consistent approach across the Group, facilitate improved collaboration across our businesses and strengthen our governance processes for managing product stewardship risks.

The health, safety, environmental and quality (HSEQ) risks associated with new product development and modification to existing products is managed in accordance with our Standard on Product Stewardship within Boral's HSEQ Management System. This standard outlines minimum mandatory requirements for the handling and use of products through Safety Data Sheets, product labelling and Safe Work Method Statements.





# Community investment

**Our community investment program is built on a long and proud history of supporting the communities in which we operate and aims to make a positive and sustainable contribution to the wellbeing of those communities.**

We support community groups and organisations that share our values and where our resources can make the most impact in addressing their needs and priorities.

With this in mind, we have built a community investment framework around three pillars, Our People, Places and Products. This framework helps us identify and evaluate opportunities to build a robust and effective community investment program that delivers measurable benefits to our communities and Boral's people and businesses.

In early FY2018, we reviewed our approach to community partnerships, incorporating input from a range of internal and external stakeholders. The review found that our overarching strategic framework works effectively and resonates well with our people, but we have now more clearly defined the three pillars, improved guidance to better support decision making at the corporate and business level, and improved our approach to measuring outcomes beyond our financial contribution.

## Our People, Places and Products

### What we focus on through our community investments



#### Our People

- Contribution and engagement
- Safety and wellbeing
- Diversity and inclusion
- Learning and development



#### Our Places

- Community safety and wellbeing
- Developing inclusive and sustainable communities
- Conservation: biodiversity and cultural heritage



#### Our Products

- Product support for communities and people in need
- Showcasing Boral's approach to innovation and environmental sustainability

## Our current partnerships

We have 12 corporate community partnerships, in addition to providing financial support to local community causes and projects. **In FY2018, we contributed a total of \$1,092,000 to our community partnerships and local community causes and projects, comprising \$886,000 in cash, \$121,000 in materials and \$85,000 in fundraising and events.**

Our funding supports:

- Bangarra Dance Theatre
- Habitat for Humanity
- Outward Bound Australia
- Taronga Conservation Society
- Great Barrier Reef Foundation
- University of NSW (Women in Engineering Scholarships)
- University of Sydney (US Studies Centre – research program)
- Conservation Volunteers Australia
- HomeAid America
- Redkite
- Touched by Olivia
- Anzac Centenary Public Fund

We are also preparing to launch a new partnership in FY2019 with Road Safety Education Limited to support road safety education for youth throughout Australia.

More information on our partnerships can be found at [boral.com/community\\_investment](http://boral.com/community_investment).



Bangarra performing OUR land people stories

## Bangarra Dance Theatre

In FY2018, we celebrated 15 years of partnership with Bangarra Dance Theatre (Bangarra), an Aboriginal and Torres Strait Islander organisation and one of Australia's leading performing arts companies. As the regional touring partner, we are working with Bangarra to bring inspiring performances, which blend traditional Aboriginal and Torres Strait Islander history and culture with international contemporary dance, to audiences in regional communities around Australia.



Boral staff join volunteers from CVA removing unwanted lantana

## Conservation Volunteers Australia

For more than 30 years we have partnered with Conservation Volunteers Australia (CVA) to support local conservation projects in communities around Australia. In FY2018, we provided assistance to 26 school and community projects focused on tree planting, habitat restoration and rejuvenation of outdoor learning spaces.

## Habitat for Humanity

We are working with Habitat for Humanity Australia on disaster resilience building and other projects across the Asia-Pacific region to provide safe housing, water and sanitation facilities for families in need and those vulnerable to natural disasters. In April this year, we expanded our support with a new four-year partnership between USG Boral and Habitat for Humanity International, supporting the construction and restoration of homes as part of Habitat's Impact Asia Campaign.

# Boral Australia

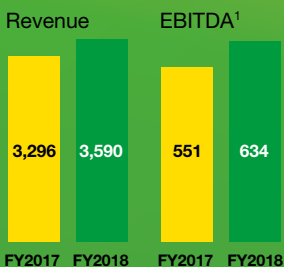


Boral's concrete plant in Mt Kuring-gai, NSW

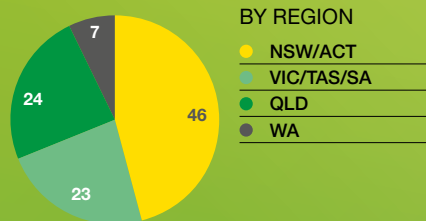
## BORAL AUSTRALIA

EBITDA of \$634 million and EBIT of \$433 million grew 15% and 24% respectively, with revenue up 9% to \$3,590 million. The result was underpinned by growing infrastructure and non-residential activity, higher Property earnings and solid margins. The business benefited from improvement and reinvestment programs.

(\$m)	FY2018		
Revenue	3,590	↑	9%
EBITDA <sup>1</sup>	634	↑	15%
EBIT <sup>1</sup>	433	↑	24%
EBITDA margin <sup>1</sup>	17.6%	↑	
Net Assets	2,482	↑	
ROFE <sup>2</sup>	17.5%	↑	

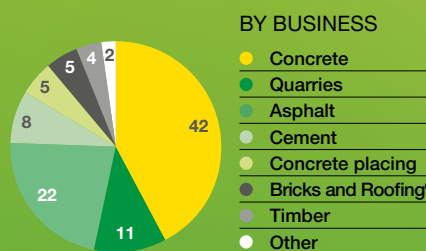


## BORAL AUSTRALIA REVENUE<sup>3</sup> (%)



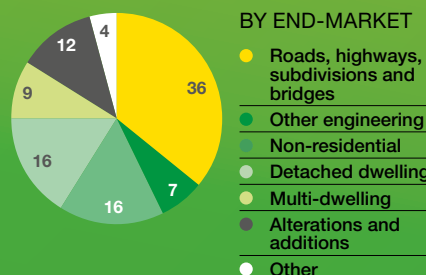
### BY REGION

- NSW/ACT
- VIC/TAS/SA
- QLD
- WA



### BY BUSINESS

- Concrete
- Quarries
- Asphalt
- Cement
- Concrete placing
- Bricks and Roofing<sup>6</sup>
- Timber
- Other



### BY END-MARKET

- Roads, highways, subdivisions and bridges
- Other engineering
- Non-residential
- Detached dwelling
- Multi-dwelling
- Alterations and additions
- Other

## PEOPLE<sup>4</sup>

**6,510**  
EMPLOYEES

**~5,000**  
CONTRACTORS

## SITES<sup>5</sup>

**402**  
OPERATING

**29**  
DISTRIBUTION

## RECORDABLE INJURY FREQUENCY RATE<sup>6</sup>

**11.3**  
PER MILLION HOURS WORKED

## GREENHOUSE GAS EMISSIONS<sup>7</sup>

**1.99m**  
TONNES CO<sub>2</sub>-e

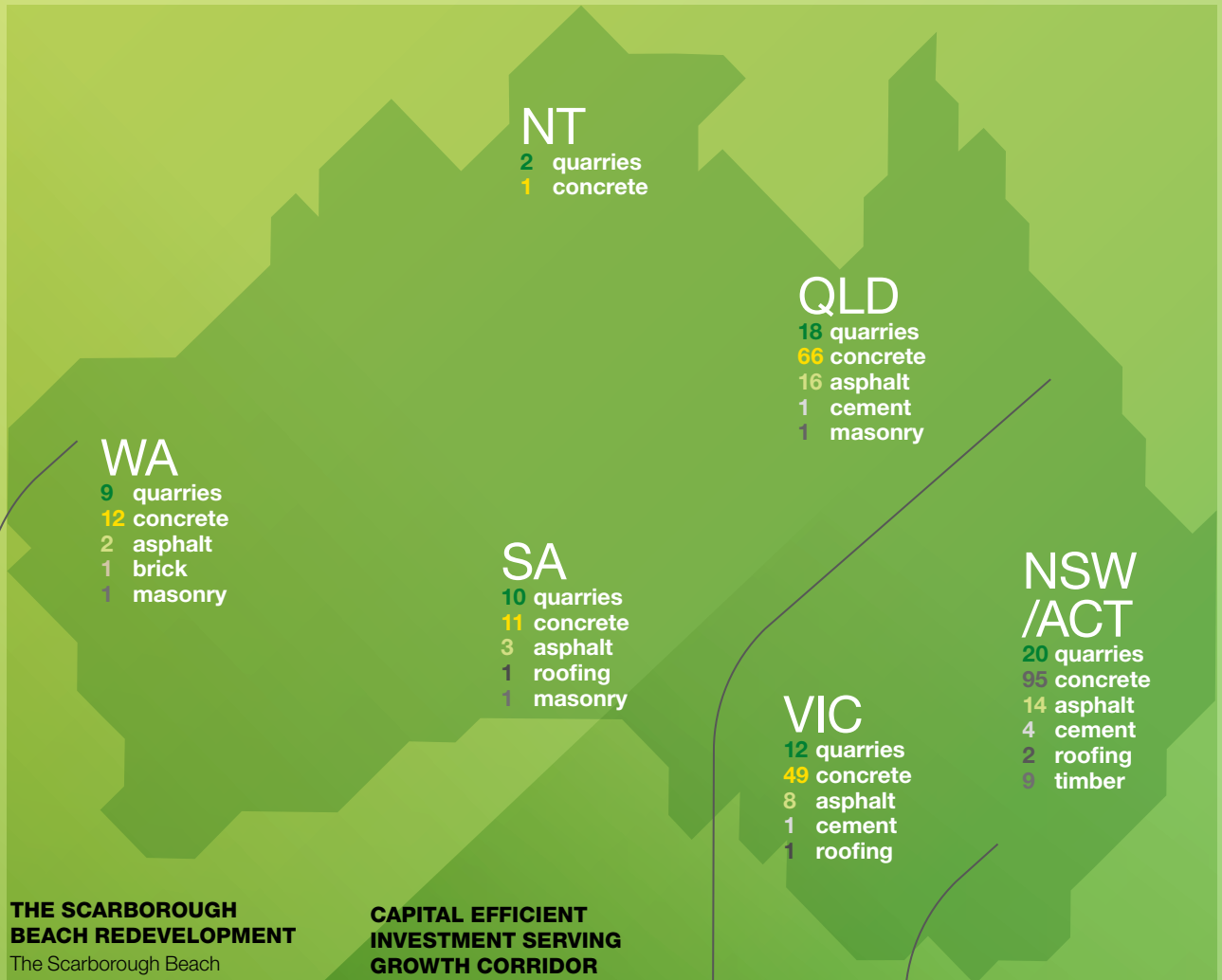
1. Excluding significant items.  
2. Divisional ROFE is EBIT before significant items on divisional funds employed.  
3. FY2018 external revenue.  
4. On a full-time equivalent (FTE) basis. Includes corporate and joint venture employees.

5. Includes joint venture sites. Includes 22 clay pits, transport, recycling and R&D sites. Concrete sites include mobile plants. Excludes mothballed plants.  
6. Includes employees and contractors in 100%-owned operations and all joint ventures.  
7. For 100%-owned operations and Boral's share of emissions from 50%-owned joint venture operations.



**“Our position as Australia’s largest construction materials supplier is underpinned by strategically located, long-term quarry positions and a network of about 400 operating sites. Combined with our building products offering, we service customers across the country in the infrastructure, commercial and residential construction markets.”**

JOE GOSS, DIVISIONAL CHIEF EXECUTIVE, BORAL AUSTRALIA



**THE SCARBOROUGH BEACH REDEVELOPMENT**

The Scarborough Beach Redevelopment project has given new life to the iconic Perth beach precinct. The project features Boral’s decorative concrete range of Colori® coloured concrete, Exposé™ exposed aggregates and Boralstone® polished concrete.



**CAPITAL EFFICIENT INVESTMENT SERVING GROWTH CORRIDOR**

Our new Redbank Plains concrete batch plant, commissioned in late 2017, is a capital-efficient operation close to key growth areas south-west of Brisbane in Queensland. The plant enabled Boral to utilise underdeveloped land at the Redbank Plains site adjacent to the existing Asphalt operations, and use ex-LNG project assets, reducing the required capital investment.



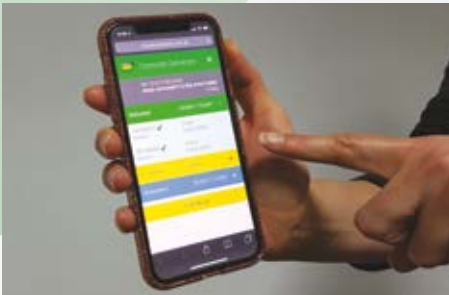
**DEER PARK QUARRY REINVESTMENT**

The completion of a major plant upgrade at the Deer Park Quarry signals an important milestone in the life of the quarry. The replacement of the processing plant represented a multi-year reinvestment program of approximately \$75 million and will enhance Boral’s ability to service the Melbourne CBD and western metropolitan area for many years to come.



**“We are currently supplying a pipeline of major projects across Australia. Our technical expertise, safety focus and reliable supply network are valued by our customers.”**

JOE GOSS, DIVISIONAL CHIEF EXECUTIVE, BORAL AUSTRALIA



## Boral Connects – revolutionising our service offering

Continuing to improve customer service and making it easier for customers to deal with us is at the heart of Boral's Customer Experience program.

In FY2018, as part of this program we launched two new solutions – a Concrete Deliveries App and Multi Order SMS.

Concrete Deliveries allows customers to monitor their deliveries with near real-time information, and through Multi Order SMS concrete orders can be confirmed via digital channels. These solutions help customers to better plan and manage projects and removes the need for them to contact the Boral Customer Service centre.

In the first week after launch, more than 5,000 concrete deliveries were completed with the App, helping to improve the experience of our customers nationwide. Focused on driving further innovation and reducing our cost to serve through the use of technology, we are currently evaluating an Online Customer Portal and digital proof of purchase.



## Leveraging our technical concrete capability

In recognition of our demonstrated capability and technical expertise in concrete, we are the preferred supplier for three major metropolitan rail projects. These projects all involve technically complex solutions including highly specified concrete and the ability to supply large volumes via purpose-built mobile concrete plants. We are leveraging our experience gained from other projects and deploying our teams and equipment efficiently across metropolitan rail projects in three states.

### Forrestfield-Airport Link, Perth

The \$1.86 billion Forrestfield-Airport Link will deliver a new rail service connecting the Perth CBD with the airport and the eastern suburbs of Perth.

Boral is supplying 180,000 cubic metres of concrete to the project, including approximately 90,000 cubic metres of highly specified concrete to meet stringent fire resistance requirements. We are supplying volumes from a purpose-built mobile batch plant to precast segments to line two eight kilometre tunnels. Boral is also supplying concrete for the stations and structures component of the project.

### The Sydney Metro, Marrickville

Sydney Metro is Australia's largest public transport project delivering 31 metro stations and more than 66 kilometres of new rail lines.

Boral is supplying 149,000 cubic metres of concrete for the tunnel segments equating to 99,000 precast concrete segments – enough to line the 15.5 kilometres twin tunnels.

### Melbourne Metro, Deer Park

The \$11 billion Melbourne Metro project includes twin nine kilometre rail tunnels and five new underground stations. Boral is supplying the 90,000 cubic metres of concrete to make 50,000 precast concrete segments for the twin tunnels. Supply is expected to commence at the end of 2018.

### In addition to the major metro rail projects, other major infrastructure projects we are supplying include:

- Rio Tinto's \$2.6 billion **Amrun Bauxite Mine** project on the Cape York Peninsula. Boral continues to supply concrete via an on-site mobile batch plant and logistical solutions such as shipping sand for ~1,000 kilometres by barge from our Cairns quarry to Weipa.
- Continued supply to the **Pacific Highway Upgrade** in northern NSW with Boral concrete, asphalt and quarry materials going to the 155 kilometres Woolgoolga to Ballina section, Australia's largest regional infrastructure project.
- Supply of airport pavement concrete and quarry materials for three projects at Australia's largest air force base – the **RAAF Amberley Base in Queensland**. Boral has three purpose-built mobile batching plants at the base to provide a flexible and well-resourced solution to any increased demand for materials in a complex operation.
- The \$1.6 billion **Toowoomba Second Range Crossing** project is a 41 kilometres bypass to the north of Toowoomba, connecting the Warrego Highway at Helidon Spa in the east to the Gore Highway at Athol in the west via Charlton. Boral has been supplying concrete via its fixed plant network to the project since July 2016.



Ormeau Quarry, Queensland

## Positioning Ormeau Quarry as a low cost producer

The Ormeau Quarry is one of 12 Boral quarries in South-East Queensland. We are improving the efficiency of our quarry network in the region, including undertaking a major plant upgrade at Ormeau.

Ormeau is a high quality resource with 40-plus years of reserve life. The higher quality reserves found at the site are suitable for high specification aggregates and a full range of road base products.

Our \$55 million investment in a new large-scale plant at Ormeau will enable the quarry to increase production capacity from 500,000 tonnes per annum to two million tonnes per annum. The new plant will allow Boral to process medium quality material, to be blended with high quality material, enabling the resource to be fully extracted and optimised.

Following the commissioning of the new plant by the end of FY2019, this investment is expected to underpin our position as a low-cost producer of aggregates.

## Improving our supply chain

In January 2018, we embarked on a three-year supply chain optimisation journey. The program is intended to support margin expansion across the business, reduce cost to serve and provide better service to customers. Boral spends more than \$650 million per annum transporting materials and finished goods by road, rail and ship.

To date, we have identified initiatives to reduce supply chain costs by 5% to 10% over the next three years. The program includes developing new logistics measures, implementing a new standard approach to sales and operations planning across the business, and improving network connectivity.



**2,500**  
ROAD VEHICLES +  
RAIL & SHIP MOVING



**>100m tonnes**  
OF MATERIAL



AT A COST OF  
**>\$650m**

## Focusing on heavy vehicle transport safety

The geographical spread of our assets and significant fleet of heavy vehicles means that heavy vehicle transport safety is a high priority for Boral Australia.

In FY2018, we worked with an international transport safety expert to review and benchmark our heavy vehicle safety practices against global best practice. Through this project we received recommendations for improvements and identified 10 priority initiatives.

These priority initiatives include improving incident investigation, implementing rollover avoidance training, improving haulage contractor management and implementing a driver behavioural safety program. Many projects involved the alignment of existing practices to a set of nationally consistent processes.

To date, we have already achieved improvements in heavy vehicle safety through the implementation of these initiatives, and we expect to further improve our performance.



## Developing innovative construction materials

The Innovation Factory is focused on research and technology in cement, concrete and alternative binders such as fly ash. Based in Maldon, NSW, the team is currently focused on developing and commercialising self-compacting concrete. It successfully placed more than 200m<sup>3</sup> of concrete into the development at Ormeau Quarry in Queensland.

Boral is also developing and commercialising Aspire<sup>®</sup> high performance concrete. Aspire<sup>®</sup> is suited to applications such as high rise and slender buildings to enable the most creative architectural goals to come to life, maximising floor space while increasing the productivity of projects.



# USG Boral



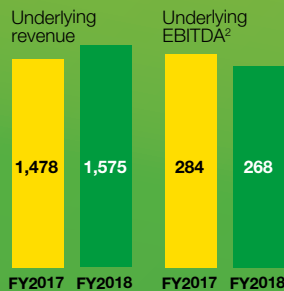
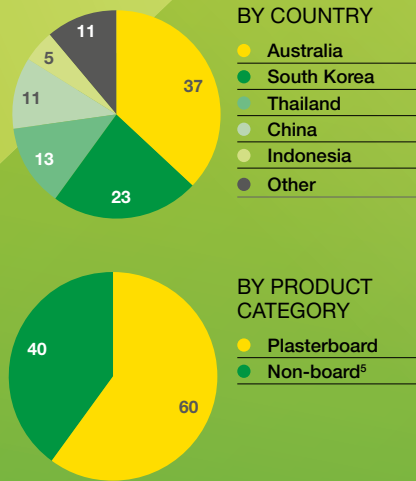
## USG BORAL

Boral's equity accounted income of \$63 million, down 9% on the prior year, represents Boral's 50% share of USG Boral's post-tax earnings. Revenue increased 7% to \$1,575 million in the underlying business, with continued adoption of premium Sheetrock® products and technical board primarily in Australia, South Korea, China and Thailand. Earnings were impacted by higher input costs, as well as one-off costs that will not continue into FY2019.

Boral's reported result (A\$m)	FY2018		
Equity income <sup>1</sup>	63	↓	9%

USG Boral underlying business result (A\$m)	FY2018		
Revenue	1,575	↑	7%
EBITDA <sup>2</sup>	268	↓	6%
EBIT <sup>2</sup>	194	↓	10%
EBITDA margin <sup>2</sup>	17.0%	↓	
Net Assets	1,955	↑	
ROFE <sup>2,3</sup>	9.9%	↓	

## USG BORAL REVENUE<sup>4</sup> (%)



## PEOPLE<sup>6</sup>

  
**3,526**  
EMPLOYEES

  
**~3,400**  
CONTRACTORS

## SITES<sup>7</sup>

  
**50**  
OPERATING

  
**90**  
DISTRIBUTION

## RECORDABLE INJURY FREQUENCY RATE<sup>8</sup>

  
**4.5**  
PER MILLION HOURS WORKED

## GREENHOUSE GAS EMISSIONS<sup>9</sup>

  
**0.28m**  
TONNES CO<sub>2</sub>-e

## BOARD CAPACITY UTILISATION

  
**80%**  
↑ from 76%

1. Post-tax equity income from Boral's 50% share of USG Boral JV.  
2. Excluding significant items.  
3. EBIT before significant items on divisional funds employed.  
4. Based on FY2018 underlying revenue for USG Boral.  
5. Includes ceiling tile, metal products, joint compounds and plasters, cornice, mineral wool, and Australian contracting revenues.

6. On a full time equivalent (FTE basis).  
7. Includes plasterboard, ceiling tile, metal products, compounds, mineral wool and cornice production. Certain facilities and gypsum mines held in joint venture with third parties. Production of plasterboard and other products may be at the same physical location.  
8. Includes employees and contractors including all joint ventures within USG Boral.  
9. Boral's 50% share of emissions.



**“Through Boral’s 50:50 joint venture with USG Corporation, we are a leading manufacturer and supplier of wall and ceiling solutions.**

**With a presence in 14 countries across Asia Pacific and the Middle East, USG Boral produces plasterboard-based wall and ceiling lining systems, mineral fibre ceiling systems, metal framing, joint compounds, high performance panels and accessories.”**

FREDERIC DE ROUGEMONT, CEO, USG BORAL

### SAUDI ARABIA

- 1 metal
- 1 mineral fibre ceiling
- 1 joint compound

### OMAN

- 8 m m<sup>2</sup> board capacity /1 line
- 1 gypsum mine

### CHINA

- 143 m m<sup>2</sup> board capacity /6 lines & 1 ceiling line
- 3 metal
- 1 mineral fibre ceiling
- 3 joint compound
- 1 mineral wool

### THAILAND

- 105 m m<sup>2</sup> board capacity /3 lines & 1 ceiling line
- 1 metal
- 1 gypsum mine
- 1 joint compound

### SOUTH KOREA

- 153 m m<sup>2</sup> board capacity /4 lines & 1 ceiling line
- 2 joint compound

### INDIA

- 9 m m<sup>2</sup> board capacity /1 line
- 2 metal
- 1 joint compound

### INDONESIA

- 72 m m<sup>2</sup> board capacity /3 lines & 1 ceiling line
- 1 metal
- 1 joint compound

### VIETNAM

- 30 m m<sup>2</sup> board capacity /1 line & 1 ceiling line
- 1 metal

### MALAYSIA

- 11 m m<sup>2</sup> board capacity /1 line & 1 ceiling line
- 1 metal
- 2 joint compound

#### NEW SOUTH INDIAN BOARD PLANT

The groundbreaking launch at the site of the new plasterboard plant in Chennai. With a capacity of up to 30 million m<sup>2</sup>, the plant will further strengthen our presence in the Southern Indian region.



### AUSTRALIA

- 86 m m<sup>2</sup> board capacity /3 lines
- 1 metal
- 1 gypsum mine
- 1 joint compound
- 2 cornice

### NEW ZEALAND

- 1 metal

#### AYANA KOMODO RESORT

USG Boral supplied Durock Cement Board for external use to Ayana Komodo Resort, Indonesia.



#### T GALLERIA BY DFS SHOPPING CENTRE

USG Boral ceiling panels were used to create a sense of luxury to the designated Cartier and Omega areas at the T Galleria in the Rocks, Sydney.



## Accelerating wallboard penetration in emerging markets through EasyFinish™

USG Boral EasyFinish™ System is an innovative plaster replacement system. The system combines the use of USG Boral's non-combustible plasterboard with a specially formulated bonding compound to ensure optimal performance and a time-saving way to level walls. The simple installation process more than doubles productivity compared to cement plaster walls, enabling customers to achieve a premium finish in a fraction of the time.

"We have long led the industry in delivering exceptional plasterboard innovations," said Frederic de Rougemont, CEO, USG Boral.

"With the new USG Boral EasyFinish™ System, we have successfully engineered one of the industry's most efficient and high performing wall finishing solutions. Tried-and-tested to the most stringent performance matrices, we are confident in the new system's abilities to support our customers' goals in creating extraordinary spaces."

EasyFinish™ is available in Indonesia, Malaysia, Philippines, Thailand and Vietnam. The product embodies USG Boral's holistic approach to system design and engineering, employing the most state-of-the-art technology to optimise product performance for ease of use.



USG Boral's plasterboard plant, Vietnam

## Supporting future growth

USG Boral is an attractive organic growth platform with opportunities to grow through innovation, exposure to Asian economies and increasing product penetration of gypsum-based interior linings and ancillary products.

In line with our growth strategy, in FY2018, the joint venture announced plans to add plasterboard capacity in India and Vietnam. In both countries we have seen increasing demand for high-quality plasterboard products and our investments will support future growth.

In December 2017, we committed US\$20 million to expand capacity at our plant in Ho Chi Minh City, Vietnam. Once operational in September 2019, capacity at the plant will increase by 17 million m<sup>2</sup> to 47 million m<sup>2</sup>, helping to ease current supply constraints.

India has one of the lowest plasterboard penetration rates among developing countries and represents a significant growth opportunity. Our presence in this market is being bolstered as we construct the new plasterboard plant in Chennai and will further leverage our brand, customer relationships and know how in the Southern Indian region.

**"Across our well-developed and our emerging markets, we continue to focus on delivering innovative solutions to our customers to help them work smarter and build better. We remain well positioned to return to earnings growth in FY2019."**

FREDERIC DE ROUGEMONT, CEO, USG BORAL





## Consolidating growth in South Korea

In South Korea, USG Boral has benefited from underlying market strength, at the same time as delivering growth through new product sales and by optimising USG Boral's customer and product mix. As a result, the business has delivered year-on-year earnings for the past five years and, in FY2018, South Korea contributed nearly one-quarter of USG Boral's total revenues.

With a proven reputation of providing innovative product solutions, including Sheetrock® products, the South Korean business is well positioned to respond to a forecast moderation in local construction activity, including by focusing on growth in the commercial construction sector.

While construction has not yet commenced, the business is well placed to complete a planned investment to add 30 million m<sup>2</sup> of new capacity at Dangjin when the market environment is right. This will add to the recently expanded warehouse capacity in Dangjin.

## Innovative ceiling and wall solutions



### NEW ACOUSTIC CEILING FEATURES AT HERITAGE BUILDING

The first Australian installation of USG Boral's Ensemble™ Monolithic Acoustical Plasterboard Ceiling featured in the recent refurbishment of the National Trust-listed 1920s building, Chancery House in Perth. Ensemble™ enabled a clean, smooth heritage effect for the ceiling, and the acoustic properties helped to create the ambience required in such a large open space filled with hard surfaces. The installation of Ensemble™ in the foyer took just six steps – compared to other systems which involve 10–14 steps.



### ASONA DECORATIVE ACOUSTIC WALL AND CEILING PANELS

USG Boral is a proud distributor of Asona products, a specialist manufacturer of acoustic decorative ceiling and wall finishes for the commercial market. Asona products feature Sonatex™, an innovative composite acoustical facer product. Sonatex can be digitally printed, die cut, perforated and formed into custom products and is an effective impact resistant tack-able interlayer for fabric covered panel products.



### NEW BAFFLE CEILING RANGE

USG Boral's Baffle Metal Ceiling range consists of three profiles – Simplicity, Streamline and Slim – all of which help achieve a unique, modern look in commercial spaces. Available in a range of heights, the style and spacing of the Baffle range are customisable and the system can be installed on vertical or curved surfaces. Offered in numerous colours, including various wood looks, it is available in 10 countries across Australasia, Asia and the Middle East.



### FIBEROCK® AT THE JEWEL APARTMENTS

USG Boral's FIBEROCK® interior lining panels were used for the feature ceilings in this premium apartment development by Multiplex on the Gold Coast. Comprising three towers, the apartment ceilings feature an architecturally designed "rebate" in the ceiling surface which the contractor was able to achieve using the unique properties of FIBEROCK® ceiling boards.

## Managing safety in the workplace



With safety being our first priority, this year we accelerated the rollout of our CCTV behavioural initiative across Asia, Australia and the Middle East. The program provides our people across USG Boral with an opportunity to reflect on safety in the workplace, and identify potential risks and opportunities for improvement.

At tool box meetings, employees across our manufacturing sites analyse CCTV footage at least every fortnight to identify

safe and potential unsafe behaviours. The primary focus is to identify agreed behaviour as opposed to actual outcomes. This helps to promote a collaborative culture where people can identify hazards and associated risks in a no blame environment.

USG Boral's Group Environment, Health and Safety Director, Brent Gapes, said that more than 1,700 formal CCTV reviews were undertaken across USG Boral sites in FY2018.

"A range of previously unidentified behaviours and associated risks have been reviewed, discussed openly and collaboratively by our employees. These learnings, together with new standards have been shared widely across our business," said Brent.

# Boral North America

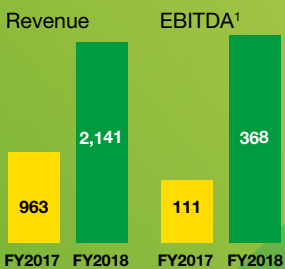


Atlantic Premium Shutters Architectural Collection, Bahama & Raised Panel

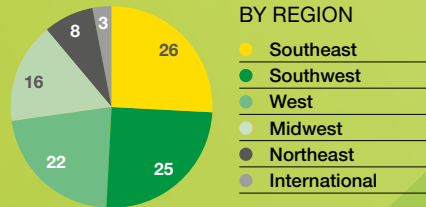
## BORAL NORTH AMERICA

Reflecting a full year contribution from Headwaters, revenue of \$2,141 million compared to \$963 million in the same period last year and EBITDA of \$368 million compared to \$111 million last year for continuing operations. Acquisition net synergies of US\$39 million were ahead of our initial US\$30–\$35 million target.

(A\$m) continuing operations	FY2018	FY2017
Revenue	2,141	963
EBITDA <sup>1</sup>	368	111
EBIT <sup>1</sup>	208	60
EBITDA margin <sup>1</sup>	17.2%	11.6%
Net Assets	4,678	4,524 <sup>2</sup>
ROFE <sup>3</sup>	4.4	4.3

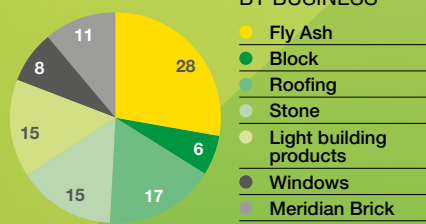


## BORAL NORTH AMERICA REVENUE<sup>4</sup> (%)



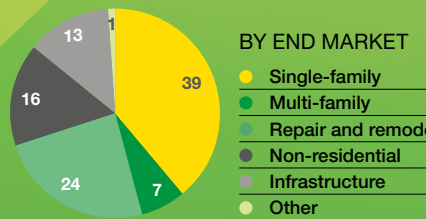
### BY REGION

- Southeast
- Southwest
- West
- Midwest
- Northeast
- International



### BY BUSINESS

- Fly Ash
- Block
- Roofing
- Stone
- Light building products
- Windows
- Meridian Brick



### BY END MARKET

- Single-family
- Multi-family
- Repair and remodel
- Non-residential
- Infrastructure
- Other

## PEOPLE<sup>5</sup>



## SITES<sup>6</sup>



## RECORDABLE INJURY FREQUENCY RATE<sup>7</sup>



## GREENHOUSE GAS EMISSIONS<sup>8</sup>



1. Excluding significant items.  
2. Restated following the finalisation of acquisition accounting of Headwaters, refer to note 6.3 of the Annual Report for the year ended 30 June 2018.  
3. ROFE calculated on funds employed as at 30 June FY2018 and average monthly funds employed as at 30 June FY2017.  
4. Includes Boral's 50% share of underlying revenues from the Meridian Brick joint venture which is not included in reported revenue.

5. On a full-time equivalent (FTE) basis. Includes Headwaters and Meridian Brick employees.  
6. Includes Headwaters and Meridian Brick sites. Includes 44 clay mines and four R&D sites. Excludes mothballed plants.  
7. Includes injuries per million hours worked for employees and contractors in 100%-owned businesses and all joint ventures.  
8. For 100%-owned operations and Boral's share of emissions from 50%-owned joint venture operations.



**“We have industry-leading positions in fly ash processing and distribution, and we manufacture and supply stone veneer, roof tiles, masonry blocks, windows and light building products, including trim, siding and shutters, for residential and commercial markets. We also have a 50% share of the Meridian Brick joint venture, formed with Forterra Brick in November 2016.”**

DAVID MARINER, PRESIDENT & CEO, BORAL NORTH AMERICA



**LAKE WALES, FLORIDA**

At Boral's concrete roof tile plant in Lake Wales, Florida, the upgrade of a production line is helping to meet demand, especially from North Florida where it is shifting from asphalt roofing to concrete roof tiles. The upgrade has reduced operating costs and ensures we have capacity to meet expected growth in the next five years.

**OCEANSIDE, CALIFORNIA**

At Boral's stone-coated metal roofing plant in Oceanside, California, we aligned the manufacturing and safety processes to bring the former Headwaters operation in-line with Boral standards, including an upgraded oven and a new production line and press.

**RECLAIM OF FLY ASH, PENNSYLVANIA**

Boral's first reclaim of landfilled fly ash in Pennsylvania is being completed with volumes expected from the project in the first half of FY2019.



**“We continued to integrate the Headwaters acquisition with year one synergies ahead of target, and lifted our four-year synergy target to US\$115 million from an initial US\$100 million target. The business is well positioned to deliver strong growth.”**

DAVID MARINER, PRESIDENT & CEO, BORAL NORTH AMERICA



Sourcing fly ash from utility, Texas, USA

## Securing new sources of fly ash

In Boral North America we see great potential for growth in our Fly Ash business. We are targeting to increase our annual supply of available fly ash by 1.5–2.0 million tons in three years<sup>1</sup>. Our Fly Ash strategy involves increasing supply through several opportunities.

1. Net estimated supply volume increase based on currently known utility retirements estimated to impact Boral's network by ~800,000 tons per annum on FY2018 levels.

### Reduce good ash going to landfill

The American Coal Ash Association estimates that of 38 million tons of fly ash produced, about 15 million tons of good quality ash is still being disposed of in landfill. Through network optimisation, beneficiation technologies and storage, Boral is well positioned to help utilities reduce the amount of good ash going to landfill.

### Accelerate investment in storage

Boral's fixed storage capacity totals ~537,000 tons and we have plans to increase this by ~70,000 tons in FY2019. Our mobile rail car storage fleet provides additional storage capacity and plays a critical role in meeting supply. Our storage capacity enables Boral to minimise landfill and reduce the seasonal impact of supply constraints, such as adverse weather or intermittent power plant outages. By increasing the throughput of fly ash across our storage network several times in any given period we are able to significantly increase volumes, as well as the certainty of available volumes for our customers.

### Secure new contracts

Boral is well-placed to tender for new fly ash marketing contracts as they come to market. This year, we successfully secured a new contract in Florida, with initial volumes of around 85,000 tons of fly ash per annum increasing to around 170,000 tons per annum. Our national supply and logistics network and expertise in beneficiation provides Boral with a strategic advantage when bidding on larger contracts across multiple states.

### Implement landfill reclaim

With our capability to improve ash quality to a saleable level through beneficiation and blending, we see reclaiming fly ash from landfill as an exciting opportunity for utilities, for concrete manufacturers and for Boral. Volumes from our first landfill reclaim project in Pennsylvania will become available in the first half of FY2019 and we have several additional sites under investigation.

### Transition wet to dry handling practices

Another potential new source of fly ash supply is fly ash being recovered as utilities remediate their old wet pond disposal facilities and transfer the fly ash to dry landfilling or storage. New EPA regulations accelerated the phasing out of wet pond and Boral is helping utilities make this transition. Boral will soon complete conversion of wet to dry processes at two utilities.



## Safety

Boral North America's Napa Stone Plant in California recently celebrated 10 years of operation without a lost time injury.

The Napa Plant produces three brands of stone veneer products – Cultured Stone®, Pro Stone® and Versetta Stone®. More than 400 people work at the plant and are involved in a variety of tasks including handling raw materials, pouring concrete, mold making and operating machinery.

The entire team is fully engaged in maintaining the highest safety standards

and upholding a variety of safe work practices. Through our Brother's Keeper Program, employees are encouraged to approach one another and question the actions they are taking if an unsafe behaviour or action is identified.

Napa's safety performance reflects the team's dedication in implementing safe work practices, watching out on fellow workers and fully embracing Boral's company-wide commitment to Zero Harm Today.



## Pennsylvania stone replacement plant

We have a leading position in sales, marketing and product offering in stone veneer across North America through our combined offering of Cultured Stone® and Headwaters brands Eldorado Stone, StoneCraft and Dutch Quality Stone.

The business finished commissioning a 432,000 square foot, state-of-the-art stone manufacturing and distribution facility in Greencastle, Pennsylvania in March 2018. Servicing East Coast and Central regions, the new Eldorado Stone plant consolidated an ageing manufacturing facility near Greencastle and a nearby distribution facility in Hagerstown, Maryland, into one central regional hub. This increased capacity by more than 30% and will ultimately deliver an improved experience for our customers.

The plant replacement also improved the sustainability credentials of our operation with the addition of a new waste repurposing system. This will help control and manage wastewater and other wet materials to reduce the amount of discarded materials by as much as 50%.

## Light Building Products positioned to meet demand

With an expanded portfolio of 12 lightweight building product categories as a result of the Headwaters acquisition, we are continuing to strengthen our position in this growing category of building products.

With a high level of interest and strong adoption of the Boral TruExterior® Siding & Trim product range, production capacity was doubled at our plant in Salisbury, North Carolina, in December 2016. We added a new production line and equipment, and recruited more employees, to ensure the steady supply of our light-weight, poly-ash siding and trim across the US.

At our Massachusetts plant in Westfield, we commissioned a new production line for our Klear brand of cellular PVC trim products in late 2017.

Now operating with five production lines, capacity has increased by more than 20% and is able to better meet the demand for existing and new products.

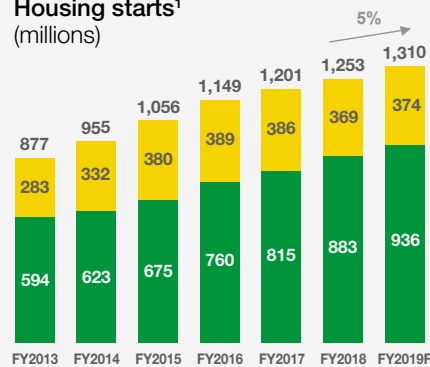
We continue to evaluate the addition of further capacity and invest in product development as demand for light-weight building products grows.



## Boral's US markets poised for continued growth

The US market is strong and continuing to grow, and Boral is well-placed with diverse construction market exposures as outlined on page 48.

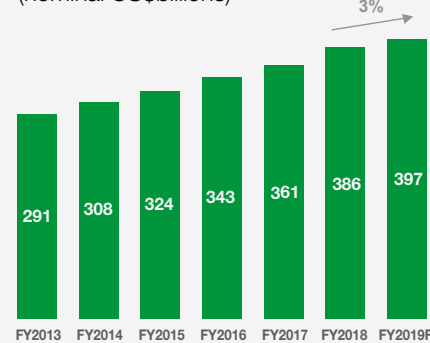
Housing starts<sup>1</sup>  
(millions)



FY2018 marks the seventh successive year of growth in US housing starts, with continued growth forecast in FY2019

1. US Census Bureau seasonally adjusted annualised housing starts. FY2019F based on average of analysts' forecasts.

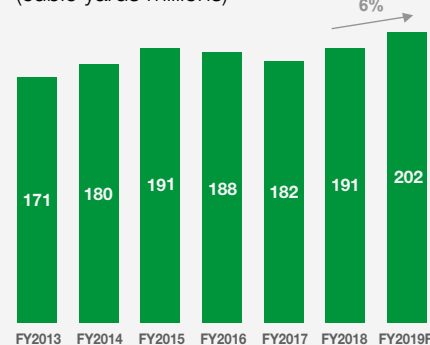
Home improvements<sup>1</sup>  
(nominal US\$billions)



Home improvement sales continue to rise as home owners take advantage of rising equity values

1. Moody's retail sales of building products.

Infrastructure ready mix concrete demand<sup>1</sup>  
(cubic yards millions)



Infrastructure ready mix concrete demand, which is a useful proxy for infrastructure activity, grew 5% in FY2018 and is forecast to increase 6% in FY2019

1. Dodge Data & Analytics.

## Research and development

The North American Innovation Factory concentrates on sustainable innovation projects that primarily support the Light Building Products business. These activities are generally driven by the intention of providing Boral with new product categories or a new customer base.

Key accomplishments for the year include the development of new products – Boral TruExterior TruGuard™ cladding and a new 16 inch trim product – that was released at the International Builders Show in Las Vegas in February 2018.

The latest product from the Innovation Factory is our first sheet-based product, Boral Backer Board™, which underwent market trial testing in early 2018. It is a major achievement and could open a whole new range of potential applications and customers for the platform in the future.

# Independent Limited Assurance Statement to the Management and Directors of Boral Limited

## Our Conclusion:

Ernst & Young ('EY', 'we') was engaged by Boral Limited ('Boral') to undertake 'limited assurance' as defined by Australian Auditing Standards, hereafter referred to as a 'review', over selected sustainability performance data within the Boral Review for the year ended 30 June 2018. Based on our review, nothing came to our attention that caused us to believe that the selected sustainability data has not been prepared and presented fairly, in all material respects, in accordance with the criteria defined below.

## What our review covered

We carried out a review over selected sustainability performance data within the Boral Review for the year ended 30 June 2018.

### Review Subject Matter

The Subject Matter for our limited assurance engagement included selected sustainability performance data, limited to those aspects listed below, for the year ended 30 June 2018:

- ▶ Total greenhouse gas (GHG) emissions (Scope 1 and 2) for Australian operations only (expressed in million tonnes of carbon dioxide equivalent (MtCO<sub>2</sub>-e))
- ▶ Total energy consumed for Boral Australia (expressed in petajoules (PJ))
- ▶ Total number and value (in Australian dollars) of significant environmental infringements and penalties
- ▶ Lost Time Injury Frequency Rate (LTIFR)
- ▶ Recordable Injury Frequency Rate (RIFR)
- ▶ Workforce statistics by occupation, age and length of service (expressed as a percentage of total)
- ▶ Female representation by position (expressed as a percentage of total).

The Subject Matter did not include Management's forward looking statements.

### Criteria applied by Boral

In preparing the Boral Review, Boral applied the following criteria:

- ▶ Global Reporting Initiative (GRI) Standards
- ▶ Boral's own publicly disclosed criteria as established in the Boral Review.

## Key responsibilities

### EY's responsibility and independence

Our responsibility is to express a conclusion on the selected sustainability performance data based on our review.

We were also responsible for maintaining our independence and confirm that we have met the requirements of the *APES 110 Code of Ethics for Professional Accountants* and that we have the required competencies and experience to conduct this assurance engagement.

### Boral's responsibility

Boral's management is responsible for selecting the Criteria, and for preparing and fairly presenting the Boral Review in accordance with that Criteria. This responsibility includes establishing and maintaining internal controls, adequate records and making estimates that are reasonable in the circumstances.

## Our approach to conducting the review

We conducted this review in accordance with the Australian Auditing and Assurance Standards Board *Australian Standard on Assurance Engagements Other Than Audits or Reviews of Historical Financial Information* ('ASAE 3000') and *Australian Standard on Assurance Engagements on Greenhouse Gas Statements* ('ASAE 3410') and the terms of reference for this engagement as agreed with Boral.

## Summary of review procedures performed

A review consists of making enquiries, primarily of persons responsible for preparing the selected sustainability performance data and related information, and applying analytical and other review procedures.

Our procedures included:

- ▶ Conducting site visits and interviews with site and corporate personnel to understand the business and reporting processes
- ▶ Conducting interviews with key personnel to understand the process for collecting, collating and reporting the selected sustainability performance data during the reporting period
- ▶ Checking that the calculation criteria has been correctly applied in accordance with the methodologies outlined in Boral's Criteria
- ▶ Undertaking analytical review procedures to support the reasonableness of the data
- ▶ Identifying and testing assumptions supporting calculations
- ▶ Testing, on a sample basis, to underlying source information to check the accuracy of the data.

We believe that the evidence obtained is sufficient and appropriate to provide a basis for our limited assurance conclusions.

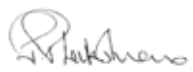
### Limited Assurance

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 a reasonable assurance engagement been performed.

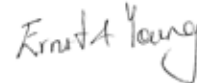
While we considered the effectiveness of management's internal controls when determining the nature and extent of our procedures, our assurance engagement was not designed to provide assurance on internal controls. Further, our procedures did not include testing controls or performing procedures relating to checking aggregation or calculation of data within IT systems.

### Use of our Assurance Statement

We disclaim any assumption of responsibility for any reliance on this assurance report to any persons other than management and the Directors of Boral, or for any purpose other than that for which it was prepared.



Terence Jeyaretnam FIEAust  
Partner  
30 August 2018



Ernst & Young  
Melbourne, Australia

# Glossary

<b>CO<sub>2</sub>-e</b>	Carbon dioxide equivalent – a standard unit for measuring carbon footprints
<b>(Portland) Cement</b>	A fine powdery material produced by milling clinker in combination with limestone, iron slags and fly-ash. When mixed with water and sand, cement can be used to bind or join as a 'mortar' or, when combined with aggregates and sand, create strong and hard 'concrete' surfaces and structures
<b>Clinker</b>	The term clinker in the manufacture of Portland cement refers to lumps or nodules produced by sintering and calcining limestone and aluminosilicate materials such as clay during the cement kiln stage
<b>EBIT</b>	Earnings before interest and tax
<b>EBITDA</b>	Earnings before interest, tax, depreciation and amortisation
<b>Employee turnover</b>	The number of employee departures during the year
<b>FY</b>	Financial year
<b>Fly ash</b>	A by-product of coal-fired electricity generating plants which is used as a substitute cementitious material
<b>GHG</b>	Greenhouse gas(es). The main GHG are CO <sub>2</sub> and methane
<b>GJ</b>	Gigajoule
<b>HSE</b>	Health, safety and environment
<b>HSEQ MS</b>	Health, Safety, Environment and Quality Management System
<b>LTIFR</b>	Lost time injury frequency rate. This is the number of employee lost time injuries per million hours worked during the period
<b>Operating site</b>	Wholly owned or joint venture operating site excluding sales, administration and distribution offices
<b>PJ</b>	Petajoule
<b>R&amp;D</b>	Research and development
<b>Re-use</b>	The incorporation of waste material back into the same product
<b>RIFR</b>	Recordable injury frequency rate. This is the number of employee injuries that result in medical treatment as well as those that result in lost work time per million hours worked
<b>ROFE</b>	Return on funds employed
<b>Scope 1 emissions</b>	Direct CO <sub>2</sub> -e emissions from the combustion of fuels in manufacturing and transport, and chemical process emissions (such as from calcination of limestone). Calculated using factors and methodologies set out in legislation or regulatory or international best practice guidance
<b>Scope 2 emissions</b>	Indirect (attributed) CO <sub>2</sub> -e emissions from electricity purchased, calculated using factors particular to regional electricity grids. Such factors are usually defined in legislation or regulatory guidance
<b>Scope 3 emissions</b>	Indirect CO <sub>2</sub> -e emissions, other than from Scope 2 emissions, that are generated in the wider economy. These may include emissions from production of purchased goods and services, through to the use of sold products and services, and in particular for Boral, from transport of materials both upstream and downstream in our supply chain. Calculated based on a number of internationally accepted reporting standards
<b>TCFD</b>	Financial Stability Board's Task Force on Climate-related Financial Disclosures
<b>Ton</b>	Weight measure commonly used in the USA, equivalent to 2,000 pounds or 907 kilograms
<b>Tonne</b>	Metric weight measure equivalent to 1,000 kilograms

# CONNECT

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Email: [boral@linkmarketservices.com.au](mailto:boral@linkmarketservices.com.au)

**AGM DETAILS**

The Annual General Meeting of Boral Limited  
will be held at the Civic Pavilion, The Concourse,  
Chatswood, NSW, on Tuesday 30 October 2018  
at 10.30am.

