

Metallurgical coal

Major Australian coal deposits, Mt

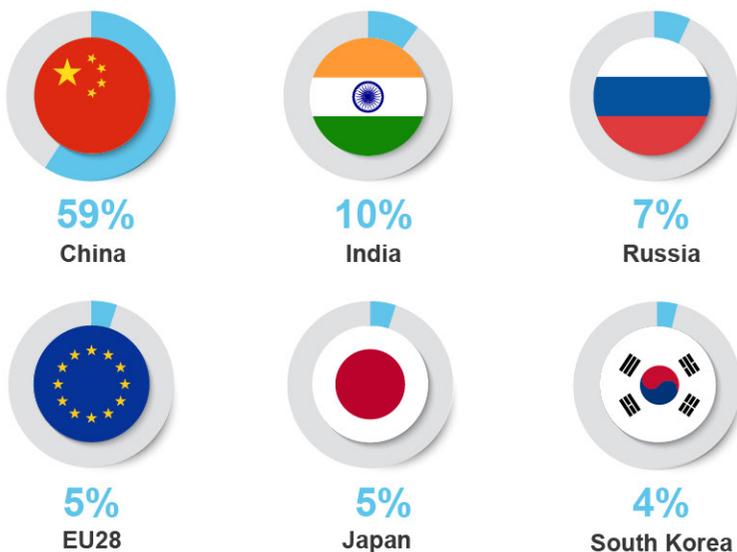


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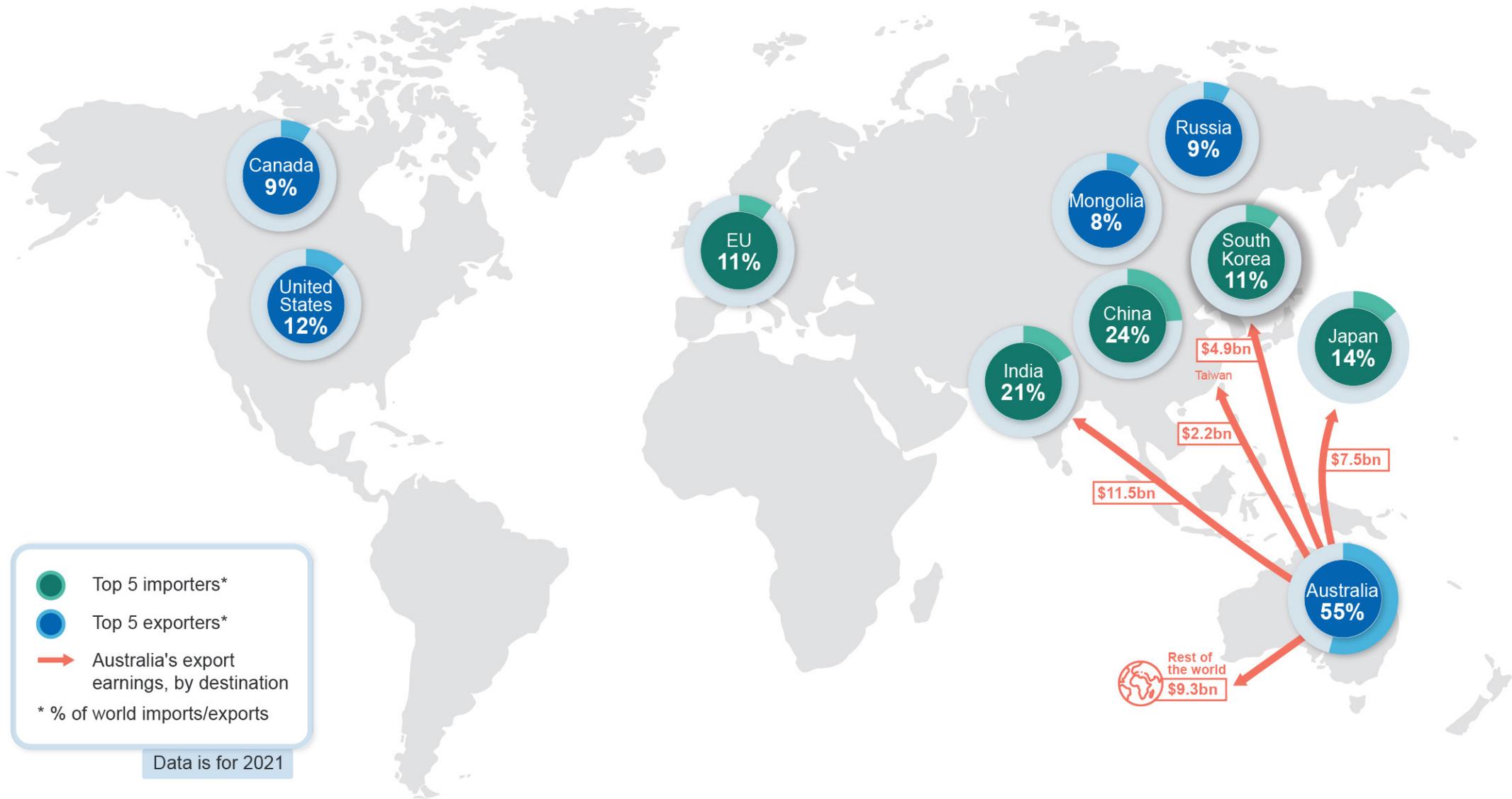
-  Metallurgical coal is primarily used to make steel
-  Contains more carbon and less ash & moisture than thermal coal
-  1 tonne of steel made in a blast furnace uses 780kg of met coal
-  Electric arc furnaces do not use met coal as a raw material

World consumption



Australia's metallurgical coal





5.1 Summary

- Metallurgical coal prices have eased back from historic highs in the September quarter. The Australian premium hard coking coal price is forecast to average almost US\$400 a tonne in 2022, but is expected to fall by almost half as supply conditions normalise, ultimately reaching around US\$220 a tonne by 2024.
- Higher production in NSW and Queensland is expected to push up Australia's exports, from 171 million tonnes in 2020–21 to 180 million tonnes by 2023–24 (see [Australia section](#)).
- Australia's metallurgical coal export values are forecast to track with price movements, rebounding from \$23 billion in 2020–21 to peak above \$66 billion in 2021–22, before falling back to \$44 billion in 2023–24.

5.2 World trade

Metallurgical coal prices have fallen significantly from the record levels of early 2022. The fall initially appeared to be a correction following the surge in prices in response to the Ukraine war. However, prices have continued to fall amidst softening demand from steelmakers, with a downturn in global steel production now expected in 2022 (see *steel chapter*). This downturn reflects a broader weakening in global economic conditions.

Steelmaking has been affected by high energy prices and a general downturn in the global economic outlook. The IMF has cut its global GDP growth forecast further — to 3.2% for 2022, having originally forecast growth of 4.9% for the year. This has flowed through to metallurgical coal markets, where supply is now exceeding demand. Inventories have begun to rebuild, and price volatility is declining.

Further weather events pose an ongoing risk to supply, but lower demand and higher inventories should prevent any significant new price shocks in the changed global environment.

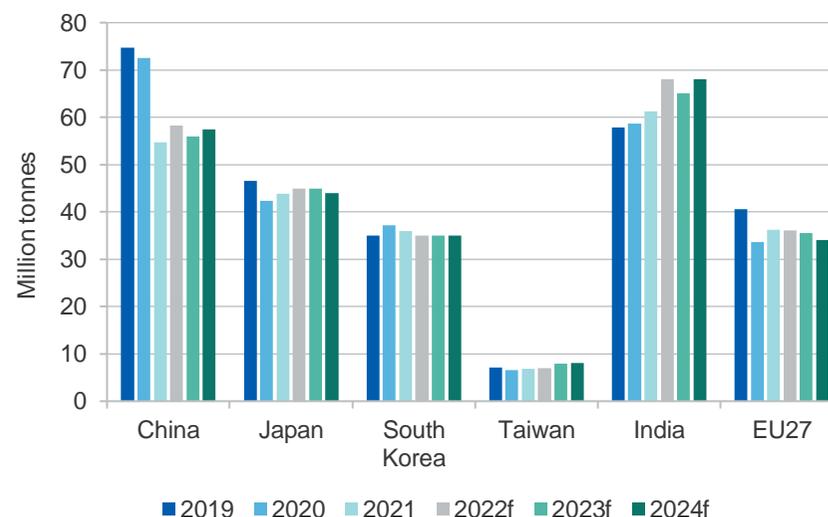
In 2020–21, metallurgical coal markets were previously forced to adjust to accommodate the Chinese import restrictions targeting Australia, and are now reordering again to accommodate EU sanctions on Russia. The

adjustments have lengthened shipping distances and pushed up freight costs, and there is potential for further disruptions when EU sanctions take full effect. However, prices may not push up substantially, as much of the impact has already been factored in by markets, and European inventories have been rebuilt in preparation.

Metallurgical coal supply is expected to exceed demand over the outlook period as steelmaking flattens and some supply disruptions ease. Global automotive manufacturing, construction and other steel-using industries have all faced downward revisions in their requirements. This will allow additional metallurgical coal to enter thermal coal markets, which remain in critical shortfall.

On balance, world metallurgical coal trade is forecast to increase from 296 million tonnes in 2021 to 323 million tonnes by 2024 (Figure 5.1). The bulk of the growth in trade is expected in 2023, as global steelmaking and industrial activity regain some momentum.

Figure 5.1: Metallurgical coal imports



Notes: f forecast

Source: McCloskey (2022); Department of Industry, Science and Resources (2022)

5.3 World imports

Chinese metallurgical coal imports have picked up

Chinese steel production fell by 3.0% in 2021. Output was curbed by policy interventions intended to meet environment/emissions controls, but also amidst record iron ore and metallurgical coal prices. Chinese production of metallurgical coal remains strong, but imports lifted in July nonetheless — perhaps reflecting efforts to raise inventories.

Steelmaking in China has faced months of cost pressure, as energy and metallurgical coal prices rendered much of it unprofitable, and as demand eased amidst a softening global economic outlook. Industrial production growth fell to 3.8% in July (below market expectation of 4.6%), while youth unemployment in China — an important leading indicator of economic health — rose sharply to almost 20%. Dwelling construction has turned down, reducing domestic steel requirements over the near term, and disruptions linked to COVID-19 outbreaks have led some industries to curb activity. Previously, supply shortages pushed domestic metallurgical coal prices above US\$600 a tonne, but this has eased substantially now.

Responding to a deterioration in the growth outlook, the Chinese Government has announced further plans to invest in infrastructure as a stimulus measure. Previous infrastructure packages have involved a high use of steel, but further stimulus faces risks in the form of COVID-19 lockdowns, which could disrupt infrastructure rollouts by shutting down construction zones or by paralysing the supply chains involved.

China's informal import restrictions on Australian metallurgical coal are expected to remain in place over the outlook period. While speculation of a policy change has affected some markets, there is no firm indication of any revision.

US exports to China increased rapidly in 2021, from under 2 million tonnes in 2020 to more than 10 million tonnes. However, in 2022, exports from the US appear to be declining again, due to a number of factors: China has increased its domestic output, and imports from Mongolia have lifted — as

COVID-19 related border restrictions eased and the freight rail connection between the two nations was improved.

China is also set to increase its total coal imports from Russia in 2022, potentially by up to one-third, to around 70 million tonnes. Growth will be somewhat constrained by infrastructure limitations, but the completion (and potential expansion) of a new railway bridge could provide additional capacity. The facility is not exclusive to coal; it will also be used to move iron ore as well as other commodities and manufactured goods.

The increasing trade links with Russia and Mongolia — in conjunction with greater efforts to source metallurgical coal domestically — are expected to fill much of the gap left by the loss of Australian metallurgical coal.

India's metallurgical coal imports are recovering

The Indian government continues to place a high priority on developing its domestic steel industry. Growth in Indian steel production has been strong, with more than 10 million tonnes produced in most months of 2022. Recent growth in Indian steel production has been largely met from domestic metallurgical coal supply, with imports of metallurgical coal largely holding steady over the first half of 2022.

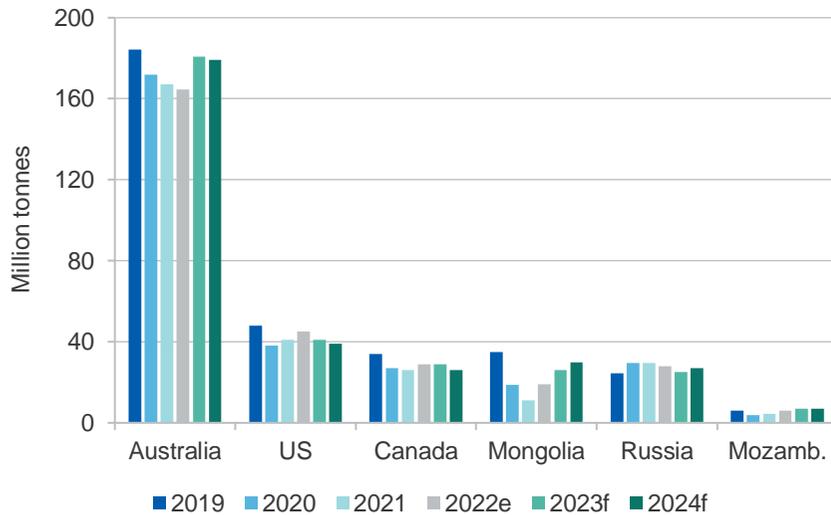
Australia accounted for almost three-quarters of Indian metallurgical coal imports in 2021, while import shares from Canada and the US slumped to 3% and 5%, respectively. However, heavy rainfall and COVID-19 issues caused some disruption to Australian supply to India in the first half of 2022. Efforts are underway in India to source more metallurgical coal from Russia, and expansions in rail capacity continue to progress. Imports of Russian coking coal have increased by around 20% over the year to June, with Russia becoming India's third largest coal supplier.

India's metallurgical coal needs are likely to grow over the next two years. Indian steelmakers have US\$11 billion worth of projects announced, some of which are scheduled for completion by the mid-2020s. Indian metallurgical coal imports — already the largest in the world — are expected to grow further over the outlook period (Figure 5.1).

5.4 World exports

Global metallurgical coal supply is recovering from disruptions related to weather events and COVID-19. But the full effects of EU sanctions against Russia are yet to be felt, and may disrupt markets further from September.

Figure 5.2: Metallurgical coal exports



Notes: f forecast e estimate

Source: IHS (2022); Department of Industry, Science and Resources (2022)

COVID-19 impacts are hampering US efforts to capitalise on strong prices

US metallurgical coal exports remain subject to infrastructure constraints, and were not able to scale up significantly during the boom prices of early 2022 (Figure 5.2). With prices receding once more, the brief surge of revenue is now passing, potentially reducing funding for mine expansions and extensions in US capacity — which is traditionally high-cost.

US freight rail networks have partially recovered following a series of maintenance problems and parts shortages. Several barges have also faced mechanical problems, further constraining inland coal transit. An explosion due to accumulated coal dust severely affected CSX's Curtis

Bay Piers in December 2021, with repairs ongoing. US metallurgical coal exports have increased moderately (but not as much as originally expected) since the price boom began. Over the outlook period, US exports are expected to edge back, as prices fall and cost-sensitive exporters withdraw from the market.

Exports from Canada are set to rise, as a new mine ramps up

Canadian metallurgical coal exports are expected to lift slightly in 2022, driven by the restart of Canada Coal's Grand Cache mine (which has historically produced about 2 million tonnes of coal annually). The mine was shut down in 2020, after the outbreak of the COVID-19 pandemic. While the restart may take some time (given an eighteen month period of care and maintenance), it is expected to be attained in early 2023.

Strong conditions for Canadian exporters are expected to see exports remain solid through to the end of the outlook period (Figure 5.2).

Exports from Africa are recovering

Mozambique's exports fell in 2020 and 2021 as low prices forced much of the nation's high cost production out of the market. Exports are forecast to recover to 7 million tonnes by 2024. This growth is expected to be driven by Vulcan Resources' Moatize mine — where work has finished on a preparation plant upgrade — and by upgrades to the Nacala logistics corridor rail line and port. Higher output at the Moatize site may be temporarily affected by seasonal heavy rainfall, but growth to over 8 million tonnes of metallurgical coal (annually) is expected over the longer term.

Russian exports face a difficult outlook

Russian exports face uncertain prospects, with the EU sanctions set to take full effect in September 2022. Russia previously exported about 10 million tonnes of metallurgical coal to Ukraine annually, another 7 million tonnes to the EU, and 5 million tonnes to Japan. China, India and various South Asian nations are raising their imports of Russian coal, but are not expected to absorb the full amount (see [World imports section](#)).

The amount of displaced Russian coal will become apparent in September and October, but there was little sign of successful redirection to Asian markets in August. Russian coal exports to China fell in August, as did exports to Asia as a whole. Capacity shortages in the rail system (and difficulties accessing additional shipping) appear to be acting as a constraint. On balance, it is expected that around a third to a half of Russian exports will be stranded in the immediate future. Ultimately, around 5 million tonnes annually is expected to be stranded from global markets.

Mongolia's exports have stopped falling, as COVID-19 impacts peak

Mongolian coal exports are expected to rise over time (Figure 5.2), with Chinese investment helping to develop the previously minimal freight rail links between the two nations. Mongolian coal exports have typically been dominated by truck shipments, but the launch of 3 railway lines in 2022 should underpin a more efficient and stable transport system. Mongolian exports are forecast to rise by over 30% between 2021 and 2024.

5.5 Prices

Metallurgical coal prices are expected to ease gradually

Metallurgical coal prices fell sharply between late May and early July, before recovering slightly. Supply continues to face disruptions from floods in Australia and other weather events, but the fall in demand has allowed market tightness to ease nonetheless. High global energy prices are likely to act as an ongoing curb on steelmaking, especially in China and Europe — where gas shortages are likely to force some moderation in overall energy use over the winter.

Inventories in Europe, which previously faced shortfalls, have recently been rebuilt. With metallurgical coal inventories now at comfortable levels and prices surging for thermal coal, metallurgical coal has begun to enter thermal coal markets in larger quantities. This trend is likely to support metallurgical coal prices somewhat by removing excess supply from the market. However, prices remain weighted down by widespread softening

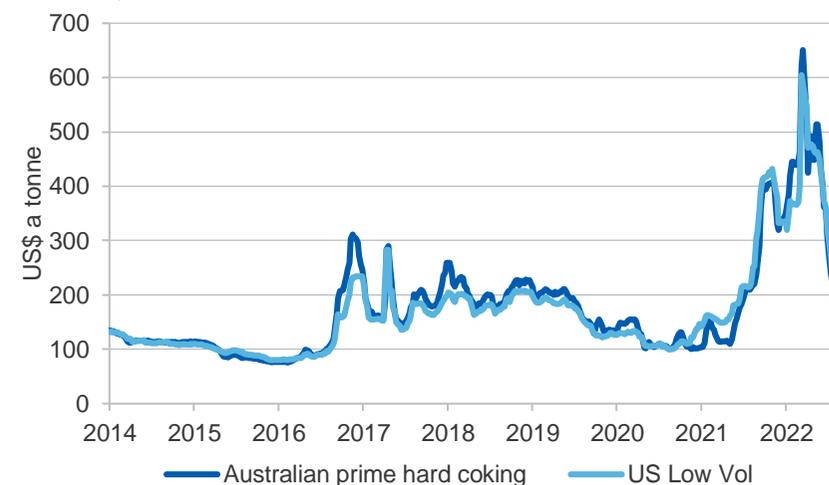
in global demand, most notably from China, with greater buyer discretion acting as a curb on further outbreaks of volatility.

It is expected that thermal coal prices will remain above metallurgical coal prices for some time — an unprecedented situation — and likely enduring while steel demand remains low and energy shortages persist. Around 5-10% of European steelmaking capacity is idled at present, due to high gas prices and the softening in global economic growth, which has led to demand concerns.

Price risks have shifted to the downside in recent months. Falling global demand and rising interest rates have added to the risk of a global recession. However, there are significant risks to supply too, largely from weather events in Australia, the world's dominant supplier.

Prices for Australian hard coking coal are expected to decrease from US\$420 a tonne in 2022 to US\$220 a tonne in 2024 (Figure 5.3).

Figure 5.3: Metallurgical coal prices – Australian Prime Hard vs US Low Vol, FOB



Notes: 'Low Vol' is low volatility coking coal.

Source: IHS (2022); Department of Industry, Science and Resources (2022)

5.6 Australia

Metallurgical coal export earnings have risen despite supply issues

Australian metallurgical coal exports and prices have lifted in 2022 (Figures 5.4 and 5.5), supported by rising demand in several major markets, including Japan, Taiwan, and South Korea. Exports to Europe are also increasing, and should lift further as the second half of 2022 progresses.

However, recent falls in global steelmaking have softened the demand for metallurgical coal, reducing the record revenues of metallurgical coal producers.

Producers have increasingly directed metallurgical coal into thermal coal markets in recent months, capitalising on favourable thermal coal prices. The shift reduces the need to wash the coal and allows producers to capitalise on record thermal coal prices. Producers of higher-grade and harder metallurgical coal (most of which are based in Queensland) typically do not include by-pass capacity in their wash plants, and have less incentive and capacity to redirect to thermal markets.

Ongoing weather issues represent the primary risk to Australian production at present. The chances of a La Niña weather pattern are high, and the Indian Ocean Dipole is strongly negative, raising the likelihood of wetter than normal conditions in the eastern half of Australia during the spring/summer period. Flooding and weather disruptions are already having an impact on exports early in 2022–23, with significant impacts on mines and transport in July.

South32 has abandoned its attempt to secure NSW Government approval for a US\$700 million life extension to its Dendrobium coking coal mine. The extension was intended to allow production to last until 2048, but the company has pulled out on the grounds that extending operation of the mine no longer represents the best use of capital. The mine, which currently supplies Port Kembla steelworks, is now expected to close in the early 2030s.

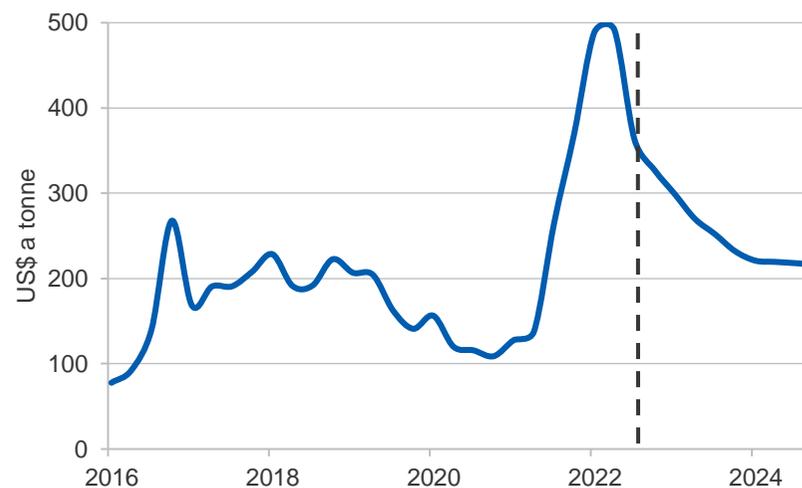
On balance, long term factors for metallurgical coal remain largely positive. Higher production in NSW and (especially) Queensland is expected to push up Australia's exports, from 171 million tonnes in 2020–21 to 180 million tonnes by 2023–24.

Metallurgical coal export earnings were \$23 billion in 2020–21 (Figure 5.6), but surged to \$66 billion in 2021–22. Prices are easing as seasonal and short-term supply issues pass and demand edges back. This should see earnings fall moderately over the outlook, with export values eventually easing to a (still-high) \$44 billion by 2023–24.

Coal exploration expenditure has increased

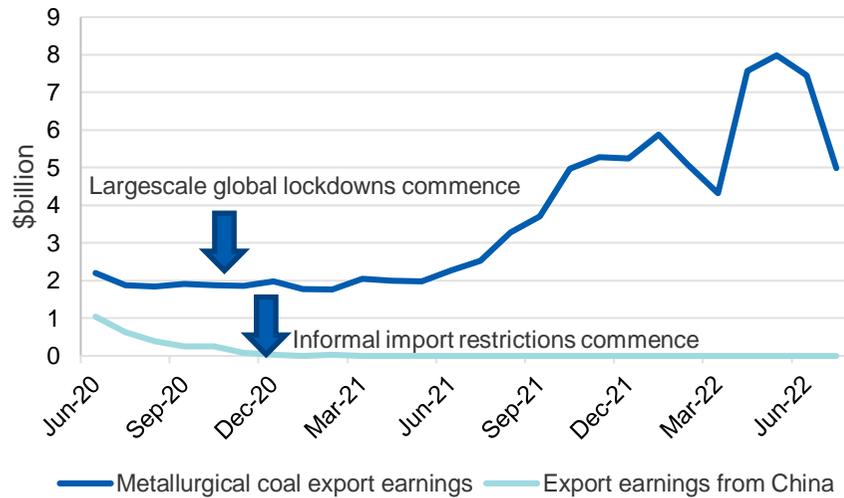
Australia's coal exploration expenditure increased to \$61 million in the June quarter, to be 12% higher through the year. Prices have risen markedly for Australian coal, but thermal producers face issues with finance, insurance and social licence. Recent growth in exploration is thus likely to have been dominated by metallurgical coal (Figure 5.7).

Figure 5.4: Australian metallurgical coal spot price, quarterly



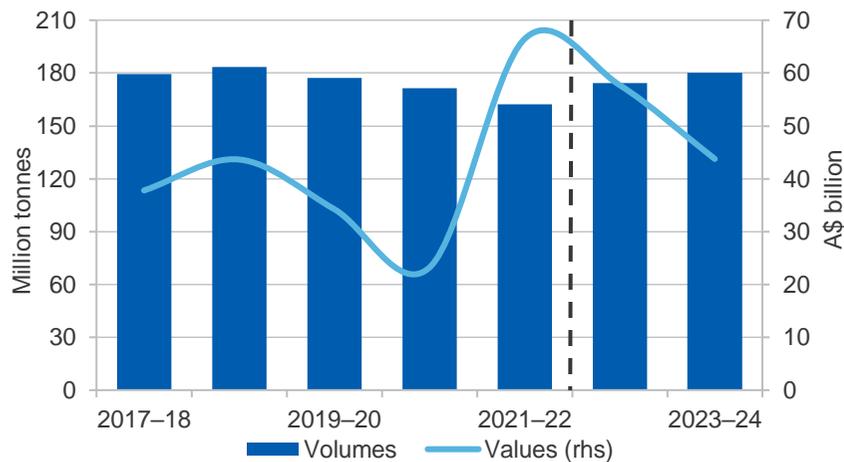
Source: Platts (2022); Department of Industry, Science and Resources (2022)

Figure 5.5: Australia's metallurgical coal export values, monthly



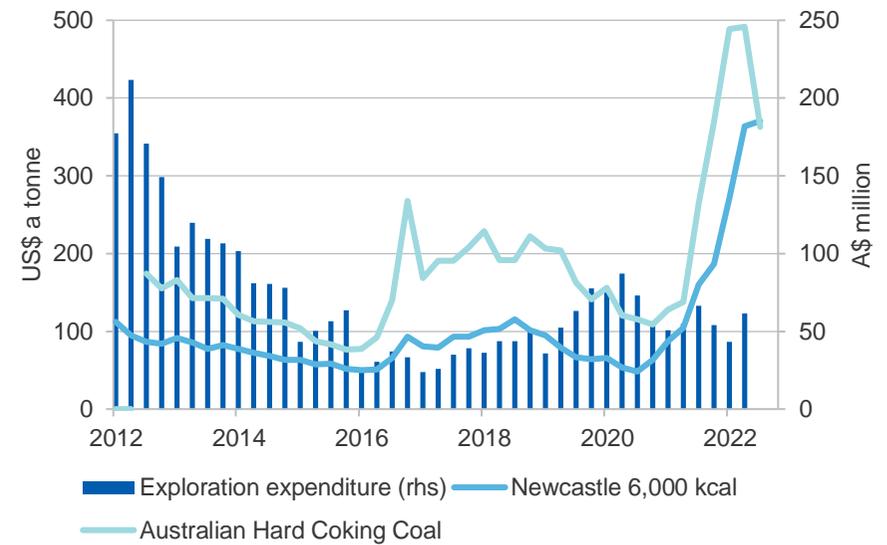
Source: ABS (2022) International Trade, Australia 5454.0

Figure 5.6: Australia's metallurgical coal exports



Source: ABS (2022) International Trade, Australia 5454.0; Department of Industry, Science and Resources (2022)

Figure 5.7: Australian coal exploration expenditure and prices



Source: ABS (2022); IHS (2022); Platts (2022)

Revisions to the outlook for Australian metallurgical coal exports

The forecast for export earnings has been revised up by around \$6 billion (nominal terms) in aggregate over the forecast period. Revisions reflect wetter than normal conditions in Australia (including the emergence of a new La Niña weather pattern), which are expected to add to supply pressures and place upward pressure on prices.

Table 5.1: World trade in metallurgical coal

	Unit	2021	2022	2023 ^f	2024 ^f	Annual percentage change		
						2022	2023 ^f	2024 ^f
World trade	Mt	296	311	324	323	5.2	4.0	-0.2
Metallurgical coal imports								
China	Mt	55	58	56	57	6.4	-3.8	2.6
India	Mt	61	68	65	68	10.9	-4.4	4.6
Japan	Mt	44	45	45	44	2.7	0.0	-2.2
European Union 28	Mt	36	36	36	34	-0.5	-1.4	-4.5
South Korea	Mt	36	35	35	35	-2.6	0.0	0.0
Metallurgical coal exports								
Australia	Mt	167	165	181	179	-1.4	9.8	-0.9
United States	Mt	41	45	41	39	9.4	-8.9	-4.9
Canada	Mt	26	29	29	26	10.7	0.0	-10.3
Russia	Mt	30	28	25	27	-5.4	-10.7	8.0
Mongolia	Mt	11	19	26	30	72.2	36.8	15.4
Mozambique	Mt	4	6	7	7	37.0	16.7	0.0

Notes: ^f Forecast; ^s Estimate.

Source: IEA (2022) Coal Information; IHS (2022); Department of Industry, Science and Resources (2022)

Table 5.2: Metallurgical coal outlook

World	Unit	2021	2022	2023 ^f	2024 ^f	Annual percentage change		
						2022 ^f	2023 ^f	2024 ^f
Contract prices ^e								
– nominal	US\$/t	205	383	263	220	86.7	-31.4	-16.2
– real ^d	US\$/t	221	383	255	209	73.4	-33.5	-18.0
Spot prices ^g								
– nominal	US\$/t	225	391	258	219	73.7	-34.0	-15.2
– real ^d	US\$/t	242	391	250	208	61.3	-35.9	-17.1
Australia	Unit	2020–21	2021–22	2022–23 ^f	2023–24 ^f	2021–22	2022–23 ^f	2023–24 ^f
Production	Mt	171	172	185	189	10.1	-1.7	2.3
Export volume	Mt	171	162	174	180	-5.1	8.4	2.3
– nominal value	A\$m	23,187	66,437	57,714	43,748	186.5	-13.1	-24.2
– real value ⁱ	A\$m	25,911	71,084	57,714	41,976	174.3	-18.8	-27.3

Notes: **d** In 2022 US dollars. **e** Contract price assessment for high-quality hard coking coal. **i** In 2022–23 Australian dollars. **f** Forecast. **g** Hard coking coal fob Australia east coast ports. **s** Estimate.
Source: ABS (2022) International Trade in Goods and Services, Australia, 5368.0; Department of Industry, Science and Resources (2022); Platts (2022)