Metallurgical coal

Major Australian coal deposits (Mt)

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

World consumption

- China: 59%
- India: 10%
- Russia: 7%
- EU28: 5%
- Japan: 5%
- South Korea: 4%

Australia’s metallurgical coal

- World’s no.1 metallurgical coal exporter
- 177m tonnes of metallurgical coal exported in 2019-20
- Almost all of Australia’s met coal is exported

Metallurgical coal

- Contains more carbon and less ash & moisture than thermal coal
- 1x tonne of steel made in a blast furnace uses 780kg of met coal
- Electric arc furnaces don’t use met coal as a raw material

Metallurgical coal is primarily used to make steel
Metallurgical coal Trade map | December 2020

- **Top 5 importers**:
  - China 27%
  - India 21%
  - Japan 17%
  - South Korea 13%
  - EU 13%

- **Top 5 exporters**:
  - United States 15%
  - Australia 55%
  - Russia 7%
  - Mongolia 9%
  - Canada 10%

Australia's export earnings, by destination:
- $7.4bn to Japan
- $10.2bn to China
- $9.7bn to India
- $3.8bn to South Korea
- $2.5bn to EU

Data is for 2019.
5.1 Summary

- Metallurgical coal prices have been volatile in the December quarter, rebounding on hopeful signs in world industrial activity, then falling to four year lows on a slow-down in China’s imports. The Australian premium hard coking coal (HCC) price is estimated to average US$125 a tonne in 2020, down from US$179 a tonne in 2019.
- Australia’s exports are forecast to fall by around 8 million tonnes to 169 million tonnes in 2020–21, due to lower global demand. Exports should lift in 2021–22, as world steel production recovers further (see Australia section).
- Australia’s metallurgical coal exports values are forecast to fall sharply to $22 billion in 2020–21, from $34 billion in 2019–20. They are forecast to recover partially to $27 billion in 2021–22, as prices and volumes lift.

5.2 Prices

Metallurgical coal prices volatile on China uncertainty

It’s been a volatile December quarter for metallurgical coal prices. The benchmark price for Australian premium hard coking coal (HCC) rose rapidly to US$140 a tonne early in the quarter, then plunged 30 per cent to US$98 a tonne at one point in November. While price falls in early 2020 were driven by a steel industry slowed by the COVID-19 pandemic, the latest price declines come at a time of robust recovery in the industry (see the steel chapter).

The price plunge is more likely to reflect significant uncertainty arising from contemporaneous unofficial reports from traders in China that Australia’s coal exports could be subject to informal import restrictions (see thermal coal chapter). Chinese domestic prices have moved in the opposite direction, with one Chinese domestic hard coking coal benchmark up 13 per cent in the same period that Australian prices fell. The Australian premium HCC spot price is estimated to average $108 a tonne in the December quarter (Figure 5.1), a little lower than the September quarter.

The recovery of Australian metallurgical coal prices will largely depend on Chinese government policy and signals. If the patterns of previous years are observed — where Chinese imports of Australian coal rebounds sharply in the first months of the year — then this could be expected to help prices for Australian coal close the gap with other global prices. This is the assumed scenario that underpins the forecasts in this chapter. From 2021, metallurgical coal prices are expected to begin to recover in line with global steel production. The premium Australian HCC price is forecast to average US$134 a tonne in 2021 and US$145 a tonne in 2022, both well below the 2019 average (Figure 5.2).

The overriding risk to the outlook for prices is a scenario in which China’s informal import restrictions on Australian coal extends beyond the end of the quarter and into 2021. In such a scenario, prices would stay low for longer, as Australian exporters take time to adjust. Australian exporters in this scenario will need to find customers in other countries to buy up to 3–4 million tonnes a month of metallurgical coal, and as other exporting...
countries have to redirect 3–4 million tonnes a month to China to meet the needs of its growing steel industry. China’s steel industry would likely face a particular challenge in obtaining the higher-grade hard coking coals in sufficient quantities. Indications of coal trade realignment started in the December quarter, with additional Australian cargoes delivered to Indian ports and other Asian customers in response to uncertainty regarding Chinese policy. To fill the gaps caused by restricting Australian coal, other exporters such as Canada’s Teck Resources are diverting sales to China where possible, as this earns Teck a significant premium compared with other markets in Asia.

On the other hand, there is an increased risk over the Australian summer of extreme weather disrupting Queensland’s coal production, which could curtail supply just as the global steel industry is recording strong growth, putting upward pressure on the Australian hard coking coal benchmark.

5.3 World trade

In 2020, world trade in metallurgical coal is estimated to fall by 43 million tonnes (around 13 per cent) to 294 million tonnes. Production cutbacks motivated by low prices — as a percentage of 2019 levels — are expected to be most severe for the US, but other major exporters are also likely to be affected, including Australia. The US is the second largest metallurgical coal supplier, but many US producers have relatively high costs, as shown in the global cost curve (Figure 5.5).

In 2021 and 2022, world trade in metallurgical coal is expected to grow strongly as industrial production recovers; rising by 34 million tonnes in 2021 and a further 21 million tonnes in 2022. This forecast contrasts with the forecast for thermal coal, which is not expected to regain 2019 world trade levels during the outlook period (see thermal coal chapter).

5.4 World imports

China’s informal import restrictions are in effect

China is the world’s largest steel maker, and imported 75 million tonnes of metallurgical coal in 2019 — making it the world’s largest metallurgical coal buyer. After strongly increasing imports into China early in the June quarter — to supply its recovering steel industry — the September quarter saw a reversal of fortunes for seaborne imports, as a result of China’s informal import restrictions. During the September quarter, China’s imports were 14 per cent lower than the same period a year earlier (Figure 5.3).

After more than a decade of strong growth associated with the rise of the steel industry, China’s metallurgical coal imports in 2020 are estimated to be on par with 2019, at around 75 million tonnes. Chinese metallurgical coal imports are forecast to ease to 73 million tonnes in 2022, as China’s mines increase their own output. This assumes that China follows the pattern of recent years, and relaxes import restrictions in early 2021. It also assumes that China does not apply country-specific restrictions on Australian coal. If these assumptions turn out to be incorrect — for example, if China further tightens its import policy in early 2021 — then results are likely to be below forecasts.
Chinese metallurgical coal output is also expected to lift in the outlook period, but may not keep pace with steel industry demand. Environmental, productivity and safety policies are making it more difficult for many small-scale Chinese coal mines to secure approvals to operate, and output is more reliant on smaller mines than is thermal coal output.

India’s metallurgical coal imports recovering

India is the world’s second largest steel producer and metallurgical coal buyer, importing 58 million tonnes in 2019. India’s metallurgical coal imports jumped 23 per cent in the September quarter compared with a year earlier. This was driven by the emergence of India’s steel industry from COVID-19 containment measures earlier in the year, although the ongoing spread of the virus remains a risk to India’s industrial recovery.

India has plans to raise crude steel production capacity from 142 million tonnes to 300 million tonnes per year over the next decade. India has limited domestic reserves of metallurgical coal, and will need to lift imports to support rapid growth of its steel sector. As Australian cargoes into China have declined in recent months, many have found alternative buyers in India. India’s metallurgical coal imports are estimated at 55 million tonnes in 2020, down 3 million tonnes on 2019. They are expected to fully recover in 2021 and to increase to 65 million tonnes in 2022 (Figure 5.4).

Japan’s imports to fall, while South Korea’s to rise slightly after 2020

Japan is the world’s third largest metallurgical coal importer, importing 47 million tonnes in 2019. Japan’s imports plunged in the September quarter, down 23 per cent year-on-year. With two major producers planning to retire some steel making capacity over the outlook period, Japan’s metallurgical coal imports are forecast to fall to 40 million tonnes in 2020, holding at around that level through to 2022.

South Korea is the world’s fourth largest metallurgical coal importer, buying 37 million tonnes in 2019. South Korea’s imports fell 10 per cent year-on-year in the September quarter, and are forecast to be 34 million tonnes in 2020. South Korea’s imports are expected to bounce back next year, reaching 38 million tonnes in 2022.
5.5 World exports

US exports volumes plunge and are likely to stay down

The US is the world’s second largest exporter of metallurgical coal after Australia, exporting 50 million tonnes in 2019. The US is a swing producer in seaborne metallurgical coal markets — due to higher production costs (Figure 5.5) and higher freight costs to key consumer markets. US exports fell 24 per cent in the September quarter year-on-year. Even without sharing the deep price falls felt by Australian exporters in the December quarter, many US mines are unprofitable at current prices. Since many US mines produce both thermal and metallurgical coal, the loss of revenues associated with diminishing thermal coal demand detracts from the viability of the metallurgical mining. US metallurgical coal exports are forecast to fall to 37 million tonnes in 2020, before rebounding in line with expected higher prices and lifting to 44 million tonnes in 2022 (Figure 5.6).

Russia’s exports fall for now

Russia exported 25 million tonnes of metallurgical coal in 2019. Exports in the September quarter were 6 per cent higher year-on-year. With output cut backs due to current low prices, exports are forecast to be 22 million tonnes in 2020. Russian metallurgical coal exports are expected to recover in 2021, reaching 27 million tonnes in 2022 (Figure 5.6). In recent years, Russia has invested in new mining capacity, and rail/port expansions.

Mongolia’s exports depend on China border

Mongolia surpassed both Russia and Canada to become the world’s third largest metallurgical coal exporter in 2019, exporting around 30 million tonnes — mostly by road to China. The closure of the China–Mongolia border from late January to April 2020 disrupted the crossing of coal trucks. In late November and early December, coal truck crossings were reported to be falling, as China implemented new border controls due to the re-emergence of COVID–19 in Mongolia.

Due to the interruptions in both the early and late months of 2020, Mongolia’s metallurgical coal exports are estimated to fall by 20 per cent in 2020 to 24 million tonnes. Mongolia’s exports are forecast to recover once these public health challenges are resolved, rising to 35 million tonnes in 2022, supported by strong demand from China’s steel makers (Figure 5.6). Mongolia is a key supplier of metallurgical coal to China, and during the border closure in early 2020 — when Mongolian coal supply was effectively cut off — China’s traders called in additional Australian cargoes by sea to prevent shortages (Figure 5.3).

Figure 5.5: Metallurgical coal (including hard coking, PCI and semi-soft) global cost curve, FOB, 2020

Notes: FOB is Free on Board. RoW is rest of world.
Source: AME Group (2020); Department of Industry, Science, Energy and Resources (2020)
Exports from Canada could partly fill China's Australia gap

Canada exported 34 million tonnes of metallurgical coal in 2019 (Figure 5.6), of which less than 10 per cent was shipped to China. Canada’s total exports to all countries in the September quarter declined by 37 per cent year-on-year. In the December quarter, it is expected to fill some of the gaps caused by China’s informal import restrictions on Australian coal. Canada’s metallurgical coal exports are estimated at 32 million tonnes in 2020, but to bounce back to 35 million tonnes in 2022.

Mozambique’s exports collapse

Mozambique currently has two exporting metallurgical coal mines: Vale’s Moatize and Jindal Steel’s Songa mines. Once touted as the next major supplier of metallurgical coal, Mozambique has faced a number of challenges in growing its exports, which were 5 million tonnes in 2019. Mozambique’s metallurgical coal exports plummeted 39 per cent year-on-year in the September quarter 2020.

Mozambique’s metallurgical coal exports are forecast to decline to 3 million tonnes in 2020, as low prices impact Mozambique’s relatively high cost producers (Figure 5.6). After 2020, Mozambique’s exports are forecast to begin to recover, reaching 7 million tonnes in 2022. The rise will be driven by the ramp up of Vale’s Moatize mine, and facilitated by the 912 kilometre Nacala logistics corridor rail line and Nacala port expansion.

5.6 Australia

Metallurgical coal export earnings to fall in 2020–21

Australia is the world’s largest exporter of metallurgical coal, with exports worth $34 billion in 2019–20. Metallurgical coal export volumes fell 7 per cent year-on-year in the September quarter 2020, due to slower Japanese and South Korean demand and China’s import limits (Figure 5.7).

Metallurgical coal export earnings are forecast to decline to $22 billion in 2020–21, due to a combination of lower prices and reduced mine production (Figure 5.8). Export volumes are expected to decline due to lower global demand for metallurgical coal, with some Australian miners announcing production cutbacks or temporary closures, and the potential for further announcements to follow given the disruption caused by Chinese import restrictions. Export earnings are then expected to mount a partial recovery to $27 billion in 2021–22.

However, there are a number of factors that reduce the risk of widespread mine closures in Australia; these include ‘take-or-pay’ contracts with rail and port operators, contracted export sales, and the costs associated with moving to care and maintenance (see the thermal coal chapter for discussion). About two-thirds of Australian metallurgical coal exports are HCC, while the remaining third is composed of pulverized coal for injection (PCI) and semi-soft coking coal. Most Australian HCC producers appear to be relatively well-positioned at current spot prices (Figure 5.9). Semi-soft coking coal and PCI miners seem to be at higher risk of operating losses.

With prices for semi-soft and PCI (the lower grades of metallurgical coal) equal to, or only marginally above, thermal coal prices, mines are facing challenging market conditions. Some mines — like Bluff PCI Mine in the Bowen Basin — have gone into ‘care and maintenance’ citing their intention to halt production ‘while the coal price remains below economic levels and uncertainty remains regarding Chinese Government policy relating to Australian metallurgical coal imports’. On 19 November 2020, that mine’s contracted operator, MACA, called in receivers to commence debt recovery against the owner.
Several major Australian mining companies — such as Australia’s largest producer, Glencore — reduced their coal output in the September quarter in response to low prices, but the effort was focussed on reducing thermal coal production. Glencore reports that metallurgical coal was the only profitable part of its coal mining business in the 2019–20 financial year. Nevertheless, Glencore announced in December that it intends to close its Newlands hard coking coal and premium thermal coal mine in the Bowen Basin in the next few years as the resource is exhausted.

BHP, responsible for around a quarter of metallurgical coal production, reduced its production volume by 17 per cent in the September quarter compared to the June quarter. BHP’s stated medium term goal is to cut its 2020-21 metallurgical output to 40–44 million tonnes, and to focus its production efforts on higher quality coals.

Production also slowed at Peabody and Yancoal’s 2.7 million tonne Middlemount mine (which produces mostly PCI) in Queensland’s Bowen Basin. Anglo American’s Grosvenor mine in Queensland — which closed due to an accident that injured 5 workers in early May — will remain suspended until at least the second half of 2021, removing up to 4 million tonnes from global metallurgical coal supply. Peabody also announced in December that its Metropolitan mine in NSW will close for 8 weeks from 1 January 2021, citing weak prices and a lack orders.

As the result of announced production cuts, Australian export volumes are forecast to fall by 5 per cent to 169 million tonnes in 2020–21. A full recovery is anticipated by 2021–22, with exports in that year rising 9 per cent to 184 million tonnes.

A near term risk to mine production is a higher likelihood of disruptive heavy rainfall in coal producing regions of Queensland and NSW. This risk is not factored in to the forecast, due to the uncertainty of such events. Stockpiling may be occurring as both a response to difficult market conditions and as a precaution against the current La Niña episode. The Australian Bureau of Meteorology (BOM) advises that La Niña conditions are expected to continue through the March quarter 2021.
The last significant La Niña was in 2010–11, and resulted in around 85 per cent of Queensland coal mines either restricting output or closing because of stormwater impacts. When Cyclone Debbie hit Queensland in March 2017, the impact to coal production caused prices to double and then ease back over nearly two months. The price effect offset lower export volumes.

Coal exploration expenditure may have peaked
Australia’s coal exploration expenditure decreased by 6 per cent year-on-year to $73 million in the September quarter 2020, but remains higher than the lows recorded over 2016 and 2017. The increase compared to the 2016 lows were likely in response to high coal prices, especially metallurgical coal, in the intervening years. High prices persisted for several years then starting to decline from mid–2019. Current low prices are expected to translate to lower coal exploration expenditure over the coming year or two (Figure 5.10).

Investment activity largely on hold
Investment in future Australian metallurgical coal projects is uncertain, as highlighted in the 2020 edition of the Resources and Energy Major Projects publication. Weak market conditions in 2020 resulted in capital expenditure reductions, write-downs, and FID deferrals. There are 42 metallurgical coal projects in the pipeline (25 of these target both thermal and metallurgical coals) which, if progressed, would have a total investment value of $23–31 billion. Thirty of these coal projects are at the feasibility stage, but progress has slowed. For the two projects at the stage where investment has been committed, both are mine expansions.

Revisions to the outlook for Australian metallurgical coal exports
Australia’s forecast metallurgical coal export earnings have been revised down by $0.4 billion in 2020–21 and by $0.6 billion in 2021–22 since the September Resources and Energy Quarterly. The revisions have been driven by a stronger forecast $A/$US exchange rate, reduced export volumes and lower prices. Forecast export volumes in 2020–21 have been revised down by 2 million tonnes, and volumes in 2021–22 down by 1 million tonnes.
## Table 5.1: World trade in metallurgical coal

<table>
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<tr>
<th>Unit</th>
<th>2019</th>
<th>2020(^a)</th>
<th>2021(^f)</th>
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<td>2020(^a)</td>
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<td>75</td>
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<td>Mt</td>
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Notes: \(^{f}\) Forecast; \(^{s}\) Estimate.  
Source: IEA (2019) Coal Information; IHS (2020); Department of Industry, Innovation and Science (2020)
Table 5.2: Metallurgical coal outlook

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<th>World</th>
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<td>26,817</td>
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Notes: <sup>d</sup> In 2020 US dollars. <sup>e</sup> Contract price assessment for high-quality hard coking coal. <sup>f</sup> Forecast. <sup>g</sup> Hard coking coal fob Australia east coast ports. <sup>s</sup> Estimate. Source: ABS (2020) International Trade in Goods and Services, Australia, 5368.0; Department of Industry, Innovation and Science (2020); Platts (2020)