Metallurgical coal

Major Australian coal deposits (Mt)
- Deposit
- Operating mine
- <500
- 500-1,000
- 1,001-2,000
- 2,001-4,000
- >4,000

Metallurgical coal
- Metallurgical coal is primarily used to make steel
- 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

World consumption
- China: 59%
- India: 10%
- Russia: 7%
- EU28: 6%
- Japan: 5%
- South Korea: 4%

Australia’s metallurgical coal
- World’s no.1 metallurgical coal exporter
- 184m tonnes of metallurgical coal exported in 2019
- Almost all of Australia’s met coal is exported
5.1 Summary

- Metallurgical coal prices have fallen sharply in recent months, reaching four year lows as a result of the demand-side impacts of COVID-19. The Australian premium hard coking coal (HCC) price is forecast to average US$126 a tonne in 2020, down from US$179 a tonne in 2019.
- Australia’s export volumes are forecast to edge down by around 2 million tonnes in 2020–21 to 180 million tonnes due to lower global demand, before lifting in 2021–22, as world steel production recovers.
- Australia’s metallurgical coal export earnings are forecast to fall sharply in 2020–21, from an estimated $35 billion in 2019–20 to $25 billion. They are then expected to stage a partial recovery to $29 billion in 2021–22, as prices and export volumes lift.

5.2 Prices

Metallurgical coal prices lifted then fell sharply due to COVID-19 impacts

Metallurgical coal prices initially increased on the back of strong demand from China, as the spread of COVID-19 began to accelerate from late January. The COVID-19 pandemic initially curtailed China’s domestic production, and Mongolia’s decision to close its border with China disrupted the crossing of coal trucks, forcing Chinese buyers to turn to the seaborne market to make up the shortfall. The tight supply situation was further exacerbated by weather conditions in Canada, a roof collapse at Anglo American’s Moranbah North mine in Queensland in late January 2020, and the closure of Australia’s main coking coal ports for three days in mid-March due to bad weather. The Australian premium hard coking coal (HCC) spot price moved in the US$150-165 a tonne range over the March quarter of 2020 (Figure 5.1), peaking at US$165 in late March. From early April, however, metallurgical coal prices went into a sharp descent, with the Australian premium HCC spot price reaching a low of US$107 a tonne around the start of June before lifting slightly. Slowing global economic activity — as a result of the spread of COVID-19 — saw steel production curtailed dramatically across a number of countries, with flow on effects for metallurgical coal demand. Indian steel mills reportedly cut output by 60-70 per cent during India’s lockdown, while a number of Indian ports declared ‘force majeure’ on the handling of coal. Other major metallurgical coal buyers in North East Asia and Europe also cut steel production. The impact of demand reductions immediately affected output in the US, where high cost producers idled mines. However, as prices fell further, supply-side impacts spread to other major metallurgical coal exporting countries, including Australia (see Section 5.6 Australia).

Figure 5.1: Metallurgical coal prices, monthly

The Australian premium HCC spot price is forecast to remain at current low levels of around US$110-120 a tonne over the remainder of 2020, averaging US$126 a tonne for the year as a whole. Buyers have reportedly been deferring cargoes until the second half of the year, which should keep prices low even as demand mounts a modest recovery. China’s ability to continue absorbing metallurgical coal supply also remains in question, especially if Chinese policymakers tighten restrictions on coal imports (see the thermal coal chapter for a discussion of Chinese coal import restrictions).
From 2021, metallurgical coal prices are expected to begin to recover in line with increasing steel production. The premium Australian HCC price is forecast to average US$145 a tonne in 2022 (Figure 5.2). Chinese demand remains the key risk to the outlook for metallurgical coal prices, due to the sheer size of its domestic coal market and ongoing uncertainty over its import policy. The other key demand-side uncertainty is the pace of the economic recovery in the world’s second-largest metallurgical coal importer, India.

5.3 World trade

World trade in metallurgical coal is estimated to have been broadly stable in 2019, at around 340 million tonnes. China’s imports increased on the back of robust growth in steel production, but weak growth in steel production outside of China weighed on seaborne demand.

World metallurgical coal trade is forecast to fall by over 30 million tonnes to 309 million tonnes in 2020. India and China are expected to account for around half of the fall, with the rest of the decline spread across other major steel producers, such as Japan, South Korea and Europe.

Production cutbacks are expected to be most severe in the US, but other major exporters are also likely to be affected. The US is a swing supplier, with US producers sitting to the right of the global cost curve (Figure 5.3).

Figure 5.2: Australian premium HCC spot price, quarterly

Source: Platts (2020); Department of Industry, Science, Energy and Resources (2020)

Figure 5.3: 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)
5.4 World imports

China may seek to reduce imports after they lifted at the start of 2020

China is the world’s largest steel maker, and imported an estimated 75 million tonnes of metallurgical coal in 2019 — making it the world’s largest metallurgical coal buyer. China’s metallurgical coal imports rose sharply year-on-year in the March quarter 2020, due to surging imports at the start of the year (Figure 5.4). The COVID-19 pandemic initially constrained China’s domestic production, with miners unable to return to work due to restrictions on the movement of people. China’s seaborne imports were further helped by Mongolia’s decision to close its border with China, which disrupted the crossing of trucks carrying metallurgical coal.

In April, however, China’s imports contracted by around 15 per cent, with Chinese mines having resumed operations and steel output remaining flat. China’s seaborne imports, however, were up due to the continued disruptions to Mongolian imports (Figure 5.4) and the fall in seaborne prices, which raised their competitiveness relative to domestic production and attracted irregular buyers — such as inland steel mills — to the seaborne market. China’s metallurgical coal imports are expected to fall to 67 million tonnes in 2020, as imports decline over the rest of 2020.

As the economic impacts of COVID-19 recede, China’s metallurgical coal imports are expected to rise to 76 million tonnes in 2022. Steel production is expected to continue to grow, albeit at a slower pace than forecast in the March Resources and Energy Quarterly. Chinese metallurgical coal production is also expected to lift but is not expected to keep pace with demand growth given that China has limited reserves, particularly of higher quality grades. China’s next phase of supply-side reforms — which aim to increase coal sector efficiency and profitability by replacing unsafe, high-cost mines with safer lower-cost ones — could adversely affect domestic metallurgical coal production, supporting imports. The reforms are aimed at shutting down and stopping the approval of small-scale coal mines, and China’s metallurgical coal output is more reliant on smaller mines than its thermal coal production. Shanxi’s provincial government is planning to shut all coal mines that produce less than 0.6 million tonnes per annum by the end of 2020 — equivalent to around 15 million tonnes of production. Shanxi produced around 970 million tonnes of coal in 2019.

India’s metallurgical coal imports to fall sharply before recovering

India is the world’s second largest steel producer and metallurgical coal buyer, importing an estimated 53 million tonnes in 2019. India’s metallurgical coal imports fell slightly in the March quarter, and the decline accelerated in April. The Indian government imposed a lockdown in late March which was subsequently extended until the end of June, although only for key containment zones. The lockdown saw Indian steel mills cut output by 60-70 per cent at times and much of India’s steel sector was reportedly ‘hot idled’ whereby mills continued to produce but at minimum levels in order to avoid the costs of turning off furnaces and restarting operations. As India’s steel production fell so too did India’s metallurgical coal demand. Steel mills were unable to take more feedstock and were forced to on-sell coking coal cargoes. India’s metallurgical coal imports are forecast to fall by 8 million tonnes in 2020 to 45 million tonnes.
After 2020, India’s metallurgical coal imports are expected to begin to recover, increasing to 56 million tonnes in 2022 (Figure 5.5). India has ambitious plans to increase crude steel production capacity from 142 million tonnes in 2018–19 to 300 million tonnes per year by Indian fiscal year 2030–31. However, India has very limited domestic reserves of metallurgical coal, and will need to increase imports to support the rapid growth of its domestic steel sector. The pace at which India’s steel sector is able to expand remains a key risk to the outlook, with the economic impacts of COVID-19 adding to the sector’s ongoing financial and regulatory challenges.

Japan and South Korea’s imports to decline in 2020 and then stabilise
Japan is the world’s third largest metallurgical coal importer, importing an estimated 47 million tonnes in 2019. Japan’s imports increased year-on-year in the four months to April, with Japan containing the spread of its first wave of COVID-19 infections. Following another lift in COVID-19 infections, however, the Japanese government announced a state of emergency in early April, which saw two of the country’s largest steel producers move to cut production by around 25 per cent. Japan’s metallurgical coal imports are forecast to decline in 2020 to 44 million tonnes and remain flat until 2022, in line with steel production.

South Korea is the world’s fourth largest metallurgical coal importer, bringing in an estimated 37 million tonnes in 2019. South Korea’s imports grew robustly in the four months to April, up 6 per cent year-on-year, but imports are forecast to edge down to 36 million tonnes in 2020, before stabilising until 2022, in line with steel production.

5.5 World exports
US exports to remain responsive to prices over the next two years
The US is the world’s second largest exporter of metallurgical coal after Australia, exporting around 50 million tonnes in 2019. The US is a swing producer in metallurgical coal markets — due to higher freight and production costs (Figure 5.3) — and exports fell sharply year-on-year in the first four months of 2020 due to the decline in metallurgical coal prices. US metallurgical coal exports are forecast to fall to 39 million tonnes in 2020, before rebounding in line with prices and lifting to 44 million tonnes in 2022 (Figure 5.6).

Russia’s exports affected by low metallurgical coal prices
Russia exported an estimated 26 million tonnes of metallurgical coal in 2019. Exports appear to have been impacted by declining prices, falling in the March quarter, and are forecast to decline to 22 million tonnes in 2020. After 2020, Russia’s metallurgical coal exports are expected to gradually recover, reaching 27 million tonnes in 2022. Russia has been investing in both new additions to mining capacity and rail and port expansions in recent years.

Mongolia’s coal exports fell in early 2020 due to border closure
Mongolia surpassed both Russia and Canada to become the world’s third largest metallurgical coal exporter in 2019, with exports of an estimated 31 million tonnes. In late January 2020, Mongolian authorities announced the
closure of its border with China to contain the spread of COVID-19. The closure disrupted the crossing of coal trucks and saw Mongolia’s coking coal exports fall sharply. Mongolia’s metallurgical coal exports are expected to recover as restrictions on the crossing of coal trucks into China continue to ease, but fall in 2020 as a whole to 26 million tonnes. Mongolia’s exports are expected to recover after 2020, reaching 32 million tonnes in 2022.

Canada’s exports affected by a combination of factors in 2020

Canada exported an estimated 30 million tonnes of metallurgical coal in 2019 (Figure 5.6). Canada’s exports declined year-on-year in the four months to April, as a result of severe weather events and rail blockades in January and February, and then the fall in metallurgical coal prices. Canada’s metallurgical coal exports are expected to decline to 27 million tonnes in 2020, before recovering to 31 million tonnes in 2022.

Figure 5.6: Metallurgical coal exports, annual

Mozambique’s exports challenged by low prices

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, estimated at 5 million tonnes in 2019. Mozambique’s metallurgical coal exports declined in the March quarter 2020, as COVID-19 lowered demand. Vale has also postponed the reconfiguration of the Moatize mine’s wash plant that was originally scheduled for the first half of 2020. The upgrade is needed to process an unanticipated section of lower grade material that was encountered at the mine.

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. After 2020, Mozambique’s exports are forecast to begin to recover, reaching 7 million tonnes in 2022, driven by the ramp up of Vale’s Moatize mine, and facilitated by the Nacala logistics corridor rail line and Nacala port expansion.

5.6 Australia

Metallurgical coal export earnings declined sharply in 2019–20

The value of Australia’s metallurgical coal exports declined from $44 billion in 2018–19 to an estimated $35 billion in 2019–20, driven by both lower prices and lower export volumes. Metallurgical coal export volumes fell 2.2 per cent year-on-year in the March quarter. A number of miners, including Yancoal, Coronado and BHP, reported lower production for the quarter, as a result of wet weather and/or bushfires.

Australia’s metallurgical coal exports were relatively resilient to low prices in April (Figure 5.7), but Queensland ports data suggests that they weakened in May. An underground explosion at Anglo American’s Grosvenor mine in Queensland at the start of the month saw the mine shutdown. Grosvenor produced 4.7 million tonnes of metallurgical coal in 2019.
Metallurgical coal export earnings to fall further in 2020–21

Metallurgical coal export earnings are forecast to decline further in 2020–21, falling to $25 billion (Figure 5.8), primarily due to lower prices. Export volumes are expected to edge down due to lower global demand for metallurgical coal, with some Australian miners announcing production cutbacks or temporary closures (discussed below) and the potential for further announcements to follow. However, exports should receive some support from the recovery of production from operational disruptions at a number of mines. The low Australian dollar and recent falls in oil prices (and resultant low diesel prices) should also assist Australian exporters. Export earnings are then expected to mount a partial recovery to $29 billion in 2021–22.

A key risk to the outlook is coal mines being placed on care and maintenance. However, there are a number of factors that reduce the risk of widespread mine closures in Australia, including 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 further 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 even at current spot prices (Figure 5.9). However, producers of semi-soft coking coal and PCI appear to be more exposed to a prolonged period of low prices.

To date, a number Australian mines have announced cuts to production. In May, Peabody announced the temporary closure of its 2.5 million tonne per annum Wambo underground thermal and semi-soft coking coal mine in New South Wales. Production will be halted at the mine for around 2 months from 19 June. Production will also be slowed at Peabody and Yancoal’s Middlemount mine in Queensland’s Bowen Basin due to the impacts of COVID-19. Middlemount produced around 2.7 million tonnes of metallurgical coal in 2019 (mainly PCI). In June, Anglo American announced that it would reduce production at its Dawson mine in the

Resources and Energy Quarterly June 2020
Bowen basin in response to low prices. Dawson produced around 6 million tonnes of hard and semi-soft coking coal last year. Stanmore Coal, which operates the Isaac Plains mine in Queensland (predominantly semi soft), is expecting no metallurgical coal sales in June (down from around 0.25 million tonnes), after term customers advised that they would be deferring the delivery of contracted coal shipments until later in the year. However, Stanmore’s production guidance for the full year is unchanged at 2.35 million tonnes.

Figure 5.9: Export margins of Australian metallurgical coal mines

Notes: Semi soft is semi-soft coking coal; PCI is pulverized coal for injection; HCC is hard coking coal. Price assumptions are HCC = US$120 a tonne; PCI = US$70 a tonne; semi soft = US$65 a tonne. Mines are categorized into HCC, PCI and semi soft based on which product they most produce of. Some mines produce a mixture of these products.

Source: AME (2020); Department of Industry, Innovation and Science (2020)

Longer term, deferred investment decisions, as a result of the demand-side impacts of COVID-19, are likely to weigh on Australian metallurgical coal production. Coronado Coal has deferred an expansion of its Curragh mine in Queensland’s Bowen Basin, noting it would reduce capital expenditure by around 40 per cent in response to COVID-19. Similarly, South32 may push back the timetable for development and project expansion for its Appin and Dendrobium underground coal mines in New South Wales because of capital constraints imposed by the company in response to COVID-19.

Coal exploration expenditure increases

Australia’s coal exploration expenditure increased 75 per cent year-on-year to $63 million in the March quarter 2020, continuing to recover from the lows recorded over 2016 and 2017 (Figure 5.10).

Figure 5.10: Australian coal exploration expenditure and prices

Source: Source: ABS (2020); IHS (2020); Platts (2020)

The outlook for Australia’s metallurgical coal exports has deteriorated

Australia’s forecast metallurgical coal export earnings have been revised down by $11 billion in 2020–21 and $6.7 billion in 2021–22, due to both lower prices and reduced export volumes. Forecast export volumes have been revised down by 14-16 million tonnes in 2020–21 and 2021–22. The ramp up in metallurgical coal exports forecast in the March 2020 Resources and Energy Quarterly is no longer expected during the outlook period, due to the demand-side impacts of COVID-19.
Table 5.1: World trade in metallurgical coal

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