

# Metallurgical Coal

Resources and Energy Quarterly December 2018

Australia is the largest exporter of metallurgical coal



Every tonne of steel produced needs about **800kg** of metallurgical coal.



**Metallurgical coal** is a non-substitutable raw material in the production of steel from iron ore.

Australia accounted for around



17% of world production in 2017

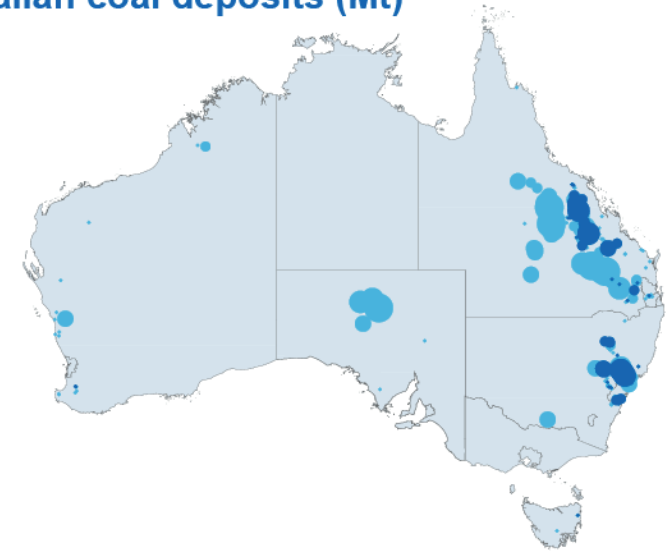
It takes more than **200 tonnes** of metallurgical coal to make every wind turbine



**179** million tonnes exported in 2017-18 valued at **\$38 billion**

## Major Australian coal deposits (Mt)

- <500
- 500-1,000
- 1,001-2,000
- 2,001-4,000
- >4,000
- Deposit
- Operating mine



## Australia's metallurgical coal export earnings by destination, 2017-18



**25%**  
India



**22%**  
China



**19%**  
Japan



**54%**  
Australia



**15%**  
USA



**9%**  
Canada



**8%**  
Mongolia



**7%**  
Russia



**7%**  
Rest of the world

## Global share of metallurgical coal exports in 2017



**10%**  
South Korea



**5%**  
Taiwan



**19%**  
Rest of the world

## Global share of metallurgical coal imports in 2017



**24%**  
China



**16%**  
India



**16%**  
Japan



**15%**  
EU



**12%**  
South Korea



**17%**  
Rest of the world

## 5.1 Summary

- Supply disruptions pushed the premium hard coking coal (HCC) spot price to well over US\$220 a tonne during the December quarter.
- Supply growth and softening demand are expected to reduce the premium HCC spot price from an estimated average of US\$207 a tonne in 2018, to US\$145 a tonne by 2020.
- Australia's export volumes are forecast to grow from 179 million tonnes in 2017–18 to 190 million tonnes in 2019–20. This reflects an expected recovery from supply disruptions and modest production growth.
- Australia's metallurgical coal export earnings are forecast to increase from \$38 billion in 2017–18 to a new record of \$41 billion in 2018–19, before declining to \$31 billion in 2019–20. The impact of growing export volumes is forecast to be more than offset by lower prices.

## 5.2 Prices

### Tight supply has driven the metallurgical coal price higher

The premium HCC spot price (FOB Australia) averaged an estimated US\$220 a tonne in the December quarter of 2018, 15 per cent higher than the previous quarter, and 5.7 per cent higher year-on-year. The premium HCC spot price reached well over US\$220 a tonne in November and December, reaching an 8-month high. There were disruptions to supply from exporting producers in Australia and the United States and domestic producers in China. Strong demand from India and China also contributed to a tightening market.

The HCC spot price is forecast to remain relatively well supported in the near-term, due to ongoing constrained supply and strong demand, before declining to US\$165 a tonne in 2019 and US\$145 a tonne in 2020. The HCC price is expected to be driven down by both supply growth and an expected softening of import demand from China, as steel production weakens and domestic production recovers.

Nevertheless, with strong demand growth expected from India, metallurgical coal prices are forecast to remain relatively well supported over the next two years, relative to the lows of 2015–16 (Figure 5.1).

Figure 5.1: Australian premium HCC spot price, quarterly



Source: IHS (2018); Department of Industry, Innovation and Science (2018)

## 5.3 World trade

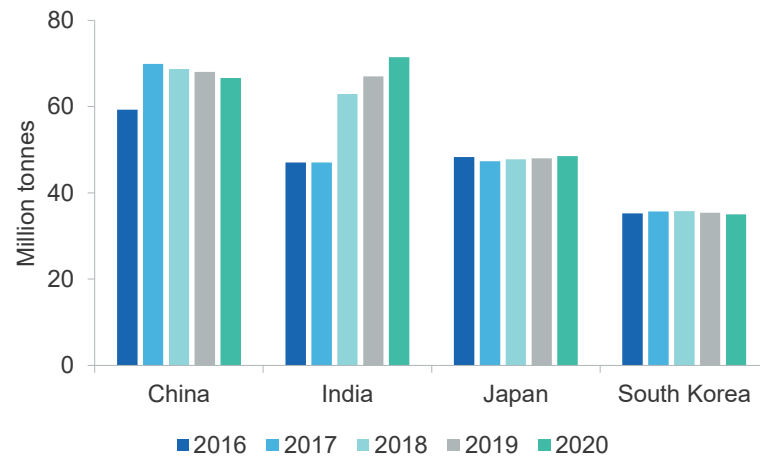
World trade in metallurgical coal grew by an estimated 4.4 per cent to 324 million tonnes in 2018, driven by strong industrial production growth, and consequently, strong growth in steel output around the world.

However, with an expected slowdown in global economic growth, and particularly in China, growth in world metallurgical coal trade is forecast to slow to 3.1 per cent in 2019 and 1.8 per cent in 2020, to reach 340 million tonnes in 2020.

### World imports

India is forecast to be the key source of import demand growth, driven by the ongoing expansion of its domestic steel sector, while China's import demand is expected to decline (Figure 5.2). India is forecast to overtake China as the world's largest importer of metallurgical coal by 2020. Metallurgical coal demand from both Japan and South Korea is forecast to remain largely subdued over the outlook period.

**Figure 5.2: Asian metallurgical coal imports**



Notes: 2018 and onwards are forecasts.

Source: IHS (2018); Department of Industry, Innovation and Science (2018)

#### China's metallurgical coal imports forecast to drift lower

Metallurgical coal imports from China increased by 21 per cent year-on-year in the four months to October. Steel production grew by 6.6 per cent year-on-year over the same period, driven by high margins and strong demand. At the start of the quarter, imports were also supported by domestic supply tightness, with safety and environmental inspections disrupting output at the two largest metallurgical coal producing provinces, Shandong and Shanxi.

With steel margins falling, winter production cuts and import restrictions, China's metallurgical coal imports are expected to slow over the last two months of 2018. However, the possibility of more lenient winter cuts and further stimulatory measures — to offset the impact of the trade tariffs imposed by the US — may provide more support for metallurgical coal imports than anticipated.

Over the next two years, China's metallurgical coal imports are forecast to decline modestly. The decline will be primarily driven by a forecast moderation in steel production as economic growth slows. The growing

use of electric arc furnaces and scrap steel in steel production is also expected to weigh on demand for metallurgical coal. The rate of growth in Chinese domestic metallurgical coal production will remain the key uncertainty over the outlook period. Domestic production accounts for around 90 per cent of total demand, with small changes to domestic production potentially having substantial impacts on import demand.

#### India expected to become largest metallurgical coal importer by 2020

India's metallurgical coal imports have surged in 2018, driven by the ongoing expansion of the domestic steel sector. Steel production grew by 5.5 per cent in the year to October, and metallurgical coal imports grew to 45 million tonnes in the year to September, an increase of 19 per cent year-on-year.

India is forecast to overtake China as the world's largest importer of metallurgical coal in 2020, with India's imports forecast to grow steadily over the next two years, to reach 71 million tonnes in 2020. India has limited domestic reserves of metallurgical coal, and will need to increase imports to support the rapid growth of its domestic steel industry.

#### Subdued import demand from Japan and South Korea

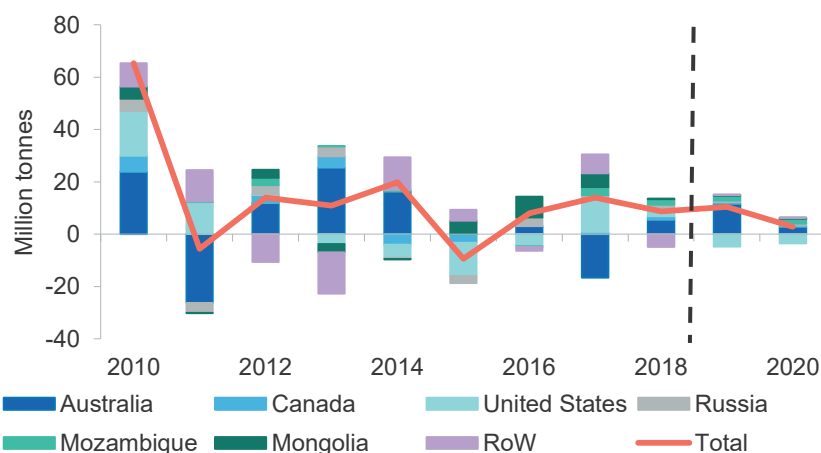
While the traditional importers in the Asian market — China, Japan and South Korea — will continue to dominate the seaborne market, import growth from these countries is forecast to remain largely subdued. Japan's imports of metallurgical coal are forecast to grow modestly over the outlook period, supported by demand for steel for use in the domestic construction sector. Metallurgical coal imports from South Korea are forecast to remain largely flat, due to weak domestic demand from its major steel-using sectors.

In contrast, metallurgical coal imports from emerging markets are forecast to grow considerably, although from a low base. Many countries are building up their steel capacity to meet demand from the construction sector, driven by large infrastructure projects. In particular, Vietnam, Indonesia and Malaysia have substantial additions to blast-furnace steel capacity, which will support the demand for metallurgical coal.

## World exports

Strong prices in 2018 have encouraged increased output, the restart of idled operations, and decisions to proceed with the development of new mines. Much of the growth in new output will occur in 2019, as supply constraints in major exporting countries ease (Figure 5.3). Australia will comfortably remain the largest exporter of metallurgical coal, accounting for a forecast 57 per cent of the seaborne market in 2020. However, this represents a decline from Australia's share in the pre-Cyclone Debbie period (60 per cent in 2016), with Canada, Russia and Mozambique all forecast to increase their exports.

**Figure 5.3: Annual change in world metallurgical coal exports**



Source: IEA (2018); Department of Industry, Innovation and Science (2018)

### Exports from the United States forecast to decline

There has been robust growth in metallurgical coal exports from the United States throughout 2018, increasing by 14 per cent to 42 million tonnes in the year to September. Notably, exports to India and Japan have both reached seven-year highs. Export volumes were impacted in September by Hurricane Florence, but have since recovered.

As a swing supplier of coal, the United States is expected to reduce its metallurgical coal exports modestly over the outlook period as prices ease, though exports should remain strong relative to levels in the 2014–2017 period.

### Exports forecast to grow from Russia, Canada and Mozambique

Exports of metallurgical coal from other producing nationals are forecast to grow, driven by stronger demand from the Asian market, where traditional importers are seeking to diversify their sources of supply.

In Canada, several operations are ramping up capacity, supporting a forecast 2.4 million tonne increase in exports between 2017 and 2020. Exports are also expected to grow from Russia, as expansions and new additions to capacity increase exports by 2.1 million tonnes to 25 million tonnes from 2017 to 2020. Beyond the outlook period, east Russia has substantial metallurgical coal reserves in the Yakutia region, which, if developed, could further boost Russia's exports and market share.

Mozambique was once flagged to be the next major exporter of metallurgical coal. However, the two major exporting mines, Vale's Moatize and Jinda Steel's Songa mines, have faced a range of challenges, including infrastructure constraints, quality issues and local opposition. Nevertheless, exports from Mozambique are expected to grow as these operations ramp up, reaching 13 million tonnes in 2020, up from 7 million tonnes in 2017.

### Mongolia's exports constrained by transportation bottlenecks

Mongolia's exports of metallurgical coal to China have continued to be constrained, due to transportation bottlenecks. Substantial investment into road and rail infrastructure will be required for any significant recovery in export growth. Beyond the outlook period, a plan for a new 247 kilometre rail link from the Tavan Tolgoi mine to the Chinese border has the potential to provide support for an additional 20 million tonnes of Mongolian coal by the mid-2020s. In the meantime however, coal exports from Mongolia are forecast to remain subdued at around 26 million tonnes.

## 5.4 Australia

### Metallurgical coal export earnings forecast to reach a record \$41 billion

Australia's metallurgical coal export earnings totaled \$9.8 billion in the September quarter of 2018, an increase of 12 per cent year-on-year. Export volumes decreased by 7.4 per cent over the same period. Australian exports have continued to be constrained by a number of port, rail and other issues. There has also been an increase in the amount of semi-soft metallurgical coal being sold in to thermal coal markets; volumes of semi-soft and pulverised coal injection (PCI) coal exports declined by 13 per cent in the September quarter, with some of these volumes likely counted as thermal coal exports. The narrowing gap between the prices for thermal coal and semi-soft metallurgical coal has made it more economical to sell semi-soft metallurgical coal as thermal coal, without incurring the additional washing costs for metallurgical coal.

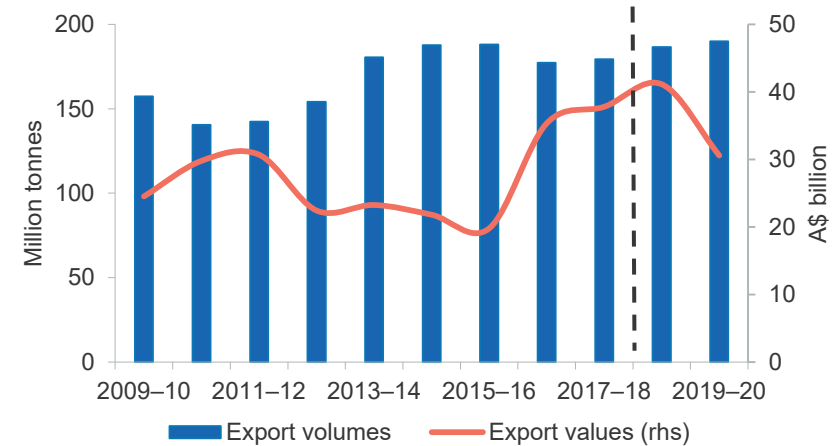
Australia's metallurgical coal export earnings are forecast to increase from a record \$38 billion in 2017–18 to a new record of \$41 billion in 2018–19, driven by strong prices in the second half of 2018 (Figure 5.4). Export earnings are then forecast to decline to \$31 billion in 2019–20.

Modest growth in production and export volumes is expected to only partially offset the impact of forecast weaker prices (Figure 5.5). Export volumes are forecast to increase to 187 million tonnes in 2018–19, and to 190 million tonnes in 2019–20. The expected ramp up of new and restarted mines in Queensland (including Isaac Plains East, Cook, Baralaba) softens the impact of a fire at North Goonyella, which will remove around 2 million tonnes to at least late 2019.

### Revisions to the outlook

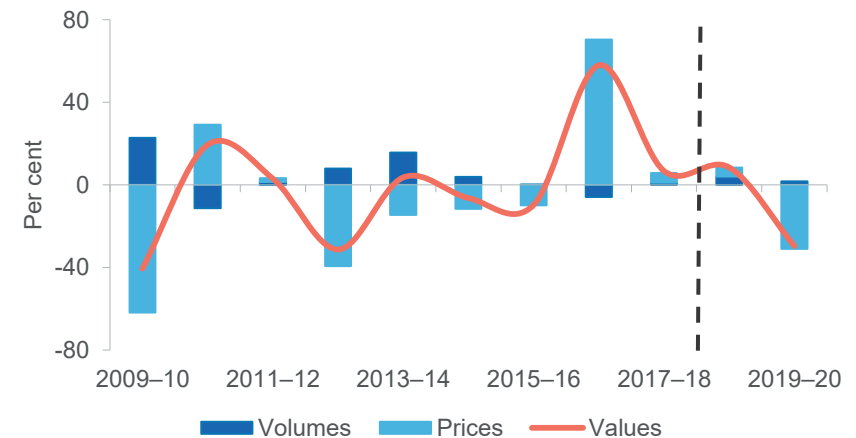
Australia's metallurgical coal export earnings for 2018–19 have been revised up by \$5.7 billion from the September *Resources and Energy Quarterly*, reflecting a weaker outlook for the Australian dollar and stronger than expected prices in 2018. Export earnings in 2019–20 have been revised down by \$1.0 billion, due to a downwards revision to export volumes.

Figure 5.4: Australia's metallurgical coal exports



Source: ABS (2018) International Trade, Australia 5454.0; Department of Industry, Innovation and Science (2018)

Figure 5.5: Annual growth in Australia's metallurgical coal exports values, and contributions from export volumes and prices



Notes: Price changes are based on export unit values.

Source: ABS (2018) International Trade, Australia 5454.0; Department of Industry, Innovation and Science (2018)

**Table 5.1: World trade in metallurgical coal**

|                                   | Unit | 2017 | 2018 <sup>s</sup> | 2019 <sup>f</sup> | 2020 <sup>f</sup> | Annual percentage change |                   |                   |
|-----------------------------------|------|------|-------------------|-------------------|-------------------|--------------------------|-------------------|-------------------|
|                                   |      |      |                   |                   |                   | 2018 <sup>e</sup>        | 2019 <sup>f</sup> | 2020 <sup>f</sup> |
| World trade                       | Mt   | 311  | 324               | 334               | 340               | 4.4                      | 3.1               | 1.8               |
| <b>Metallurgical coal imports</b> |      |      |                   |                   |                   |                          |                   |                   |
| China                             | Mt   | 70   | 69                | 68                | 67                | -1.7                     | -1.0              | -2.0              |
| Japan                             | Mt   | 47   | 48                | 48                | 49                | 1.0                      | 0.4               | 1.1               |
| India                             | Mt   | 47   | 63                | 67                | 71                | 33.8                     | 6.5               | 6.7               |
| European Union 28                 | Mt   | 44   | 47                | 48                | 49                | 4.9                      | 2.4               | 1.9               |
| South Korea                       | Mt   | 36   | 36                | 35                | 35                | 0.2                      | -1.0              | -1.0              |
| <b>Metallurgical coal exports</b> |      |      |                   |                   |                   |                          |                   |                   |
| Australia                         | Mt   | 173  | 178               | 190               | 193               | 3.2                      | 6.6               | 1.5               |
| United States                     | Mt   | 50   | 54                | 49                | 45                | 6.9                      | -8.8              | -7.2              |
| Canada                            | Mt   | 29   | 30                | 31                | 31                | 4.8                      | 1.7               | 1.6               |
| Russia                            | Mt   | 23   | 24                | 24                | 25                | 3.7                      | 2.8               | 2.7               |
| Mozambique                        | Mt   | 7    | 9                 | 11                | 13                | 31.0                     | 19.8              | 17.4              |

Notes: s Estimate f Forecast.

Source: IHS (2018); Department of Industry, Innovation and Science (2018)

**Table 5.2: Metallurgical coal outlook**

| World                        | Unit   | 2017    | 2018 <sup>s</sup> | 2019 <sup>f</sup>    | 2020 <sup>f</sup>    | Annual percentage change |                      |                      |
|------------------------------|--------|---------|-------------------|----------------------|----------------------|--------------------------|----------------------|----------------------|
|                              |        |         |                   |                      |                      | 2018 <sup>s</sup>        | 2019 <sup>f</sup>    | 2020 <sup>f</sup>    |
| Contract prices <sup>e</sup> |        |         |                   |                      |                      |                          |                      |                      |
| – nominal                    | US\$/t | 210     | 208               | 171                  | 145                  | –0.9                     | –18.0                | –15.0                |
| – real <sup>d</sup>          | US\$/t | 215     | 208               | 167                  | 140                  | –3.2                     | –19.8                | –15.9                |
| Spot prices <sup>g</sup>     |        |         |                   |                      |                      |                          |                      |                      |
| – nominal                    | US\$/t | 190     | 207               | 165                  | 145                  | 9.3                      | –20.3                | –12.4                |
| – real <sup>d</sup>          | US\$/t | 194     | 207               | 161                  | 140                  | 6.7                      | –22.1                | –13.4                |
| Australia                    | Unit   | 2016–17 | 2017–18           | 2018–19 <sup>f</sup> | 2019–20 <sup>f</sup> | 2017–18 <sup>f</sup>     | 2018–19 <sup>f</sup> | 2019–20 <sup>f</sup> |
| Production <sup>s</sup>      | Mt     | 187     | 185               | 194                  | 196                  | –1.4                     | 5.0                  | 1.3                  |
| Export volume                | Mt     | 177     | 179               | 187                  | 190                  | 1.2                      | 4.1                  | 1.7                  |
| – nominal value              | A\$m   | 35,335  | 37,793            | 41,126               | 30,579               | 7.0                      | 8.8                  | –25.6                |
| – real value <sup>i</sup>    | A\$m   | 36,845  | 38,662            | 41,126               | 29,855               | 4.9                      | 6.4                  | –27.4                |

Notes: **d** In 2018 US dollars. **e** Contract price assessment for high-quality hard coking coal. **i** In 2018–19 Australian dollars. **f** Forecast. **g** Hard coking coal fob Australia east coast ports. **s** Estimate.  
 Source: ABS (2018) International Trade in Goods and Services, Australia, 5368.0; Department of Industry, Innovation and Science (2018); IHS (2018)