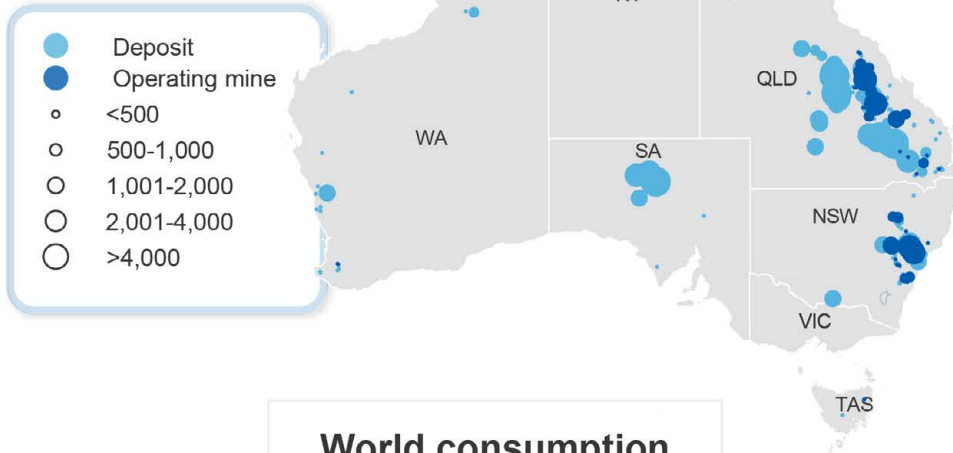


Metallurgical coal

Major Australian coal deposits (Mt)



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 coal**



1x tonne of steel made in an electric arc furnace **uses 150kg of coal**

World consumption



59%
China



10%
India



7%
Russia



6%
EU28



5%
Japan



4%
South Korea

Australia's metallurgical coal



World's no.1 metallurgical coal exporter



184m tonnes metallurgical coal exported in 2019



Almost all of Australia's met coal is exported

5.1 Summary

- The premium HCC spot price is forecast to ease from US\$183 a tonne in 2019 to average around US\$155 in 2022 (in real terms), due to a combination of soft demand growth and the ramp up of new capacity. The price is then expected to gradually recover, reaching around US\$167 a tonne in 2025 (in real terms).
- Australia's export volumes are forecast to grow from 184 million tonnes in 2018–19 to reach 205 million tonnes in 2024–25. This reflects the ramp up of new mines and increased output at existing operations, partly offset by the impact of the depletion of resources at several mines.
- The real value of Australia's metallurgical coal exports is projected to decline from a record of \$44 billion in 2018–19 to \$35 billion in 2021–22, before eventually increasing to around \$38 billion in 2024–25.

5.2 Prices

Metallurgical coal prices declined rapidly last year before stabilizing

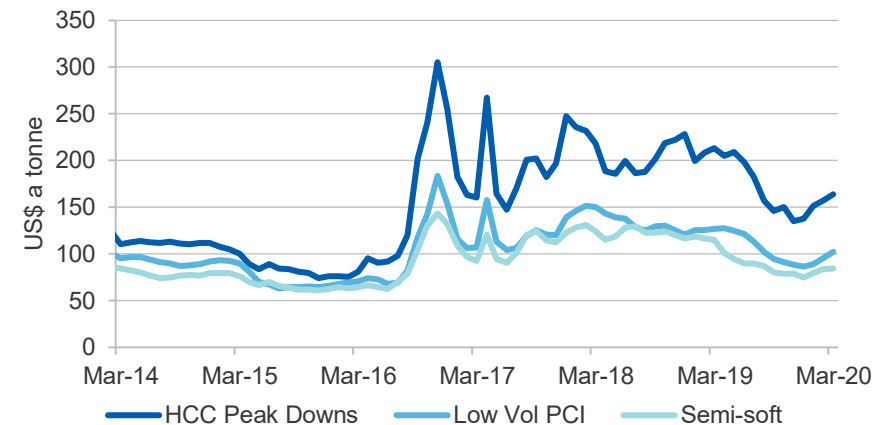
The premium Australian hard coking coal (HCC) spot price stabilised in the US\$150-165 range over the first quarter of 2020, after declining rapidly during 2019 to lows of around US\$135 a tonne in November 2019 (Figure 5.1). In 2019, seaborne demand was weighed down by slowing global economic growth and weak ex-China steel production. In India — the world's 2nd largest steel producer and metallurgical coal buyer — growth in steel output slowed sharply, causing metallurgical coal imports to flatten out. In the meantime, new capacity continued to come online in Australia, Russia and Mongolia. The Australian HCC spot price averaged US\$183 a tonne in 2019 (in real terms), down from US\$217 a tonne in 2018.

The uptick in metallurgical coal prices in early 2020 (Figure 5.1) appears to have been driven by supply disruptions stemming from weather conditions in Canada, the collapse of a roof at Anglo American's Moranbah North mine in Queensland in late January 2020, and the outbreak of COVID-19.

COVID-19 affected China's domestic production with miners unable to return to work due to restrictions on the movement of people, although most of China's coal mining capacity was reportedly back online by the

end of February 2020. Mongolia's decision to close its border with China until at least 30 March 2020, in order to prevent the spread of COVID-19, also appears to have supported Chinese seaborne import demand. Mongolia accounts for almost half of Chinese metallurgical coal imports, and the border closure reportedly disrupted crossings of coal trucks. However, the impacts of COVID-19 on supply have been partly offset by its effects on demand, with China's slowing economy weighing on steel production and thus reducing its metallurgical coal needs.

Figure 5.1: Metallurgical coal prices, monthly



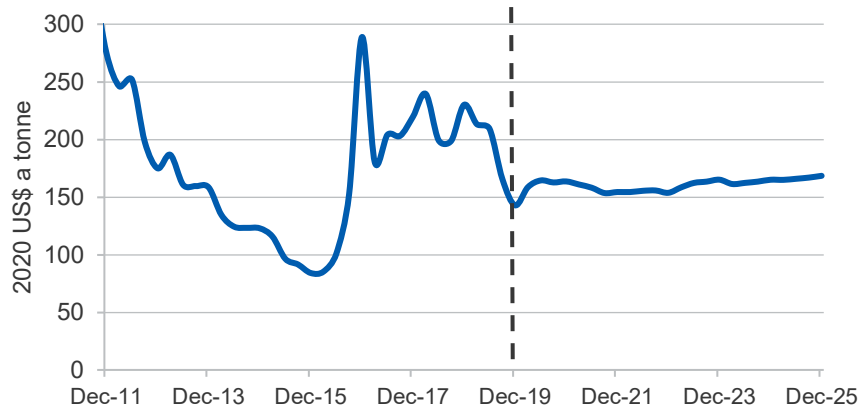
Notes: HCC stands for hard coking coal. PCI stands for pulverized coal for injection.
Source: Platts (2020)

Metallurgical coal prices are forecast to gradually decline to average around US\$155 in real terms in 2022 (Figure 5.2). Demand growth is expected to be subdued against the backdrop of slowing growth in steel production. Meanwhile, supply is expected to grow solidly, with Australia the main source of new capacity. Over the medium term, the price is projected to recover. A modest lift in the real price to US\$167 a tonne by 2025 is projected, as supply growth slows relative to demand.

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. A fall in Chinese imports would push

prices lower than forecast. Countering this, the supply side of metallurgical coal markets remains highly concentrated, and supply chain disruptions have the potential to drive periodic price spikes. The price impacts of a supply chain disruption in Australia — which accounts for over half of seaborne supply — would be particularly pronounced.

Figure 5.2: Australian premium HCC spot price, quarterly



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

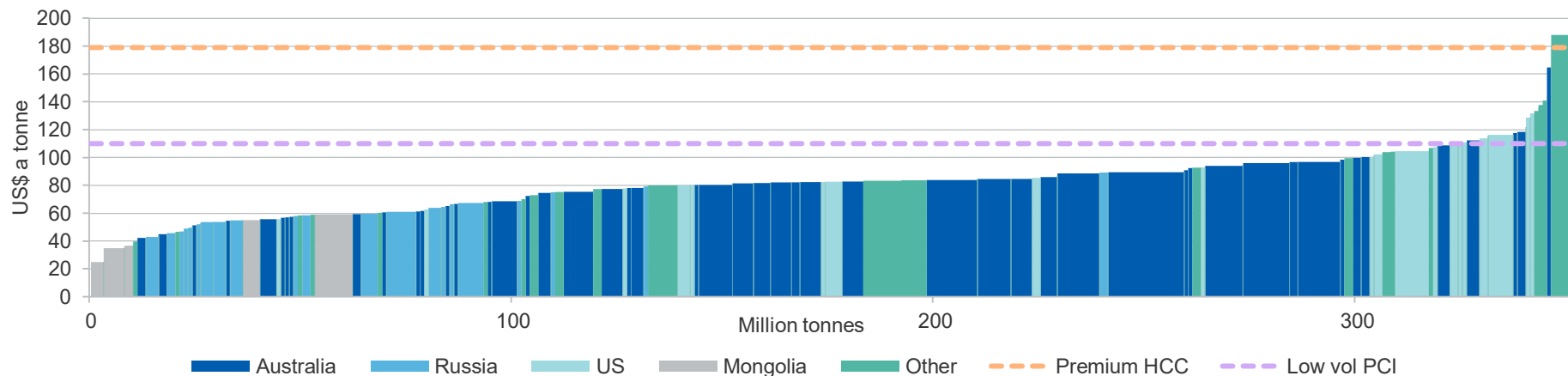
5.3 World trade

World trade in metallurgical coal is estimated to have remained 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 projected to gradually increase to around 390 million tonnes in 2025. India and China are expected to be the key sources of demand growth. Australia is expected to comfortably remain the dominant exporter of metallurgical coal, holding its share of world imports steady at around 55 per cent over the outlook period.

Additional supplies of metallurgical coal are expected to come online from Russia, Mongolia and Mozambique. Canada's exports are expected to remain flat. The US should continue to act as a swing supplier, with US producers near the top of the cost curve (Figure 5.3). The strength of the US dollar is currently undermining the competitiveness of US exporters.

Figure 5.3: Metallurgical (including hard coking, PCI and semi-soft) coal FOB cost curve and average annual prices, 2019



Notes: Nominal terms; FOB is Free on Board; PCI stands for pulverized coal for injection; Premium HCC is the price for premium Australian hard coking coal.

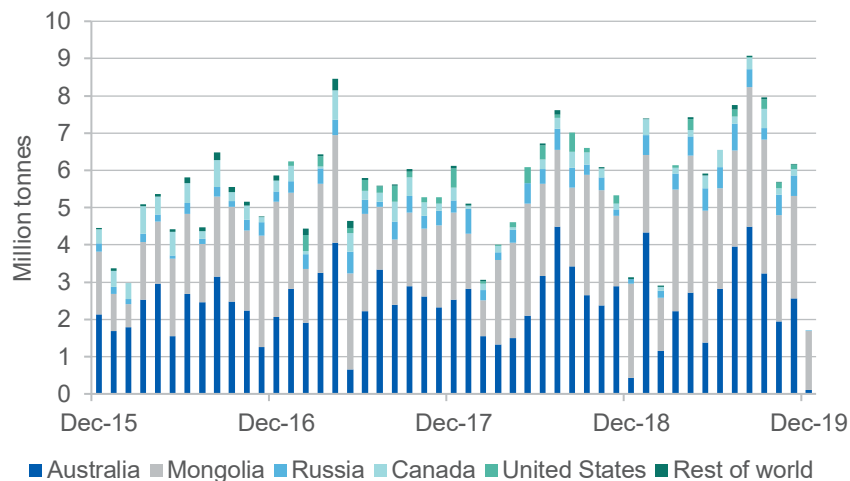
Source: AME Group (2020); Platts (2020); Department of Industry, Science, Energy and Resources (2020)

5.4 World imports

China's metallurgical coal imports projected to climb

China is the world's largest steel producer and metallurgical coal importer. China's metallurgical coal imports increased by 14 per cent to an estimated 75 million tonnes in 2019. Demand was supported by robust growth in Chinese steel production, which reached virtually 1 billion tonnes, thanks to a resilient property market, a push on infrastructure spending by the Chinese government and solid profit margins at steel mills (see *steel* chapter). Relatively low seaborne prices encouraged metallurgical coal imports, although imports appear to have fallen sharply towards the end of the year as policymakers tightened import restrictions to limit total coal imports to the 300 million tonne mark (Figure 5.4).

Figure 5.4: China's metallurgical coal imports, monthly



Source: Bloomberg (2020) China customs

China's annual metallurgical coal imports are forecast to remain around current levels in the short term, before climbing to around 85 million tonnes in 2025. Steel production is expected to continue to grow over the next five years, albeit at a slower pace in the short term, driving metallurgical coal

demand. 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 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.

Nevertheless, a number of factors are expected to constrain growth in metallurgical coal imports. The first is the growing use of scrap steel in steel production in China, which reduces the amount of metallurgical coal China requires to produce a given quantity of steel. A second factor is China's coal import policy. Over the past few years, Chinese policymakers have sought to limit total coal import volumes (see *thermal coal* chapter for further discussion), and a continuation of this policy would limit the scope for growth in China's metallurgical coal imports.

China represents the biggest risk to the outlook for metallurgical coal, as a result of ongoing uncertainty surrounding its import policies, the pace of its economic growth and the unfolding impacts of COVID-19, and the pace at which scrap steel usage grows.

India to rapidly increase its imports to support steel production

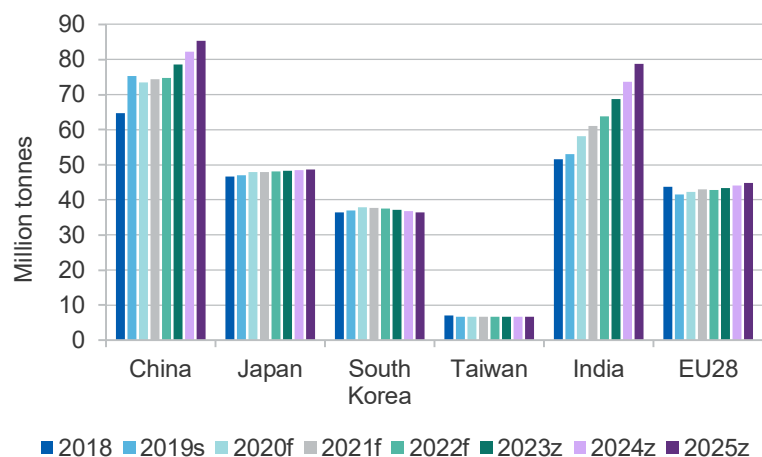
India is the world's second largest steel producer and metallurgical coal importer. India's metallurgical coal imports are estimated to have remained broadly unchanged in 2019 at around 53 million tonnes. After solid increases in steel production in 2018, growth in India's steel output slowed markedly in 2019, with weak domestic demand from key sectors, particularly automotive and construction. In recent months, India, which sources the majority of its metallurgical coal from Australia, has held discussions with a number of other suppliers about diversifying its imports, including the United States, Mongolia and Russia.

India's metallurgical coal imports are projected to increase to 79 million tonnes in 2025 (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 uncertain, and presents a risk to the outlook for India’s metallurgical coal imports, with the sector facing ongoing financial, regulatory and other challenges.

Figure 5.5: Metallurgical coal imports, annual



Notes: s Estimate f Forecast z Projection

Source: IHS (2020); IEA (2019) Coal 2019; Department of Industry, Science, Energy and Resources (2020)

Japan, South Korea and Taiwan’s imports to remain subdued

Japan is the world’s third largest metallurgical coal importer. Japan’s imports were broadly unchanged at an estimated 47 million tonnes in 2019, despite a fall in Japan’s steel production. Metallurgical coal imports are expected to be broadly unchanged over the outlook period, as steel production stagnates.

South Korea is the world’s fourth largest metallurgical coal importer, and imports were stable at an estimated 37 million tonnes in 2019. South

Korea’s imports are projected to be broadly flat over the outlook period, in line with steel production.

Taiwan’s imports of metallurgical coal were steady at 7 million tonnes in 2019, and are projected to remain flat over the next five years.

Metallurgical coal imports projected to rise in emerging economies

Metallurgical coal imports are projected to grow in emerging economies, although from a low base. A number of countries, including Vietnam, have blast furnace steel plants coming online over the outlook period, which should drive an increase in the imports of emerging economies.

5.5 World exports

The US is expected to remain the swing producer in met coal markets

The US is the world’s second largest exporter of metallurgical coal. US exports grew substantially between 2016 and 2018. Exporters responded to higher prices initially induced by a tighter market, and then exacerbated by the impact of Cyclone Debbie on Australian production in 2017. However, US exports fell back by 10 per cent to about 50 million tonnes in 2019, as falling prices curbed profitability.

US metallurgical coal exports are projected to decline gradually in line with prices, before lifting from around 2023 as prices rise. The US is a swing producer in metallurgical coal markets — due to higher freight and production costs — and growing supply from other producing nations will likely eat into US market share in the short term.

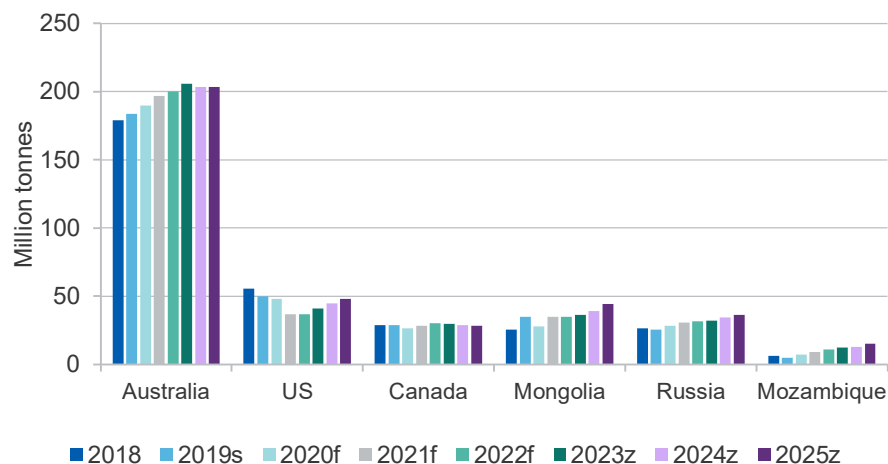
Russia’s exports to lift on the back of recent investment

Russia’s metallurgical coal exports are estimated to have remained broadly unchanged in 2019 at around 26 million tonnes. Over the next five years, however, Russia’s metallurgical coal exports are projected to grow to 36 million tonnes in 2025 (Figure 5.6), driven by new additions to mining capacity, and by rail and port expansions. In September 2019, a third export line came online at Russia’s largest coal terminal at the port of Vostochny, expanding capacity from 22 mtpa to 40 mtpa.

Canada's exports to remain stable

Canada's metallurgical coal exports were stable at an estimated 29 million tonnes in 2019. Canada's metallurgical coal exports are expected to remain largely unchanged over the next five years, with few new projects in the pipeline.

Figure 5.6: Metallurgical coal exports, annual



Notes: s Estimate f Forecast z Projection

Source: IHS (2020); IEA (2019) Coal 2019; Department of Industry, Science, Energy and Resources (2020)

Mongolia to lift exports by addressing infrastructure constrains

Mongolia appears to have surpassed both Russia and Canada to become the world's third largest metallurgical coal exporter in 2019, with exports climbing to 31 million tonnes. Mongolia primarily exports coal by trucking it to China through the Gants Mod and Ceke border crossings, and exports surged over the first eleven months of the year before the Chinese government ordered tighter controls on imports. In late January 2020, Mongolian authorities announced the closure of its border with China to contain the COVID-19 outbreak, which has reportedly disrupted crossings of coal trucks.

Mongolia's exports are expected to continue to climb over the next five years, reaching 44 million tonnes in 2025. There are plans to develop Tavan Tolgoi — the world's largest undeveloped coking coal mine — and a 30 mtpa railway line from Tavan Tolgoi to the Chinese border is currently under construction. A smaller 3 mtpa expansion is planned at TerraCom's Baruun Noyon Uul coking coal mine complex. Mongolia is also cooperating with Russia on a 10 mtpa coal terminal at Posyet Bay. The port project is scheduled to begin operations in 2023, and could facilitate exports to both China and the broader Asia-Pacific market.

Mozambique's exports to grow but challenges remain

Mozambique currently has two exporting metallurgical coal mines: Vale's Moatize and Jindal Steel's Songa mines. Mozambique — once touted as the next major supplier of metallurgical coal — has faced a number of challenges in growing its exports, which are estimated to have fallen by around 25 per cent to 5 million tonnes in 2019. The fall last year was, in part, driven by miners encountering an unanticipated section of lower grade material at Vale's Moatize mine that the mine's wash plant was not configured to treat. The company will halt production at the mine for three months sometime in the first half of 2020 to address the issue. Mozambique's exports are projected to triple to 15 million tonnes in 2025, driven by the ramp up of Vale-Mozambique's Moatize mine, and facilitated by the Nacala logistics corridor rail line and Nacala port expansion.

5.6 Australia

Metallurgical coal export earnings forecast to reach record highs

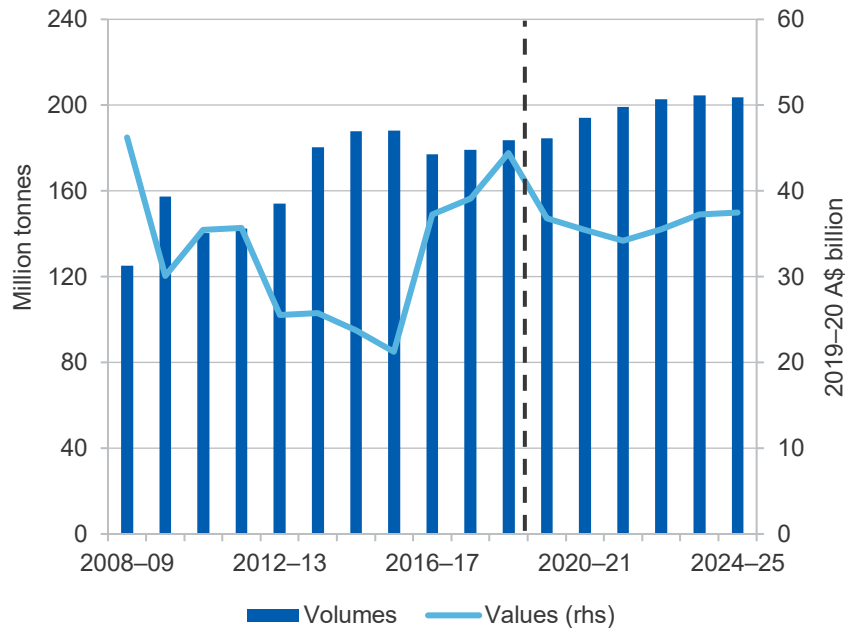
The value of Australia's metallurgical coal exports reached a record high for a second consecutive year in 2018–19. Export earnings increased to \$44 billion in real terms, driven by high prices and, to a lesser extent, growing export volumes.

Metallurgical coal export earnings are projected to decline in real terms to \$35 billion in 2021–22, as prices ease, before recovering to \$38 billion in 2024–25. Export volumes are projected to grow solidly over the next five years, increasing from 184 million tonnes in 2018–19 to 205 million tonnes in 2024–25 (Figure 5.7). Higher export volumes will be driven by the ramp

up of production at a number of mines, the largest of which is Qcoal's 10 mtpa Byerwen mine in the Bowen Basin in Queensland.

The closure of a number of mines due to resource depletion is expected to weigh on export volumes towards the end of the outlook period. The collapse of a roof at Anglo American's Moranbah North mine in Queensland in late January 2020 will weigh on production in the short term. Anglo American has revised down its metallurgical coal production guidance to 19-21 million tonnes for 2020 as a result of the accident, after producing 23 million tonnes last year.

Figure 5.7: Australia's metallurgical coal exports

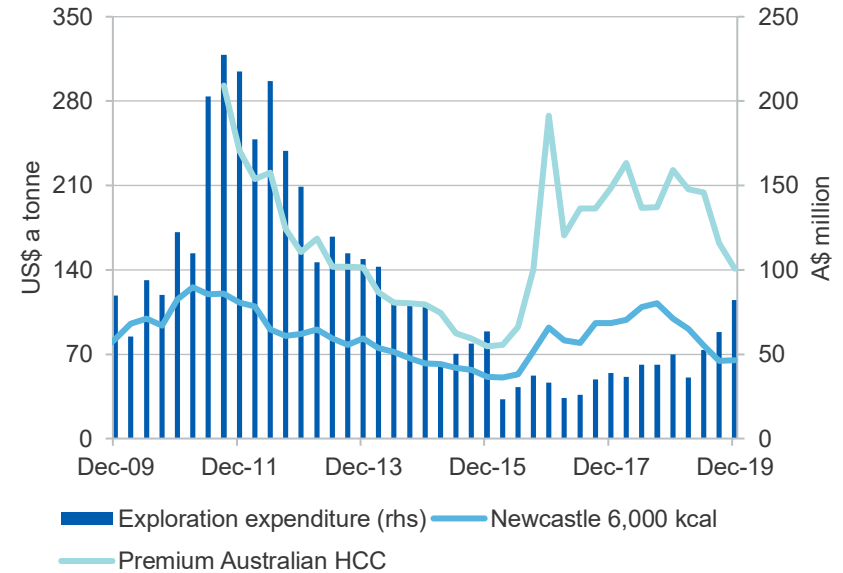


Source: ABS (2020) International Trade, Australia 5454.0; Department of Industry, Science, Energy and Resources (2020)

Coal exploration expenditure rebounds

Australia's coal exploration expenditure reached \$234 million in 2019, up by around \$60 million on 2018. Coal exploration expenditure has been on the rise since reaching record lows over 2016 and 2017 (Figure 5.8).

Figure 5.8: Australian coal exploration expenditure and prices



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

Table 5.1: World trade in metallurgical coal

	Unit	2019 ^s	2020 ^f	2021 ^f	2022 ^f	2023 ^z	2024 ^z	2025 ^z	CAGR ^r
World trade	Mt	340	342	352	360	372	379	391	2.4
Metallurgical coal imports									
China	Mt	75	73	74	75	79	82	85	2.1
India	Mt	53	58	61	64	69	74	79	6.8
Japan	Mt	47	48	48	48	48	49	49	0.6
European Union 28	Mt	41	42	43	43	43	44	45	1.3
South Korea	Mt	37	38	38	37	37	37	36	-0.3
Metallurgical coal exports									
Australia	Mt	184	192	199	202	207	205	205	1.9
United States	Mt	50	48	37	37	41	45	48	-0.7
Canada	Mt	29	26	28	30	30	29	28	-0.4
Russia	Mt	26	28	31	32	32	35	36	5.8
Mongolia	Mt	31	28	35	35	37	39	44	5.9
Mozambique	Mt	5	7	9	11	12	13	15	21.8

Notes: **s** Estimate; **f** Forecast; **z** Projection; **r** Compound annual growth rate from 2019 to 2025.

Source: IEA (2019) Coal Information 2019; IEA (2019) Coal 2019; IHS (2020); Department of Industry, Science, Energy and Resources (2020)

Table 5.2: Metallurgical coal outlook

World	Unit	2019	2020 ^f	2021 ^f	2022 ^f	2023 ^z	2024 ^z	2025 ^z	CAGR ^r
Contract prices ^e									
– nominal	US\$/t	184	160	161	162	172	178	186	0.1
– real ^d	US\$/t	188	160	157	155	161	163	166	-2.1
Spot prices ^g									
– nominal	US\$/t	179	162	160	162	174	178	186	0.7
– real ^d	US\$/t	183	162	157	155	162	163	167	-1.5
Australia	Unit	2018–19	2019–20 ^f	2020–21 ^f	2021–22 ^f	2022–23 ^z	2023–24 ^z	2024–25 ^z	CAGR ^r
Production ^s	Mt	188	192	200	205	209	211	210	1.8
Export volume	Mt	184	186	196	201	205	206	205	1.9
– nominal value	A\$m	43,637	36,935	36,437	35,895	38,212	41,065	42,403	-0.5
– real value ⁱ	A\$m	44,457	36,935	35,731	34,459	35,823	37,556	37,818	-2.7

Notes: **d** In 2020 US dollars; **e** Contract price assessment for high-quality hard coking coal; **g** Hard coking coal fob Australia east coast ports; **i** In 2019–20 Australian dollars; **r** Compound annual growth rate from 2019 to 2025, and 2018–19 to 2024–25; **s** Estimate; **f** Forecast; **z** Projection.

Source: ABS (2020) International Trade in Goods and Services, Australia, 5368.0; Department of Industry, Science, Energy and Resources (2020); Platts (2020)