Key insights

Foreword

Understanding factors impacting your industry, and how other businesses in your industry are performing, can be a great gauge for how your business is tracking.

The Bankwest Future of Business: Focus on Mining Services Report is designed to give you a snapshot of the current and expected future state of your industry, which could help you plan and spark ideas. The report covers Australia’s mining and support services sector, summarising trends based on statistics from IBIS World, the Australian Bureau of Statistics and other reputable sources.

Low exchange rates and higher commodity prices drove a 3.6% rise in mining revenue in the year to June 2018, bringing renewed optimism to the mining sector and broader local economy. Industry growth was driven primarily by increased mining exports. Mining export values increased by 12.7% in the year to October 2018, due to strong growth in oil and gas (55.1%) and non-metallic minerals (40.8%) exports.

New opportunities have been borne from Australia’s role in the lithium production market, taking the title of the world’s largest producer from Chile, producing 18,700 tonnes of lithium in 2017. Other opportunities in the sector include data analytics, innovative equipment development and information management to improve operational efficiency to drive the bottom line.

In Western Australia, the mining sector contributed 0.6 percentage points to the state’s gross state product (GSP) growth of 1.9% in the year to June 2018. Additionally, employment grew by 5.2%,

with growth highest in lithium (128.0%) and exploration (17.7%).

Looking ahead, WA will be buoyed by a number of new projects, including BHP’s South Flank and FMG’s Eliwana iron ore projects, while extension of the life of the North-West Shelf is underpinning robust activity in oil and gas production.

And it’s not all in production phase. Mineral exploration is also recovering, albeit from a low base, particularly oil and gas.

The recovery in WA’s mining and energy sectors should in time arrest the large net outflow of WA residents to other states. Although the loss of 11,300 people in FY18 was less than the previous year’s net exodus of around 13,990, it is a far cry from a gain of almost 9,000 in FY12.

Nevertheless, jobs in mining and energy are generally highly paid and full-time, so even a modest inflow of skilled workers into WA will give a big boost to the broader WA economy. This includes household consumption that has been subdued for several years and the dwelling construction that is stuck in its deepest ever trough in Perth.

The recovery in exploration and production is already creating pockets of skill shortages. More than two in five (43%) WA mining businesses are citing skill shortages as a barrier to growth. Attracting skilled employees, lower psychological distress rates in fly-in fly-out (FIFO) employees and focusing on modernising workplace health and safety will be critical for the industry moving forward.

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1IBIS 2018  2USGS 2018  3ABS 5220  4ABS 3101  5ABS 3101  6CCIWA 2018  7USGS 2018  8DMIRS 2018  9CCIWA 2018
Industry overview

The mining sector generates $228.4 billion in total revenue, contributing 7.7% to Australian GDP.7

What makes up mining sector revenue?

<table>
<thead>
<tr>
<th>Industry</th>
<th>Revenue (Billion $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron ore mining</td>
<td>$63.6</td>
</tr>
<tr>
<td>Coal mining</td>
<td>$61.8</td>
</tr>
<tr>
<td>Oil and gas extraction</td>
<td>$46.6</td>
</tr>
<tr>
<td>Other metal ore mining</td>
<td>$38.6</td>
</tr>
<tr>
<td>Exploration and other mining services</td>
<td>$12.2</td>
</tr>
<tr>
<td>Non-metallic mineral mining and quarrying</td>
<td>$6.9</td>
</tr>
</tbody>
</table>

Mining contributes close to one third (30.0%) of WA's $255.9 billion economy.

Relative to the nation, Western Australia accounts for:

- 55.7% of minerals and energy output
- 60.6% of mineral exploration expenditure
- 54.7% of petroleum exploration expenditure
- 53.1% of mining investment

Source: DMIRS 2018

Source: IBIS 2018

7IBIS 2018

5ABS 5220
Focus on mining services

This report is published for the benefit of those involved in the WA mining industry. The 2019 report examines the current and future state of the mining sector across Australia. The sector includes coal, copper, gold, iron ore, nickel ore, oil and gas extraction, petroleum and lithium as well as mining support and contract services.

Mining support services employees

The mining support services industry provides services that complement those of mining businesses and allow them to focus on their core competencies. The industry has remained stagnant with subdued commodity prices impacting sector demand. However, Australia’s role in the lithium sector presents a significant opportunity to capture the value of downstream processing to turn lithium into batteries.

Mining services businesses entries and exits, Australia, 2016 – 2017

<table>
<thead>
<tr>
<th>Mining Segment</th>
<th>Operating at the start of the financial year</th>
<th>Operating at the end of the financial year</th>
<th>1 year percentage change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral exploration</td>
<td>2,109</td>
<td>2,129</td>
<td>0.9%</td>
</tr>
<tr>
<td>Other mining support services</td>
<td>1,680</td>
<td>1,629</td>
<td>-3.0%</td>
</tr>
<tr>
<td>Other construction material mining</td>
<td>814</td>
<td>850</td>
<td>4.4%</td>
</tr>
<tr>
<td>Other non-metallic mineral mining and quarrying</td>
<td>605</td>
<td>616</td>
<td>1.8%</td>
</tr>
<tr>
<td>Gold ore mining</td>
<td>561</td>
<td>549</td>
<td>-2.1%</td>
</tr>
<tr>
<td>Petroleum exploration</td>
<td>561</td>
<td>518</td>
<td>-7.7%</td>
</tr>
<tr>
<td>Oil and gas extraction</td>
<td>361</td>
<td>382</td>
<td>5.8%</td>
</tr>
<tr>
<td>Gravel and sand quarrying</td>
<td>393</td>
<td>374</td>
<td>-4.8%</td>
</tr>
<tr>
<td>Coal mining</td>
<td>356</td>
<td>335</td>
<td>-5.9%</td>
</tr>
</tbody>
</table>

Source: ABS 8165

Oil and gas extraction experienced the largest proportional rise in businesses, growing by 5.8% in the year to June 2017. The non-metallic mineral mining group which encompasses “lithium” mining, also saw new entrants to the market, growing by 1.8%.

Source: IBIS 2018
What’s driving industry growth?

Industry growth is being driven by commodity prices rebounding from 2014/15 record lows. Compared to three years ago, bulk commodity prices are 87.1% higher, while base metals prices are 33.4% higher.

Commodity price indexes, 2013 – 2018

The Australian dollar has remained weak, pushing up domestic prices and making Australian commodities more competitive. Compared to the five year average, Australia’s exchange rate and trade weighted index are below the five year average, supporting demand for local commodities.

<table>
<thead>
<tr>
<th>USD/AUD</th>
<th>Trade Weighted Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 year average</td>
<td>0.781</td>
</tr>
<tr>
<td>December 2018</td>
<td>↓ 0.706</td>
</tr>
</tbody>
</table>

Source: RBA 2018

*Base metals refers to aluminium, lead, copper, zinc and nickel
**Bulk commodities refers to iron ore, metallurgical coal and thermal coal

Growth remains strong in Australia’s mineral importers

The local mining industry is heavily reliant on growth from key exporting countries. Growth remains positive across Australia’s largest three commodity importers in Asia.10

6.9% 3.8% 1.7%

China Hong Kong Japan

Productivity drivers

Productivity remains a key focus for mining businesses to drive growth and improve their bottom line.

- Economies of scale through capacity building
- Leveraging data to anticipate operational problems
- Innovating mineral processing methods to reduce costs

10World Bank 2019
Spotlight on Australia

Capital expenditure continues to decline, decreasing by 6.6% in the year to September 2018. The drop is indicative of the bottoming out of the mining construction cycle and transition into the production phase. Exports for Australian minerals continue to increase, despite fluctuating prices in key minerals such as iron ore.

Australian mining exports growth in year to October 2018, by sub-industry

<table>
<thead>
<tr>
<th>Sub-industry</th>
<th>Growth (1 year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-metallic mineral mining and quarrying</td>
<td>40.8%</td>
</tr>
<tr>
<td>Metal ore mining</td>
<td>-16%</td>
</tr>
<tr>
<td>Oil and gas extraction</td>
<td>55.1%</td>
</tr>
<tr>
<td>Coal mining</td>
<td>8.2%</td>
</tr>
</tbody>
</table>

Source: ABS 5368

Production phase aids employment

Rising production has seen nation-wide employment in mining rise by 13.8% in the year to November 2018 to 247,000. Growth has occurred across all five mining subdivisions with metal ore mining sector employment experiencing the largest increase of 30.7%.

<table>
<thead>
<tr>
<th>Sub-industry</th>
<th>1 year employment growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal ore mining</td>
<td>↑ 30.7%</td>
</tr>
<tr>
<td>Non-metallic mineral mining and quarrying</td>
<td>↑ 26.1%</td>
</tr>
<tr>
<td>Oil and gas extraction</td>
<td>↑ 18.2%</td>
</tr>
<tr>
<td>Coal mining</td>
<td>↑ 7.1%</td>
</tr>
<tr>
<td>Exploration and other mining support services</td>
<td>↑ 2.8%</td>
</tr>
</tbody>
</table>

Job vacancies in Australia’s mining sector have reached a five-year high, rising by 45.8% in the year to August 2018.11

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11ABS 6354
Spotlight on Western Australia

Employment in WA’s mining sector has picked up in line with the announcement of several construction projects in the state. In the year to June 2018, WA mining employment rose by 5.2% to 112,008. The three largest employers by commodity all saw growth during the period:

- **1.5%** iron ore employment
- **8.1%** gold employment
- **3.1%** bauxite/alumina employment

While capital investment in mining expenditure continues to fall, there are a number of new projects in the pipeline including:

1. Scarborough (Woodside)
2. West Pilbara (API Management)
3. Carnarvon Offshore Basin (Chevron)
4. South Flank (BHP)
5. Koodaideri (Rio Tinto)

Global annual lithium demand is forecast to increase to over 2.2 million tonnes (LME) by 2025, presenting a huge opportunity for Western Australia.12

Lithium production doubles to top $1 billion

Lithium still accounts for only 1.4% of WA mineral production by production value, however in the 2017-18 financial year, it experienced the largest rise in production value. Moreover, while all production from WA’s lithium mines is currently of low value spodumene, worth around $US800 a tonne, no less than five beneficiation plants are currently under construction or planned to turn it into the lithium hydroxide that fetches more like $US14,000 a tonne.

Biggest growth in WA mineral production by value*:

- **167.0%** Lithium**
- **49.9%** LNG
- **48.3%** Condensate Petroleum

*Commodities with minimum production value of $1 billion in the 2017-18 financial year
**Lithium refers to mining of spodumene.
What does the future hold?

Data is becoming as important an asset as commodities themselves for mining businesses. Predictive analytics and data modelling is being used to improve efficiency and reduce bottlenecks.15

- Optimal transportation routes
- Predictive capacity problems along operational processes
- Moving towards proactive from reactive maintenance
- Improving employee safety and reducing accident rates

Beyond data, mining businesses will continue to adopt more advanced capital and equipment to improve efficiency. The largest technologies forecast to be adopted by 2025 include:

- **75%** Asset cyber security
- **50%** Connected workers
- **30%** Remote operations centre
- **25%** Advanced analytics
- **25%** 3D printing
- **25%** Automatous operations
- **20%** Smart sensors
- **15%** Integrated platforms

Key challenges ahead

Possible skills shortages: 43% of mining businesses cited availability of skilled labour a barrier to growth, behind only agriculture13

Mental health: FIFO workers experiencing psychological distress rates twice as high as non-FIFO workers (32.6% vs 17.2%)14

Modernising workplace health and safety: Following future changes to the Workplace Health & Safety Law Act

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13CCIWA 2018
14Mental Health Commission 2018

Deloitte 2018
Where do the opportunities lie?

Large mining businesses continue to organise hackathons with technology-based industries to generate new ideas to improve products and systems. CORE Hub is based in Perth and is Australia’s first co-working, collaboration and innovation space that is focused on resources technology.

Vast opportunity exists for support services to better assist mining companies:

- Generate, organise and leverage data
- Develop equipment to decrease costs and improve employee safety
- Develop information technology solutions that synthesise and organise information

World lithium mine reserves by country (metric tonnes), 2017

Source: USGS 2018

Improving the sector’s image

Deloitte’s 2018 “The Mining Matrix” report discusses the opportunities that exist for mining companies to improve their image and engagement with mining related courses and solve community problems. The report notes that mining companies can:

- Educate – Increase awareness of the diverse roles required in the sector, as well as the positive impact mining has on the overall community
- Communicate – Reframing the conversation of what mining means to Australia
- Collaborate – Working with other organisations to solve problems important to the community, as well as individual businesses.
Global lithium demand

Global lithium demand is forecast to increase ten-fold by 2025, driven by greater use in households, as well as increased adoption of electric vehicles.16

- Capturing down-stream processing activities within Australia
- Leading in the development of technology, logistics processing and skills around lithium
- Research and development into products that integrate lithium battery technology

Australia remains the largest producer of lithium, in which it produced an estimated 18,700 tonnes, higher than the largest global lithium reserves holder Chile, which produced 14,100 tonnes.

Forecasted industry growth

Mining revenue is anticipated to grow by 4.0% in the five years to June 2023. Growth is anticipated to be highest in oil and gas extraction, with revenue anticipated to grow by 6.0% for each year to June 2023.17

Forecast revenue growth by sector, 2018 – 2023

<table>
<thead>
<tr>
<th>Sector</th>
<th>Annual growth 2018-23</th>
<th>Revenue 2018 ($bn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil &amp; gas extraction</td>
<td>6.0%</td>
<td>$44.0</td>
</tr>
<tr>
<td>Gold ore mining</td>
<td>0.8%</td>
<td>$18.0</td>
</tr>
<tr>
<td>Iron ore</td>
<td>0.5%</td>
<td>$60.1</td>
</tr>
<tr>
<td>Mining support services</td>
<td>0.3%</td>
<td>$10.2</td>
</tr>
</tbody>
</table>

Source: IBIS 2018

World Bank forecasts indicate iron ore and gold prices will decline by 17.2% and 14.6% respectively in the five years to December 2023. In a competitive global market and with more projects entering the production phase, Australian mining businesses will need to maintain their reputation for producing quality commodities, as well improving operational efficiencies.

Forecasted change in selected commodity prices, 2018 – 2023

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Forecasted Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron ore</td>
<td>-17.2%</td>
</tr>
<tr>
<td>Gold</td>
<td>-14.6%</td>
</tr>
<tr>
<td>LNG</td>
<td>3.2%</td>
</tr>
<tr>
<td>Coal, Australia</td>
<td>-31.6%</td>
</tr>
<tr>
<td>Aluminum</td>
<td>-10.1%</td>
</tr>
</tbody>
</table>

Source: World Bank 2018

Forecasts are based on USD projections and forecasts do not include forecast change to USD/AUD exchange rate.

16 Lithium Valley 2018
17 IBIS 2018
Sources

Allday, A “Mining in Australia”, IBISWorld, Oct 2018

Aravanis, J “Mining Support Services in Australia”, IBISWorld, June 2018


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