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Executive Summary

Australian resource and energy export earnings are estimated to have declined by about 10% in 2023–24, to $417 billion from $466 billion in 2022–23. This estimate is consistent with the forecast in the March 2024 *Resources and Energy Quarterly* (REQ). In 2024–25, export earnings are forecast to fall to about $380 billion, largely reflecting further bulk commodity price declines and a rise in the AUD/USD. Earnings declines will start to diminish in 2025–26 — with exports forecast at $356 billion. Drivers will include a bottoming out in bulk commodity prices and a peaking in the AUD/USD; with prices set in USD's, a rise the AUD/USD pushes down AUD revenue.

World economic growth remains relatively soft, weighed down by relatively tight financial conditions. However, key economic indicators suggest the world economy picked up modestly in the first half of 2024. In the United States, economic growth remains firm, and inflation is declining. In China, government support measures in 2023 and early 2024 have yet to turn around ongoing weakness in the residential property sector. This weakness has detracted from the impact of strong Chinese exports and large investments in infrastructure and manufacturing capacity.

Reflecting the recent improvement in economic activity and the prospect of less restrictive monetary policy in major Western economies, ferrous and non-ferrous metal prices have generally risen since the March 2024 REQ. The iron ore price has steadied above US$100 a tonne, and copper recently traded above US$10,000 a tonne.

The gold price has hit new record highs since the March 2024 REQ, driven by central bank buying and Chinese household demand for alternative investments amidst property and share market weakness.

The prices of lithium and nickel appear to have started a recovery after large falls in 2023 and early 2024. Despite both prices hitting multi-year lows in H1 2024, some new Australian nickel and lithium projects are proceeding. Australian spodumene production is competitive with rival lithium brines.

Measures by a number of governments to intervene in trade with China will have implications for the direction and quantity of Australian resource and energy exports. While Chinese domestic demand will remain the primary demand for Australian resources, widespread trade measures may see the competitiveness of Chinese manufacturers deteriorate relative to other Asian trading nations that Australia supplies — such as Japan and South Korea. However, Australian exports could suffer if some of China's manufacturing base is lost to North America and Western Europe instead — since higher transport costs may preclude some of our producers from accessing these markets.

The pace of US adoption of EVs and renewable energy technologies (including importation rates) could change depending on the outcome of the US Presidential election in November, with significant implications for the demand for Australian critical minerals in the short term. Demand growth in other major markets (the EU and China) is likely to rise strongly.

Recent moves by the UK and US to ban Russian metal from entering London Metal Exchange and Comex warehouses are likely to push even more Russian metal towards China and India. Australian miners will be more likely to replace Russian metal sales to Japan and South Korea. With Russia being a major producer, nickel and aluminium will be the most affected metals.

The continued growth in the adoption of emerging technologies that are power intensive — including generative artificial intelligence — will increase demands on power generation in many countries. This is expected to increase demands for (especially) gas-powered electricity generation in the short term.

There are a number of risks to the export forecasts. Hurricane season is approaching in the Gulf of Mexico making some US oil production vulnerable to disruption. A broadening in the Hamas-Israel conflict could disrupt Middle East oil and gas exports and raise prices. Higher-than-normal odds of a La Niña weather episode in 2024–25 raises the risk of wet weather and flooding that could impact Australian mines, transport routes and ports.

Overview

Australia's mining sector

Contributes to around **13.4% of GDP**

Makes up around **two-thirds** of Australia's total merchandise exports

Directly employs **around 300,000** people

Outlook

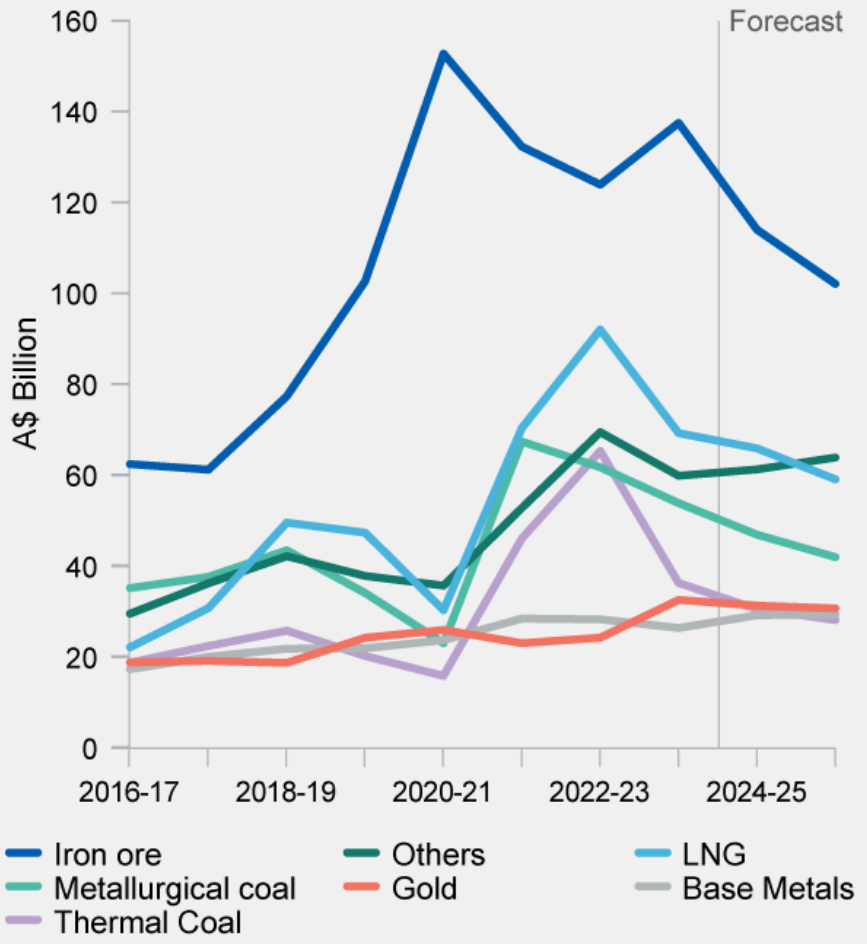
Near-term outlook for Australian resource and energy commodity exports **slightly improved**

Pace of world economic growth to 2025–26 partly depends on whether **monetary policy eased** in major economies

Gold price hitting **new highs**; lithium, nickel prices appears to have started a **recovery** after falls in 2023, early 2024

Investment in **new deposits and mines** is on the rise

Australia's resource and energy exports



SOURCE: ABS; DISR; OCE

1.1 Summary

- The near-term outlook for Australian resource and energy commodity exports has improved slightly in net terms since the March 2024 REQ. Major economies have seen a modest uptick in economic activity, and the outlook is for an improvement in world economic growth in 2025.
- Relatively weak growth in world demand and rising world commodity supply is estimated to have seen Australia's resource and energy exports decline to $417 billion in 2023–24 from $466 billion in 2022–23. A decline to $380 billion is forecast in 2024–25, as commodity prices drift down and the AUD/USD lifts. A further modest decline to $356 billion is forecast in 2025 26, as price weakness fades.
- Nickel and lithium prices have managed to make modest recoveries as global supply is wound back closer to demand. Gold has hit a new record high, and iron ore prices have steadied as the Chinese government adopts substantive measures to support the real estate sector.

1.2 Macroeconomic, geopolitical and policy factors

While inflation is falling, consumer demand remains relatively soft

Since the last REQ, consumer demand has remained relatively weak, tied down by relatively tight monetary policy. But leading indicators of manufacturing activity have picked up and there has been a modest uptick in global industrial activity. As inflation continues to moderate, moves towards a more neutral monetary stance by the world's major central banks will support a rise in global growth over the next two years.

The IMF now expects China's economy to grow by 5.0% in 2024 and 4.5% in 2025, easing to 4.1% by 2026 — in line with a long-term trend towards lower economic growth. In mid-May, Chinese policymakers announced a series of measures to help local governments act to support the Chinese property market. Prospective property buyers in China appear to have been holding off purchases in case of further price falls; the lack of bids has made those price falls self-fulfilling. If taken up sufficiently by local governments, the new measures by Beijing will act to support household confidence and thus lift domestic demand.

Government trade and policy changes impacting resource commodities

Recent measures by a number of governments to intervene in their nation's trade with China will have implications for the direction and quantity of Australian resource and energy exports.

The US Administration has raised Section 301 tariffs on "strategic" goods from China — primarily low emissions technology and steel/aluminium exports. The immediate impact of the move will be muted, mattering most for batteries used for stationary storage purposes. The 100% tariff on Chinese EVs will likely prevent Chinese producers capturing a meaningful share of the US market. The tariff hikes are of no real significance when it comes to sectors like solar and steel.

In mid-June, the European Commission announced it will impose an additional 17-38% duty on Chinese EVs starting in July. The higher tariff will likely slow the influx of Chinese-made EVs into the EU, but it won't stop the flow completely.

In mid-April, the UK and US governments introduced further restrictions on metal exports from Russia, in protest over its invasion of Ukraine. The UK government banned the importation of Russian metal and prohibited the trading of Russian metal on the London Metal Exchange (LME). Two executive orders by the US Administration now prohibit the importation of Russian-origin aluminium, copper and nickel into the US, and limit the use of Russian-origin aluminium, copper and nickel on global metal exchanges and in over-the-counter derivatives trading. Russian copper is now effectively prohibited from entering Comex warehouses.

There have been numerous impacts from these restrictions already, with more to come. Firstly, large amounts of Russian material being held "off warrant" in LME warehouses have been brought back "on warrant". And with traders reluctant to take Russian metal out of LME warehouses, the arbitrage flow of metal from LME warehouses to Comex has been disrupted, causing a spike in the price of copper on Comex. Russian companies now have fewer markets to access and will have to accept lower prices from sanction-neutral nations such as China.

Chile's government has laid out the details of its plan to significantly boost the country's lithium production. The plan aims to expand state control over the production of the critical mineral used in batteries for EVs while attracting private investment in the sector. Projects in strategic areas will now be required to partner with state-owned companies such as major copper producer Codelco, which will have a majority control.

Market moves in lithium and nickel have settled down

The prices of lithium and nickel appear to have bottomed, after large falls in 2023 and early 2024. Despite prices hitting multi-year lows in H1 2024, some new Australian lithium/nickel projects are going ahead. Australian spodumene production remains highly competitive to rival lithium brines, thanks to the relative scale and ease of completing a spodumene project. Spodumene is also viewed as simpler to process.

Geopolitical tensions and the weather pose risks to commodity markets

Geopolitical developments continue to pose risks to the outlook for commodity markets. Any broadening of the Hamas-Israel conflict could impact the global supply of oil/gas/LNG with many producers in the region.

The Russian invasion of Ukraine appears likely to continue for some time yet. The war is adversely impacting Russia's resource and energy output and has led to an increasing bifurcation of world trade.

Weather drivers have shifted since the last REQ: the El Niño weather event has ended and some weather forecasters now attach a higher-than-normal chance of the start of a La Niña episode in H2 2024. Should a La Niña episode emerge, Australian miners may experience a repeat of the wet weather and the associated flooding of mines, transport routes and ports that hampered output in the 2021-2023 period. Hurricane season is approaching in the Gulf of Mexico, making some US oil production vulnerable to disruption.

Surge in artificial intelligence is raising power usage in many countries

Continued growth in the use of power-intensive emerging technologies, such as generative AI, is leading to higher power usage in some countries, particularly the United States. This will boost the demand for energy commodities in the short term. While some heavy AI users have committed to building new renewable energy to help meet the extra power demand, it will take some time and a re-organisation of some existing power grids. This will likely lead to an increase in the demand for gas to firm and supplement power generation.

AUD rising against the USD

The AUD/USD has risen slightly in recent months. This largely reflects market optimism over Chinese government efforts to stabilise the nation's property sector. The currency market also sees moves in Australian-US interest rate differentials favouring the holding of AUD fixed interest assets. The consensus forecast adopted is for the AUD/USD to lift modestly in the outlook period, from 66 US cents in 2024 to 71 cents in 2026.

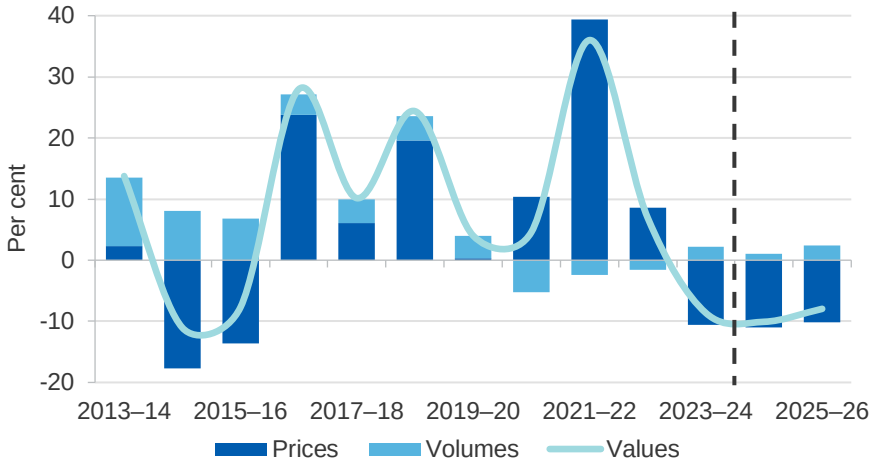
1.3 Export values

Australia's export values in 2023–24 are estimated at $417 billion

Relatively slow world economic growth and fewer supply disruptions generally reduced commodity prices over the June quarter. The Resources and Energy Export Values Index fell nearly 2% from the March quarter 2024: a 5.2% rise in volumes only partly offset the impact of a 9.3% fall in prices (Figure 1.1).

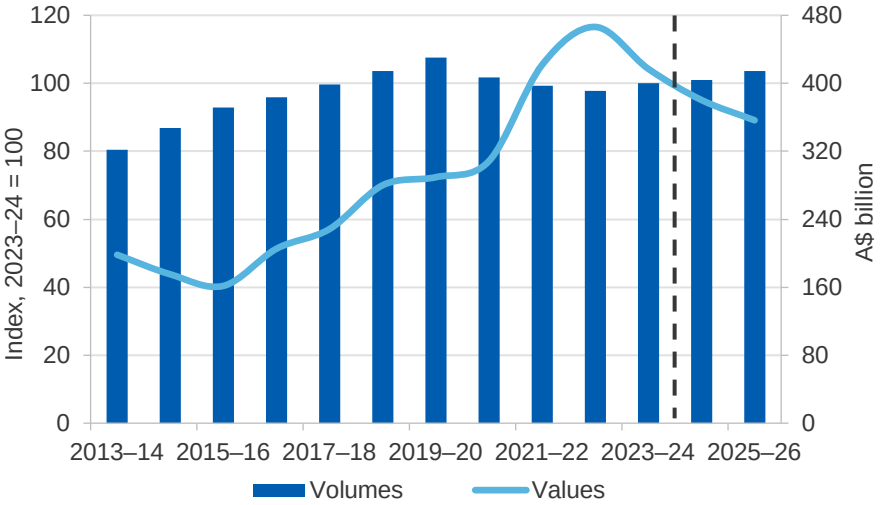
There has been a significant upward revision to the aggregate forecasts since March. Resource and energy exports are forecast to be $380 billion in 2024–25 and $356 billion in 2025–26 (Figure 1.2). Within the totals, energy export earnings are set to show double digit falls. LNG earnings are forecast to fall by $3 billion to $66 billion in 2024–25, and then fall to $59 billion in 2025–26. Lower prices will drive the falls. Thermal coal exports are forecast to fall from $37 billion in 2023–24 to $31 billion in 2024–25 and $28 billion in 2025–26. Metallurgical coal exports should fall to $47 billion in 2024–25 from $54 billion in 2023–24. For the first time, uranium is estimated to have earned Australia in excess of a billion dollars in 2023–24 and is forecast to reach more than $1.4 billion in 2024–25 and around $1.7 billion in 2025–26.

Figure 1.1: Annual growth in Australia's resources and energy export values, contributions from prices and volumes



Source: ABS (2023) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2024)

Figure 1.2: Australia's resource and energy export values/volumes



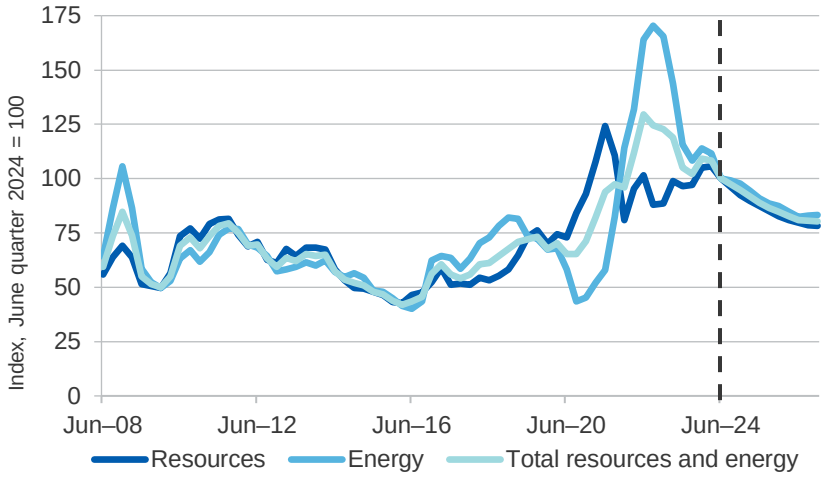
Source: ABS (2024) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2024)

Among resource commodities, **iron ore** remains the largest earner, estimated to earn about $138 billion in 2023–24, but fall to $114 billion in 2024–25 and $102 billion in 2025 26. The sharp retracement in **lithium** prices is estimated to have seen lithium exports fall from $20 billion in 2022–23 to $10 billion in 2023–24. Export values should stabilise at around the $7-9 billion mark over the two-year outlook period.

1.4 Prices

Since the March 2024 *Resources and Energy Quarterly*, resource and energy prices have declined in US$ terms (Figure 1.3): a sharp fall in the metallurgical coal price and bouts of weakness in the iron ore price dominated strength in other prices. Prices rose in the latter half of the quarter, helped by signs of stronger world growth and new efforts by the Chinese government to stabilise the property sector and boost economic growth. Prices are likely to fall modestly over the outlook period but remain above pre-pandemic levels, as supply generally rises faster than demand.

Figure 1.1: Resource and energy export prices, A$ terms



Notes: The export price index is based on Australian dollar export unit values (EUVs, export values divided by volumes); the export price index is a Fisher price Index, which weights each commodity's EUV by its share of total export values.
Source: ABS (2024) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2024)

In Australian dollar terms, the Resources and Energy Commodity Price Index fell by 9% (preliminary estimate) in the June quarter 2024 to be down 6% on a year ago. In US dollar terms, the index fell by 9% in the quarter to be down 8% year-on-year. Resource export prices (in A$ terms) were unchanged from the June quarter 2023, while energy prices fell by 14%.

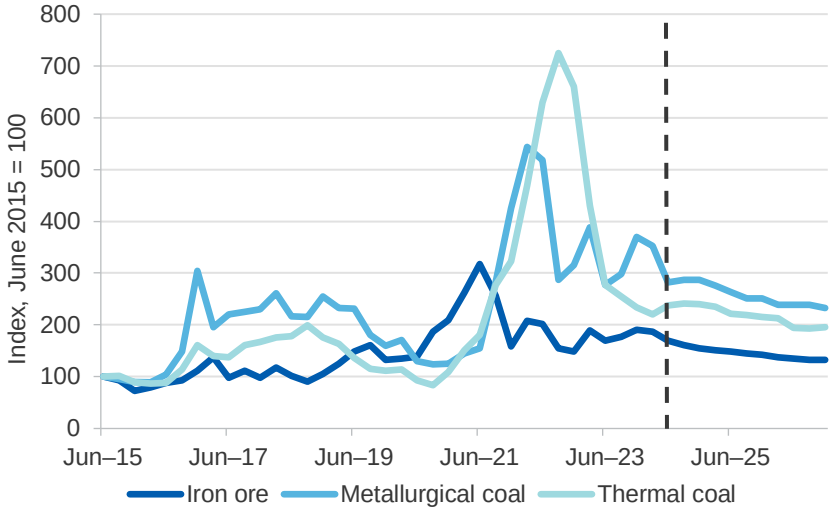
Iron ore prices have declined in net terms in recent months. Prices eased from elevated levels early in 2024 due to worries of falling Chinese demand and the end of Chinese stockpiling (Figure 1.4). The price of **metallurgical coal** has been relatively steady since the last REQ, having eased through the March quarter as production issues subsided. Some Russian supply remains stranded from world markets and demand is steady.

Energy prices have risen recently as unseasonably hot weather in Asia lifted demand. However, price increases have been offset to some extent by continued improvements in supply. The enormous supply chain disruptions that pushed prices to extraordinary highs in 2022 and 2023 have continued to ease, with Western European nations obtaining supply elsewhere from Russia. Slow world economic growth has constrained energy usage.

Thermal coal prices are still above pre-pandemic levels, with some Russian production shut in and isolated from major markets. **LNG** prices have risen largely due to demand from Asia, however demand from Europe is contained as storage levels remain relatively high. Prices should come under downward pressure from rising US and Qatari supply in 2025. Gas/LNG markets remain highly vulnerable to supply shocks following the stranding of some Russian supply.

The **gold** price has hit a record above US$2,400 since the last REQ, on the back of numerous supportive factors: the prospect of lower interest rates in most economies in 2024–25, geopolitical tensions, purchasing by emerging market central banks and Chinese household concerns over the Chinese property market.

Figure 1.4: Bulk commodity prices

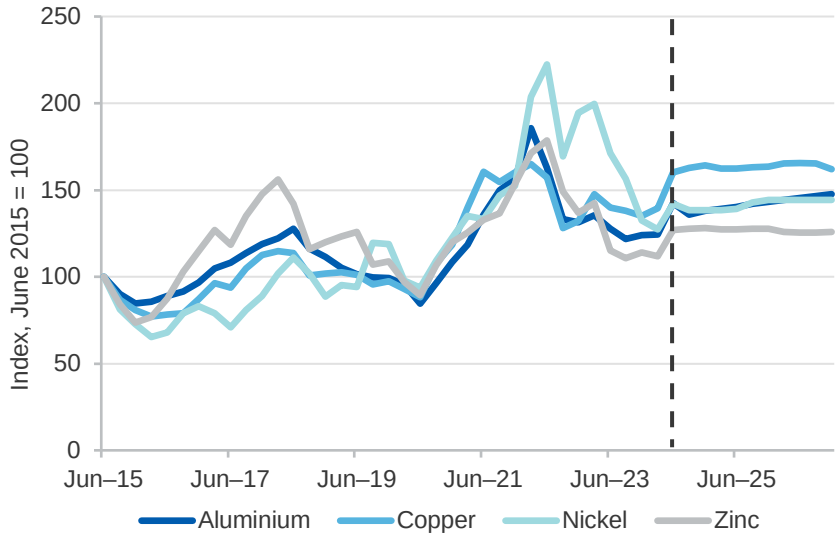


Notes: Prices are in US dollars, and are the international benchmark prices
Source: Bloomberg (2024); Department of Industry, Science and Resources (2024)

Oil prices have fallen modestly since the last REQ, with easing geopolitical tensions in the Middle East and OPEC+ expected to end output cuts. The rising take-up of EV's will detract from demand over the outlook period.

Base metal prices have risen since the last REQ, supported by an improving outlook for manufacturing in China and ongoing supply issues (Figure 1.5). The price of **nickel** rebounded strongly through April and May, following cuts to global production (ex. Indonesia), and strengthening global demand (particularly from China). However, new supply presents an ongoing risk of further price falls over the outlook period. Exchange inventories of Russian **aluminium** are rising, shunned by Western consumers. Stocks of most base metals are low for this stage of the economic cycle, which skews price risks for most metals to the upside. Rising infrastructure-related demand (particularly for the global energy transition) is expected to support prices over the outlook period, combined with broader demand following easing monetary policy.

Figure 1.5: Base metal prices



Notes: Prices are in US dollars, and are the international benchmark prices
Source: Bloomberg (2024); Department of Industry, Science and Resources (2024)

Since the last REQ, **lithium** prices (spodumene and lithium hydroxide) have risen modestly from 5-year lows. Inventories have risen and low prices have driven producers in a number of nations (including Australia) to announce cuts/closures. However, Australian lithium exports will continue to contribute substantially to resource and energy export earnings.

1.5 Export volumes

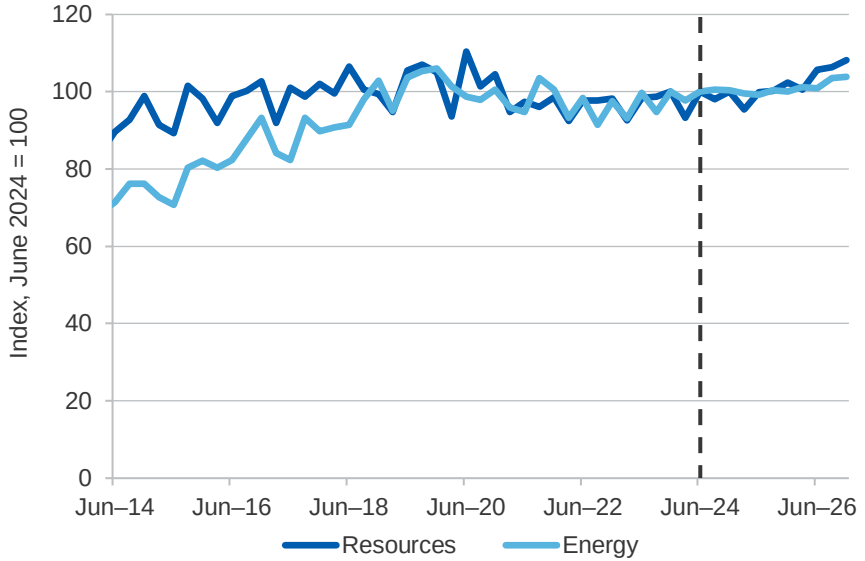
Export volumes are estimated to have fallen in the June quarter

The Resources and Energy Export Volumes Index (preliminary estimate) fell 1.1% in the June quarter 2024 from the March quarter 2023 but was up 6.7% on the June quarter 2023. Resource commodity volumes rose by 5.1% in the year to the June quarter 2024 and energy export volumes recorded 8.5% gains (Figure 1.6). High prices, better weather conditions and easing workforce problems have driven the improvement.

In volume terms, most resource exports are likely to show only modest growth in 2024 but pick up with improved world economic growth in 2025 and 2026. The global energy transition will support resource export volumes over the outlook period. Relatively high prices (due to low investment in new supply) and the global energy transition are set to see energy production and exports stagnate over the outlook period.

Energy exports will level out in 2024 25, as the sharp price falls of the past year temper production and encourage delayed maintenance to occur.

Figure 1.6: Resource and energy export volumes



Source: Department of Industry, Science and Resources (2024)

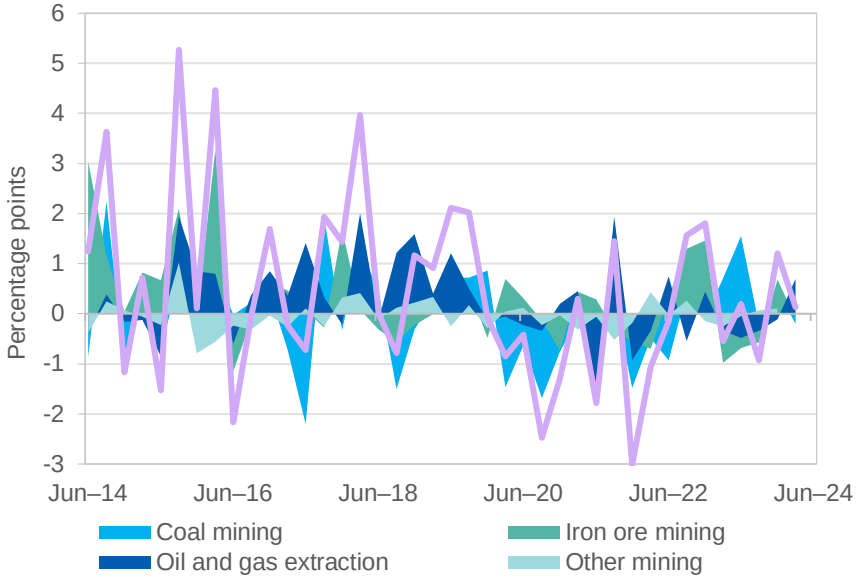
The El Niño climate episode has ended and the Bureau of Meteorology has classified the current outlook as ‘La Niña watch’. This means there is a strong chance of a La Niña episode developing in 2024–25, raising the odds of the type of wet weather disruptions that hampered the production and transportation of Australian mines in the 2021 to 2023 period.

1.6 Contribution to growth and investment

Mining output rose marginally in line with the overall economy

Australia's real GDP rose by 0.1% in the March quarter 2024, to be up 1.1% from a year before. Mining value-added rose by 0.1% in the March quarter and was 0.5% higher than in March 2023 (Figure 1.7). Strong oil and gas output (up by 2.9%) was offset by a sharp fall in 'other mining' (down 3.7%), associated with closures and cutbacks in the nickel and lithium sectors.

Figure 1.7: Contribution to quarterly growth, by sector

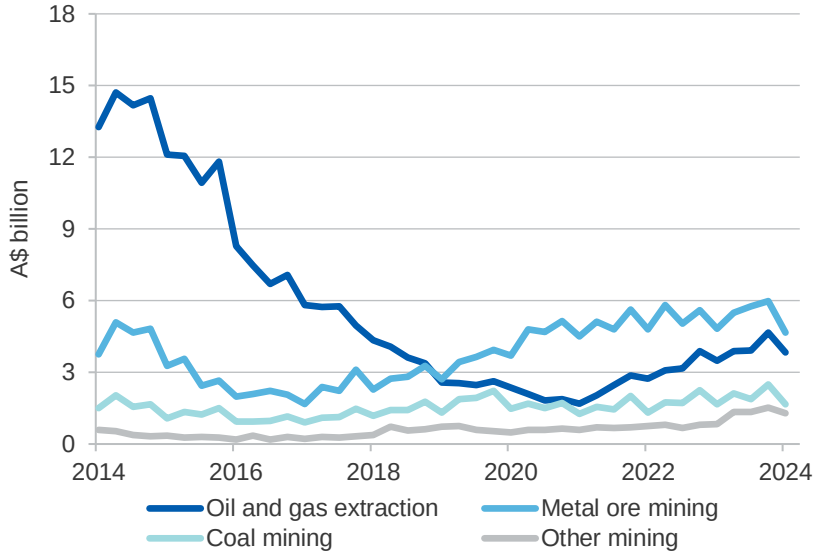


Source: ABS (2023) Australian National Accounts, 5206.0

Mining investment is growing noticeably

The latest ABS Private New Capital Expenditure and Expected Expenditure survey shows that Australia's resources industry invested $11.5 billion in the March quarter 2024, up 6% from the March quarter 2023. However, total capital spending declined in quarterly terms, falling across all categories (Figure 1.8).

Figure 1.8: Mining capex by commodity, not seasonally adjusted



Notes: Other mining includes non-metallic mineral mining and quarrying and exploration and other mining support services; chart data is in nominal, original terms

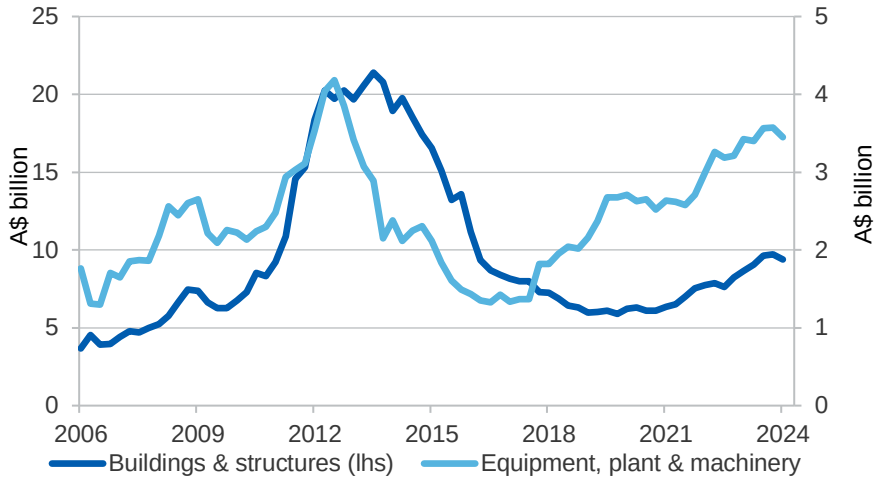
Source: ABS (2024) Private New Capital Expenditure and Expected Expenditure, 5625.0

Expenditure for buildings and structures fell by 4.2% in the March quarter, while investment in equipment, plant and machinery fell by 4.8%, bringing an end to two years of strong growth (Figure 1.9).

Spending on plant and machinery has accounted for a steadily rising share of total investment spending since 2017. However, in recent years, moves in spending on buildings and structures has started to move closer in lockstep with spending on plant and equipment.

Total mining industry investment in 2023–24 is set to rise in the near-term (Figure 1.10). The sixth estimate for 2023–24 suggests the mining industry will invest $53 billion during the financial year. This is up from $52 billion recorded in the fifth estimate. The second estimate for 2024–25 ($48 billion) is around 7% higher than the first estimate. Estimates for forward spending tend to be revised up over time, so the data suggest no deterioration in the investment outlook.

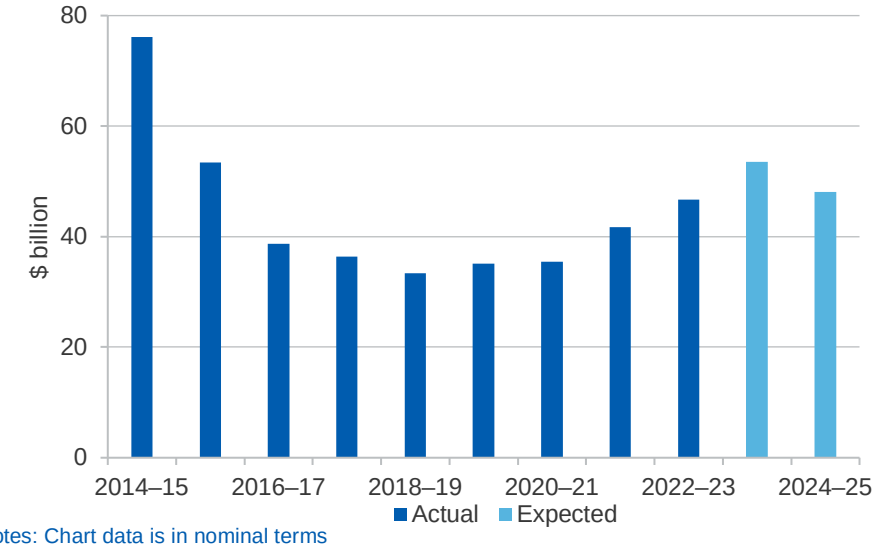
Figure 1.9: Mining industry capital expenditure by type, quarterly



Notes: Chart data is in nominal terms, seasonally adjusted.

Source: ABS (2024) Private New Capital Expenditure and Expected Expenditure, 5625.0

Figure 1.10: Mining industry capital expenditure, fiscal year



Notes: Chart data is in nominal terms

Source: ABS (2024) Private New Capital Expenditure and Expected Expenditure, 5625.0

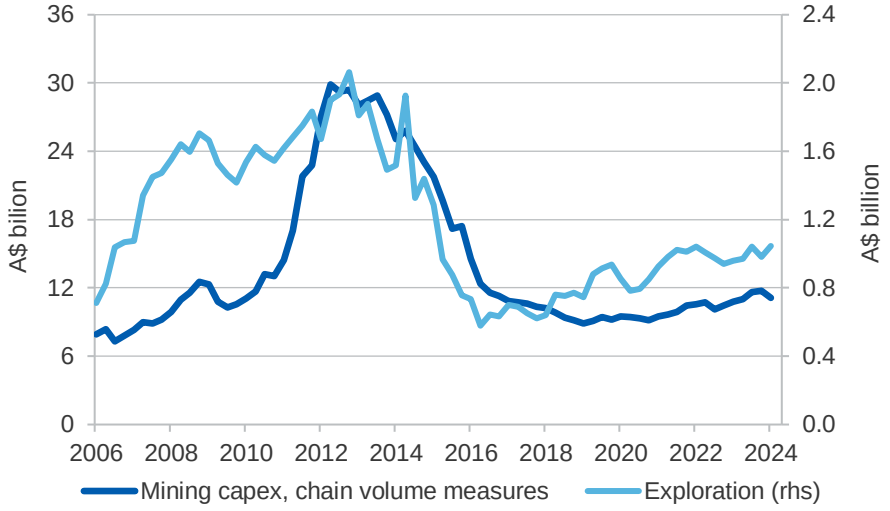
Further out in the outlook period, capital expenditure in the lithium and nickel industries is expected to edge back after recent price declines.

Energy commodities including coal, gas and (especially) uranium are experiencing relatively strong prices at present, with expectations for enhanced exploration activity over the next few years.

Exploration expenditure (adjusted for inflation) rose by 6% to $1.05 billion in the March quarter 2024. This is 9% above the level of a year ago, and suggests that relatively high commodity prices for traditional energy commodities — which have pushed export earnings to record levels — are also drawing investment. In recent years, exploration has been drawn to minerals needed for the global energy transition (Figure 1.11).

Exploration spending grew strongly for petroleum (up by 15% in the March quarter). However, other industries recorded declining quarterly spending, including base and other metals (down by 28%); coal and gold (both down by 13%), and iron ore (down by 10%).

Figure 1.11: Mining capital expenditure vs exploration (real, quarterly)

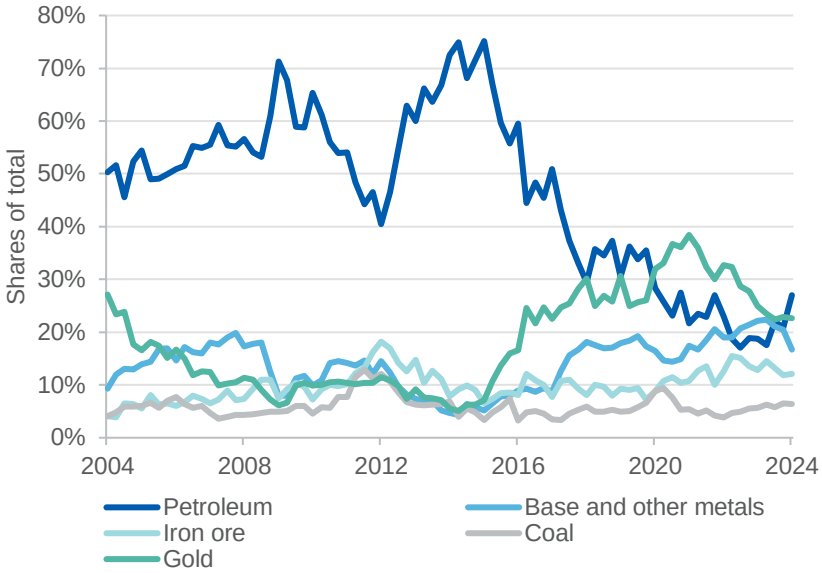


Source: ABS (2024) Private Capital Expenditure Survey, Chain Volume measure, 5625.0

Most industries have recorded steady growth in exploration since 2020, and exploration for most industries remains above the recent average.

Exploration spending is a leading indicator of broader capital investment, and growth since 2020 suggests interest is rising in precious and industrial metals (such as copper and iron ore), and critical minerals. Given the typical lags involved, capital spending by resource and energy companies is expected to continue to lift over the next few years.

Figure 1.12: Shares of exploration expenditure by commodity type



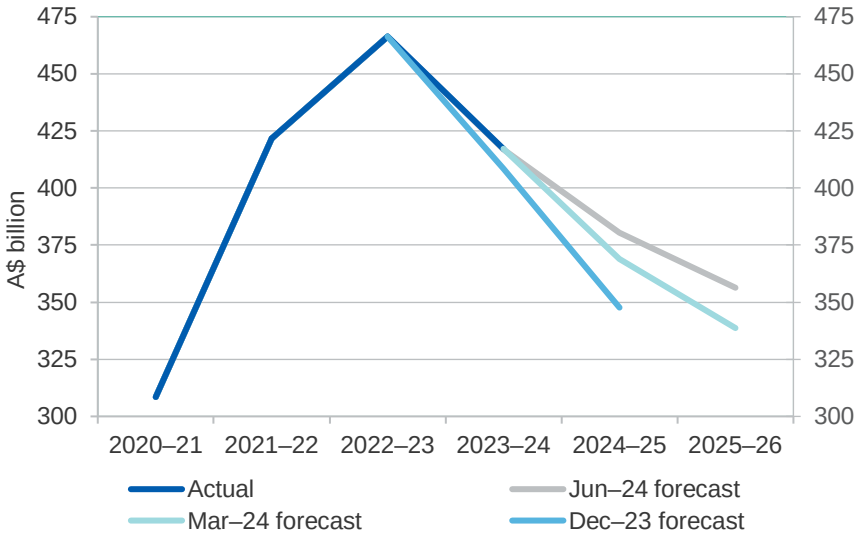
Source: ABS (2024) Private Mineral and Petroleum Exploration, 8412.0

1.7 Revisions to the outlook

The estimate for Australia's resources and energy exports in 2023–24 is comparable with the forecast contained in the March 2024 *Resources and Energy Quarterly*. The forecast for 2024–25 (nominal prices) is $11 billion higher and the 2025 26 forecast is $18 billion higher than than the same report (Figure 1.13).

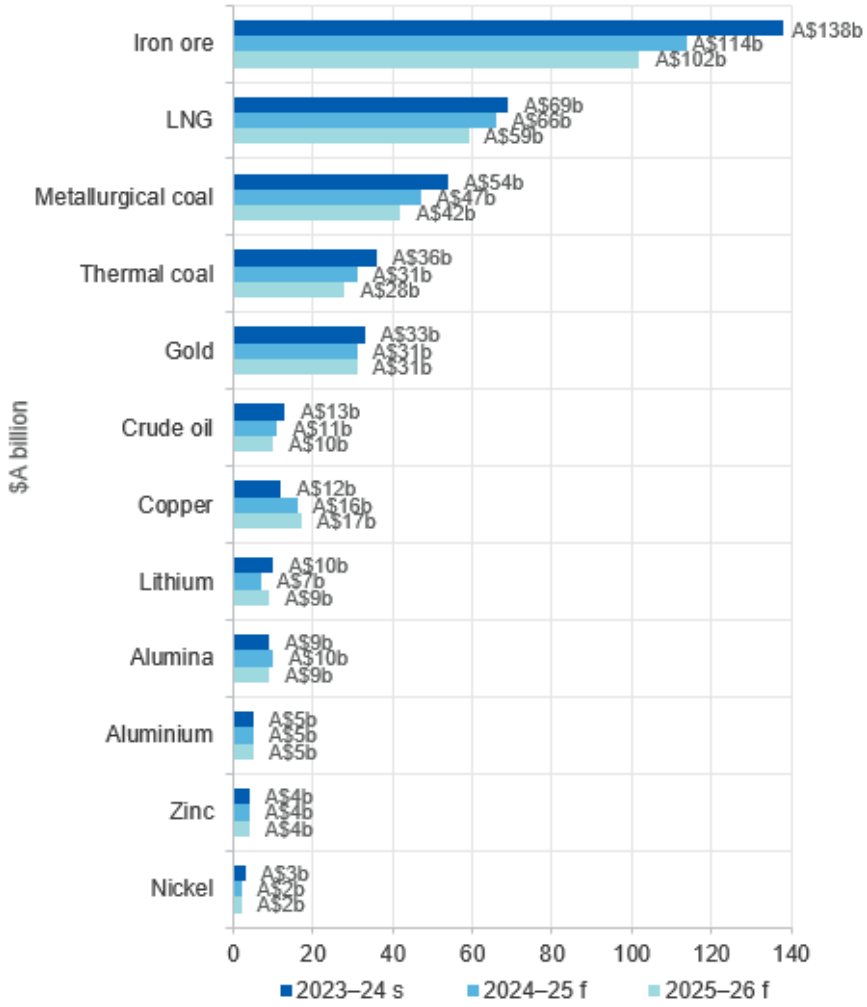
The 2024–25 and 2025–26 forecast revisions have been largely driven by an upward revision to prices of iron ore and gold, and by the impact of a weaker than expected exchange rate against the US dollar (AUD/USD).

Figure 1.13: Resource and energy exports, by forecast publication



Source: Department of Industry, Science and Resources (2024)

Figure 1.14: Australia's major resources and energy commodity exports, nominal



Annual per cent change

	2024–25 f			2025–26 f		
	volume	EUV	value	volume	EUV	value
Iron ore	2	-18	-17	3	-13	-10
LNG	-3	-2	-5	0	-10	-10
Metallurgical coal	11	-21	-13	3	-13	-10
Thermal coal	0	-16	-16	2	-10	-8
Gold	-6	2	-4	7	-8	-2
Crude oil	-5	-7	-11	-6	-9	-14
Copper	14	14	31	9	-1	8
Lithium	12	-41	-33	19	16	38
Alumina	0	9	8	0	-4	-3
Aluminium	1	2	4	0	-1	-1
Zinc	-3	12	8	0	-5	-5
Nickel	-41	10	-35	-32	1	-32

Notes: s estimate; f forecast. EUV is export unit value.
Source: ABS (2024) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2024)

Table 1.1: Outlook for Australia's resources and energy exports in nominal and real terms

					Percentage change			
Exports (A$m)	**2022–23**	**2023–24 s**	**2024–25 f**	**2025–26 f**	**2022–23**	**2023–24 s**	**2024–25 f**	**2025–26 f**
Resources and energy	466,293	416,951	380,341	356,469	11	–11	–8.8	–6.3
– real[b]	485,293	416,951	368,837	336,397	3.3	–14	–12	–8.8
Energy	238,711	179,688	160,853	145,493	17	–25	–10	–9.5
– real[b]	248,438	179,688	155,988	137,301	9.3	–28	–13	–12
Resources	227,582	237,264	219,488	210,975	4.6	4.3	–7.5	–3.9
– real[b]	236,855	237,264	212,849	199,096	–2.3	0.2	–10	–6.5

Notes: **b** In 2023–24 Australian dollars; **s** estimate; **f** forecast.
Source: ABS (2024) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2024)

Table 1.2: Australia's resource and energy exports, selected commodities

		Prices				Export volumes			Export values, A$b		
	Unit	**2023–24 s**	**2024–25 f**	**2025–26 f**	**Unit**	**2023–24 s**	**2024–25 f**	**2025–26 f**	**2023–24 s**	**2024–25 f**	**2025–26 f**
Iron ore	US$/t	104	88	81	Mt	891	905	933	138	114	102
LNG	A$/GJ	16	16	14	Mt	80	78	78	69	66	59
Metallurgical coal	US$/t	285	244	215	Mt	155	172	177	54	47	42
Thermal Coal	US$/t	137	136	122	Mt	205	205	209	37	31	28
Gold	US$/oz	2,084	2,234	2,145	t	257	248	265	33	31	31
Crude oil	US$/bbl	85	83	80	Kb/d	264	250	236	13	11	10
Copper	US$/t	8,666	9,868	9,952	Kt	791	905	987	12	16	17
Lithium	US$/t	1,843	1,116	1,286	Kt	457	512	609	10	7	9
Alumina	US$/t	352	395	398	Kt	16,711	16,636	16,708	9.0	9.7	9.4
Aluminium	US$/t	2,266	2,445	2,540	Kt	1,474	1,495	1,495	5.2	5.4	5.4
Zinc	US$/t	2,541	2,798	2,777	Kt	1,363	1,319	1,315	3.9	4.2	4.0
Nickel	US$/t	18,170	18,025	18,750	Kt	156	92	62	3.5	2.3	1.5
Uranium	US$/lb	82	95	100	t	6,096	5,842	6,417	1.3	1.4	1.7

Notes: **a** Export data covers both crude oil and condensate; **b** Lithium carbonate equivalent; **s** estimate. **f** forecast. **Price information:** Iron ore fob (free-on-board) at 62 per cent iron content estimated netback from Western Australia to Qingdao China; Metallurgical coal premium hard coking coal fob East Coast Australia; Thermal coal fob Newcastle 6000 kc (calorific content); LNG fob Australia's export unit values; Gold LBMA PM; Alumina fob Australia; Copper LME cash; Crude oil Brent; Aluminum LME cash; Zinc LME cash; Nickel LME cash; Lithium spodumene ore.
Source: ABS (2023) International Trade in Goods and Services, Australia, Cat. No. 5368.0; LME; London Bullion Market Association; The Ux Consulting Company; US Department of Energy; Metal Bulletin; Japan Ministry of Economy, Trade and Industry; Department of Industry, Science and Resources (2024)

Macroeconomic Outlook

Global GDP and economic change in 2023

Country	China	US	EU	India	ASEAN	Japan	S Korea	Taiwan	**Australia**
Per cent share of global GDP (PPP)	**19**	**15**	**15**	**8**	**5**	**4**	**2**	**1**	**1**
Yearly change	▲ 5.2%	▲ 2.5%	▲ 0.6%	▲ 7.8%	▲ 4.9%	▲ 1.9%	▲ 1.4%	▲ 1.4%	▲ **2.1%**
Share of Australia's two-way trade	30%	6%	9%	4%	10%	12%	7%	4%	–

Global overview

- The global economic and industrial outlook **improved** in the first half of 2024, with risks now **evenly balanced**.
- **Steady** disinflation and **easing** monetary conditions in major economies is expected to **support growth** in late 2024 and 2025.
- **China's economic growth** is projected to slow from **5.0%** in 2024 to **4.1%** in 2026.

Global risks

- **Tight monetary policy for longer** if inflation pressures, particularly in services, persist or rebound.
- Continuation of **China's property sector downturn** could further weigh on the Chinese economy
- **Increasing risks** to global trade and geoeconomic **fragmentation**

SOURCE: IMF; ABS; OCE

2.1 Summary

- Global industrial production lifted in the first half of 2024, on account of improving global goods demand. China accounted for most of the growth in global industrial production and merchandise exports.
- The outlook for global growth in 2024 has improved slightly, with risks evenly balanced. As inflation returns to target levels, central banks will exit restrictive stances, with growth to pick up in 2025.
- In May, China's growth outlook for 2024 and 2025 was revised up, on account of better-than-expected growth in the March quarter 2024 and policies recently announced targeting the property sector.

2.2 World economic outlook

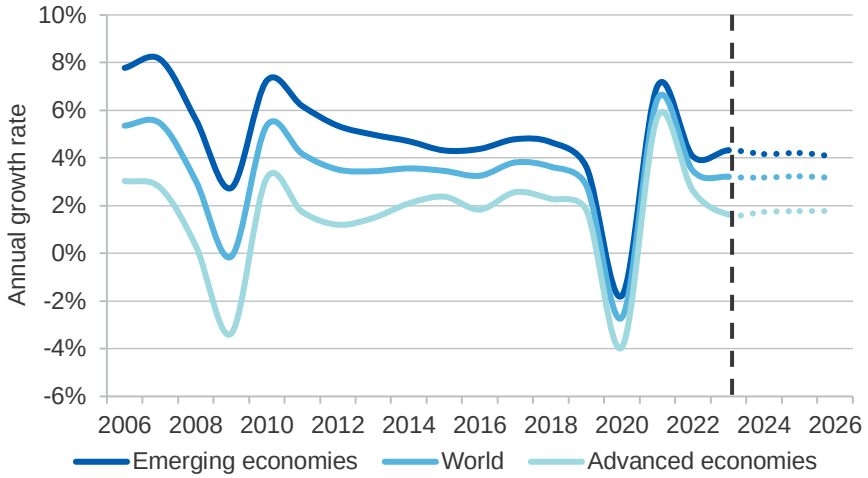
Declining inflation and resilient growth still expected, with risks balanced

The International Monetary Fund's (IMF) April forecasts were for the world economy to grow by 3.2% in 2024 and then continue at the same pace through to 2026. This represented an upgrade of 0.1 percentage points for 2024 compared to the IMF's January 2024 outlook — reflecting upgrades made to forecast growth for the US, offset by downward revisions across several other economies. The IMF stated the risks to the outlook have eased and are broadly balanced compared to their January update.

Growth in advanced economies is expected to rise to 1.7% in 2024 and 1.8% in 2025 and 2026. The forecast is revised upward by 0.2 percentage point for 2024, given improved outlook for the US — revised up by 0.6 percentage points. Emerging economies are expected to continue their relatively strong growth during the outlook period, with growth rising to 4.2% in 2024 and 2025. The growth rate for 2024 has been revised up by 0.1 percentage points, given a stronger growth outlook in India and Brazil.

The IMF noted that the global economy has been resilient, avoiding recession despite the various shocks that have played out over the past few years. Tight labour markets have softened the effects of tightened monetary policy on consumption growth, with global goods demand improving over H1 2024 and lifting the global manufacturing outlook.

Figure 2.1: GDP growth forecasts



Source: IMF (April 2024)

Recent policy moves and a better economic performance in China in the March quarter led the IMF to revise up its growth forecasts compared with the April outlook (see *China* section). The IMF now expects China's economy to grow by 5.0% in 2024 and 4.5% in 2025, easing to 4.1% by 2026 — in line with a long-term trend towards lower economic growth.

The IMF emphasised both upside and downside risks to global growth, including the degree to which inflation persists or geoeconomic fragmentation intensifies. Additional risks stem from the outlook for China, depending on the further scale and duration of its property sector downturn. Additional property sector reforms and large-scale investment may boost subdued confidence; however, structural challenges and local government financing constraints pose risks to the pace of recovery.

Increasing risks to the global trading system and geoeconomic fragmentation with growing sanctions and trade policies present a downside risk to global growth. The IMF notes this may detract 0.5-0.7% from global growth over next 5 years, depending on the severity of the fragmentation.

Global industrial production and trade on a recovering trajectory

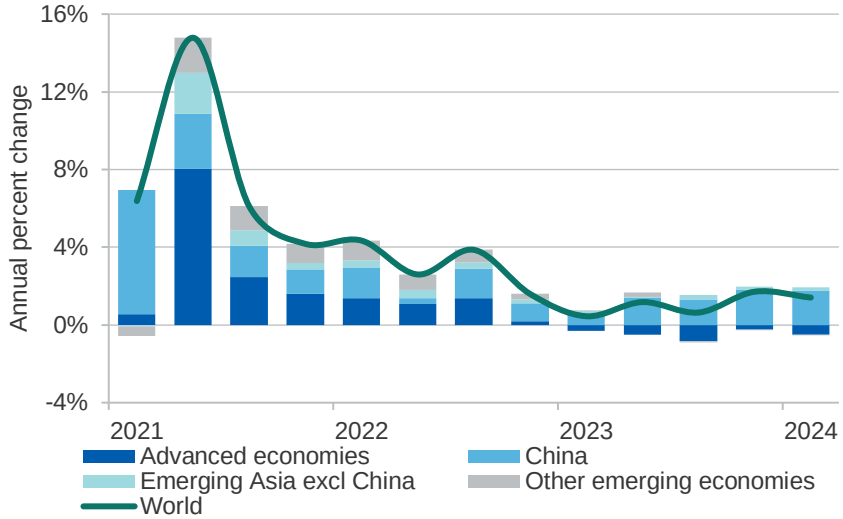
Global industrial production (IP) increased by 1.4% year-on-year in the March quarter 2024 (Figure 2.2). Positive annual growth largely reflected strengthening industrial activity in China and emerging Asian economies. Industrial production growth has been weak in advanced economies, under pressure from relatively tight monetary policy and rising input costs. Exceptions include Advanced Asian (excluding Japan) economies, as the recent upturn in the global technology cycle and heightened demand for advanced semiconductor chips (for AI applications) drive strong demand for South Korea's and Taiwan's chip products.

Global merchandise trade volumes increased by 1.5% year-on-year in the March quarter 2024. This reflected a marked improvement in global goods demand, following a prolonged decline throughout 2023 that weighed on the manufacturing sectors of most major economies. Similar to recent trends in industrial production, growth in global merchandise exports has largely been driven by increased exports from China and Advanced Asian economies (excluding Japan) (Figure 2.3). This suggests an improving demand outlook for Australian resources and energy exports, as these are Australia's key export markets.

Forward indicators of manufacturing activity suggest the prospect of a recovery from a prolonged contraction. The JP Morgan Global Manufacturing Purchasing Managers Index (PMI) measured 50.9 in May 2024 — the fourth consecutive month in expansionary territory — and its highest level in 22 months. The rise was driven by accelerating output growth in major producers such as the United States and China, with an easing in contractions in the manufacturing sectors of Europe and Japan.

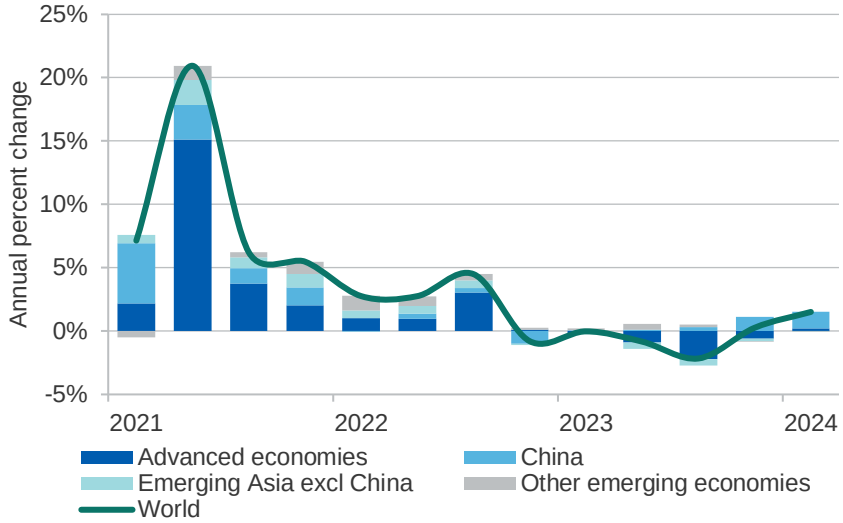
Improvements in global manufacturing activity have come through increasing output growth (at a 2.5-year high), increasing manufacturing employment and new orders growth (at a 2-year high). New export business continued modestly in expansionary territory, reinforcing improvements seen in global merchandise trade. However, while optimism in the global manufacturing sector has turned positive, price pressures are also gaining traction, with input cost inflation at a 15-month high.

Figure 2.2: Contributions to growth of industrial production



Source: CPB Netherlands Bureau for Economic Policy Analysis (2024).

Figure 2.3: Contributions to growth of merchandise exports



Source: CPB Netherlands Bureau for Economic Policy Analysis (2024).

The IMF expects world trade to grow by 3% in 2024 and 3.3% in 2025, reflecting 0.3% downward revisions for both years compared to the January WEO. This is in line with recent shifts in trade patterns, as IMF analysis has demonstrated that growth in trade flows between hypothetical blocs has declined notably compared to the growth of trade within them. Rising trade restrictions, as well as increased concerns over supply chain resilience and national security, are expected to weigh on global trade going forward.

Persistent inflation taking longer than expected to dissipate

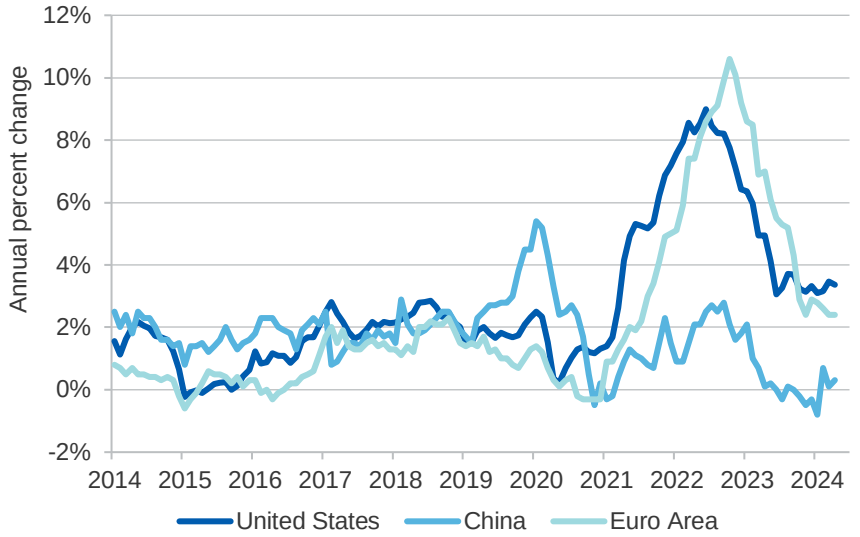
Progress in easing headline inflation has slowed over recent months in many major economies (Figure 2.4), however most advanced economy central banks still expect inflation to be close to 2% by the end of 2025. Headline inflation has tracked relatively flat on average in both the US and the Euro Area in H1 2024, while monthly core inflation measures (excluding volatile goods such as food and energy) have accelerated.

Despite these concerns, the European Central Bank (ECB) and the Bank of Canada were the first major central banks to ease monetary policy in June, each cutting 25 basis points on key interest rates. Market expectations indicate that monetary easing will commence in most major economies by the end of 2024, but to a lesser extent than was priced in when the March 2024 *Resources and Energy Quarterly* was released.

In April 2024, the IMF forecast global headline inflation would fall from 6.8% in 2023 to 5.9% in 2024 and 4.5% in 2025. Compared to the January 2024 outlook, the forecast for 2024 and 2025 was revised up marginally (by 0.1 percentage points). Inflation is expected to fall more quickly in advanced economies and reach 2% in 2025.

The potential for further inflationary shocks remains a risk, due to heightened geopolitical risks, ongoing regional conflicts and persistent services inflation in many major economies. Escalations in ongoing conflicts pose a risk to supply and trade flows of food and energy, as well as transportation costs (such as through the Red Sea).

Figure 2.4: CPI inflation in the United States, China and Europe



Source: Bloomberg (2024)

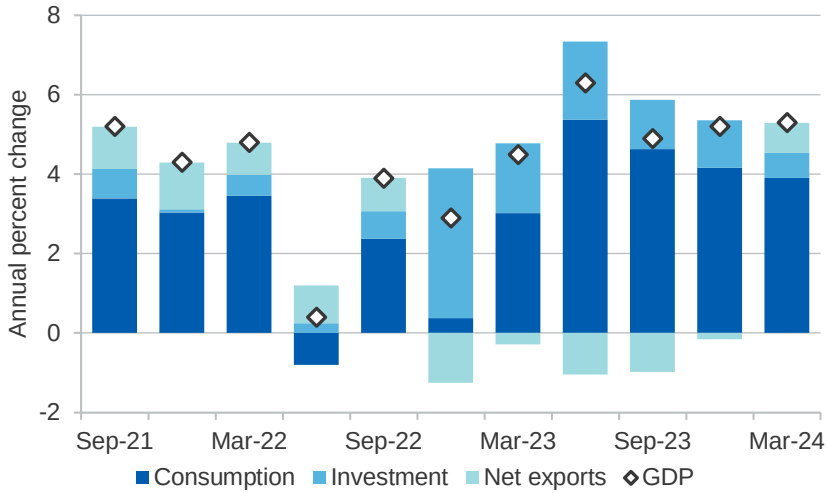
2.3 Major trading partners' economic outlook

The outlook for Australia's major trading partners remains weak, with the RBA forecasting their 2024 GDP growth at around 3.2%, and 3.0% in 2025 — well below its pre-pandemic decade average. However, the IMF expects robust economic growth in China and the US, as well as ongoing expansion in India. Growth from these key markets should support growth in their trading partners' economies, underpinning Australian resource and energy export earnings over the outlook period.

China's industrial sector underpinning overall growth

China's economy grew by 1.6% in over the March quarter 2024, to be 5.3% higher year-on-year (Figure 2.5). The result was largely driven by growth in consumption, with investment and net exports contributing to a lesser extent. Of note, China's net export balance made its first positive contribution to GDP growth since September quarter 2022, as exports rose by more than imports. Surging net exports have been supported by

Figure 2.5: China – contributions to real GDP growth



Notes: Consumption is made up of both household and government sectors.
Source: Bloomberg (2024); National Bureau of Statistics of China (2024)

strength in industrial output and weak domestic demand in China, sparking international attention to China's manufacturing export capacity. This export growth has been accompanied with declining export prices: while China's export volumes rose by 1.5% year-on-year in the March quarter 2024, average export prices fell by 11%.

China's industrial sector was a key driver of overall growth in the March quarter, with value added by the industrial sector up by 6.1% year-on-year. Growth over the quarter was driven strongly by increased production in the utilities (6.9%) and manufacturing sectors (6.7%). China's manufacturing output was supported by investment in electricity infrastructure and the production of clean energy technologies, for example electronic equipment and electric vehicle charging stations were both up by about 40%.

Industrial production has continued to lift into the June quarter and China's industrial outlook has strengthened to an almost 2-year high. Continued increases in manufacturing and utilities output led China's industrial production 6.7% higher year-on-year in April 2024. The Caixin Manufacturing PMI rose to an almost 2-year high in May 2024. Output was reported to be growing at its fastest pace in nearly two years, while strong new orders and business optimism led to growth in purchasing activity rising to a 3-year high.

Strong growth in manufacturing output as well as improving industrial sentiment have been underpinned by continued strength in investment. Year-to-date fixed asset investment for manufacturing increased by 9.7% in April 2024. Alongside 6% growth in infrastructure investment, this lifted total fixed asset investment up by 4.2% year-on-year.

The persistent downturn of China's property sector continues to act as a drag on China's economic activity: excluding real estate investment, year-to-date total fixed asset increased by 8.9%. Investment in real estate development declined by 8.6% year-on-year in April 2024 – its largest decline since March 2020. New property starts (by floor space) were 26% lower year-on-year in April 2024, following declines of 21% in 2023 and 40% in 2022. In a recent turn, property completions were up by 88% year-on-year.

After it met in April 2024, China's politburo signalled more support for China's property sector to respond to the ongoing property downturn. The key proposal of note was a policy directing local governments to purchase unsold homes — to be converted into affordable housing — while other policy measures were directed towards property investment (such as reduced mortgage rates, downpayment and residency requirements). The People's Bank of China (PBoC) announced a CNY 300 billion (US$41.5 billion) initiative to fund commercial bank loans for local state-owned enterprises to support such purchases. Transferring the debt burden of unfinished property projects from financially distressed developers to financially distressed local governments raises concerns on the feasibility and likely uptake of this proposal.

The IMF is forecasting China's economy to grow by 5.0% in 2024 and by 4.6% in 2025, given recent upgrades — of about 0.4 percentage points in each year — following their Article IV consultation. The IMF projects growth will slow to 4.1% in 2026 in line with a long-term trend towards

lower growth. While conditions improved over the last quarter, the IMF noted that uncertainties remain with the ongoing real estate downturn, surging local government debts, and headwinds to its export-led growth.

Another risk lies in the growing headwinds to the country's surging trade surplus — particularly its manufacturing surplus. Geopolitical tensions and trade sanctions are increasingly challenging its export market growth prospects, with the recent EU and US tariff increases on Chinese high-tech exports (such as semiconductors, solar cells, lithium-ion batteries and electric vehicles) representing a renewed escalation in their trade war.

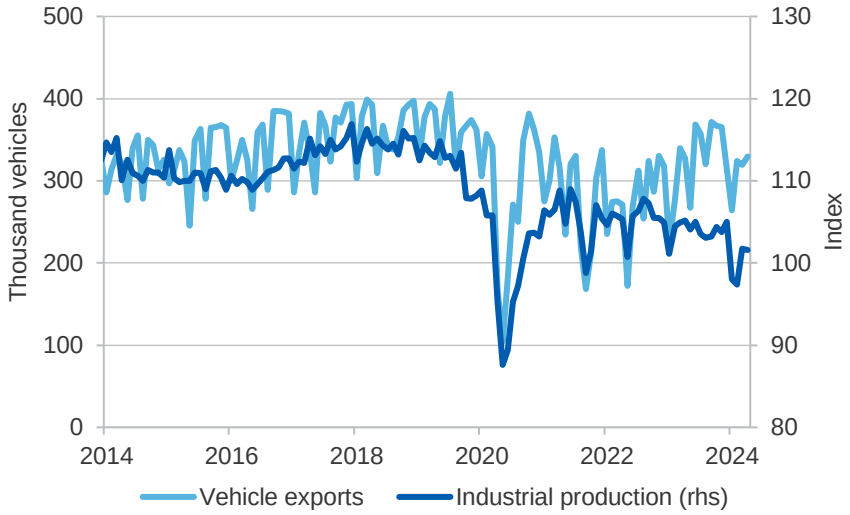
Japan's industrial outlook improving; Yen amplifying cost pressures

Japan's GDP decreased by 0.5% in the March quarter 2024, to be 0.4% lower year-on-year. Private consumption — accounting for 53% of GDP — was the key drag on GDP growth. Cost-of-living pressures have weakened consumers' real incomes, resulting in four consecutive quarterly contractions in private consumption (down 2.0% year-on-year). Offsetting this to some extent was net exports, which contributed 1.2% to annual GDP growth in the March quarter 2024, due to higher exports (up by 1.6%) and lower imports (down by 4.3%).

The depreciation of the Yen — to a 55-year low in real terms in April 2024 — has continued to contribute to growth in the value of Japan's exports, rising by 8.3% year-on-year in April 2024. Export volumes of several products have been on an improving trend, however overall merchandise export volumes tracked steady in the March quarter 2024. Vehicle exports improved over the year (up by 8.2% year-on-year in the March quarter 2024), as did growth in machinery orders (up by 23% in March 2024) (Figure 2.6). However, the weak Yen has also contributed to more expensive imports for consumers and input cost pressures in Japan's industrial sector.

Japan's industrial production has been weak so far in 2024, down on average by 4.1% year-on-year in January-April 2024. This has been weighed down by weak manufacturing output, for example with vehicle production 18% lower year-on-year in March 2024. Despite weak industrial

Figure 2.6: Japan industrial production and vehicle exports



Source: Bloomberg (2024)

output so far, Japan's industrial outlook has improved since the start of 2024. The Jibun Bank Japanese Manufacturing PMI returned to expansionary territory in May 2024, for the first time in a year. This improvement was attributed to employment growth and improved input inventories, with demand and output both tracking steady over the month.

Input cost inflation in Japan's manufacturing sector rose to a 13-month high in May, driven by rising costs for labour, materials and transportation. Despite this, firms remained optimistic about the 12-month outlook, citing positive expectations for demand recovery in the automotive and semiconductor industries.

The IMF expects Japan's economic growth to slow to 0.9% in 2024, then lift to 1.0% in 2025 — a 0.2 percentage point upgrade from January 2024.

Growth is expected to slow as factors that supported strong growth in 2023 fade, such as COVID-related pent-up demand and the surge in inbound tourism. While real household incomes have been a drag on consumption, recent outcomes from wage negotiations are set to boost

wage growth in Japan and support domestic demand going forward. Further support is also anticipated to come from the economic relief package announced in November 2023, for example with temporary cuts to income and residential taxes coming into effect in June 2024.

South Korea's industrial sector and exports driving growth

South Korea's GDP grew by 3.2% year-on-year in the March quarter 2024, a pronounced rebound from 0.9% in the June quarter 2023. Annual growth was primarily driven by 7.0% year-on-year growth in exports which, combined with imports decreasing marginally, led to a 70% expansion in the country's trade balance.

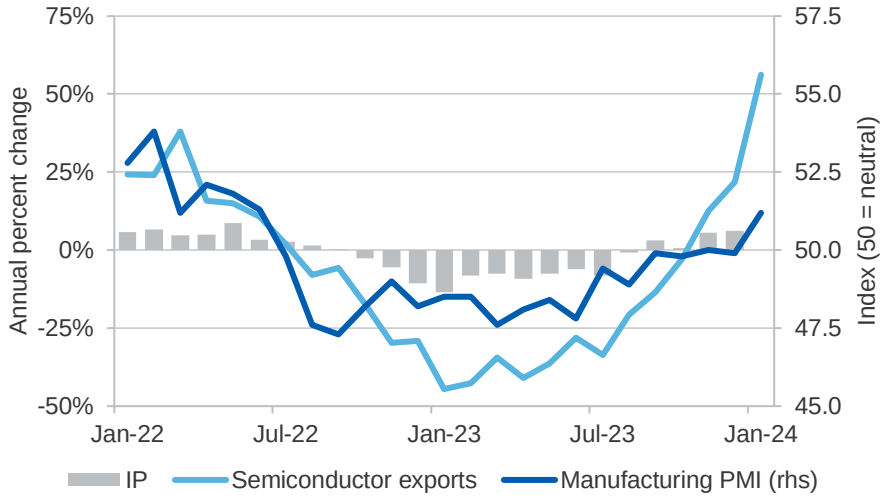
South Korea's industrial sector and goods exports are in an upswing, having been weighed down in 2022–23 by the downturn in the global technology cycle and falling global goods demand. Demand for South Korea's semiconductor exports in particular has been strong, due to the recent turn in the global technology cycle, and the boom in demand for advanced processing and memory chips for AI applications. For example, many major consumer electronics companies are launching new AI-enabled devices this year.

Industrial production in South Korea in April was 6.1% higher year-on-year, largely driven by higher manufacturing output (Figure 2.7). South Korea's exports have continued to grow strongly, increasing by 12% year-on-year in May 2024, driven by sales of manufactured products, including semiconductors (54.5%), ships (108%) and cars (4.8%).

South Korea's manufacturing PMI rose strongly into expansion in May 2024, following a contraction in the prior 2 months due to rising growth in new orders (a 2-year high) and output growth (almost 3-year high).

Strength in new orders was attributed to strong demand from both domestic and international markets, leading firms to lift purchasing activity strongly to shore up input stocks. Recent surges in raw materials prices (such as metals and energy commodities) led to further inflation in both input and output prices, however firms' expectations for business over the next 12 months remained positive — leading to increased employment.

Figure 2.7: South Korean industrial activity and exports



Source: Bloomberg (2024)

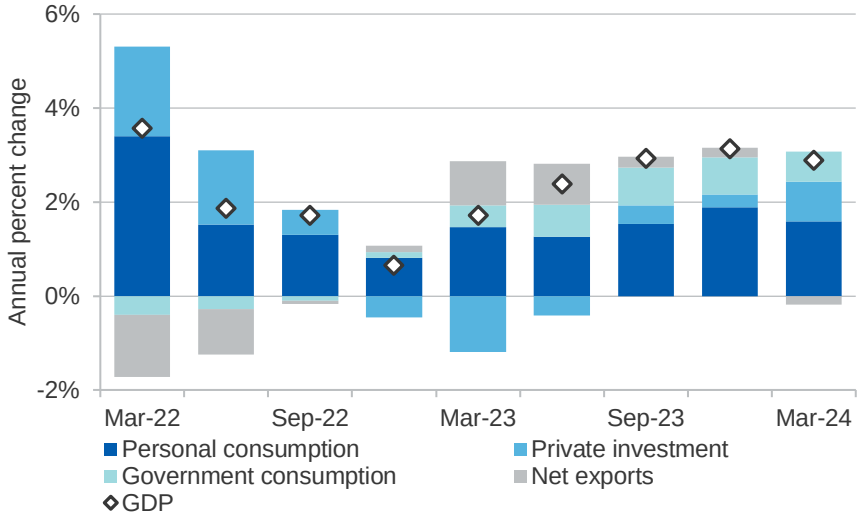
The IMF forecasts South Korea's economic growth to be 2.3% in 2024 and 2025, supported by further robust growth in goods exports and investment.

Resilient US labour market and fiscal spending supporting growth

The US economy grew by 2.9% year-on-year in the March quarter 2024, driven by robust personal consumption and strong contributions from government consumption and private investment (Figure 2.8). US consumption (measured by personal consumption expenditures) rose by 3.1% year-on-year in March 2024, above the average of 2.5% in H2 2023. This was marked by a rebound in services consumption (up by 2.8%) and renewed strength in goods consumption (up by 3.5%) to a lesser extent.

US labour market resilience has supported consumption so far in 2024, however there are signs that this tightness is easing, as the gap between labour demand and supply narrows. Employment growth has slowed so far in 2024, with official employment growth slowing to an average of 0.4% year-on-year from January-April 2024, while job openings fell to a 3-year low in April 2024, down by 19% year-on-year. The unemployment rate was 3.9% in April 2024, a touch higher than the average of 3.7% in H2 2023.

Figure 2.8: Contributions to annual US GDP growth



Source: Bloomberg (2024)

US fiscal spending has been another source of strength in the US economy. Investment programs such as the Infrastructure Investment and Jobs Act, Inflation Reduction Act and the CHIPS and Science Act, have continued to drive strong investment growth in early 2024.

For example, US private non-residential investment rose by 5.1% year-on-year in the March quarter 2024 and US non-residential construction spending rose by 12% year-on-year in April 2024. Investment growth has continued to be particularly strong in power and manufacturing, with private investment in manufacturing structures rising in real terms by 38% year-on-year in the March quarter 2024.

The US industrial outlook appears to be again slowing, following an initial recovery in 2024. US industrial production decreased by 0.4% year-on-year in April 2024, due to declines in manufacturing (down by 0.5%) and mining output (down by 1.3%), offset to some extent by higher utilities output (up by 2.3%).

The US Manufacturing PMI stayed in contractionary territory in May, driven by a sharp decline in domestic demand as output, employment and new export orders were in expansion. The prices sub-index remained in elevated territory (57.0), indicating cost pressures on firms from recent surges in the prices of raw materials such as fuel, natural gas, plastics and metals (e.g. aluminium and copper).

In April 2024, the IMF upgraded its forecast for US economic growth in 2024 by 0.6% to 2.7% due to ongoing strength in US consumption and ongoing labour market tightness. Recent persistence in US inflation (Growth is then forecast by the IMF to ease to 1.9% in 2025 as gradual fiscal tightening and softening of labour markets slow aggregate demand.

Recent strength in monthly US core inflation (average monthly increases of 0.4% from January-April 2024) has cast doubts over the pace of further declines in services inflation, however the US Federal Reserve is still expected to commence monetary easing by the end of 2024.

Eurozone economies on an improving growth trajectory

Eurozone GDP growth picked up in the March quarter 2024, with annual GDP growth increasing to 0.4% year-on-year. Among the larger economies, annual GDP growth picked up in Spain (up by 2.4%), France (up by 1.1%) and Italy (up by 0.7%). Germany's GDP growth rebounded to 0.2% over the quarter (up from -0.5% in the December quarter 2023) but remained down by 0.2% year-on-year — marking two consecutive quarters of negative annual GDP growth.

Europe's manufacturing sector has been in a prolonged downturn since July 2022, driven by the rapid surge in energy prices (Figure 2.9). Europe's industrial outlook remains weak, however the worst of the sector's downturn is most likely over. In May 2024, the Eurozone manufacturing PMI remained in contractionary territory, however it was the highest reading in 14 months. Business sentiment in Europe's manufacturing sector improved markedly to a 2-year high in May, as output declined by the slowest extent in over a year, while falls in new orders were at 2-year lows.

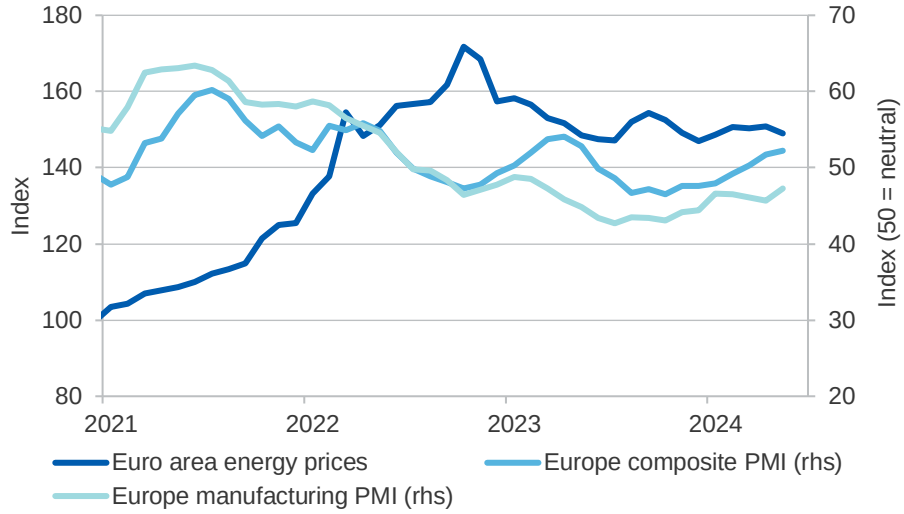
The near-term economic outlook for Europe no longer appears to be

dominated by ongoing weakness in the industrial sector, with the Eurozone Composite PMI rising into a greater expansion in May 2024, pulled up by improving services sector activity as inflation eases, labour markets remain tight and improving real household incomes support consumer sentiment.

In its April outlook, the IMF forecast Euro Area growth at 0.8% in 2024, revised down by 0.1% from January 2024. Ongoing weakness in manufacturing output and consumer sentiment led to more downgrades to German growth (now 0.2% in 2024, up from -0.3% in 2023).

As monetary policy continues to ease in the region (following the first interest rate cut in June 2024), rate pressures on consumers and businesses are expected to ease and allow real income growth to drive a recovery in H2 2024. The IMF expects Euro Area growth to pick up further to 1.5% in 2025, driven by a continued recovery in consumption and industrial activity, as monetary policy eases further.

Figure 2.9: European energy price index and PMIs



Source: Bloomberg (2024); Eurostat (2024)

India's economy is still growing strongly

India's GDP growth was 7.8% year-on-year in the March quarter 2024. GDP growth was driven by strong private consumption expenditure — especially for services — as well as continued strength in fixed capital formation. India's manufacturing PMI declined but remained expansionary in May 2024. Despite the decline, manufacturing activity was still growing strongly in the month, due to demand growth — notably with new export orders at a 13-year high. Ongoing strength in demand conditions and marketing improvements led business optimism about the coming year to its highest in almost a decade, with manufacturing employment also rising sharply.

The IMF forecasts India's economic growth to slow to 6.8% in 2024 and 6.5% in 2025, revised up by 0.3% in 2024 due to stronger-than-expected domestic demand.

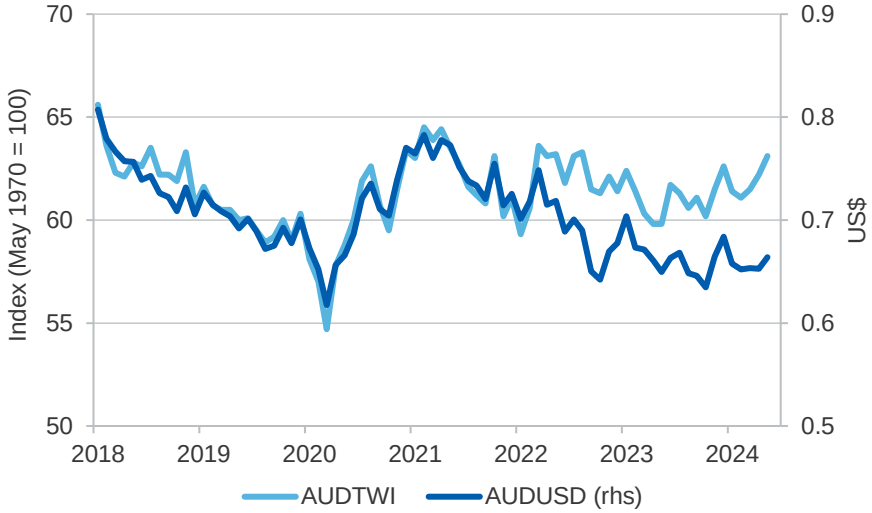
Exchange rate assumption revised lower

Since the start of 2024, the Australian dollar has weakened relative to the US dollar but strengthened marginally in trade-weighted terms (Figure 2.10). The AUD/USD move arose on market expectations for US interest rates to remain at current levels for longer than was expected earlier in the year, lifting US bond yields.

The forecasts for Australian export values made in this REQ adopt the market consensus on the outlook for the AUD/USD. The market consensus (surveyed by Bloomberg) is for the AUD/USD to appreciate over the outlook period, as interest rates decrease quicker in the US than in Australia.

In mid-May 2024, the median consensus for the AUD/USD exchange rate was an average of US$0.66 in 2024, US$0.70 in 2025 and US$0.71 in 2026. Adopting these consensus expectations has led to downgrades of about US$0.02 in both 2024 and 2025, and US$0.03 in 2026 compared with the March 2024 *Resources and Energy Quarterly*.

Figure 2.10: Australian trade-weighted index and AUD/USD



Source: RBA (2024)

Table 2.1: IMF annual GDP growth projections for major trading partners

	2023	2024[a]	2025[a]	2026[a]
World [b]	**3.1**	**3.1**	**3.2**	**3.2**
China [c]	5.2	4.6	4.1	4.1
Japan	1.9	0.9	0.8	0.5
South Korea	1.4	2.3	2.3	2.2
India [d]	6.7	6.5	6.5	6.3
ASEAN-5 [e]	4.9	5.3	5.2	5.1
Eurozone	0.6	1.2	1.9	2.0
United States	2.5	2.1	1.7	2.1

Notes: **a** Assumption. **b** Calculated by the IMF using purchasing power parity (PPP) weights for nominal country gross domestic product. **c** Excludes Hong Kong. **d** Based on fiscal years, starting in April; **e** Indonesia, Malaysia, Philippines, Thailand and Vietnam.
Sources: IMF (2024); Bloomberg (2024)

Table 2.2: Exchange rate and inflation assumptions

	2023	2024[a]	2025[a]	2026[a]
AUD/USD exchange rate	0.66	0.66	0.70	0.71
Inflation rate [b]				
United States	4.1	2.9	2.0	2.1
	2022–23	**2023–24 [a]**	**2024–25 [a]**	**2025–26 [a]**
Australia	7.0	4.1	3.1	2.8

Notes: **a** Assumption; **b** Average CPI growth over the specified year (fiscal or calendar).
Sources: ABS (2024) Consumer Price Index, 6401.0; Bloomberg (2024); DISR (2024); RBA (2024); IMF (2024)

Steel

Australia's steel sector

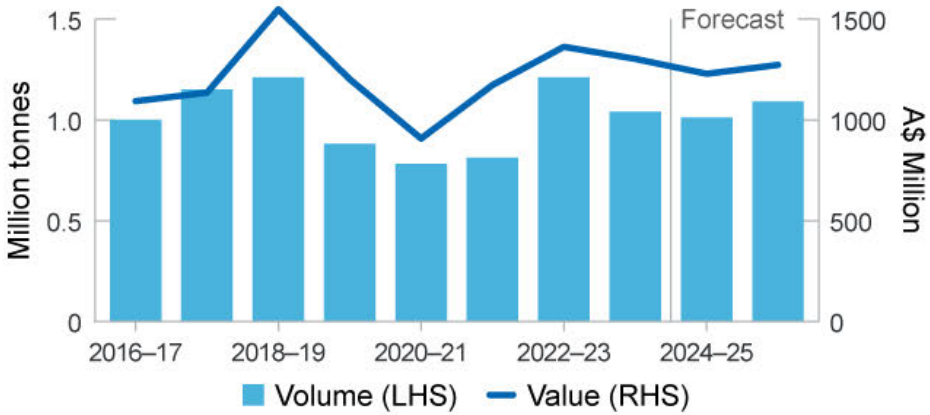
5m+ tonnes
produced each year

100,000+
employed in the steel industry

Significant
export markets
- China
- Japan
- South Korea
- Taiwan
- India

Refinery locations

Australian steel exports



Outlook

Global steel prices **have softened** due to **weaker demand**

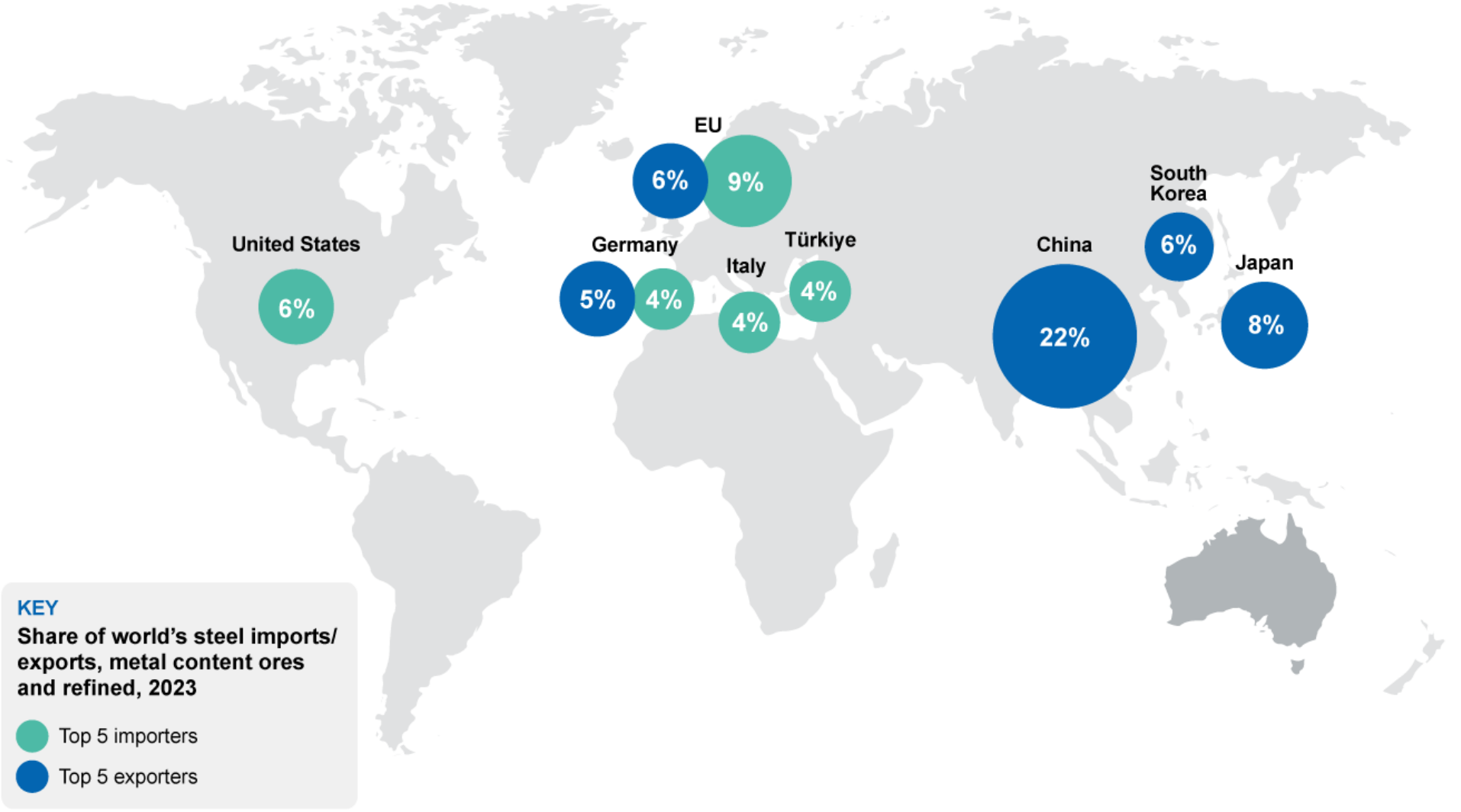
China's **property sector weakness** continues

Australian export values expected to **fall by 5.7%** in 2024-25

Recovery in global industrial production and construction to **support 2024 steel demand**

SOURCE: GA; DISR; OCE

Steel TRADE MAP



SOURCES: World Steel Association

3.1 Summary

- World steel demand has fallen for the past 2 years, driven by lower demand from manufacturing and construction in developed economies and ongoing weakness in China's property sector.
- Growth in world steel production has been flat so far in 2024. However, a gradual improvement in global industrial output and further stimulus-related infrastructure activity should support a pickup in global steel output in the second half of 2024.
- While China's residential property sector weakness is likely to persist, less restrictive monetary policies in advanced economies should see Western steel demand recover in 2025 and 2026. However, increasing trade sanctions could disrupt global steel markets.

3.2 World production and consumption

Global steel production has moderated in recent months

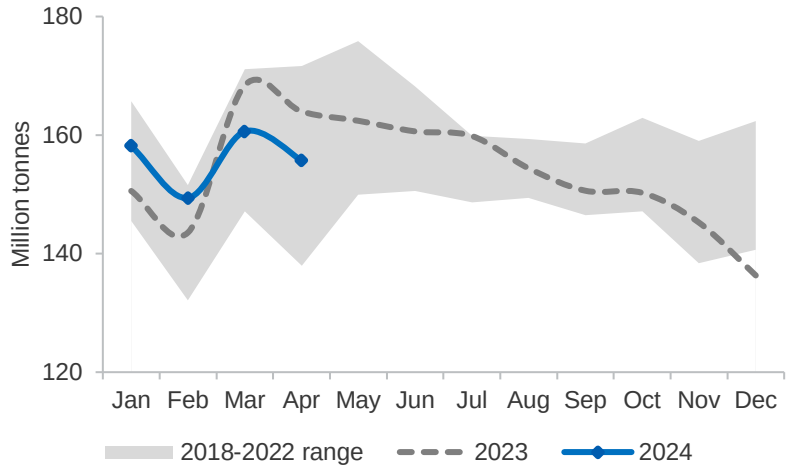
Global steel production in the four months to April 2024 was 624 million tonnes. This was 0.4% below the corresponding period in 2023, but towards the upper end of the global range from 2018 to 2022 (Figure 3.1). The softness in global steel production so far in 2024 has been largely driven by a slowdown in steel production in China (see *China section* below).

World steel production is expected to record relatively healthy year-on-year growth of 1.9% in 2024. However, this growth comes off a comparatively weak base: global steel output was flat last year after falling by 3.7% in 2022. Large falls in the last half of 2023 meant that global steel output in 2023 was 3.6% below the 2021 peak in global steel output.

World steel demand continues to be affected by the elevated interest rate environment in most advanced economies, which has contributed to weaker industrial output since the start of 2023 (Figure 3.2).

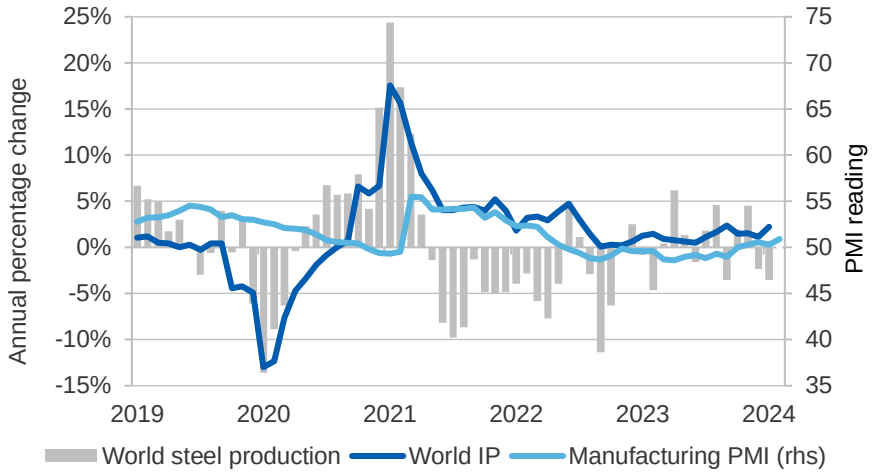
An expected steadying and then gradual pick-up in growth in ex-China global manufacturing, combined with further stimulus-related infrastructure projects, is expected to support stronger steel demand in the remainder of 2024.

Figure 3.1: Global monthly steel production



Source: World Steel Association (2024); DISR (2024)

Figure 3.2: World manufacturing PMI and industrial output



Notes: JPMorgan Global Manufacturing Index; a reading above 50 indicating an overall increase compared to the previous month, and below 50 an overall decrease
Source: World Steel Association (2024); S&P Global (2024); Bloomberg (2024)

Over the rest of the outlook period, world steel production will be boosted by up to 120 million tonnes (Mt) of new capacity — either under construction or planned — with large-scale projects slated for Asia, North America, Europe and the Middle East. By process, blast furnace-basic oxygen furnace steelmaking (favouring iron ore and metallurgical coal as inputs) is expected to make up just under half of new global supply, and more than 75% of new capacity in Asia. World steel production is projected to grow by 1.7% in 2025 and by 1.4% to just under 2 billion tonnes in 2026.

As the world's largest exporter of key commodities required for steel production, Australia is well placed to benefit from the increased demand projected in global markets over the outlook to 2026 (see *Iron Ore* and *Metallurgical Coal* chapters).

Global industrial production expected to strengthen in 2024

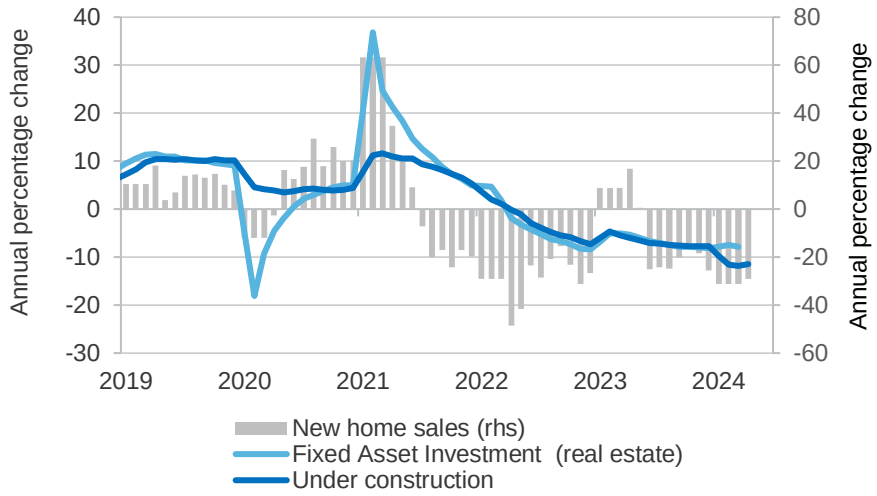
Global industrial production growth was a modest 0.9% year-on-year in 2023. Growth is expected to strengthen over the next two years — to around 3% a year — as the steel-intensive manufacturing, infrastructure and civil construction sectors recover.

Global manufacturing activity is showing tentative signs of recovery, with the JP Morgan Global Manufacturing PMI remaining above the neutral 50.0 mark for the third consecutive month in April (with a reading of 50.3 points). This was despite dipping slightly from March's reading of 50.6 — a five quarter high. The positive April result stemmed from an increase in global manufacturing output and new orders. Data broken down by country showed that output rose in China, the US, India and Brazil, while Europe remained weak — with contractions in key economies including Germany, the UK, France and Italy.

Infrastructure construction to drive global steel demand

Global steel consumption is projected to grow by 1.3% a year over the outlook period to 2026. Growth is expected to be highest in regions such as South and South-East Asia (particularly India), the Middle East, and North America (particularly the US and Mexico).

Figure 3.3: China's residential property sector pipeline



Notes: China's property data combines January and February monthly data.
Source: NBS (2024); Bloomberg (2024)

Construction — representing about 50% of world steel demand — is expected to see solid growth over the outlook period. This will be spurred by considerable levels of infrastructure investment pledged across many major nations in recent years. This includes the US$1.2 trillion Bipartisan Infrastructure Framework in the US, as well as India's US$1.3 trillion National Infrastructure Pipeline.

With private sector residential and commercial activity dampened by tighter credit conditions, infrastructure remains the sector driving global construction. However, recent forward indicators of construction activity paint a slightly improved picture, with activity in March quarter 2024 strengthening in North America, and a turnaround from negative to positive growth in Europe. In particular, the outlook for private residential construction improved in both markets. The IMF and most market analysts expect interest rate falls in major economies over the next two years, which should support a more broad-based recovery in construction.

China's multi-year residential property market downturn yet to stabilise

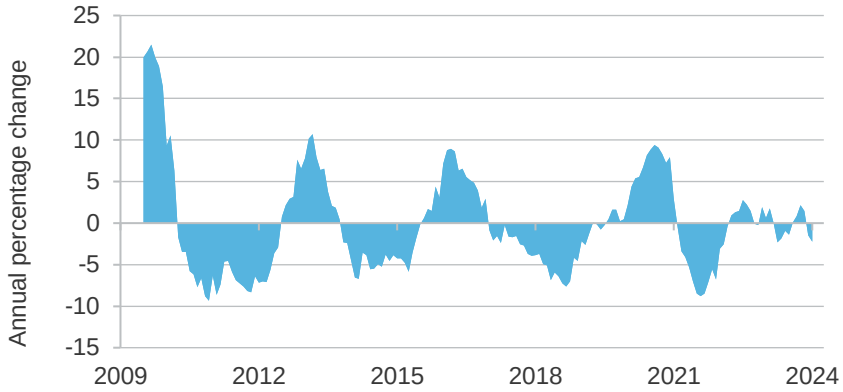
China's property sector has continued to weaken in 2024, with new home sales down 29% year-on-year in April. Fixed asset investment in real estate was also down, falling by 7.9% year-on-year in March 2024. Residential floor space under construction — a key measure of steel use in the Chinese economy — saw only marginal improvement in April, down 11% year-on-year (Figure 3.3). Floor space under construction for newly started buildings was weaker, down 26% for the first 4 months of 2024 compared with the same period in 2023.

Despite monetary policy easing over the past two years, there is yet to be a meaningful pick up of credit growth in the broader economy. Growth in total social financing — a broad measure of credit and liquidity in the Chinese economy — recorded a negative reading in April 2024, the first contraction in over two decades. Bloomberg's China Credit Impulse (measuring new loans compared with broader GDP) indicate that the value of new loans has yet to recover from the large falls during the property crisis in 2021 as investor caution continues (Figure 3.4). In April 2024 new loans were 23% of Chinese GDP, down from the 15-year average of 28%.

The challenging conditions faced by Chinese steel mills over the past two years persisted in the March quarter 2024, due to weak steel prices and high prices for key inputs including energy and metallurgical coal. In April 2024, China's monthly steel output fell 7% year-on-year to bring production for the four months to April 2024 slightly below the total for the same period in 2023. Most Chinese steel mills have been operating with slim or negative margins throughout 2023-24. However, mill profitability has improved in recent months as the falls in iron ore prices in the March quarter flowed through to steel producers.

Substantial increases in fixed asset investment in infrastructure and manufacturing have been critical in supporting steel demand in China over the past two years. As this shift continues Chinese domestic demand for flat steel products is expected to continue to grow while property sector demand for long products such as rebar is expected to remain weak.

Figure 3.4: China credit impulse



Source: NBS (2024); Bloomberg (2024)

However, Chinese infrastructure demand growth faces headwinds after the government ordered 12 heavily indebted local governments to delay or halt some state-funded infrastructure projects to contain local government debt risks. Affected projects are reported to include expressways, airport reconstruction and expansion, and urban rail infrastructure.

To support the property sector, the government approved issuance of a 1 trillion yuan ultra-long special sovereign bond in May, as well as new property support measures. A key measure was the announcement that local governments and state-owned enterprises will buy unsold homes and unused land from property developers. Some market analysts see this as an important first step — albeit limited given the size of the announcement relative to the problem it seeks to solve — towards the government acting as a buyer of last resort for developers. In addition, minimum down-payment ratios for homebuyers were cut again, following the cuts in 2023.

Strong export growth continues to play a key role in supporting China's steel sector during the protracted domestic property downturn. A 17% year-on-year increase in China's steel product exports in April built on 35% growth in steel exports in 2023. The strong export growth highlights the weakness in Chinese domestic demand given the weak growth in Chinese steel production over the past 12 months.

China's sharply rising steel exports have increased tensions with a number of trading partners, with potential implications for the long-term sustainability of China's two-speed recovery model. In April, the US announced a tripling of tariffs on Chinese steel and aluminium imports. As the US accounted for only 1% of Chinese steel exports in 2023, these tariff hikes are not expected to have a substantial direct impact on Chinese steel production. However, following the US move, several Latin American nations — including Mexico, Chile and Brazil which combined account for around 10% of Chinese steel exports — increased duties on Chinese steel products. Last year, five countries commenced trade remedy investigations against Chinese steel products, with the potential for further actions this year.

Overall, China's steel production in 2024 is expected to experience a mild fall, down by 0.4%. This trend is expected to continue over the rest of the outlook period, with projected falls of 0.4% a year in 2025 and 2026.

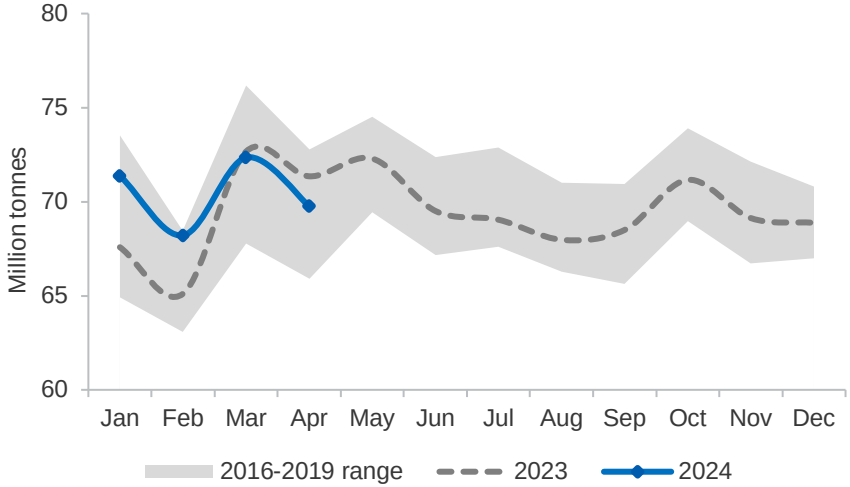
After a positive start to 2024, ex-China steelmaking weakened in April

Ex-China global steel production was up slightly year-on-year in the 4 months to April 2024 (Figure 3.5). However, production slowed in April as steel demand remained adversely affected by the elevated interest rate environment, particularly in the US and EU. Higher energy and input costs — as well as moderating global demand — have caused manufacturing and industrial production to weaken in many major economies over the past year.

After showing tentative signs of recovery at the end of 2023, industrial production in some major advanced economies — the EU, Japan, the US and South Korea — weakened again in the March quarter (Figure 3.6).

After falling steadily throughout most of 2023, the prices of both reinforcing bar ('rebar') and flat steel products such as hot-rolled coil (HRC) are now steadying, particularly in China and southern Europe. High-frequency data point to larger drawdowns in steel inventories than is typical for this time of the year. It remains to be seen whether this will translate into improved steel prices — and hence better operating conditions for steel mills struggling with high input costs.

Figure 3.5: Ex-China monthly steel production



Source: Source: World Steel Association (2024); Department of Industry, Science and Resources (2024)

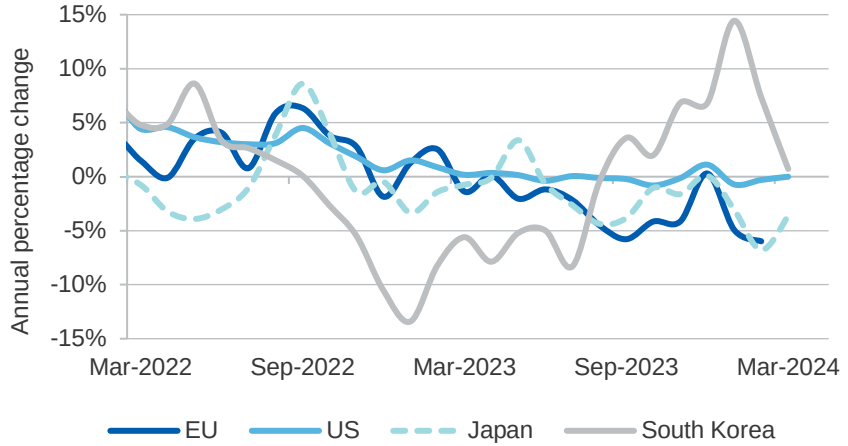
By contrast, US prices for HRC have been weaker so far in in 2024 following the sharp rises late in 2023. The substantial price differential between US rebar prices and other markets — of around 60% — continued in the June quarter 2024 (Figure 3.7).

India's growth outlook remains strong

Rapid growth in Indian steel output last year saw the country overtake the EU as the second largest global steel producer after China (Figure 3.9). Steel production has grown strongly so far this year, up 10% year-on-year in the March quarter 2024. Buoyant demand saw India's manufacturing PMI hit 59.1 in April 2024, the second strongest level in 3.5 years.

India's economic outlook remains healthy, with the demand for steel thus expected to maintain its growth momentum — notwithstanding several headwinds. These include potential disruptions to nationwide construction due to the general elections, the rainy season typical of the September quarter, and weaker consumer demand due to the adverse impact of below-average water levels on agricultural production and incomes.

Figure 3.6: Industrial production — EU, US, Japan and S Korea



Source: Bloomberg (2024)

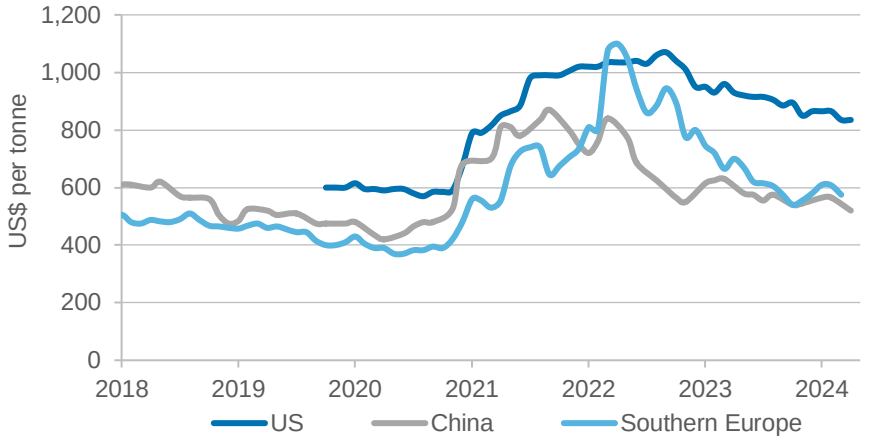
Over the outlook period to 2026, India is projected to record some of the strongest growth in steel output globally (Table 3.1). Substantial steel production capacity is expected to be added over the next few years, with the Government aiming to increase steel capacity from around 150 Mt in 2022 to 300 Mt by 2030.

European steel outlook remains subdued

The European steel outlook continues to remain highly uncertain, with large downside risks due to continued uncertainty around interest rates, inflation and energy prices. Weak demand and high energy costs over the past two years have seen steel producers struggle. Prices for HRC in Southern Europe fell to a low of $US585 a tonne in March and April 2024 due to low end-user demand (Figure 3.8).

Tight monetary policy continues to dampen the Eurozone construction sector, with the delayed effect of higher interest rates slowing the onset of the rebound in steel demand. The HCOB Eurozone Construction PMI recorded a negative result for the 24th consecutive month in April 2024, to reach 41.9. Downturns were evident in all three construction subsectors (housing, commercial and infrastructure) driven by declines in the three largest Eurozone economies of Germany, France and Italy.

Figure 3.7: Rebar steel prices



Source: Bloomberg (2024)

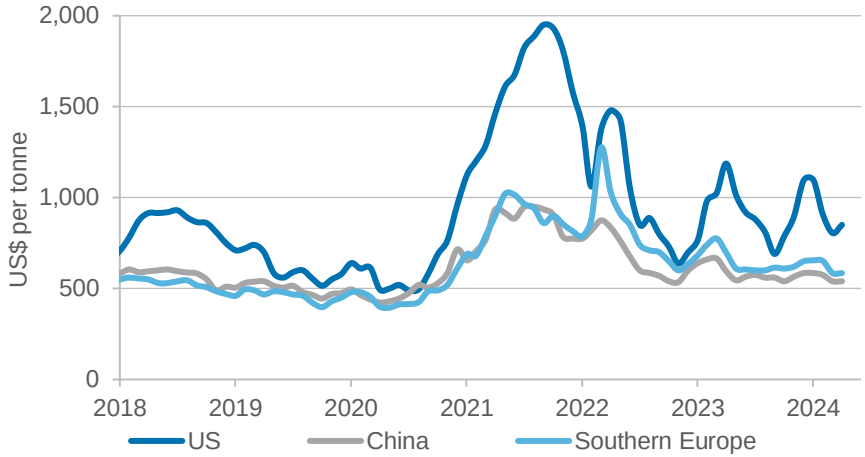
Germany's economy has been hit particularly hard. Businesses are facing both a manufacturing recession and a property crisis, with new residential starts around 30% below historical levels.

European automotive production levels saw a small increase in the March quarter 2024, following production cuts in 2023. Further growth in automotive sales is expected over the rest of 2024. Despite the year-to-date increase, the market remains well below pre-pandemic levels.

EU sanctions on Russian exports are due to take effect in 2024. Following the initial ban on finished steel from Russia, imports of square billets were prohibited from April 2024 and imports of slab steel will be prohibited from October 2024. The EU imported 4-5 Mt a year of Russian steel prior to the Russian invasion of Ukraine but has since turned to China and India for that supply; these nations provided about 10 Mt in 2023.

Over the outlook period to 2026, EU steel production is forecast to see a modest rate of growth, with production levels remaining below the pre-pandemic peak. Most of the EU's current or planned steel capacity developments are aimed at replacement (rather than additional) supply, with a focus on the shift toward electric arc furnace (EAF) based, lower-emissions facilities.

Figure 3.8: HRC steel prices



Source: Bloomberg (2024)

Japan and Korea face falling domestic steel demand in 2024

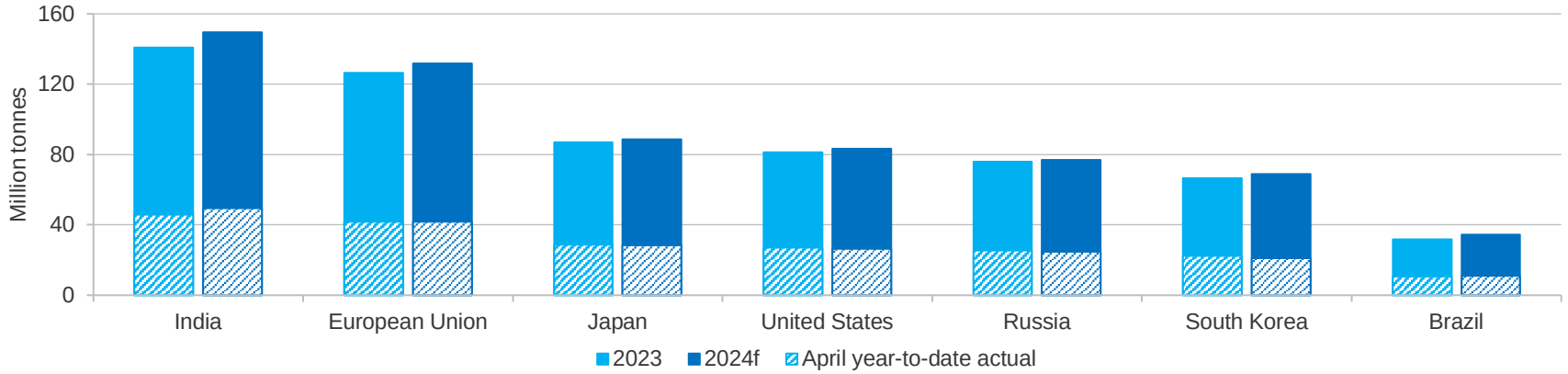
Japanese steel demand is expected to contract this year, due to construction sector weakness driven by high material prices and labour shortages. Japanese shipbuilding export orders have also fallen sharply since the start of 2024. South Korea's domestic steel demand is also being adversely affected by a construction slowdown, stemming from Korea's property financing crisis. Both Japanese and South Korean steel production is expected to remain relatively flat to 2026 (Table 3.1).

US manufacturing production recovers after weak 2023

US steel production is expected to pick up in 2024, after weak growth last year as tight monetary conditions weighed down the residential property sector. The outlook for US manufacturing has strengthened in recent months, with the US Manufacturing PMI registering positive or neutral monthly results so far in 2024 — a sharp contrast to 2023. Preliminary estimates indicate US Manufacturing PMI strengthened in May 2024 driven by growth in output and new orders.

The *Inflation Reduction Act* and *Infrastructure Investment and Jobs Act* are expected to further boost steel demand and infrastructure growth over coming years. Overall, US steel production is projected to grow by a relatively healthy 2.3% in 2024 and 2.9% in 2025, before moderating in 2026 (Table 3.1).

Figure 3.9: Steel production — other major producers



Source: World Steel Association (2024); DISR (2024)

Table 3.1: World steel consumption and production

			Million tonnes			Annual percentage change	
Crude steel consumption	**2023**	**2024[f]**	**2025[f]**	**2026[f]**	**2024[f]**	**2025[f]**	**2026[f]**
China	941	936	926	921	-0.5	-1.0	-0.6
European Union	141	146	148	150	3.5	1.8	1.4
India	136	146	155	166	7.3	6.6	6.5
United States	101	102	105	109	1.3	3.0	3.3
Other Asia[a]	110	116	118	121	5.0	2.0	2.2
Japan	59	59	60	60	-0.1	1.1	1.4
Middle East	58	60	61	63	2.3	2.8	3.0
South Korea	57	56	57	57	-0.7	0.4	1.4
Russia	45	45	45	46	-0.6	0.6	2.5
World steel consumption	1,881	1,907	1,928	1,954	1.4	1.1	1.4
Crude steel production	**2023**	**2024[f]**	**2025[f]**	**2026[f]**	**2024[f]**	**2025[f]**	**2026[f]**
China	1,019	1,015	1,011	1,007	-0.4	-0.4	-0.4
European Union	126	132	133	134	4.3	0.9	0.6
India	141	149	158	166	6.2	5.7	5.2
Japan	87	89	88	88	1.9	-0.6	0.2
United States	81	83	86	86	2.3	2.9	0.2
Russia	76	77	77	77	1.3	0.4	0.1
South Korea	67	69	70	70	3.4	1.7	-0.1
Other Asia[a]	63	71	80	83	13.0	12.9	3.9
World steel production	1,892	1,928	1,961	1,987	1.9	1.7	1.4

Notes: **a** Asia ex. China, India, Japan, South Korea and Taiwan; **f** Forecast; r Annual percentage change

Source: World Steel Association (2024); Department of Industry, Science and Resources (2024)

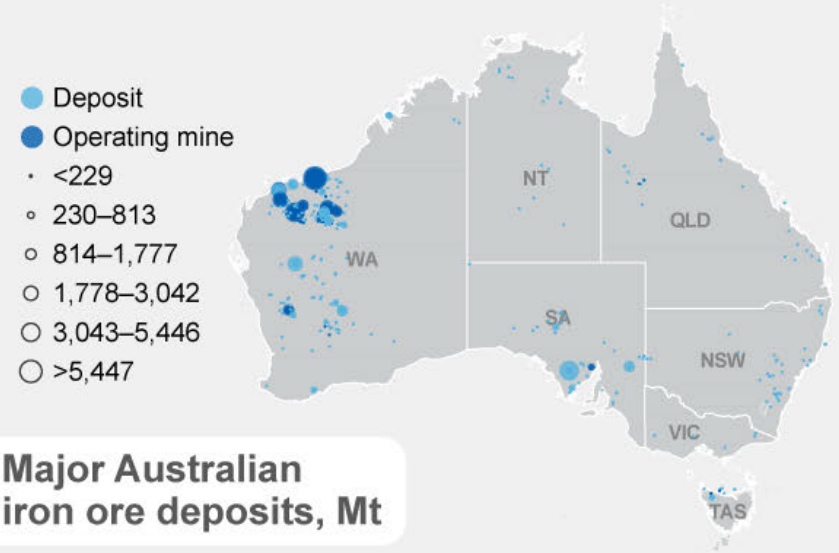
Iron Ore

Australia's iron ore sector

World's no.1
for iron ore
resources

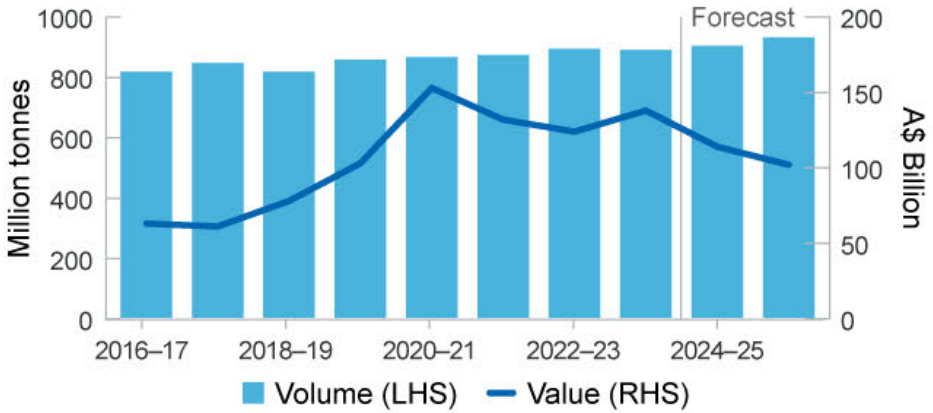
Largest
iron ore producer
in the world

892m tonnes
of iron ore
exported in 2023



Major Australian iron ore deposits, Mt

Australian iron ore exports



Outlook

Prices stabilised in the June quarter 2024

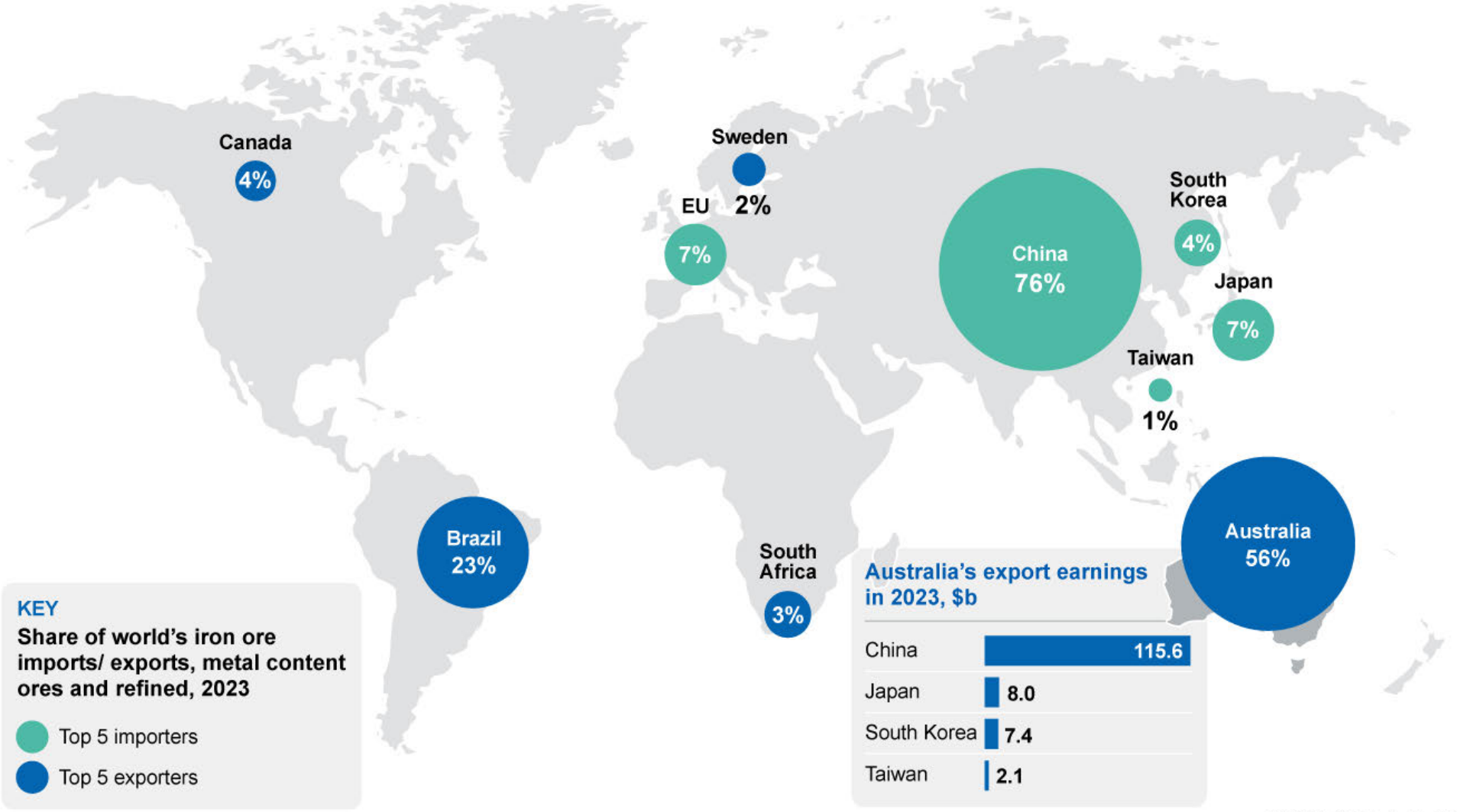
Future export earnings to **fall** as **prices decline**

Australian **export volumes rising**, with further greenfield supply expected

Exploration expenditure **remains strong**

SOURCE: GA; ABS; DISR; OCE

Iron Ore TRADE MAP



SOURCE: ITC Comtrade; ABS

4.1 Summary

- Spot iron ore prices have stabilised in recent months, following price falls of around 30% in the March quarter 2024. The recent recovery reflects inventory restocking and improved demand sentiment — given strengthening forward indicators of Chinese industrial production.
- Australian export volumes moderated in the March quarter, because of a combination of weather disruptions and maintenance and capital works at key operations. As more greenfield supply comes online from existing and emerging producers, export volumes are forecast to increase by 2.3% annually over the next two years.
- Lower prices projected over the outlook period will reduce Australia's iron ore export earnings from $138 billion in 2023–24 to $114 billion in 2024–25 and $102 billion in 2025–26.

4.2 Prices

Iron ore prices stabilised in the June quarter, after large falls early in 2024

Iron ore prices stabilised in the June quarter, with the benchmark iron ore spot price (basis 62% Fe fines CFR Qingdao) averaging around $107 a tonne. This follows steep falls in the first quarter of 2024, with prices falling from over US$130 a tonne in January, to around US$95 a tonne in late-March, the lowest level since late 2022 (Figure 4.1).

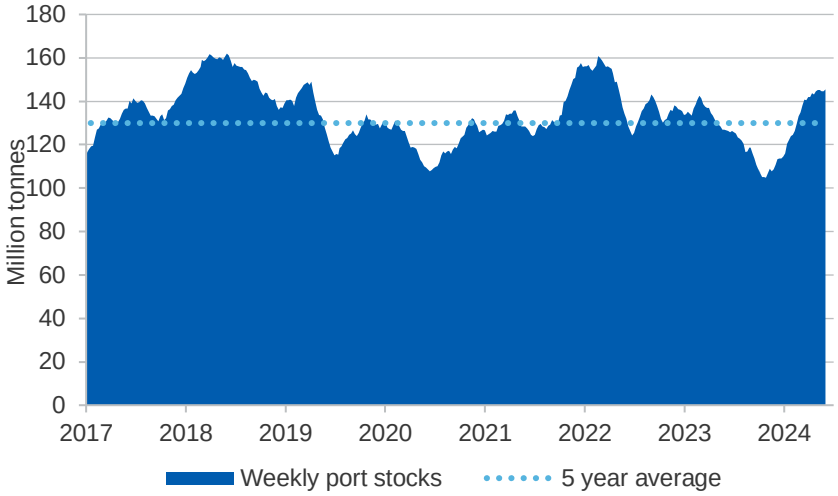
The stabilisation and consequent pickup in iron ore prices in recent months reflects a combination of factors. This includes a slowing in the rapid build-up of iron ore inventories (which commenced in the December quarter 2023), as well as improved sentiment — due to both a strengthening of forward indicators of Chinese industrial production and a series of Chinese government measures to support China's economy.

The recovery in iron ore prices since March has occurred despite weak steel production in China (down 7.8% and 7.2% year-on-year in March and April, respectively). Following a fall in China's portside iron ore inventories (to around 20% below historic averages in the December quarter 2023) stockpiles have been rebuilt to levels above the long-run average (Figure 4.2).

Figure 4.1: Iron ore price and China steel production, monthly

Notes: China import Iron ore fines 62% Fe spot (CFR Tianjin port)
Source: Bloomberg (2024) China import prices; World Steel Association (2024)

Figure 4.2: China's weekly iron ore port stocks



Source: Bloomberg (2024)

In the coming months, rising Chinese iron ore consumption (as steel production picks up) is expected to see a gradual easing in port inventories. Low iron ore inventories at Chinese steel mills will also need to be restocked, which should support iron ore demand.

Despite recording flat steel production over the past year, China's iron ore imports have increased in 2024 (Figure 4.3). This included higher imports from countries such as Brazil, South Africa and Canada. Iron ore imports from Australia increased by 4.3% year-on-year in April 2024, a turnaround from the 9.2% year-on-year fall in March.

Continuing weakness in steel prices and high input prices (iron ore, metallurgical coal and power) have meant Chinese steel mill margins have been low/negative over the past year. The expected seasonal ramp up in China's steel production during the peak construction season (between March and May) was anticipated to improve profit margins for mills. However, the growth in demand to date has not met expectations.

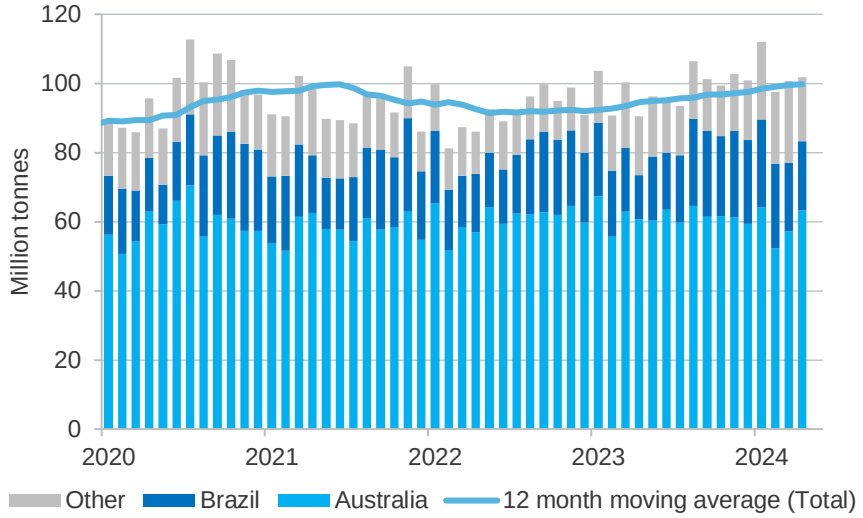
Premiums for high-grade iron ore products fell in the early part of 2024, as mills sought to reduce operating costs. However, a recent pickup in profitability has seen a modest turnaround, with premiums for 65% pellet recovering in April (Figure 4.4).

New infrastructure investment in China, as well as new measures by the Chinese government to alleviate weakness in the domestic property sector, should provide support for construction activity — and hence steel and iron ore demand — over the next few years (see *Steel* chapter).

Global (ex-China) steelmaking has a slightly healthier outlook for 2024, with growth forecast to exceed 4.5%. European steel mills are expected to make up some of the production lost when high energy prices in 2022 led to widespread plant idling and production stoppages.

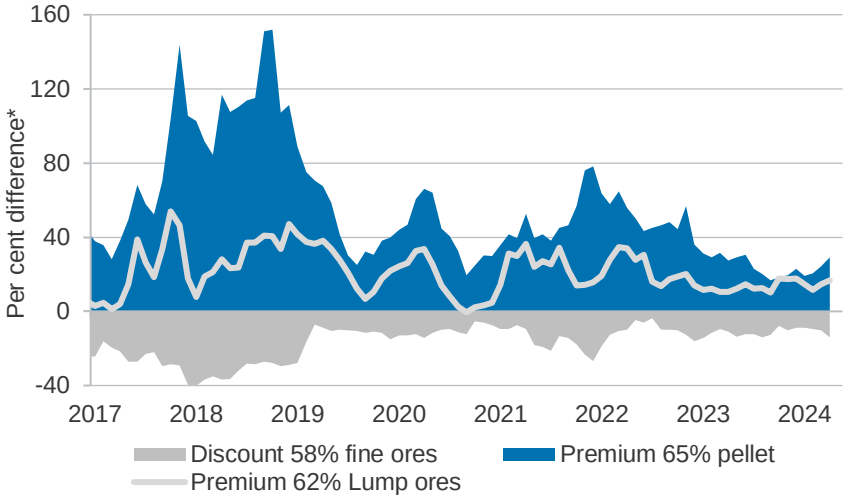
Over the next two years, a modest rise in iron ore imports is expected by major purchasers in Europe, North America, East and South-East Asia and the Middle East. This pickup should provide support for iron ore demand and prices.

Figure 4.3: China's iron ore imports, monthly



Source: Bloomberg (2024)

Figure 4.4: Iron ore price spreads between grades



Notes: *Difference to 62% benchmark iron fines CFR; all grades reflect Chinese import prices
Source: Bloomberg (2024)

Risks to the global iron ore demand outlook remain broadly balanced. Inflation is gradually coming down towards target levels in most advanced nations, with market expectations of interest rate cuts in the December quarter 2024. The IMF expects growth in China's economy of 5.0% in 2024 moderating to 4.5% in 2025 and 4.1% in 2026 as part of the longer-term shift to a slower growth trajectory. This represents an upward revision of 0.4% for 2024 and 2025. However, the IMF warns that China's property sector remains a downside risk, and without a comprehensive response, growth could falter, hurting its trading partners.

Prices to ease over outlook due to new supply and softening demand

China is projected to experience modest falls in steel output over the outlook period to 2026. This is expected to soften the rate of growth in global iron ore demand in the coming years, putting downward pressure on iron ore prices.

A key driver of this downward trend in prices is China's declining population and the tapering in urban population growth in recent years which is resulting in a structural downshift in demand for new residential and infrastructure-related construction. However, offsetting this is the compositional shift in investment, from property to manufacturing — particularly electric vehicles, solar and batteries — already being observed in the Chinese economy.

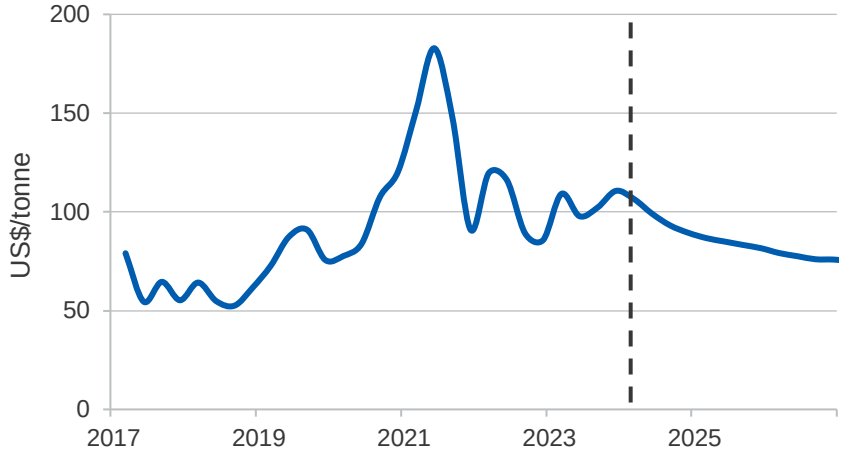
Rising steel demand and production capacity in regions such as emerging Asia and the Middle East will see ex-China iron ore demand increase over the outlook period. This includes over 100 million tonnes of integrated (Blast Furnace-Basic Oxygen Furnace) steelmaking capacity expected to come online in the next few years in Asia alone.

Turning to global iron ore supply, the world's two largest producers — Australia and Brazil — are expected to continue to collectively grow export volumes by 3.1% annually over the outlook period to 2026. This follows a ramp up of greenfield projects for major Australian miners, and major expansions planned by Brazilian producers including Vale and CSN.

New supply from emerging producers in Africa will also contribute to the growth in global trade of iron ore (see *World trade* section).

From an estimated average price of around US$105 a tonne (FOB) in 2023, the benchmark iron ore price is projected to fall to an average of US$96 a tonne in 2024, then decline further to around US$77 a tonne in 2026 (Figure 4.5). These declines are not expected to result in significant Australian capacity changes.

Figure 4.5: Iron ore price outlook, quarterly



Notes: China import iron ore fines 62% Fe spot (FOB)
Source: Bloomberg (2024); Department of Industry, Science and Resources (2024)

4.3 World trade

China iron ore imports rise despite falls in steel output

China's April iron ore imports rose 1.1% from March to 101.8 million tonnes, an increase of 10.4 million tonnes year-on-year from March 2023. China's iron ore imports in the first four months of 2024 totalled 411.8 million tonnes, up 7.2% from the same period in 2023. These strong iron ore imports came at the same time as China's crude steel output fell sharply in March and April and reflect a combination of inventory restocking discussed above and expectations of increased production in coming months (see *Steel* chapter).

Combined shipments to China from Australia, Brazil and South Africa — representing around 80% of global seaborne supply — were estimated at around 340 million tonnes for the 4 months to April 2024, a rise of 2.7% from the same period in 2023.

Over the outlook period to 2026, global trade is expected to grow by 1.5% annually, with new supply coming online in Australia, Brazil and potentially Africa. Australia is projected to continue to ramp up greenfield projects from established producers Rio Tinto, BHP and Fortescue, as well as emerging producers such as Mineral Resources and Atlas Iron. Australia's iron ore exports are projected to reach 940 million tonnes by 2026 (see *Australia section* for more detail).

Total iron ore shipments from Brazil increased by around 4.2% year-on-year in the March quarter 2024. This was driven by a 6.0% rise in output from Vale, Brazil's largest producer. The company, which accounts for over 80% of Brazil's iron ore output, achieved ore production of 70.8 million tonnes in the March quarter 2024. Vale's production guidance for 2024 remains unchanged at 310-320 million tonnes. However, the company plans to increase annual capacity by a further 50 million tonnes over the next 2 years.

Brazil is expected to grow iron ore exports by around 6% annually over the outlook period. This will include Vale's S11D expansion, as well as new and expanded output by a number of other producers, such as CSN's Casa de Pedra mine

Outside of Australia and Brazil, iron ore exports are projected to be bolstered by additional supply from Canada and India and new projects coming out of Africa, including the 150 million tonne per annum plus Simandou mine in Guinea which is targeting first production in 2025–26.

CMRG continues contract talks with major producers

China's state-owned company China Minerals Resources Group (CMRG) has continued its talks with the world's four largest iron ore mining companies — Rio Tinto, BHP, Vale and Fortescue. Reports indicate CMRG is seeking preferential terms on transport, grades and delivery arrangements, as well as price.

CMRG was established by the Chinese Government in July 2022 with the aim of enhancing China's ability to secure its supply of key mineral resources — including the establishment of a single, central purchasing platform for iron ore. CMRG has a broad remit, with responsibilities ranging from exploration and mining of mineral resources, management of supply chain services and investment activities.

Over the outlook period, CMRG is expected to play an increasing role in contract negotiations and price setting in the global iron ore market. In 2023, CMRG started negotiations on iron ore supply on behalf of a number of China's major steelmakers. The number of steel mills represented by CMRG almost doubled between 2023 and 2024 — with 50 steel mills signed up with CMRG for coordinated annual procurement contract negotiation in 2024, reportedly representing up to 70% of production.

Construction under way for Guinea's Simandou mine

Progress on Guinea's Simandou 150-200 million tonne mine continued in the June quarter 2024. In April, Rio Tinto reported that good progress has been made on the earthworks, including completion of clearing the 18–kilometre airport access road. Construction also commenced on the primary crusher and the rail spur tunnel, port car dumpers and transhipment vessel wharf. Rio Tinto also reported that the last unconditional documents regarding project financing were signed, with the company stating this indicates the project has now reached "a point of no return." Rio Tinto plans to invest US$6.2 billion in the mine, rail and port projects, in collaboration with a number of other companies.

First production from the Simfer mine — of which Rio Tinto holds a 53% share — is expected in 2025, ramping up over 30 months to an annualised capacity of 60 million tonnes per year.

The Simandou mine is divided into 4 blocks, with 2 blocks held by Rio Tinto and Aluminum Corp of China, and the remaining 2 blocks held by the Winning Consortium Simandou — a consortium of Chinese and

Singaporean companies. The Guinean Government aims to complete infrastructure and start commercial production in late 2025 or early 2026.

India's iron ore imports rose in the March quarter

India's iron ore production reached 277 million tonnes in the year to March 2024, an increase of 7.4% from the previous year. However, production fell 10% year-on-year in the March quarter 2024. Domestic production is expected to increase over 2024, due to a combination of resetting permits (due to the start of the new fiscal year in April) as well as restarts and expansions to mines in some regions, including Goa and Odisha.

Strong domestic demand (see *Steel* chapter) saw a sharp rise in India's imports of iron ore in the March quarter, up 10% year-on-year on the March quarter 2023. India's imports are forecast to continue to rise over the outlook to 2026, albeit from a low base. Much will depend on how fast iron ore production capacity and infrastructure can be brought online.

In 2023, India's iron ore and pellet exports more than doubled to reach an estimated 37 million tonnes. This growth reflected the removal of large export duties imposed in 2022. However, as India's steelmaking capacity continues to grow in the years ahead — in order to meet the rising demand from manufacturing, infrastructure and residential and commercial construction — the quantity of iron ore available for export will decline.

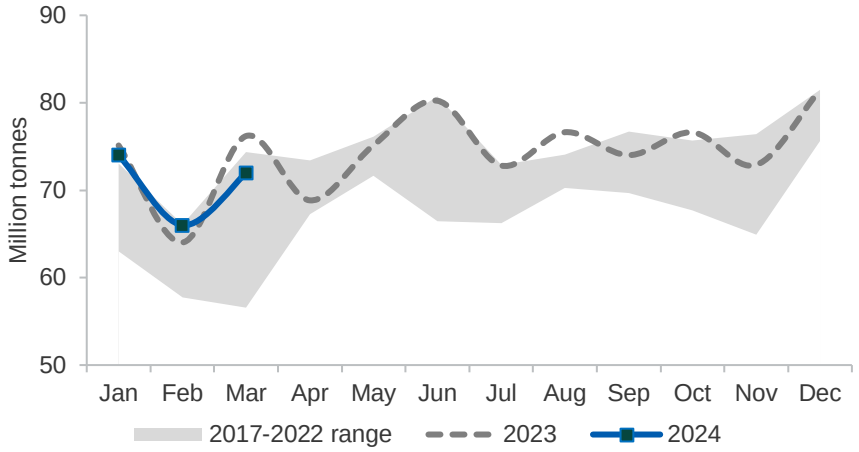
India has historically been a price-sensitive iron ore exporter, with domestic miners exporting in times of high seaborne prices. The forecast easing in prices over the outlook period suggests India's iron ore exports are likely to grow relatively slowly over the outlook to 2026. However, there remains considerable uncertainty about the likely trajectory of India's iron ore exports and imports over the next few years.

4.4 Australia

Output moderated in March quarter due to wet weather and maintenance

Australia's iron ore export earnings were $34.4 billion in the March quarter 2024, a 4.5% (or $1.5 billion) increase year-on-year. The increase reflected higher iron ore prices over the period, with the unit export price in the March quarter 2024 6.8% higher compared with the previous year. Export volumes fell by 2.1% year-on-year in the March quarter 2024 (Figure 4.6).

Figure 4.6: Australian monthly iron ore export volumes



Source: ABS (2024) International Trade, Australia, 5368.0; Department of Industry, Science and Resources (2023)

In volume terms, Australia exported 211 million tonnes of iron ore in the March quarter 2024, down 4.6 million tonnes year-on-year. The weaker exports in the March quarter 2024 reflects a combination of weather disruptions and maintenance and capital works at key operations.

Australia's iron ore shipments in April were affected by closures to Rio Tinto's Dampier and Walcott ports, due to Cyclone Olga and disruptions to loadings at Port Hedland.

Over the outlook period to end 2026, Australia's iron ore production volumes are projected to increase by 2.3% a year over the next two years, to reach an estimated 1,015 Mt by 2025-26 (Table 4.2).

In May 2024, Mineral Resources' Onslow Iron project achieved its first ore-on-ship, with a 113,000 tonne shipment sent to China for delivery to joint venture partner China Baowu Steel Group. This was a significant milestone for the project, achieved 11 months after ground was broken at

the Ken's Bore mine site 150km east of Onslow. The project is forecast to ship around 35 million tonnes of iron ore per year, with an expected mine life of at least 30 years. Mineral Resources also announced in June 2024 that it would close its Yilgarn hub iron ore operations by the end of 2024.

BHP's iron ore output was around 61 million tonnes in the March quarter 2024, down 7% on the December quarter 2023. Production was lower due to heavy rainfall throughout the March quarter 2024, the continued tie-in activity for the Rail Technology Programme, the impacts of the ongoing ramp up of the Central Pilbara hub and a bushfire near Yandi.

The company left its production guidance for 2023–24 unchanged at 250–260 million tonnes (equating to 282–294 million tonnes on a 100% ownership basis). South Flank remains on track to ramp up to full production capacity of 80 Mtpa (100% basis) by the end of June 2024. The Port Debottlenecking Project was commissioned in December 2023 and ramp up remains on track to be completed by the end of 2024.

Rio Tinto shipped around 78.0 million tonnes of iron ore in the March quarter 2024, down 5% from the March quarter 2023. Lower volumes were predominantly the result of weather disruption at the ports, leading to a lower stock draw-down compared to last year, and reduced mine output.

Rio Tinto's 2024 production guidance is unchanged at 323-338 million tonnes. Rio Tinto is seeking to lift capacity of the Gudai-Darri mine to 50 million tonnes a year through incremental productivity gains. The capacity gain is subject to environmental, heritage and other relevant approvals.

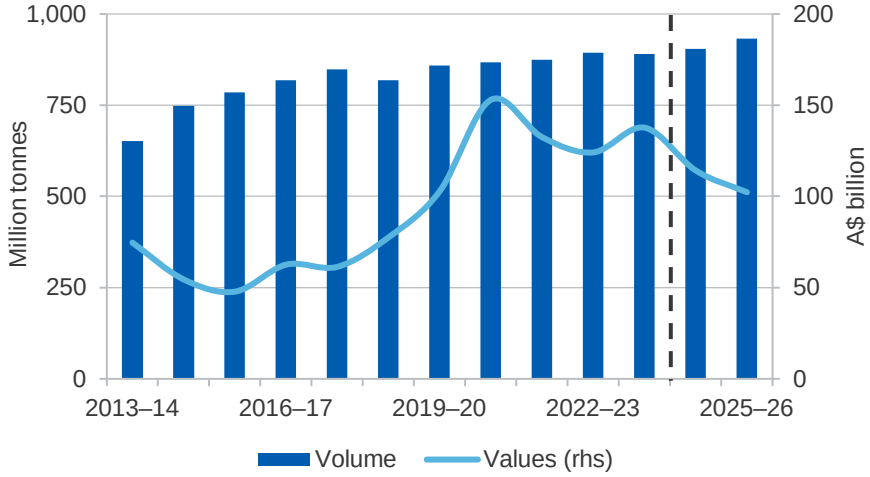
Construction of Rio Tinto's $3 billion Western Range joint venture with Baowu Steel Group is now over 50% complete. Bulk earthworks and initial mining area development are well advanced, and the focus is on greenfield crushing and screening. This project will sustain production from its existing Paraburdoo hub and is expected to produce 25 million tonnes per year. First ore is scheduled for 2025.

Fortescue's total iron ore shipments were 43.3 million tonnes in the March quarter 2024, 6% lower year-on-year. The weaker result reflected the impact of an ore car derailment and weather disruptions. Commissioning of the Iron Bridge magnetite mine continued in the March quarter 2024. Fortescue's production guidance for the 2023–24 financial year remains at 192–197 million tonnes, with shipments now expected in the lower end of the range.

Moderating prices to see Australian export earnings fall

Australia's iron ore export earnings are estimated at $138 billion in 2023–24, reflecting higher production volumes and stronger prices. Weaker prices and a higher AUD/USD exchange rate are forecast to lead to lower iron ore earnings over the outlook period. Total export earnings are forecast to decline to $114 billion in 2024–25, falling to around $102 billion in 2025–26 (Figure 4.7).

Figure 4.7: Australia's iron ore export volumes and values



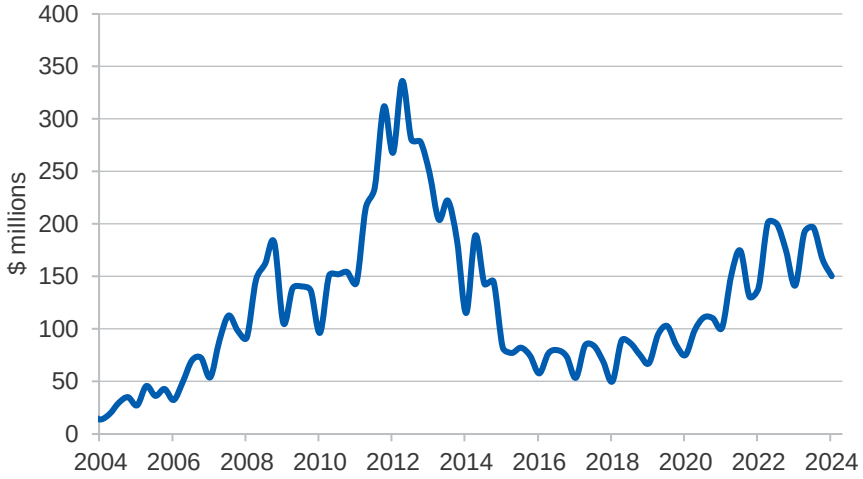
Source: ABS (2024) International Trade, Australia, 5368.0; Department of Industry, Science and Resources (2024)

Exploration fell in March quarter 2024

A total of $150.3 million was spent on iron ore exploration in the March quarter 2024 (Figure 4.8). This was 9.6% lower compared to the previous quarter, and 6.3% higher than the same period in 2023. Exploration has

eased from near decade highs in 2022. However, the latest results continue the broad upward trend in iron ore exploration triggered by the historical high iron ore prices (of above US$200 a tonne) in early 2021.

Figure 4.8: Australian iron ore exploration expenditure



Source: ABS (2024) Catalogue 8412.0

Revisions to the outlook

Export earnings in 2023–24 have been revised up slightly from the March 2024 *Resources and Energy Quarterly* reflecting a lower-than-expected exchange rate and slightly higher prices. Earnings of $138 billion rather than $136 billion are now forecast for 2023–24. Export volumes were revised down in 2024–25 and 2025–26 to reflect changes to expected production for several iron ore operations in Western Australia. Higher expected iron ore prices (in Australian dollars) outweighed the volume reductions, resulting in upward revisions in export earnings in 2024–25 and 2025–26 of around $3 billion each.

Table 4.1: World trade in iron ore

	Million tonnes				Annual percentage change		
	2023	2024[f]	2025[f]	2026[f]	2024[f]	2025[f]	2026[f]
World trade	1,620	1,628	1,664	1,692	0.5	2.2	1.7
Iron ore imports							
China	1,180	1,118	1,092	1,072	-5.3	-2.3	-1.9
Japan	102	104	104	104	1.9	-0.6	0.2
European Union	108	112	113	114	3.4	1.6	0.5
South Korea	72	74	75	75	3.3	1.6	-0.1
India	5	20	32	46	293.0	64.1	41.1
Iron ore exports							
Australia	892	893	923	940	0.1	3.3	1.9
Brazil	367	390	413	440	6.3	5.9	6.5
South Africa	59	60	61	62	1.7	1.7	1.6
Canada	56	58	60	62	3.6	3.5	3.3
India	37	38	39	40	2.7	2.6	2.6

Notes: **s** Estimate; **f** Forecast; **r** Annual percentage change

Source: World Steel Association (2024); International Trade Centre (2024); Department of Industry, Science and Resources (2024)

Table 4.2: Iron ore outlook

				Million tonnes				Annual percentage change
World	**Unit**	**2023**	**2024[f]**	**2025[f]**	**2026[f]**	**2024[f]**	**2025[f]**	**2026[f]**
Prices [a]								
– nominal	US$/t	105	96	84	77	-8.2	-12.3	-8.3
– real [b]	US$/t	108	96	83	74	-10.3	-14.2	-10.1
Australia	**Unit**	**2022–23**	**2023–24[s]**	**2024–25[f]**	**2025–26[f]**	**2023–24[s]**	**2024–25[f]**	**2025–26[f]**
Production								
– Steel [c]	Mt	5.6	5.3	5.5	5.5	-6.5	4.1	0.0
– Iron ore [g]	Mt	957	956	984	1,015	0.0	2.9	3.1
Exports								
Steel [c]	Mt	1.21	1.04	1.01	1.09	-14.5	-2.4	7.6
– nominal value	A$m	1,356	1,296	1,222	1,266	-4.5	-5.7	3.6
– real value [i]	A$m	1,412	1,296	1,185	1,195	-8.2	-8.5	0.8
Iron ore [h]	Mt	895	891	905	933	-0.4	1.6	3.1
– nominal value	A$m	124,131	137,707	114,221	102,296	10.9	-17.1	-10.4
– real value [i]	A$m	129,189	137,707	110,766	96,536	6.6	-19.6	-12.8

Notes: a Spot price, 62% iron content, fob Australian basis; b In 2024 US dollars; c Crude steel equivalent; Crude steel is defined as the first solid state of production after melting. In ABS Australian Harmonized Export Commodity Classification, crude steel equivalent includes most items from 7206 to 7307, excluding ferrous waste and scrap and ferroalloys; f forecast; g In wet metric tonnes; h In dry metric tonnes; i In 2023–24 Australian dollars; r Annual percentage change
Source: ABS (2024) International Trade in Goods and Services, Australia, 5368.0; Bloomberg (2024); World Steel Association (2024); company reports; Department of Industry, Science and Resources (2024)

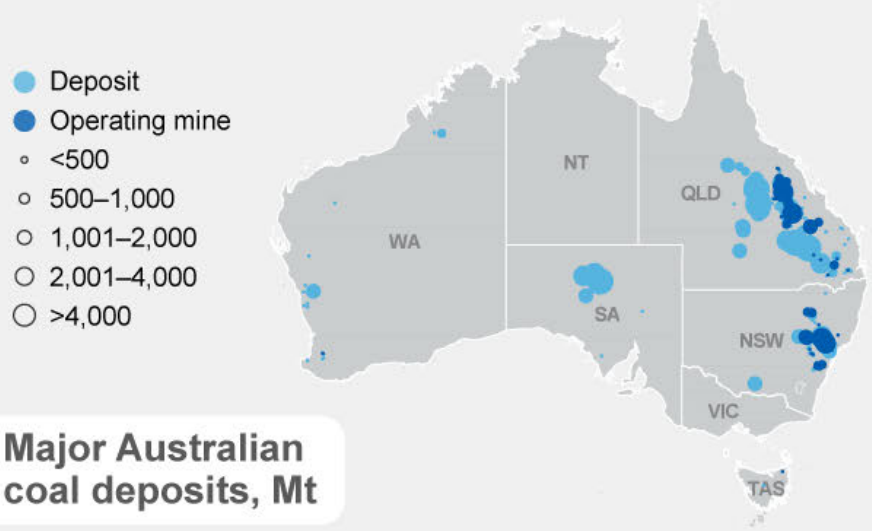
Metallurgical Coal

Australia's metallurgical coal sector

170Mt
exported annually, making Australia the world's largest exporter

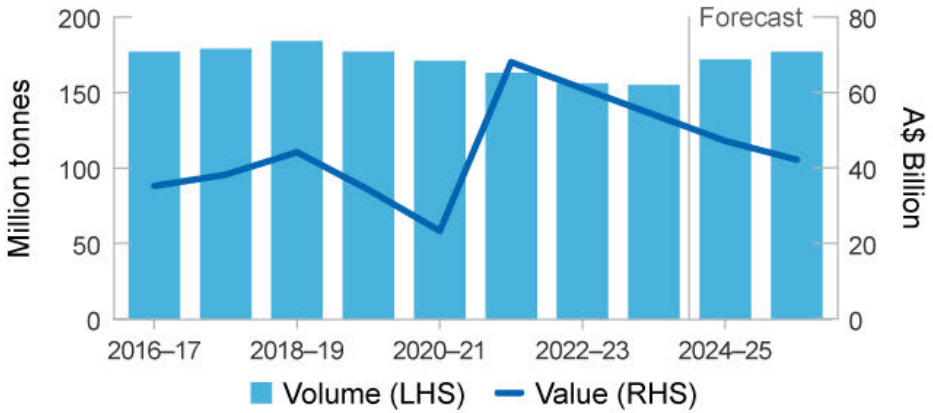
Growth
over time in exports to India

Almost all
of Australia's **production** is exported



Major Australian coal deposits, Mt

Australian metallurgical coal exports



Outlook

Prices are **falling slowly** as disruptions ease

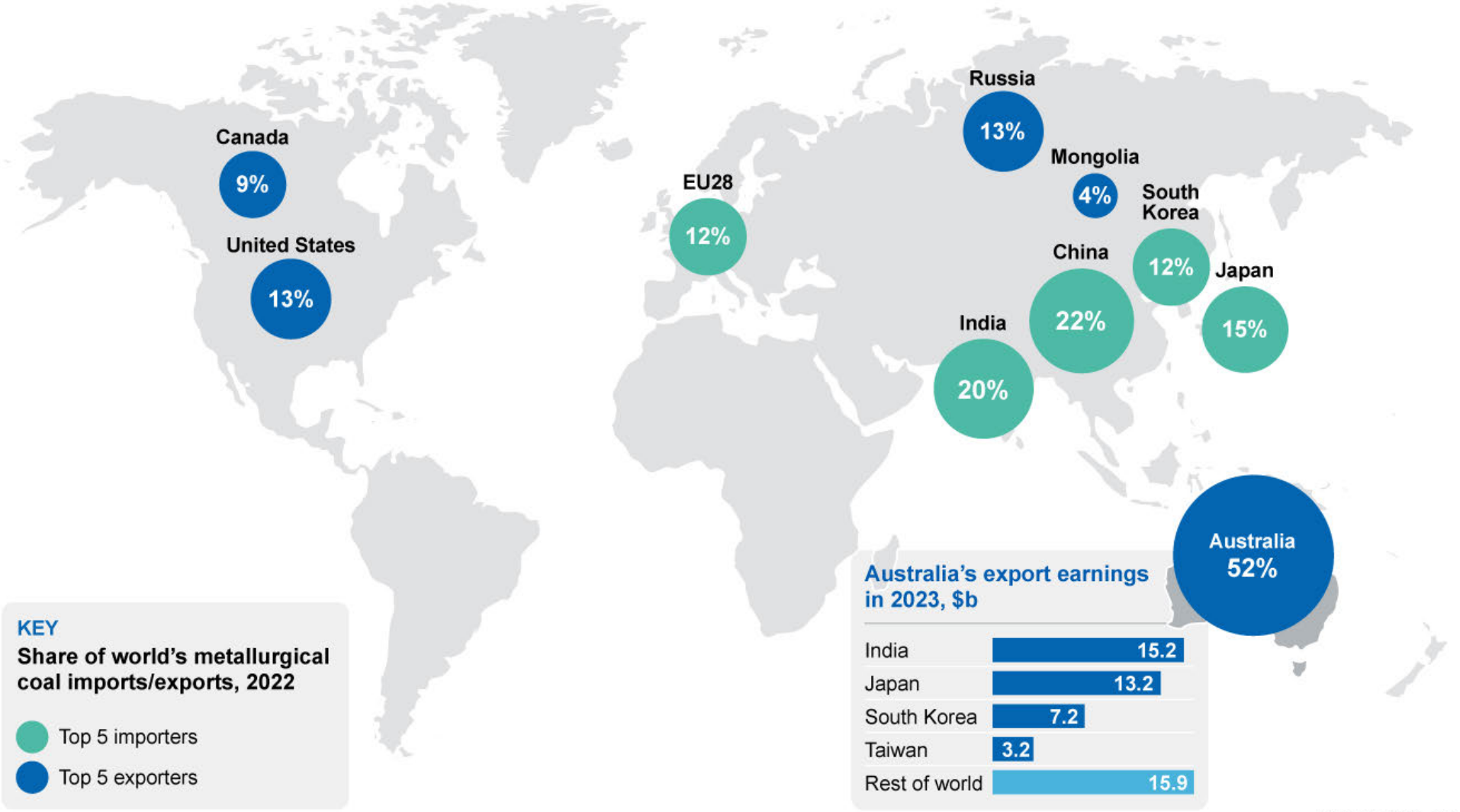
Earnings are **expected to decline** over time as prices ease

Volumes are expected to grow over the next five years as **new mines** ramp up

Exploration spending **remains high**

SOURCE: World Steel; GA; DISR; OCE

Metallurgical Coal TRADE MAP



SOURCE: WSA; ABS

5.1 Summary

- Australia's metallurgical coal export earnings are expected to decline from $61 billion in 2023–24 to $42 billion by 2025–26.
- Metallurgical coal prices are falling slowly as supply disruptions ease. The benchmark prices is expected to fall from US$264 a tonne in 2024 to US$208 a tonne by 2026.
- Export volumes are expected to rise from 156 Mt in 2023–24 to 177 Mt by 2025–26 (see *Australia* section). A potential recurrence of the La Niña cycle presents a risk to supply.

5.2 World trade

Global demand for metallurgical coal exceeded expectations in the March quarter due to strong demand from China and India. Reduced domestic production in China and increased activity in steel mills supported Chinese demand for seaborne imports. Indian imports were also high but are expected to dip in the June quarter during the Indian election.

World steel production is expected to grow by 1.4-1.9% annually over the outlook period. Seaborne metallurgical coal import demand is expected to hold steady in 2024 before experiencing modest increases from 2025. Weak steel demand from China's property sector is expected to be counteracted by higher demand from India's steel industry. Blast furnace-basic oxygen furnace steelmaking capacity (with iron ore and metallurgical coal as the main inputs) provides a good indication of regional metallurgical coal demand. China and India have the biggest pipelines for blast furnace capacity expansion, with strong investments in both nations expected to underpin the long-term outlook for metallurgical coal. Demand from other major import markets such as Japan, South Korea, and the European Union is expected to hold steady over the outlook (Figure 5.1).

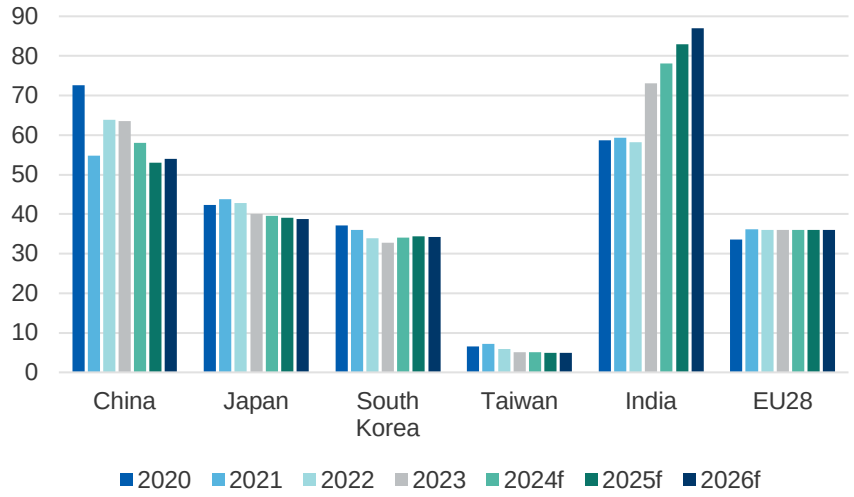
Metallurgical coal prices are expected to fall as supply outpaces demand. However, price risks remain weighted to the upside, and include potential weather disruptions (especially on Australia's east coast) and the potential for reduced supply from Russia. Australia experienced significant supply disruptions during the previous La Niña cycle, with waterlogged mines and reduced port and rail capacity, and a La Niña may develop in H2 2024.

5.3 World imports

Chinese metallurgical coal imports are within the range of peaking

China's imports of metallurgical coal rose by 18% year-on-year in the March quarter 2024. Strong demand defied previous expectations due to a range of factors. These include lower domestic production in 2024 due to tightened safety restrictions intended to reduce mining accidents (see *Thermal coal* chapter). Steel production was limited in some Chinese provinces in 2021 to reduce emissions, consolidate the sector and increase efficiency. Limits were later relaxed in 2023 to support economic growth. Speculation that informal limits may again be introduced later in 2024 likely further incentivised steel mills to increase activity.

Figure 5.1: Metallurgical coal imports



Notes: **f** Forecast **z** Projection
Source: McCloskey (2024); Department of Industry, Science and Resources (2024)

The higher March quarter activity is not expected to be sustained through 2024, with Chinese steel output expected to fall (see *Steel* chapter).

Construction activity usually picks up following Chinese New Year, however, this did not occur this year due to weak market fundamentals. While steel industry sentiment has improved recently — Chinese steel prices are up and iron ore prices down — this is not expected to compensate for a weak property sector and indebted local governments reducing infrastructure projects. Policies announced at China's annual Two Sessions gathering in March 2024 did not include policies that targeted the downstream property sector. The Third Plenum is taking place in July 2024 which is traditionally a time for significant economic reform announcements, including for property and infrastructure.

China removed the floor on mortgage rates and encouraged local governments to buy homes to convert them into affordable housing to improve the outlook for the property sector — prompting a temporary boost to expectations for the sector.

These efforts are not expected to have a large impact on metallurgical coal demand. Based on these factors, China's seaborne metallurgical coal imports (not including land imports) are expected to fall from 64 Mt in 2023 to 54 Mt by 2026.

India's demand rose as it continues to expand crude steel production

India's metallurgical coal imports grew 16% over the year to the March quarter 2024. High March quarter demand reflected buildup ahead of a likely June quarter slowdown against the backdrop of national elections. Infrastructure spending typically slows during election periods leading to lower demand from the construction sector.

India's imports of metallurgical coal are expected to steadily grow over the outlook period as the nation continues to expand its blast furnace capacity. India's National Steel Policy 2017 includes a target to expand crude steel production capacity to 300 Mt by 2030. Both Tata Steel and JSW Steel — two of India's largest steel companies — are increasing steel production capacity to meet rapidly growing domestic demand. India has the second largest pipeline of blast furnace capacity in the world (behind China), with 122 Mtpa of capacity announced and under construction.

5.4 World exports

World exports are expected to experience a dip in 2024 and 2025 due to reduced supply from Russia and Mongolia. The impact of global weather events including a possible La Niña cycle remains a key downside risk. This is expected to be partially offset by increased output from Australia and the US, with supply from Canada and Mozambique remaining broadly stable. Global exports are expected to fall from 348 Mt in 2023 to 341 Mt in 2026 (Figure 5.2).

Mongolian exports are expected to fall over the outlook

Exports from Mongolia were high in the March quarter, growing by 22% compared with the same quarter in 2023. However, this performance is not expected to persist through 2024. All of Mongolia's coal is exported to China due to it being landlocked by China and Russia. Mongolian exports have been supported by China's steady steel output and reduced domestic production (linked to tightened safety regulations). These drivers are likely to ease over the year, with Mongolian coal exports expected to fall in line with China's steel production. Export volumes are expected to decline from 48 Mt in 2023 to 38 Mt in 2026.

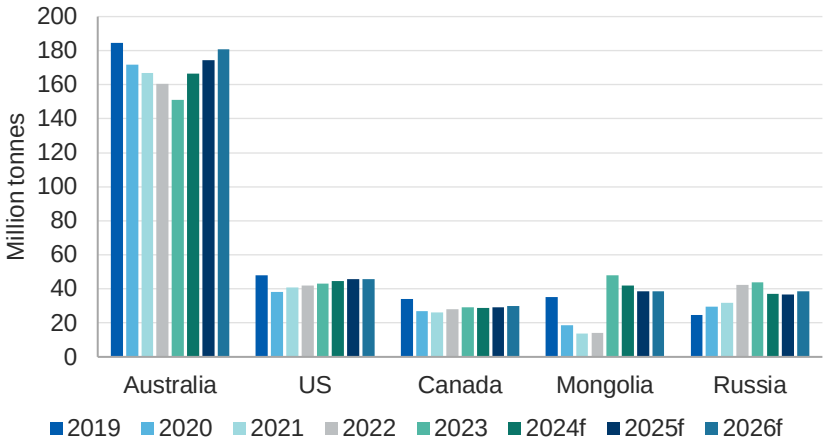
Russian exports expected to decline due to US secondary sanctions

Russia's exports of metallurgical coal held steady over the March quarter but face a challenging outlook. Russian coal miners are experiencing logistical issues, with severe rail constraints leading to a build-up of stocks and production cutbacks, presenting headwinds to Russia's intention to increase coal exports in 2024.

There are various factors that contribute to the pessimistic outlook for Russian exports. Domestic prices in China — Russia's largest export market — started falling as buyers exploited arbitrage opportunities. In January 2024, China reimposed a 3% import tariff on metallurgical coal on countries without a Free Trade Agreement — which includes Russia (Australia has a Free Trade Agreement with China). Overall, falling demand from China is also expected to hurt Russian exports.

US secondary sanctions targeting specific Russian coal producers impose penalties on financial institutions conducting or facilitating transactions with sanctioned entities — making it more difficult for Russia to re-route exports to other markets. China is Russia's largest metallurgical coal export market, making up 60% of total exports. While it is difficult to predict and measure the exact impact of secondary sanctions, there are reports of large banks in China limiting transactions with sanctioned entities. While demand from India — Russia's second largest export market — is expected to increase over the outlook, these secondary sanctions could inhibit redirection efforts.

Figure 5.2: Metallurgical coal exports



Notes: f Forecast

Source: McCloskey (2024); Department of Industry, Science and Resources (2024)

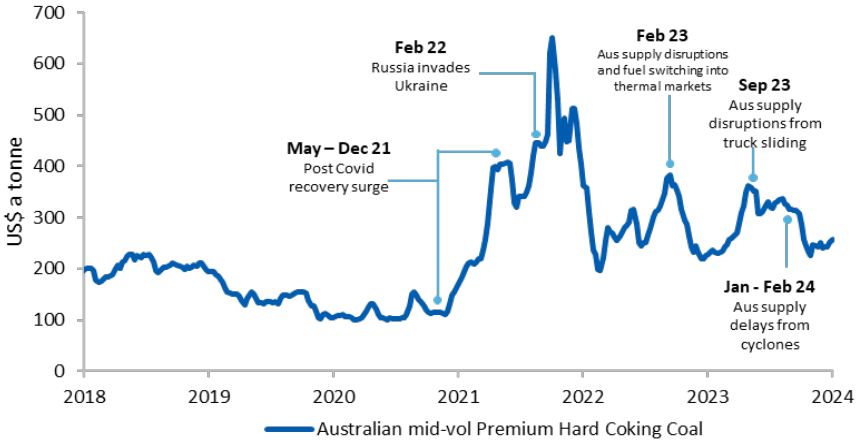
5.4 Prices

Metallurgical coal prices set to decline further

Australian prime hard coking coal prices have declined noticeably from the extraordinary levels recorded in the wake of the Russian invasion of Ukraine and are emerging from a period of sharp volatility. In 2021, improved consumer sentiment and a surge in global industrial activity post COVID lockdowns caused metallurgical coal prices to increase sharply.

The production of cars and other manufactured goods rose after the large build-up of lockdown savings across many advanced nations was unleashed in a temporary spending boom. Russia's invasion of Ukraine on the 24th of February 2022 came at a time when demand was already high, leading to Australian prime hard coking coal prices reaching the highest level on record at US$651 a tonne.

Figure 5.3: Metallurgical coal price fluctuations, 2018 - 2024



Source: McCloskey (2024)

Prices corrected over subsequent quarters, but supply disruptions again caused Australian prime hard coking coal prices to increase in September 2023 when truck sliding incidents at the Peak Downs mine caused a suspension in operations. Prices surged again in early 2024 on supply disruptions and extended port queues resulting from cyclones Jasper and Kirrily. Prices then fell as weather and transport disruptions eased, from a high of US$333 a tonne in January down to US$244 a tonne by May 2024.

Prices have shown significant volatility since the COVID-19 pandemic (Figure 5.3) and some volatility in prices is expected to continue over the outlook. Prices are forecast to decline from US$264 a tonne in 2024 to US$208 a tonne by 2026, though this outlook remains subject to significant upside risks.

5.5 Australia

Metallurgical coal production has only partially recovered

Australian metallurgical coal exports were strong in the March quarter, rising 5.3% year-on-year. Exports to China doubled from the March quarter 2023, but remain well short of historic averages — with China having reduced seaborne imports through the establishment of vastly improved rail, road and customs links with Mongolia. Exports are expected to rise from 156 Mt in 2022–23 to 177 Mt by 2025–26. Export earnings are seen falling from $61 billion in 2022–23 to $42 billion by 2025–26.

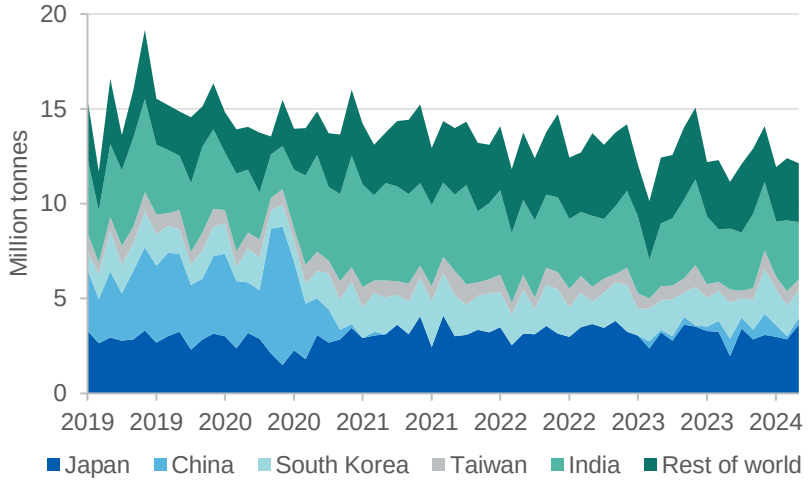
Australian production volumes have been revised down slightly compared to the March 2024 REQ, reflecting downward revisions in output guidance of some mines. BHP lowered its BMA production guidance for a second time this year, with year-to-date output in the March quarter falling about 25% for the Peak Downs, Saraji and Goonyella mines. Whitehaven's Narrabri underground mine saw output fall by 42% in the March quarter. Longwall moves in underground mines set for H2 2024 could lower output.

Australian production volumes are expected to rise over the outlook, but growth in export earnings could be muted by moderate global demand and reduced demand from China. Upside earnings risks include significant volumes of Russian exports exiting the market due to sanctions and limited requirements in China. Weather events such as La Niña present downside risks to the volumes. Prices are expected to decline on balance, but not to levels which would threaten the viability of Australian mines. The surge in exploration spending in 2023 that resulted from high prices could support Australian exports, though likely not until after the outlook period.

Coal exploration expenditure has steadily increased

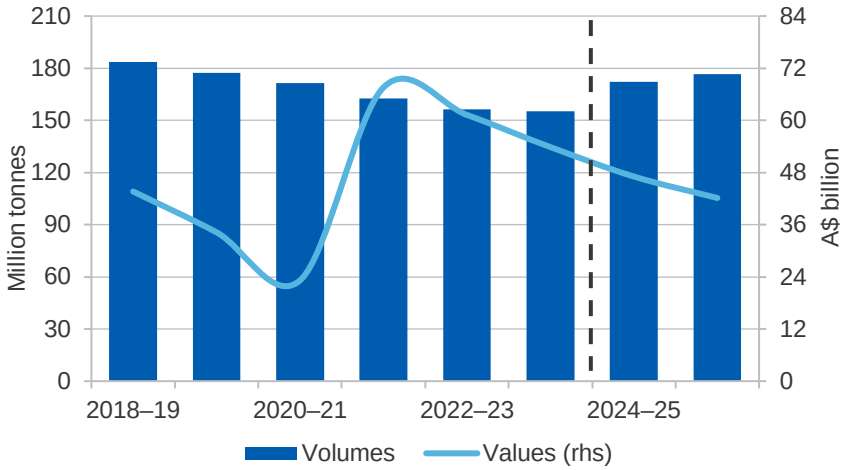
Exploration expenditure for thermal and metallurgical coal (Figure 5.6) decreased in the March quarter but remains relatively high with a 27% year-on-year gain. Expenditure rose sharply in 2023 due to high prices, reaching $320 million. Almost three quarters of this spending occurred in Queensland. Metallurgical coal is expected to account for a large part of coal exploration given the challenges facing the thermal coal industry.

Figure 5.4: Australia's metallurgical coal export volumes, monthly



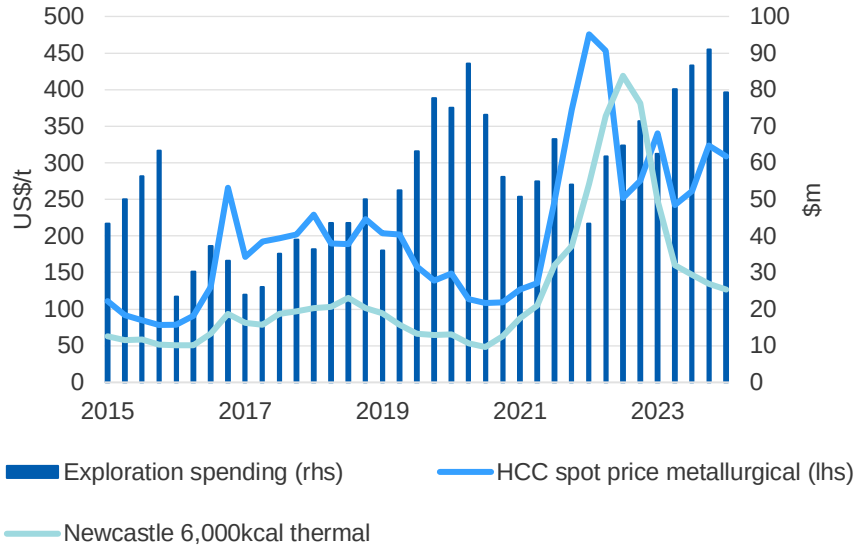
Source: ABS (2024) International Trade, Australia (trade tables subscription)

Figure 5.5: Australia's metallurgical coal exports



Source: ABS (2024) International Trade, Australia 5454.0; Department of Industry, Science and Resources (2024)

Figure 5.6: Australian coal exploration expenditure and prices



Notes: exploration for all coal types
Source: ABS (2024); McCloskey (2024)

Revisions to the outlook for Australian metallurgical coal exports

The export earnings forecast for 2023–24 and 2024–25 have been revised down from the March 2024 *Resources and Energy Quarterly* due to a downward revision in export volumes and a minor downward revision to prices in 2024. The forecast has been revised down by around $2 billion in 2023–24 and $2 billion in 2024–25.

Table 5.1: World trade in metallurgical coal

	Unit	2023	2024[f]	2025[f]	2026[f]	Annual percentage change 2024[f]	2025[f]	2026[f]
World trade	Mt	348	333	334	341	-4.4	0.1	2.2
Metallurgical coal imports								
China	Mt	64	58	53	54	-8.7	-8.6	1.9
India	Mt	73	78	83	87	6.8	6.4	4.8
Japan	Mt	40	40	39	39	-1.1	-1.2	-1.1
European Union 28	Mt	36	36	36	36	0.0	0.0	0.0
South Korea	Mt	33	34	34	34	4.1	0.9	-0.4
Metallurgical coal exports								
Australia	Mt	151	166	174	181	10.1	4.7	3.8
United States	Mt	43	45	46	46	4.0	2.1	0.4
Canada	Mt	29	29	29	30	-0.6	1.6	1.7
Russia	Mt	44	37	37	39	-16.1	-0.6	5.5
Mongolia	Mt	48	42	38	38	-12.4	-8.5	0.0
Mozambique	Mt	4	4	4	4	0.0	0.0	0.0

Notes: **f** Forecast;

Source: IEA (2024) Coal Information; IHS (2024); Department of Industry, Science and Resources (2024)

Table 5.2: Metallurgical coal outlook

World	Unit	2023	2024[f]	2025[f]	2026[f]	Annual percentage change 2024[f]	2025[f]	2026[f]
Contract prices[e]								
– nominal	US$/t	289	271	231	209	-6.4	-14.7	-9.4
– real[d]	US$/t	295	265	221	196	-10.3	-16.5	-11.2
Spot prices[g]								
– nominal	US$/t	292	264	228	208	-9.4	-13.7	-9.0
– real[d]	US$/t	298	259	218	195	-13.2	-15.5	-10.8
Australia	**Unit**	**2022–23**	**2023–24[s]**	**2024–25[f]**	**2025–26[f]**	**2023–24[s]**	**2024–25[f]**	**2025–26[f]**
Production	Mt	162	165	176	181	1.8	7.1	2.5
Export volume	Mt	156	155	172	177	-0.6	11.0	2.6
– nominal value	A$m	61,252	53,855	47,083	42,147	-12.1	-12.6	-10.5
– real value[i]	A$m	61,301	51,603	43,747	38,133	-15.8	-15.2	-12.8

Notes: **d** In 2024 US dollars. **e** Contract price assessment for high-quality hard coking coal. **i** In 2023–24 Australian dollars. **f** Forecast. **g** Hard coking coal fob Australia East Coast ports. **s** Estimate.

Source: ABS (2024) International Trade in Goods and Services, Australia, 5368.0; Department of Industry, Science and Resources (2024)

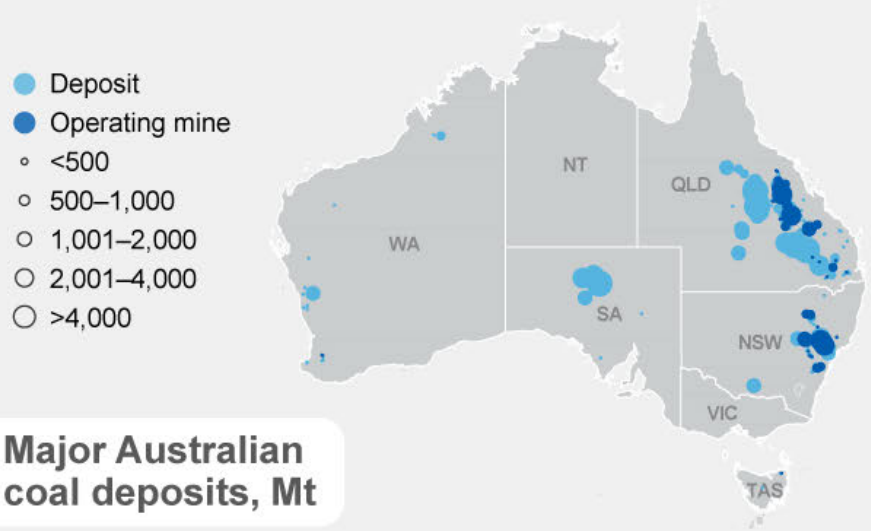
Thermal Coal

Australia's thermal coal sector

World's 2nd largest thermal coal **exporter** & **4th largest** black coal resource

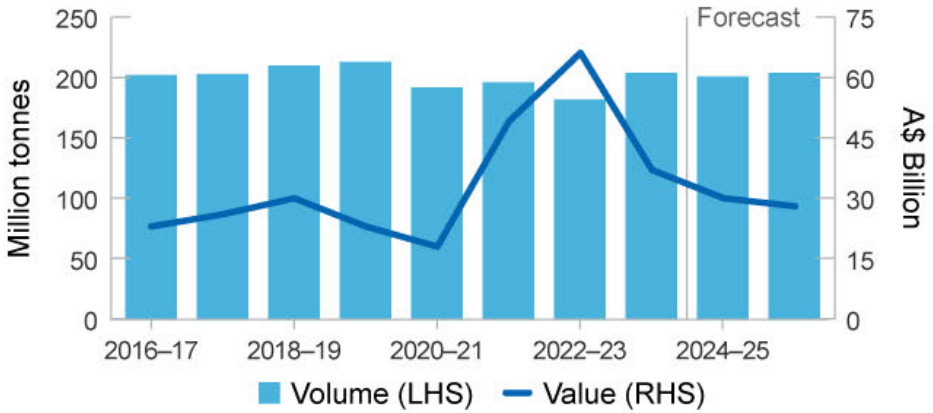
Strong growth in exports to **Vietnam** in recent years

75-80% of Australia's thermal coal is **exported**



Major Australian coal deposits, Mt

Australian thermal coal exports



Outlook

Prices **well below** 2022 peaks as **supply conditions improve**

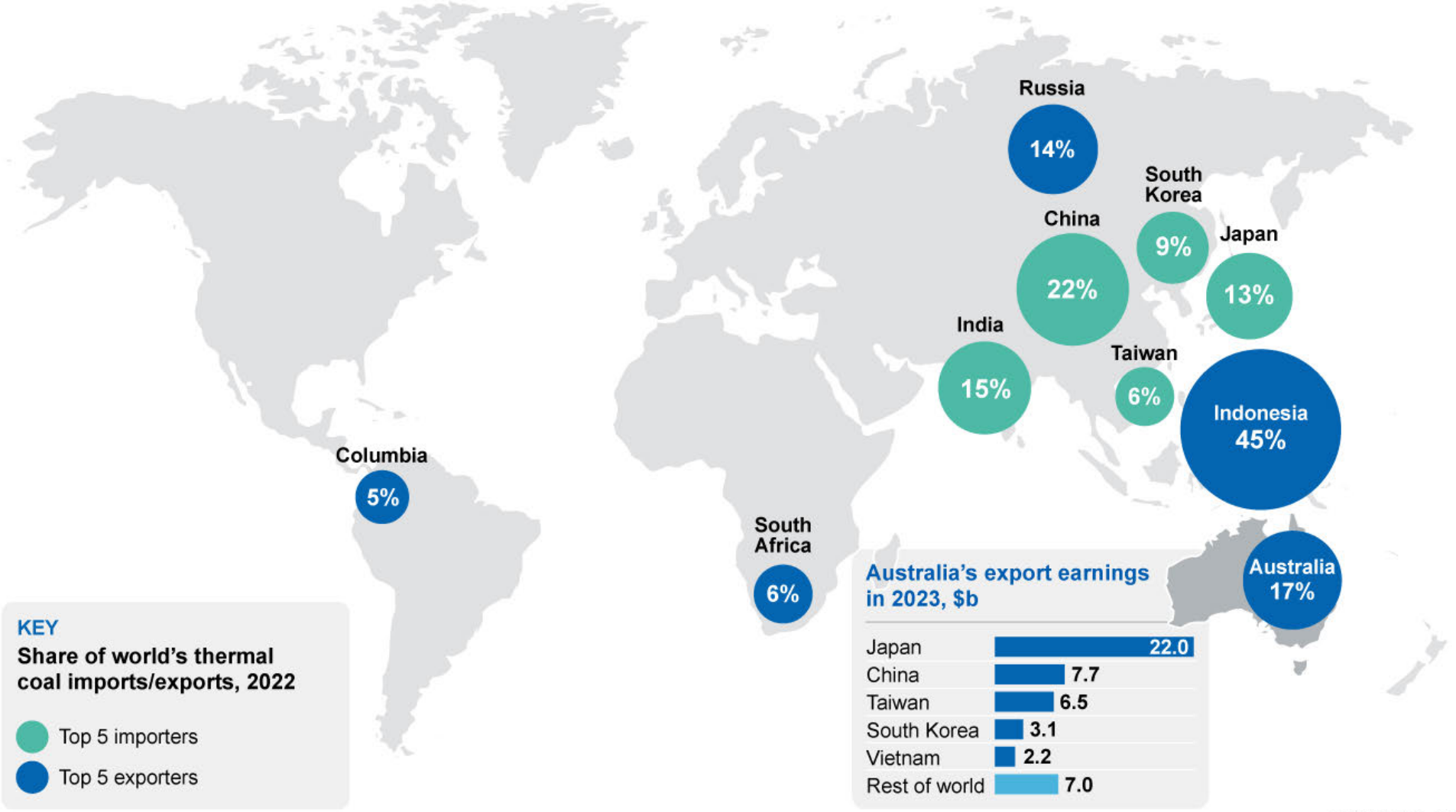
Earnings remain on a **downward trajectory**, as prices **continue to ease**

Volumes have recovered as weather disruptions ease and new mines ramp up

Supply shortages are expected to **drive prices** over the longer term

SOURCE: GA; DISR; OCE

Thermal Coal TRADE MAP



SOURCE: IEA; ABS

6.1 Summary

- Australia's thermal coal export earnings are expected to ease from $37 billion in 2023–24 to around $28 billion by 2025–26 as prices fall.
- Thermal coal spot prices are expected to gradually decline over the outlook period, from US$136 a tonne in 2024 to US$115 a tonne by 2026. Contract prices are expected to fall from around US$200 a tonne (in Japanese financial year 2023–24), converging on spot prices.
- Export volumes are expected to be stable at around 205 Mt over the outlook period (see Australia section). A potential recurrence of the La Niña cycle presents a risk to supply.

6.2 World trade

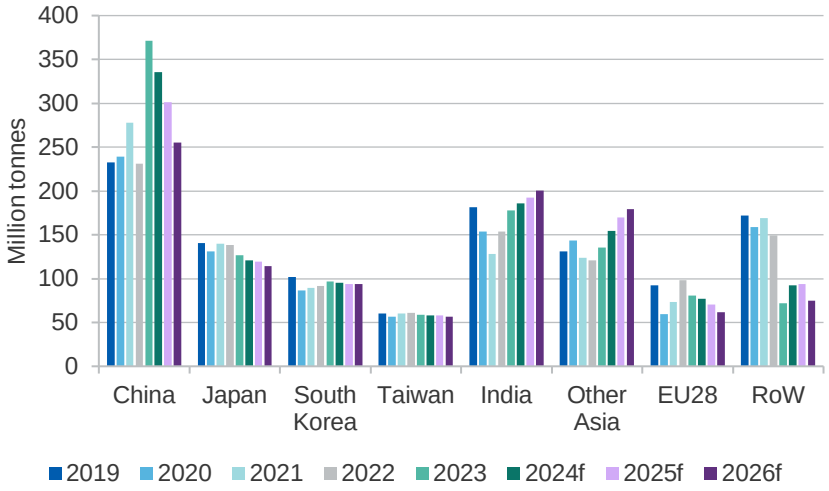
Thermal coal markets have been relatively tight: demand from China is exceeding expectations, US secondary sanctions against targeted Russian coal producers are beginning to take effect, and unexpectedly hot weather across several Asian markets has boosted power demand. These effects have boosted thermal coal prices, with the Newcastle 6,000 kcal average price rising to $US144 a tonne in May 2024, the highest price for this year.

Seasonally, the March quarter typically tends to see lower global demand: inventories have already been built from winter, and peak summer demand is several months away. However, China's seaborne imports increased over the quarter, due to high domestic prices, lower domestic production, and an increase in the country's total power generation. Indian demand also remained strong, driven by increased demand for power generation, and relatively weak domestic output from hydro and other renewables.

Russia's thermal coal exports have faced difficulties recently, falling by more than 25% year-on-year in the March quarter 2024. Factors include expanded sanctions by the US, the reintroduction of import duties in China (Russia's largest export market) and transport constraints. Whilst initially Russian coal exports managed to be mostly diverted to new markets following introduction of the first round of sanctions from Europe and the US in 2022, secondary sanctions have been designed to limit circumvention and trade redistribution.

Weather is also playing a prominent role in the global thermal coal market in 2024. Asia is experiencing extreme weather conditions, with schools closing and health alerts being issued well ahead of the usual peak summer cooling demand. The emergence of a La Niña weather episode later in the year remains a possibility, with the Australian Bureau of Meteorology officially moving to La Niña watch. This increases the possibility of major rainfall and flooding events that could disrupt supply.

Figure 6.1: Thermal coal imports



Note: **f** Forecast; **RoW** Rest of World.

Source: McCloskey (2024); Department of Industry, Science and Resources (2024)

6.3 World imports

Global seaborne imports of thermal coal are expected to fall over the outlook period, although there are competing factors at play. World imports are expected to fall at an average annual rate of 2.6% over the outlook period, decreasing from an estimated 1,120 Mt in 2023 to 1,037 Mt by 2026, with China and Europe the largest contributors to the decline.

China's seaborne thermal coal imports are defying expectations

Import demand from China is expected to remain strong in mid-2024, defying previous expectations of a downturn. Over the March quarter, China imported 89 Mt, a 13% increase on the same period in 2023 (which was already a record-breaking year). Increased demand came from the power sector, as industrial processes continue to be electrified, strong EV sales, and increased heating/cooling requirements.

China's power generation is expected to grow by 5.1% in 2024, in line with economic growth forecasts. However, domestic thermal coal production is expected to experience minimal growth of 1.1%. China's largest coal producing region, Shanxi, has continued to experience safety-related stoppages following a series of accidents in coal mines in 2023. This has been exacerbated by further (fatal) mine accidents in March this year. This has prompted China's mining and safety regulator to reduce a mines' ability to overproduce, further boosting China's seaborne import demand over the period.

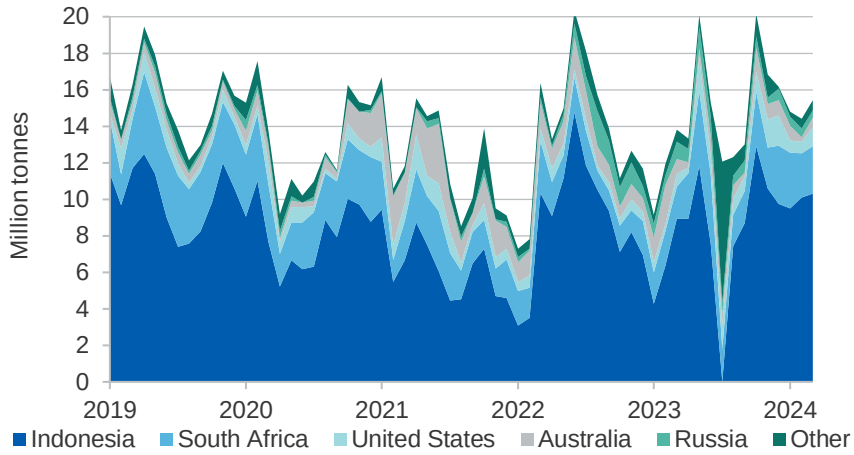
While there are downside risk factors, Chinese thermal coal imports are expected to see an increase compared with March REQ predictions, however, remain below 2023 levels. Over the outlook period, China's imports are expected to decline due to the higher take-up of renewables, reinstatement of import tariffs, and improving hydroelectric generation. There is upside risk to this forecast, based on the severity of the Northern Hemisphere summer.

India's imports will be supported by rising industrial and consumer use

Indian demand has remained strong so far in 2024, with imports across the months of January and February 39% higher than the equivalent period in 2023. Demand was strong from both the power generation and industrial sectors that rely on thermal coal. Ongoing poor hydroelectric generation and reduced output from renewables has bolstered import demand, despite growing domestic thermal coal production. India is also among the countries currently experiencing an intense heat wave in advance of the normal summer season, with temperatures in recent months well above historical averages placing significant pressure on the power grid.

India's seaborne thermal coal imports are expected to grow over the outlook period, driven by strong economic growth, increased urbanisation and strengthening industrial activity. While India is increasing its domestic output of thermal coal, this is not expected to keep pace with increased demand for power generation. India remains one of the few markets that is expanding coal generation capacity, with imports expected to increase by 13% by 2026 compared with 2023.

Figure 6.2: India's thermal coal imports, monthly



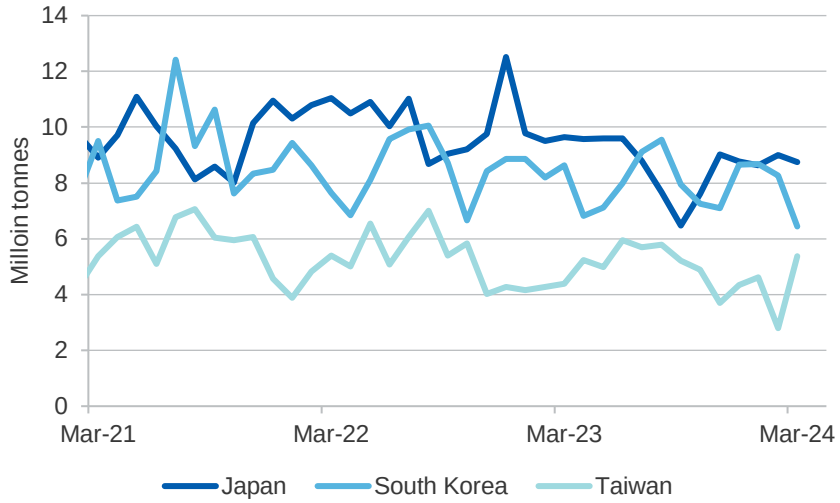
Source: McCloskey (2024)

Minor declines expected in Japanese, South Korean, and Taiwanese imports

Japan, South Korea, and Taiwan are expected to maintain imports near current levels through to 2026. Demand from these economies over the March quarter 2024 was broadly comparable to previous years, with only minor declines. These economies' have various announced pledges with respect to net zero and emissions reductions. While the effects of these commitments are expected to result in a minor demand reduction over the outlook period, this will accelerate after 2030.

Japan's imports dropped by 7.9% in the March quarter 2024, driven by the restart of nuclear reactors, mild weather conditions, and lower LNG prices. Japan is expected to restart one out of seven units of the world's largest nuclear power plant in October 2024. South Korea recently started operations of a second unit in the Shin Hanul nuclear power plant which, along with mild weather, contributed to lower demand for coal imports. Several Taiwanese coal fired power plants went offline in April following a 7.4 magnitude earthquake, likely reducing June quarter imports. However, the extreme heat wave currently affecting the region and predictions of a hotter-than-usual summer, could counteract the trend of weaker coal imports in the first half of 2024.

Figure 6.3: Japan, South Korea and Taiwan's thermal coal imports



Source: McCloskey (2024)

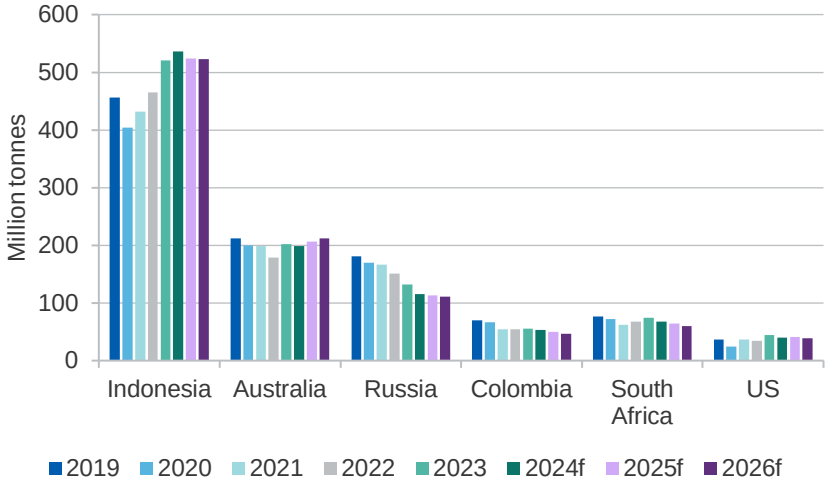
6.4 World exports

Seaborne thermal coal exports are expected to fall over the outlook period, driven by reduced supply from Russia and falling global demand. Weather disruptions will likely affect the stability of thermal coal supply in the outlook period. Heavy rain can flood mines and cause slippery ground conditions, cutting off access to mines. Wet coal can become waterlogged and difficult to handle and transport.

Russian coal exports to reduce from US and Chinese trade action

Exports of Russian coal are forecast to fall over the outlook period. Falling domestic prices in China and the reintroduction of Chinese import duties on coal from countries without a Free Trade Agreement have made Russian coal less competitive. Russian thermal coal exports in the March quarter 2024 fell by 28% compared to the March quarter 2023.

Figure 6.4: Thermal coal exports



Notes: **f** Forecast.
Source: McCloskey (2024); Department of Industry, Science and Resources (2024)

The US has expanded sanctions against Russia. In December 2023, the US authorised the imposition of secondary sanctions, and in February 2024, sanctions were expanded to target specific Russian coal producers. These secondary sanctions now subject foreign financial institutions to secondary sanction risks when they conduct or facilitate transactions with sanctioned producers. Secondary sanctions will likely affect Chinese and Indian importers, two of the main markets to which Russia diverted supply

following the initial round of primary sanctions. Additionally, South Korea (15% of Russian exports in 2023) is encouraging buyers to reduce imports from Russia.

Russia has once again suspended exchange rate-related export duties on thermal coal and anthracite to support its domestic coal industry from the impact of sanctions and Chinese import duties. Russia first imposed these duties in September 2023, paused in January 2024, and reintroduced in March 2024. Despite this policy change, Russian coal exports are forecast to fall from 133 Mt in 2023 to 115 Mt by 2024 and remain relatively stable thereafter.

Increasing Indonesian domestic demand is expected to limit export growth

Exports of Indonesian coal remained strong in the March quarter 2024, with demand from India and China leading to a 16% rise across the first two months of the year. Reduced supply from Russia may have also helped support demand.

While growth in Indonesian exports in 2024 is expected to be robust, the outlook for Indonesian coal exports is influenced by both domestic and international factors. Demand from China is expected to decline over the outlook period, despite a strong performance in the March quarter. China is Indonesia's primary export market, with Indonesia exporting 216 Mt to China, 44% of its total exports in 2023. While Indonesia's domestic production is increasing, much of this is expected to be diverted to the domestic market to meet growing domestic demand. On balance, Indonesian thermal coal exports are expected to experience a minor increase over the outlook period.

Exports from the US, Colombia and South Africa are expected to decline

Exports from these other major producers have declined over the March quarter by around 20% year-on-year. The US has experienced delays from one of its major export hubs in Baltimore, following the Baltimore bridge collapse in March this year. Colombian supply has also been hampered by a blockade from Indigenous groups.

According to a report published by the US Department of Agriculture, following the Houthi rebel group attacks on ships passing through the Red Sea, ships were forced to reroute around Africa, altering refuelling patterns. The increase in ships diverting to South Africa created huge congestion in bunkering ports and placed significant pressure on port infrastructure, contributing to logistical issues for South African thermal coal exports.

Over the outlook period, exports from these countries are expected to fall by 15% from 173 Mt to 157 Mt.

6.5 Prices

Prices are increasing from supply disruptions and increased demand

The price of Newcastle 6,000 kcal mostly remained within the range of US$120 to US$130 a tonne in the March quarter of 2024 with mild weather conditions in the shoulder season keeping prices contained. Prices started increasing towards the end of April and reached US$144 a tonne by early May due to various factors, including:

- unexpectedly hot weather across several Asian countries during a generally mild shoulder season;
- reduced Russian supply from logistical issues and the impact of expanded US sanctions;
- disrupted supply from the United States following the Baltimore bridge collapse; and
- increased buying in anticipation of an extra hot Northern Hemisphere summer season.

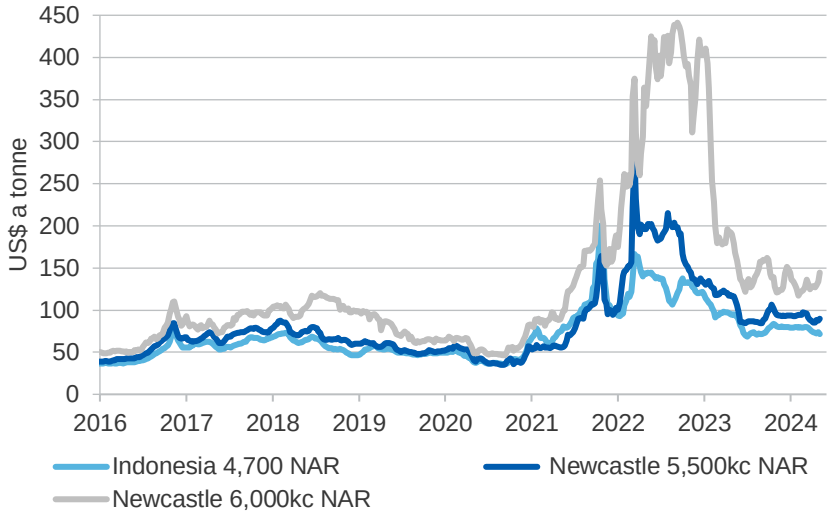
Prices are expected to remain elevated through the year due to expectations of a hot Northern Hemisphere summer, the Asian market absorbing the impact of reduced supply from Russia, and the likelihood of a La Niña weather episode developing. However, risks are weighted to the downside, especially if La Niña does not emerge or Russian supply is successfully diverted to markets with minimal exposure to the US dollar.

Price volatility is likely to remain, although prices are unlikely to drop below the US$100 a tonne level due to sustained rises in the cost of production.

Poor power output from hydro in both China and India increased the demand for thermal coal in 2023 and early 2024, however improved output could place additional downward pressure on prices. In 2022, about 15% of China's electricity generation came from hydro, and about 7% for India. Drought-like conditions under El Niño through 2023 and early 2024 brought unfavourable conditions for hydropower generation.

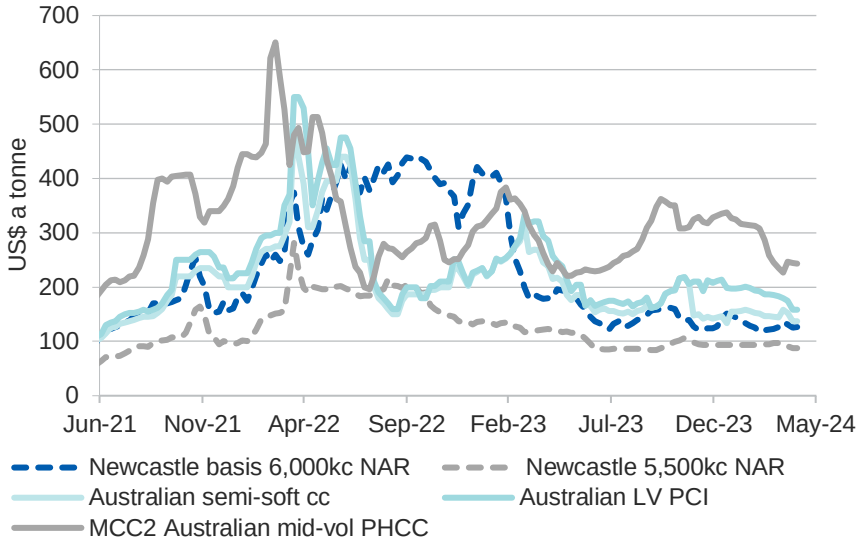
The expected emergence of La Niña would likely provide the additional rainfall required to fill reservoirs and encourage greater hydro power generation. However, there is an additional risk that weather extremes that accompany La Niña conditions could potentially damage hydropower infrastructure (e.g. through floods, landslides etc.).

Figure 6.5: Thermal coal prices — Australian vs Indonesian



Source: McCloskey (2024). NAR = Net as received.

Figure 6.6: Prices for thermal and low-grade coking coals



Source: McCloskey (2024)

6.6 Australia

Australian export volumes have recovered from supply disruptions

Australian exports have experienced a strong start to the year with exports for the March quarter reaching 49 Mt, a 7.5% gain on the previous year. Demand for Australian coal is expected to remain relatively favourable in 2024. Exports to China have partially recovered following the end of informal import restrictions, with exports reaching 14 Mt in the March quarter, an almost seven-fold increase. Sanctions against Russia are also supporting demand for Australian coal.

Severe weather-related disruptions from the start of 2024 appear to have eased in recent months. Extended shipping queues in both Queensland and New South Wales peaked in December/January (as a result of cyclones Jasper and Kirrily) and have returned to normal levels. However, El Niño, which typically brings more favourable conditions for coal production has ended. The Bureau of Meteorology has declared La Niña

'watch' — indicating a 50% chance of La Niña developing in winter or spring. If La Niña were to develop, the associated wet weather could severely impact coal supply.

On average, about 85% of Australian thermal coal is exported. This proportion is expected to increase as Australia's energy transition accelerates, however recent announcements have seen delays to scheduled power plant closures. The closure of the Eraring coal fired power plant has been delayed by a further two years (to August 2027), with the potential for a further extension to 2029. The New South Wales government will provide financial support to Origin Energy to extend the plant's life to manage power reliability and price risks.

Traditional sources of finance for new coal projects are becoming increasingly difficult to source. While the consolidation of existing mining operations is still occurring, there is minimal appetite to finance new mines. Australian Retirement Trust, the second largest pension fund in Australia, has announced it will no longer directly invest in thermal coal companies. Australian superannuation funds have been under increasing pressure from members to decarbonise their portfolios. Other funds that have made similar commitments include Aware Super, and HESTA.

G7 ending use of unabated coal could impact Australia in the long term

Member countries of the G7 have committed to end the use of unabated coal power plants for power generation between 2030 and 2035. The impact on global seaborne trade however is expected to be minimal.

France, Italy, and United Kingdom are not expected to consume coal by 2030, and demand from Canada is expected to be close to zero. While Germany is expected to still demand small volumes of coal, this remaining demand will likely be met through domestic production rather than imports.

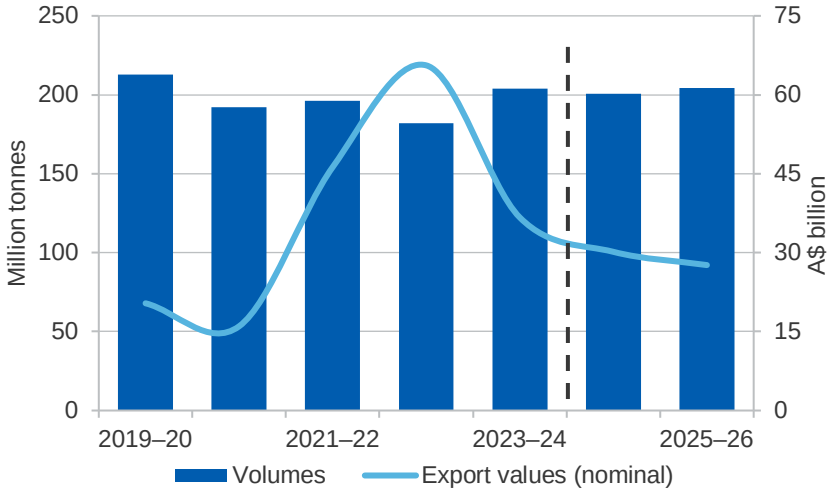
Amongst other major markets, Japan's coal demand is not expected to fall significantly over the medium term, with the March 2024 REQ forecasting 119 Mt in import demand by 2029. Japan is Australia's largest thermal coal export market. In 2023, Australian exports to Japan were 70 Mt, or 35% of total Australian thermal coal exports. Any material decrease in demand for thermal coal from Japan could impact Australia, especially during a time when the world is expected to see an accelerated drop in overall thermal coal usage.

While there are several ways a coal plant can reduce emissions intensity, most of these involve converting to (or co-firing with) an alternative fuel source, such as natural gas, biomass, ammonia, and nuclear. The main pathway to enable the continued use of coal while fully abating emissions is Carbon Capture Utilisation and Storage (CCUS). Should Japan choose to convert its coal plants to alternative sources, it is likely Australian exports would decline over the medium and long term.

Revisions to the outlook for Australian thermal coal exports

On balance, export earnings are broadly similar to the 2024 March REQ. This reflects an upward revision to price forecasts as a result of reduced Russian supply and the potential supply disruptions due to La Niña.

Figure 6.7: Australia's thermal coal exports



Source: ABS (2024) International Trade, Australia 5454.0; Department of Industry, Science and Resources (2024)

Table 6.1: World trade in thermal coal

	Unit	2023	2024 f	2025f	2026f	Annual percentage change 2024s	2025f	2026f
World trade	Mt	1,120	1,119	1,099	1,037	-0.1	-1.8	-5.6
Thermal coal imports								
Asia	Mt	968	950	935	900	-1.8	-1.6	-3.7
China	Mt	372	336	301	255	-9.6	-10.2	-15.3
India	Mt	178	186	193	200	4.4	3.8	4.0
Japan	Mt	127	121	119	114	-4.7	-1.5	-4.1
South Korea	Mt	97	95	94	94	-2.0	-1.4	0.0
Taiwan	Mt	59	58	58	57	-2.2	0.5	-2.0
Thermal coal exports								
Indonesia	Mt	521	536	524	522	2.9	-2.2	-0.4
Australia	Mt	202	198	207	212	-1.6	4.2	2.6
Russia	Mt	133	115	113	111	-13.2	-1.5	-2.3
Colombia	Mt	56	53	50	47	-5.6	-5.3	-6.9
South Africa	Mt	74	68	64	60	-8.1	-5.3	-6.7
United States	Mt	44	40	40	39	-9.1	1.1	-3.6

Notes: **f** Forecast

Source: McCloskey Markit (2024); Department of Industry, Science and Resources (2024)

Table 6.2: Thermal coal outlook

						Annual percentage change		
World	**Unit**	**2023**	**2024[f]**	**2025[f]**	**2026[f]**	**2024[f]**	**2025[f]**	**2026[f]**
Contract prices[b]								
– nominal	US$/t	200	148	140	125	-26.0	-5.2	-10.7
– real[c]	US$/t	195	141	131	115	-27.5	-7.0	-12.5
Spot prices[d]								
– nominal	US$/t	173	136	129	115	-21.4	-5.1	-10.7
– real[e]	US$/t	173	133	123	108	-23.4	-7.0	-12.4
Australia	**Unit**	**2022–23**	**2023–24[s]**	**2024–25[f]**	**2025–26[f]**	**2023–24[s]**	**2024–25[f]**	**2025–26[f]**
Production	Mt	210	245	248	249	16.5	1.4	0.2
Export volume	Mt	182	204	205	209	12.0	0.3	2.3
– nominal value	A$m	65,592	36,512	30,690	28,298	-44.3	-15.9	-7.8
– real value[h]	A$m	68,132	36,270	29,191	26,032	-46.8	-19.5	-10.8

Notes: **b** refers to benchmark Japanese Fiscal Year 6322kcal GAR thermal coal contract reference price; **c** In current JFY US dollars; **d** fob Newcastle 6000 kcal net as received; **e** In 2024 US dollars; **f** Forecast; **h** In 2023–24 Australian dollars; **s** Estimate

Source: ABS (2024) International Trade in Goods and Services, Australia, Cat. No. 5368.0; IHS (2024); NSW Coal Services (2024); Queensland Department of Natural Resources and Mines (2024); Company Reports; Department of Industry, Science and Resources (2024)

Gas

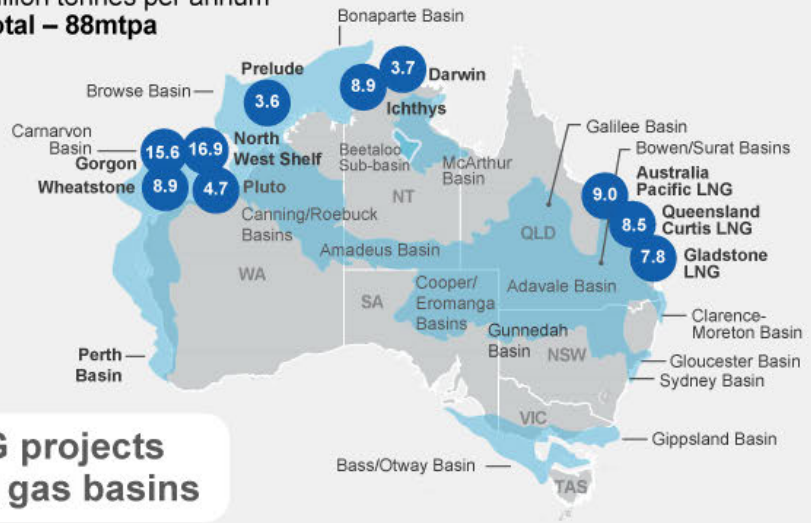
Australia's LNG sector

81m tonnes
exported in 2023

80%
of Australian LNG exports sold to **Japan, China and Korea**

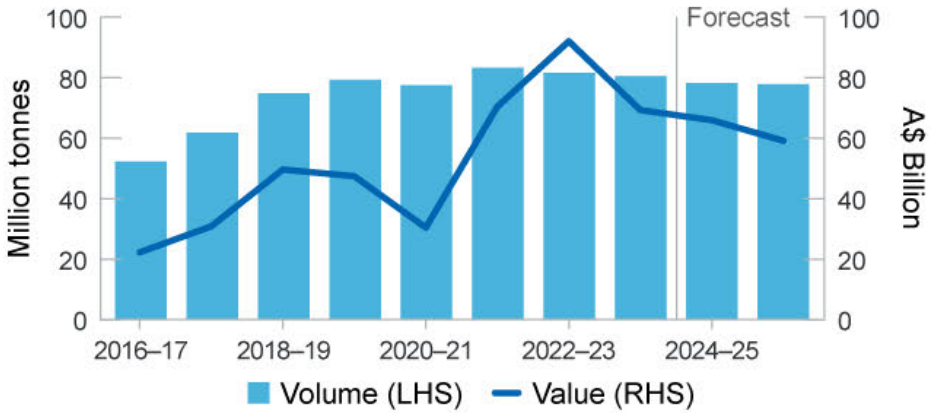
Around 3/4
sold on **long-term contracts**

- Gas basin
- Nameplate capacity, million tonnes per annum
  Total – 88mtpa



LNG projects and gas basins

Australian LNG exports



Outlook

Earnings set to ease over the outlook period as prices drop

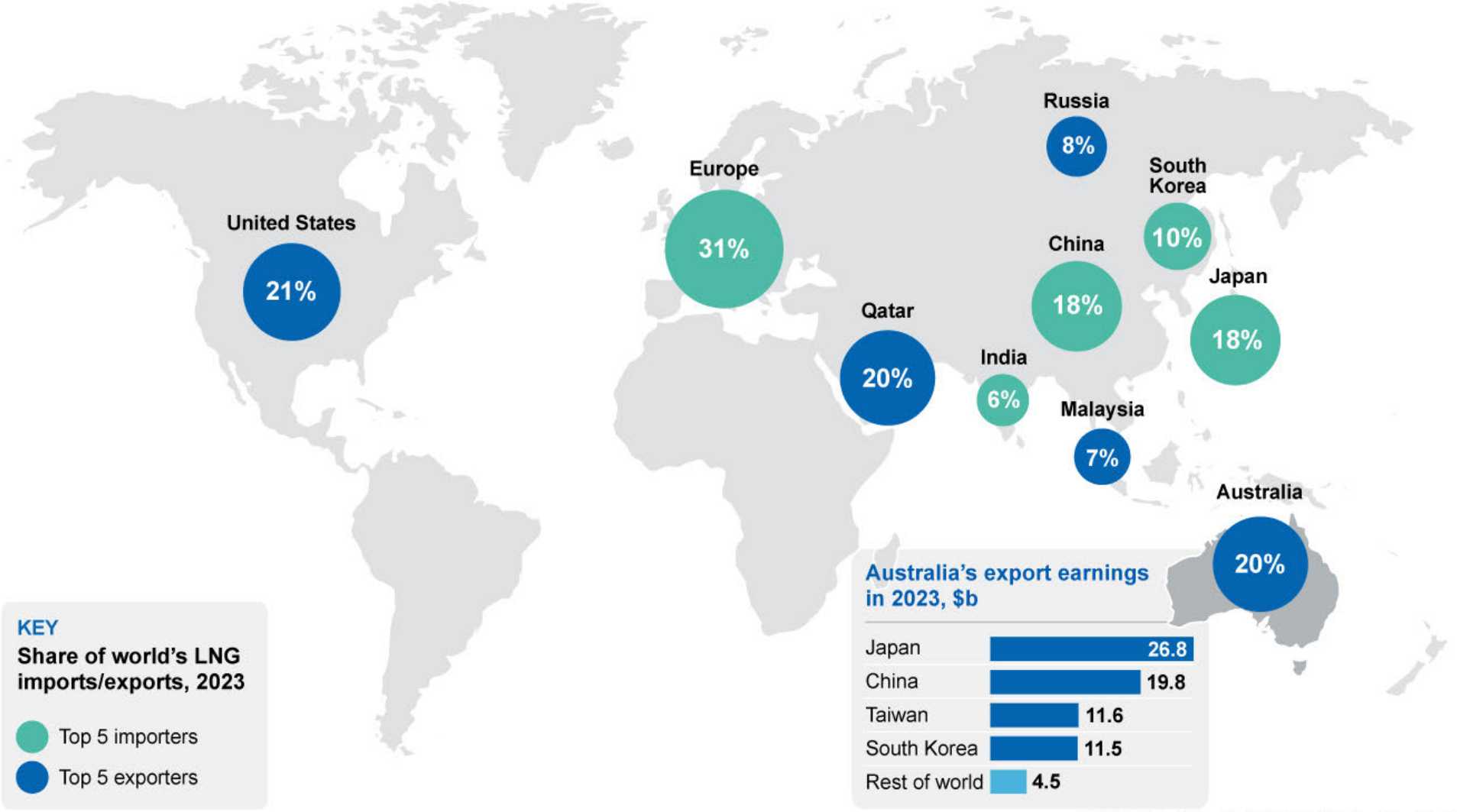
Steady Australian output expected, with **small declines** as projects deplete

Global conflicts **present risks** to LNG production in Russia and the Middle East

Expenditure on exploration **remains relatively modest**

SOURCE: ABS; DISR; OCE

LNG TRADE MAP



SOURCE: World Gas Model; DISR; ABS International Trade

7.1 Summary

- Australia's LNG export revenues are forecast to decline from $69 billion in 2023–24 to $59 billion by 2025–26. Export volumes are expected to decrease slightly from a strong level in 2022–23 as some gas reserves start to deplete.
- The fall in export earnings will be largely driven by lower LNG prices, which have already fallen significantly from the record levels of 2022.
- New supply from the US and Qatar should help to bring LNG prices down from US$13.9/MMBtu in 2023 to US$11.5/MMBtu by 2026.

7.2 World trade

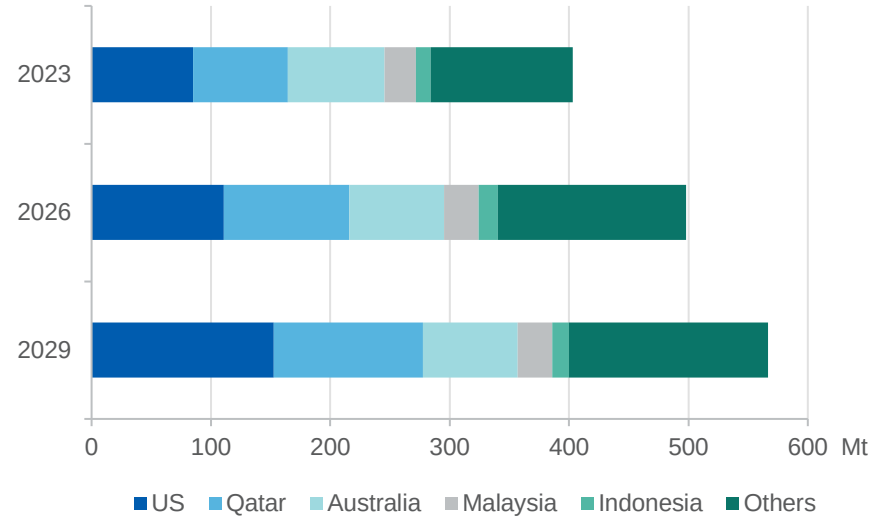
Gas markets have shifted into a slower growth cycle

Gas markets have faced some adjustment following 12 consecutive months of record high global monthly average temperatures. Unusual heat over the year to May 2024 has resulted in strong and sustained electricity demand (for cooling) in Asia. India's peak electricity demand reached a monthly record in May, and LNG imports have also been stronger than expected in China and South Asia. This high Asian LNG demand has been partially offset by lower LNG consumption in Europe, where warm temperatures have reduced demand for heating.

Improved supply linkages between the US and Europe have restored some equilibrium on the supply side. Global LNG supply hit a record in the March quarter 2024, pushing gas prices down to levels last seen prior to Russia's invasion of Ukraine. Supply has held up through the June quarter — staying broadly in line with demand — and the long-term supply picture remains strong (Figure 7.1).

European gas/LNG markets have changed since Russia's illegal invasion of Ukraine and the subsequent cutting of many gas linkages between Russia and Europe. European seaborne LNG demand surged after the invasion, but the growth proved temporary, winding back again as inventories built up. Brief cold spells during the 2023 winter season were managed without any significant disruptions to markets. European gas demand is now softening again, with markets expected to be well supplied by imports from the US. Inventories remain well above their five-year average, with Europe requiring only modest inventory build to attain a 90% fill level in time for the next winter season.

Figure 7.1: Long-term growth in LNG output



Source: Department of Industry, Science and Resources (2024)

Changes in markets have nonetheless added to risks for LNG buyers. Since 2022, a larger share of European LNG demand has been taken up by baseline grid supply. At the same time, Europe has reduced its use of Russian gas, narrowing its supply options. Flexibility has thus been lost on both the supply and demand sides, meaning that global LNG prices are now structurally more vulnerable to shifts in European requirements.

This risk has been offset in part by lower gas demand in Europe. This fall in demand partly reflects warm weather, but also reflects stronger energy efficiency policies. Industrial LNG demand in Europe, which picked up briefly in the March quarter, has edged back down again, and governments across the EU remain committed to expanding renewable energy and reducing dependency on gas imports. Some European countries, including France, have also begun to pivot towards greater use

of nuclear power. Generally, European LNG demand is expected to remain somewhat contained for the foreseeable future, though falling prices may improve the competitiveness of gas after 2025.

Overall, global LNG demand is expected to increase by just under 2.5% in 2024, largely driven by Asian demand. Supply and demand are expected to remain largely in balance in 2024 and 2025 (Figures 7.2 and 7.3), though supply growth could outpace demand in subsequent years.

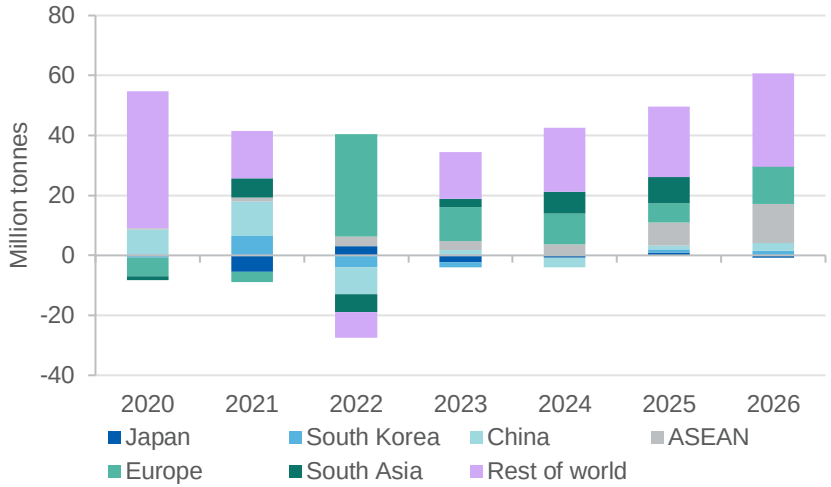
Geopolitical risks have eased in recent months. The volume of attacks on ships in the Red Sea has declined amidst a firmer international response, but risks remain that the conflict zone could extend to the Persian Gulf, potentially disrupting export routes from Qatar.

Other risks are generally short-term in nature and include supply disruptions, start-up delays and feed-gas issues at some established projects which could affect LNG supply at the margins. Ongoing record temperatures would likely have a mixed impact on LNG markets, supporting higher demand on balance.

AI presents an upside possibility for LNG use and prices. An AI search requires far more energy than a Google search, and a large scale-up of AI technology and data centres would boost global energy use accordingly. The flexibility of LNG makes it an effective means to manage energy peaks in the short-term, though the choice of LNG for this role may be contingent on further developing carbon capture and storage technology to prevent any accompanying surge in carbon emissions.

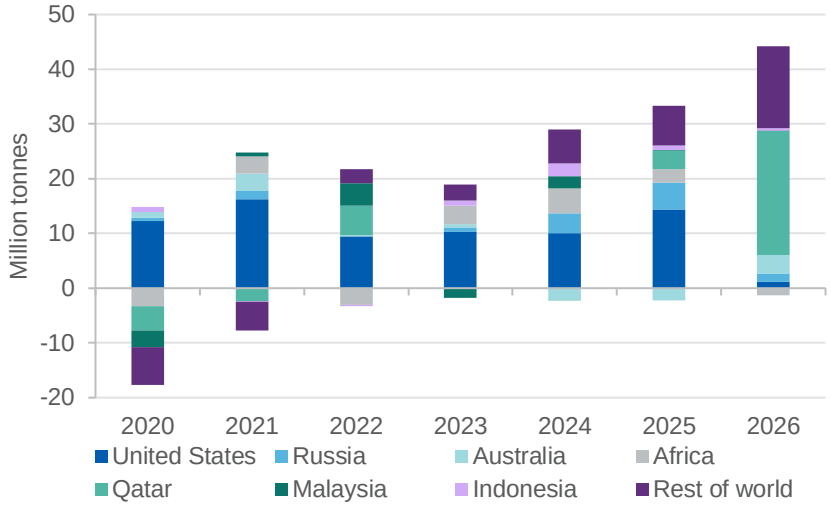
Market fundamentals point to a gradual reduction in global LNG prices as new supply scales up. Supply risks should ease after 2025. The price shocks of 2022 have led to slower demand growth and more caution among LNG buyers. LNG demand is expected to grow over the outlook period, but at a level below the annual average growth rate over the 10 years to 2021.

Figure 7.2: Global LNG demand growth forecasts to 2020–26



Notes: 2020, 2021, 2022 and 2023 figures based on historical data.
Source: Department of Industry, Science and Resources (2024), Nexant ECA (2024)

Figure 7.3: Global LNG supply growth forecasts to 2020–26



Notes: 2020, 2021, 2022 and 2023 figures based on historical data.
Source: Department of Industry, Science and Resources (2024); Nexant ECA (2024)

7.3 World imports

European imports were relatively solid in the March quarter

European LNG imports held up in the early part of 2024 despite ongoing warm weather (Figure 7.4). This reflects early building of winter storage targets. Imports are expected to rise from 123 Mt in 2023 to 152 Mt by 2026. Near-term growth reflects falling domestic gas output as well as the ongoing EU pivot away from coal-fired power.

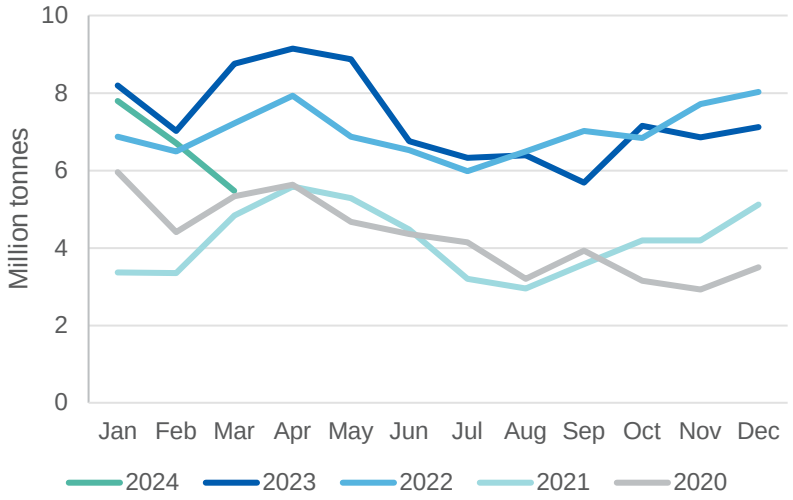
Europe has become more import-dependent, with the share of imported gas rising from 40% of its gas consumption in 1992 to 80% in 2022. This reflects declines in domestic output and its progressive substitution — first with Russian pipeline gas and then with US LNG. European gas consumption has grown over this time, though with a softer trend since 2015. This reliance may be offset to some degree by stronger output in Africa and Eastern Europe (notably Azerbaijan), but imports from the US are nonetheless expected to grow during the outlook period.

China's LNG imports are set to grow as other supply options fall short

Chinese LNG demand strengthened in early 2024 (Figure 7.5), albeit from relatively weak levels in 2022 and 2023. Overall LNG imports remain below their peak in the 2021 winter season, but within this total, imports sourced from Russia (mostly via the Power of Siberia pipeline) have grown strongly over the last three years.

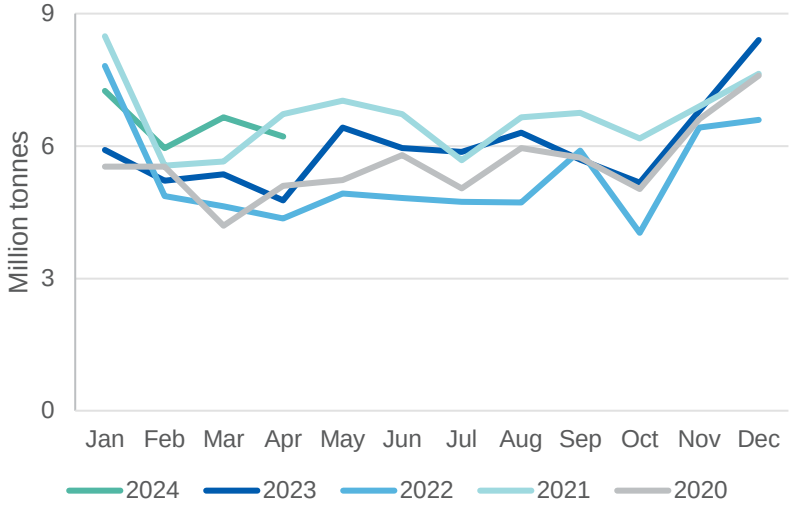
Gas use in China is expected to grow further in the coming years, driven by urbanisation and lower LNG prices. Growth is expected to be broadly distributed, with the most rapid growth occurring in the industrial sector. Growth may also be driven by government policies. The use of gas in the industrial sector has long been encouraged by the Chinese Government, though progress on this front was stalled by the gas price surges of 2022. Under the recently announced "carbon peaking and neutrality" strategy, China plans to construct six gas storage centres with a combined capacity exceeding 100 billion cubic meters. The Chinese Government is also encouraging additional investment in gas production under its 60:40 policy, which includes a target to meet 60% of its gas use from domestic sources.

Figure 7.4: Europe's monthly LNG imports, 2020–2024



Source: McCloskey (2024)

Figure 7.5: China's monthly LNG imports, 2020–2024



Source: McCloskey (2024)

Domestic output from the Ordos Basin and Sichuan Basin is not expected to keep pace with the rising demand, and with pipeline imports from Russia largely at maximum capacity, higher levels of seaborne LNG are likely to be needed.

Japan's LNG imports face rising competition from other energy sources

Japan's LNG imports began 2024 at relatively low levels (Figure 7.6), with a rising share of the country's energy demand being made up by nuclear power. Japan's Government has announced a suite of policies to upscale nuclear power generation, with plant reconnections picking up pace in the last two years. This trend is expected to persist in the outlook period and accelerate over time.

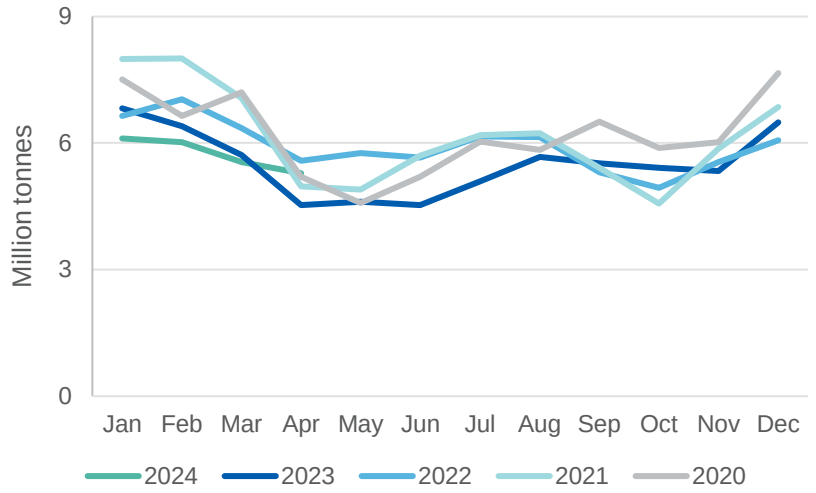
Japan's 6th Strategic Energy Plan includes a proposal to increase the renewable share of power generation from 18% (in 2021) to 22-24% by 2030. The share of nuclear power is anticipated to grow from 6% to 22% over the same period, while the share of gas is intended to decline from 37% to 27%. Government policies and commitments associated with these targets will likely reduce Japanese gas demand.

South Korean LNG imports should grow slightly as coal phases out

South Korean LNG imports declined in early 2024 (Figure 7.7), with marginal growth expected through the outlook period. South Korean energy users are relatively well supplied, with near-term growth likely to be met through nuclear power and renewables. However, LNG use is also likely to hold up as the government prioritises an exit from coal.

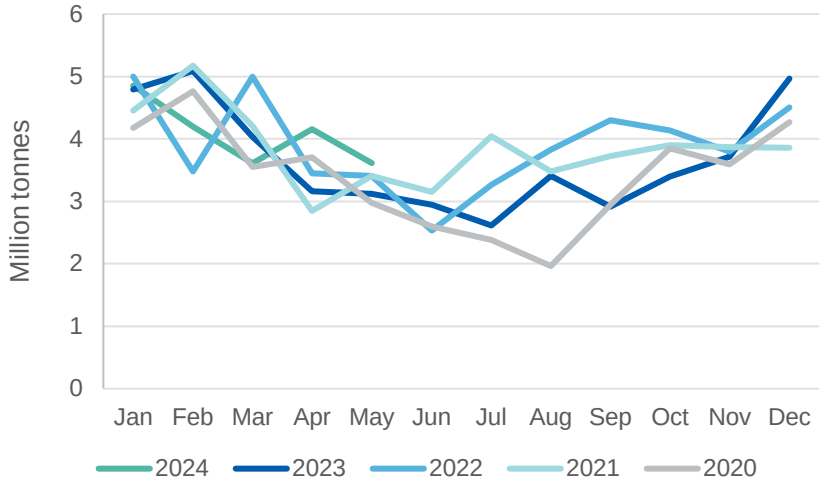
Recent surges in gas prices have encouraged a shift towards nuclear power generation in South Korea. The country's latest Basic Energy Plan includes a target to expand nuclear energy from 25GW in 2022 to 29GW by 2026. The plan encompasses a mix of new nuclear plant constructions and extensions to the lifespan of existing plants, and represents a major departure from the previous government's nuclear phase-down policy. It is likely that LNG imports will be lower over time given this shift in policy priorities.

Figure 7.6: Japan's monthly LNG imports, 2020–24



Source: McCloskey (2024)

Figure 7.7: South Korea's monthly LNG imports, 2020–24



Source: McCloskey (2024)

Taiwan's LNG imports are growing as other energy sources are reduced

Taiwan's LNG imports grew by almost a third over the four years to 2023 as gas and renewables were prioritised relative to other energy sources. Growing gas-powered generation is forecast to push Taiwan's LNG imports up further, with the long-term decommissioning of its remaining nuclear power plants ongoing.

LNG imports are rising elsewhere in Asia, though growth rates vary widely

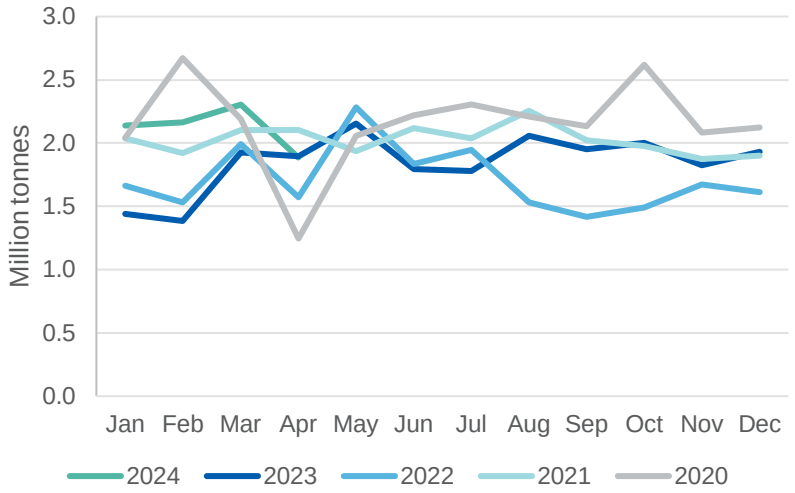
India has been scaling up LNG imports in recent years (Figure 7.8). This trend was interrupted in 2022 in response to surging prices. Imports have since resumed growth and are expected to scale up further through the outlook period. LNG imports have been supported by strong economic growth and reforms to open India's domestic gas market. Most domestic gas use is linked to India's growing industrial sector, but a broadening of use to the household sector is expected over the coming years.

Other Asian countries — notably the ASEAN region — continue to record rapid growth in LNG imports (Figure 7.9).

Vietnamese LNG demand is expected to grow, though the pace of growth remains uncertain. High spot prices over recent years have deterred some importers, and the Nhon 3&4 project — the country's first LNG-power integrated project — has faced delays. Industrial growth remains the strongest prospect for rapid LNG uptake over coming years, with coal growth slowing.

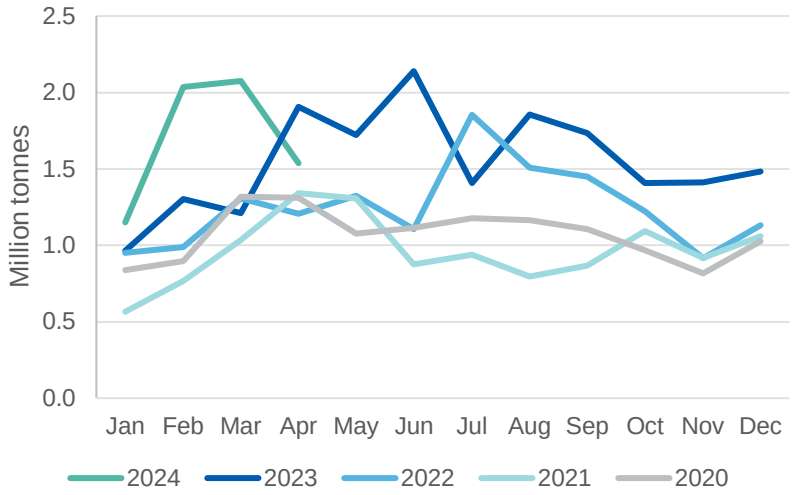
The Vietnamese Government is currently attempting to improve connectivity between the country's industrial zones and its LNG generation facilities. This could provide an indirect upside to LNG imports, since it would allow industry access to a greater share of domestic gas generation and potentially push the consumer market towards more use of imported gas.

Figure 7.8: India's monthly LNG imports, 2020–24



Source: McCloskey (2024)

Figure 7.9: Total monthly ASEAN LNG imports, 2020–24



Source: McCloskey (2024)

Thailand remains strongly committed to gas despite post-2022 price volatility. Gas generation accounts for around two-thirds of total generation, and is expected to hold this share through the outlook period and beyond it. LNG demand over the next two years is expected to be strong. Thailand has limited options for alternative power generation, but has announced plans to shift more rapidly towards renewables in the 2030s. Thailand has long imported gas by pipeline from Myanmar, but recent falls in availability of Myanmar output may push the country towards seaborne LNG imports.

LNG imports to Singapore are expected to hold steady over the outlook period, albeit with some shift away from Indonesian and Malaysian pipeline imports and towards seaborne LNG. Singapore's carbon tax is set to reach 45 Singaporean dollars a tonne by 2026, and this has some potential to affect gas use over time. Longer term growth in energy use is expected to be met largely through hydrogen gas co-firing and renewables including solar and wind power.

The Philippines is expected to slightly ramp up in its LNG imports over the outlook period. Most growth expected to occur after 2030 as the Government's coal moratorium begins to take effect. The Malampaya Field — the largest source of domestic gas generation — is aging and may need to be progressively replaced with imports during and after the outlook period.

Gas imports to Malaysia are growing modestly, with gas becoming an increasingly important baseload power source. Renewable generation has yet to ramp up, and decarbonisation targets are expected to spur stronger LNG imports through the rest of the 2020s.

Indonesia remains committed to ramping up coal power, with its relatively modest LNG needs expected to be met largely from domestic sources over the outlook period. LNG import growth is not expected to grow rapidly until the late 2020s, though industrial use (notably for smelting metals) could provide a potential upside for LNG imports in the near term.

7.4 World exports

The US is set to become a more globally dominant LNG exporter

The US became the world's largest LNG exporter in 2023 and is expected to increase its share of the global market. US export growth is expected to account for almost half of global growth in LNG exports over the next five years, with US exports surpassing 150 Mt by 2030.

However, most of this growth is expected to occur beyond the immediate outlook period. US exports are estimated to have grown by around 4% over 2023–24. The bulk of this growth has been driven by the restart of the Freeport Terminal. Freeport was shut down for seven months following a fire in mid-2022, and further affected by damage linked to cold weather during the 2022–23 winter season.

Upcoming projects include the Corpus Christi Stage 3 expansion (with annual capacity of 10 mtpa), where production is expected to begin by the start of 2025. Plaquemines LNG Phase 1 (with capacity of 10 mtpa) is expected to begin supplying long-term contracts by 2026. The LNG Canada (7 mtpa) and Golden Pass (18 mtpa) projects are expected to ship their first cargoes in 2025.

The outlook for US exports is not expected to be affected by the recent announcement of a potential 'pause' in the award of export licences. All major projects anticipated to come online within the next five years have already been granted licences.

Qatar is set to bring new capacity online during the outlook period

Qatar currently has around 77 mtpa of export capacity: approximately equivalent to Australian capacity. However, this capacity is set to grow rapidly in the years ahead. The Qatari Government previously released plans to expand export capacity to 126 mtpa by 2030, but at the end of February this was revised up to 142 mtpa. This revision will not affect output over the next two years, but does signal that investment sentiment remains strong in Qatar despite recent regional conflict.

Qatar has a relatively strong record for meeting its project deadlines, and is assumed to bring its current plans to fruition in line with its public timetable. Potential disruptions to export channels through the Persian Gulf remain the largest risk, since even a mild threat has potential to affect long-term investment plans in addition to short-term shipping schedules.

Russian gas exports face challenging conditions and downside risks

Russian natural gas production has entered a more constrained period following the 2022 invasion of Ukraine. Russian pipeline exports to Europe — already reduced by sanctions and the destruction of the Nord Stream 2 pipeline — are set to fall further in 2024. The Russia-Ukraine contract, which accounts for a significant share of remaining gas flows, is set to expire in December 2024, and is unlikely to be renewed. If the contract expires, Russian gas exports to Europe will be largely limited to the Turkstream pipeline, which supplies Türkiye, Hungary and Serbia.

Gas output in 2024 is also likely to be affected by a large fire at a gas pipeline in Saratov, which occurred in June. Saratov's regional government claimed that the fire was not caused by 'external interference' but was a result of 'abnormal heat' in the area surrounding the pipe.

Development work on two substantial pipelines between Russia and China has slowed. The Far East pipeline (due for completion in 2028) and Power of Siberia 2 (due for completion by 2033) face an uncertain outlook as sanctions against Russia reduce access to investment funds and equipment. Progress on the Power of Siberia 2 pipeline (intended to transport 50 billion cubic metres of natural gas annually) stalled in June as price negotiations broke down between Russian and Chinese stakeholders. Sanctions have prevented Russia from accessing ice-proof LNG carriers, delaying the Arctic LNG 2 project and blocking LNG shipments from the Arctic Sea to Asia.

No other LNG-related constructions are expected to commence in Russia for the foreseeable future, and with existing pipeline infrastructure operating near capacity there is little prospect of strong growth in Russian LNG exports. The primary growth source for Russian gas use will thus remain its domestic market, where some expansion is likely over coming years.

The primary risk to Russian gas exports remains the war in Ukraine, with military conflict posing an ongoing hazard to Russia's numerous exposed gas pipelines.

Growth in gas output from other sources remains modest

Export growth is ongoing in Africa and the Middle East. Smaller suppliers including Egypt and Nigeria are facing some issues with feedstock and uncertainty in domestic markets but are expected to start adding new supply from 2026.

In Mozambique, the Coral South FLNG (which opened in November 2022) has continued to ramp up. Indonesia also continues to ramp up Tangguh Train 3.

Egyptian exports have declined in 2024, with greater supply being drawn to service domestic demand. However, exports sourced from elsewhere in Africa (notably Algeria and Nigeria) have risen slightly.

New supply is expected to come from the Congo FLNG and Mexico's Alamira Fast LNG, where first output is commencing.

7.5 Prices

Prices should ease over the next two years as new supply ramps up

LNG prices edged back during the March quarter 2024, but recent strong Asian demand and temporary supply disruptions have prevented further declines (Figure 7.10). Although prices have broadly trended down since 2022, some lift occurred in May and June following disruptions at the Wheatstone LNG export facility in Australia (where the fuel system has required repairs) and the Bintulu export facility in Malaysia, which has experienced an outage.

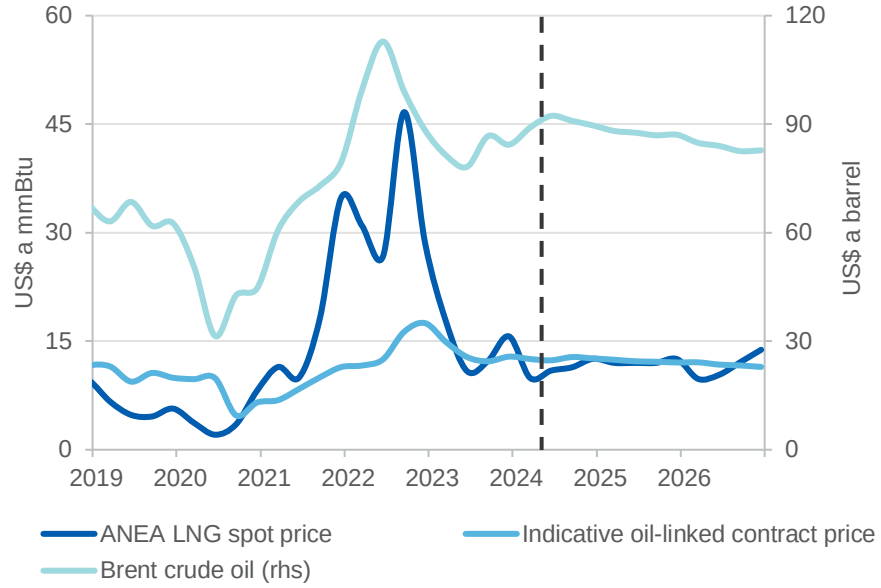
A resolution of these issues and a further decline in prices should support greater use of gas in industrial sectors across Asia, the US and Europe.

Industrial use in Europe remains relatively modest, but further price falls could spur some pickup in the September quarter.

More than 25mmtpa of sales and purchase agreements are due for re-negotiation in 2024. The Japan-Korea marker price benchmark for these negotiations has edged down in recent months, with slopes revised down from above 14% to around 13.2-13.5%. This points to a small reduction in price growth relative to earlier periods (including the 2008–2012 period — when many of the contracts now under negotiation settled.

On balance, prices are expected to trend down, from US$13.9/MMBtu in 2023 to US$11.5/MMBtu in 2026. However, risks remain, with markets continuing to face unpredictable disruptions from weather, geopolitics and military conflict. Price risks remain weighted to the upside in the short-term but should come into balance over time as new supply begins to scale up and enter markets.

Figure 7.10: LNG spot and contract prices, 2019–26



Source: Bloomberg (2024); Department of Industry, Science and Resources (2024)

7.6 Australia

Australia's LNG export volumes are expected to hold steady

Australian gas production is expected to be largely steady over the next two years. New supply from Scarborough and Barossa is expected to offset the gradual diminution of supply from the North West Shelf. But, in the absence of new investment, the broader trend points towards slow declines in output and exports over the longer term.

Three train modules have been delivered to the Pluto LNG facility. When assembled, the full production train will be the second at the Pluto LNG facility and will have a 5mtpa capacity. The connected Scarborough field is also under development, with thirteen wells expected to be built. Woodside has noted that the Scarborough project is 'more than 70% complete', with output from Pluto 2 expected from 2026.

Santos has announced that its 262-km Barossa natural gas pipeline is complete. The company has advised that the overarching Barossa gas project has now passed 70% completion, with delays linked to legal action now resolved. The first well of the Barossa project has been completed, with five further wells under development.

Santos continues to progress its Bayu-Undan carbon capture and storage project, which is intended to mitigate carbon releases from the Barossa project and other LNG assets. Bayu-Undan is expected to be capable of storing 10 million tonnes of CO2 annually upon its completion. Use of this facility could enable Australian LNG production and exports to expand without affecting climate targets.

A fault with a propane compressor caused an outage at Gorgon's Train 2 in May. The train produces around 5.2 mtpa, and mostly supplies markets in Japan and Korea, with intermittent supply also provided to Taiwan and China. On 21 May, Chevron advised that it '… continues work to resume full production from the Gorgon Gas Facility following a mechanical fault which has affected one LNG production train'. Full capacity was restored in late May, but output over the year is likely to be reduced.

Output from Chevron's Wheatstone LNG export facility has been paused to allow repairs to be carried out on the fuel system. The outage is expected to be brief, with full output resuming from mid-June.

Elixir Energy has announced a significant upgrade in contingent resources at its Grandis Gas project following the latest drilling results. Contingent resources have been revised up by 328% to 1,297 billion cubic feet. While future development of any resources from the project would boost gas supply, contingent resources are years away from impacting Queensland gas production and potentially reducing pressure on LNG exports.

On balance, Australian LNG export volumes are expected to decline slightly, edging off to just under 80 Mt annually after 2023–24 (Figure 7.11). Beyond the outlook period, output levels could tighten further due to the gradual depletion of the North-West Shelf and the delay in bringing new gas reserves online. Exploration remains low (Figure 7.12), but with some growth (+15%, to $337 million) in the March quarter 2024.

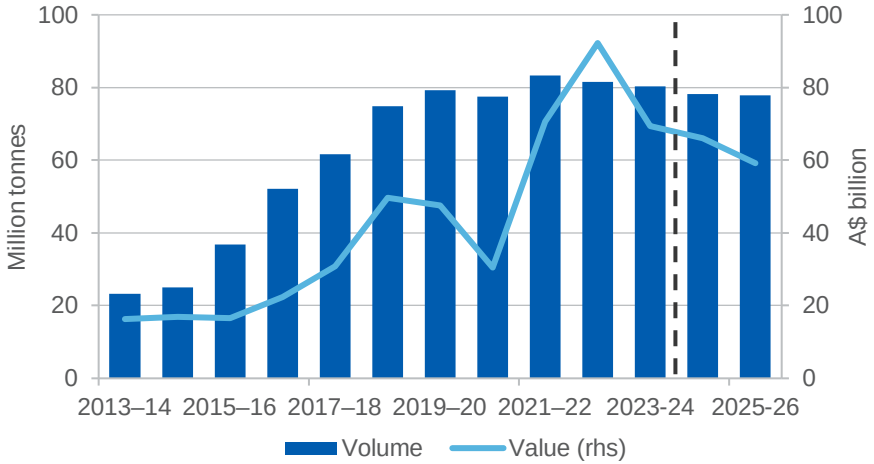
Australia LNG earnings are expected to ease further as prices drop

Australian LNG export earnings are expected to fall to A$69 billion in 2023–24, with a further easing to A$59 billion by 2025–26. This decline is largely a result of falling prices, with export volumes easing marginally. Oil price moves will remain the major influence on Australia's LNG earnings. Around 80% of Australian LNG exports are sold under long-term contracts that link the price of LNG to the Japanese Customs-Cleared Crude (JCCC) oil price (with a 3-6 month lag, depending on contractual arrangements). Oil-linked LNG contract prices are forecast to average US$13/MMBtu in the 2023 to 2025 period, based on an oil price of US$83 per barrel (Figure 7.10). These prices are expected to ease slightly during the outlook period.

Revisions to the outlook

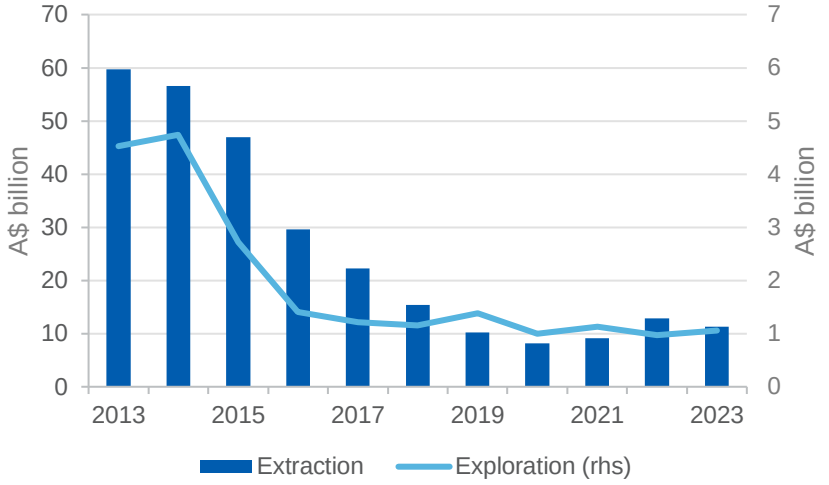
Australian LNG export earnings forecasts have been revised down by around $2 billion for 2023–24 and up by about $2 billion in 2024–25 and $4 billion in 2025–26. Recent geopolitical events and a likely upside in gas use linked to AI rollouts have influenced price forecasts slightly since the March 2024 *Resources and Energy Quarterly.*

Figure 7.11: Australia's LNG exports by value and volume



Source: ABS (2024) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2024)

Figure 7.12: Petroleum expenditure, extraction and exploration



Notes: Extraction expenditure consists of all expenditure on buildings and structures, plant and machinery equipment associated with Oil and Gas extraction.
Source: Australian Bureau of Statistics (2024) Private New Capital Expenditure and Expected Expenditure, 5625.0; and Mineral and Petroleum Exploration, 8412.0

Table 7.1: Gas outlook

World	Unit	2023	2024[g]	2025[g]	2026[g]	Annual Percentage Change 2024[g]	2025[g]	2026[g]
JCCC oil price[a]								
– nominal	US$/bbl	86.7	86.0	81.4	77.5	-0.8	-5.3	-4.8
– real[i]	US$/bbl	89.2	86.0	79.8	74.5	-3.7	-7.1	-6.7
Asian LNG spot price								
– nominal	US$/MMBtu	13.9	13.6	12.1	11.5	-1.7	-10.9	-5.1
– real[h,i]	US$/MMBtu	14.3	13.6	11.9	11.1	-4.6	-12.7	-7.0
LNG trade	Mt[e]	403.2	425.5	455.6	498.0	5.5	7.1	9.3
Gas production	Bcm	4,038	4,132	4,214	4,327	2.3	2.0	2.7
Gas consumption	Bcm	4,036	4,132	4,223	4,301	2.4	2.2	1.9
Australia	**Unit**	**2022–23**	**2023–24**	**2024–25[g]**	**2025–26[g]**	**2023–24[g]**	**2024–25[g]**	**2025–26[g]**
Production[b]	Bcm	164.0	163.8	157.3	156.8	– 0.1	– 4.0	– 0.3
– Eastern market	Bcm	57.8	57.7	53.3	51.7	– 0.1	– 7.7	– 3.0
– Western market	Bcm	91.0	85.6	85.1	83.9	– 5.9	– 0.5	– 1.4
– Northern market[d]	Bcm	15.1	17.2	16.7	17.4	14.1	– 3.1	4.2
LNG export volume	Mt[e]	81.5	80.4	78.2	77.8	– 1.4	– 2.8	– 0.4
– nominal value	A$m	92,237	69,435	66,080	59,272	-24.7	-4.8	-10.3
– real value[f]	A$m	95,996	69,435	64,082	55,934	-27.7	-7.7	-12.7
LNG export unit value[h]								
– nominal value	A$/GJ	21.4	16.4	16.0	14.4	– 23.7	– 2.1	– 9.9
– real value[f]	A$/GJ	22.3	16.4	15.5	13.6	– 26.7	– 5.1	– 12.3
– nominal value	US$/MMBtu	15.2	11.3	11.4	10.8	– 25.6	0.8	– 5.6
– real value[i]	US$/MMBtu	15.9	11.3	11.1	10.2	– 28.6	– 2.3	– 8.1

Notes: **a** JCCC stands for Japan Customs-Cleared Crude; **b** Production includes both sales gas and gas used in the production process (i.e., plant use) and ethane; **c** Gas production from Bayu-Undan Joint Production Development Area is not included in Australian production; **d** Browse basin production associated with the Ichthys project is classified as Northern market; **e** 1 Mt of LNG is equivalent to approximately 1.36 bcm of gas; **f** In 2023–24 Australian dollars; **g** Forecast; **h** 1 MMBtu is equivalent to 1.055 GJ; **i** In 2023 US dollars.
Source: ABS (2024) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2024); Company reports; Nexant (2024) World Gas Model.

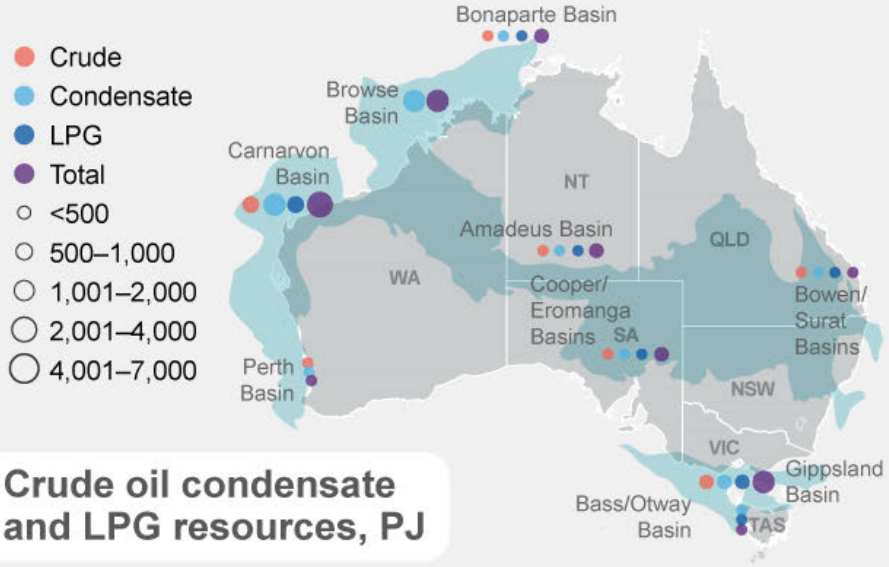
Oil

Australia's oil sector

0.3%
of the world's oil **reserves** and **0.5%** of production

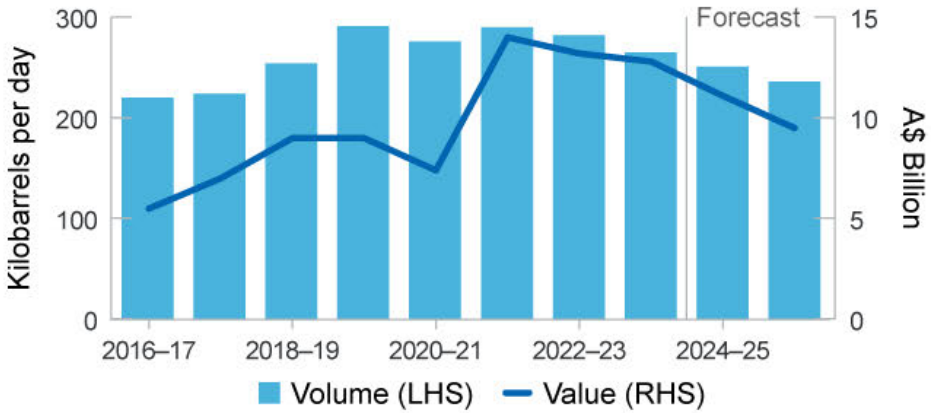
41% by value
of crude & condensate **exported** to Singapore and South Korea

Around 2/3
crude & condensate produced at **Carnavon basin,** offshore WA



Crude oil condensate and LPG resources, PJ

Australian oil exports



Outlook

Oil **prices will begin to weaken** from high North and Latin American supply

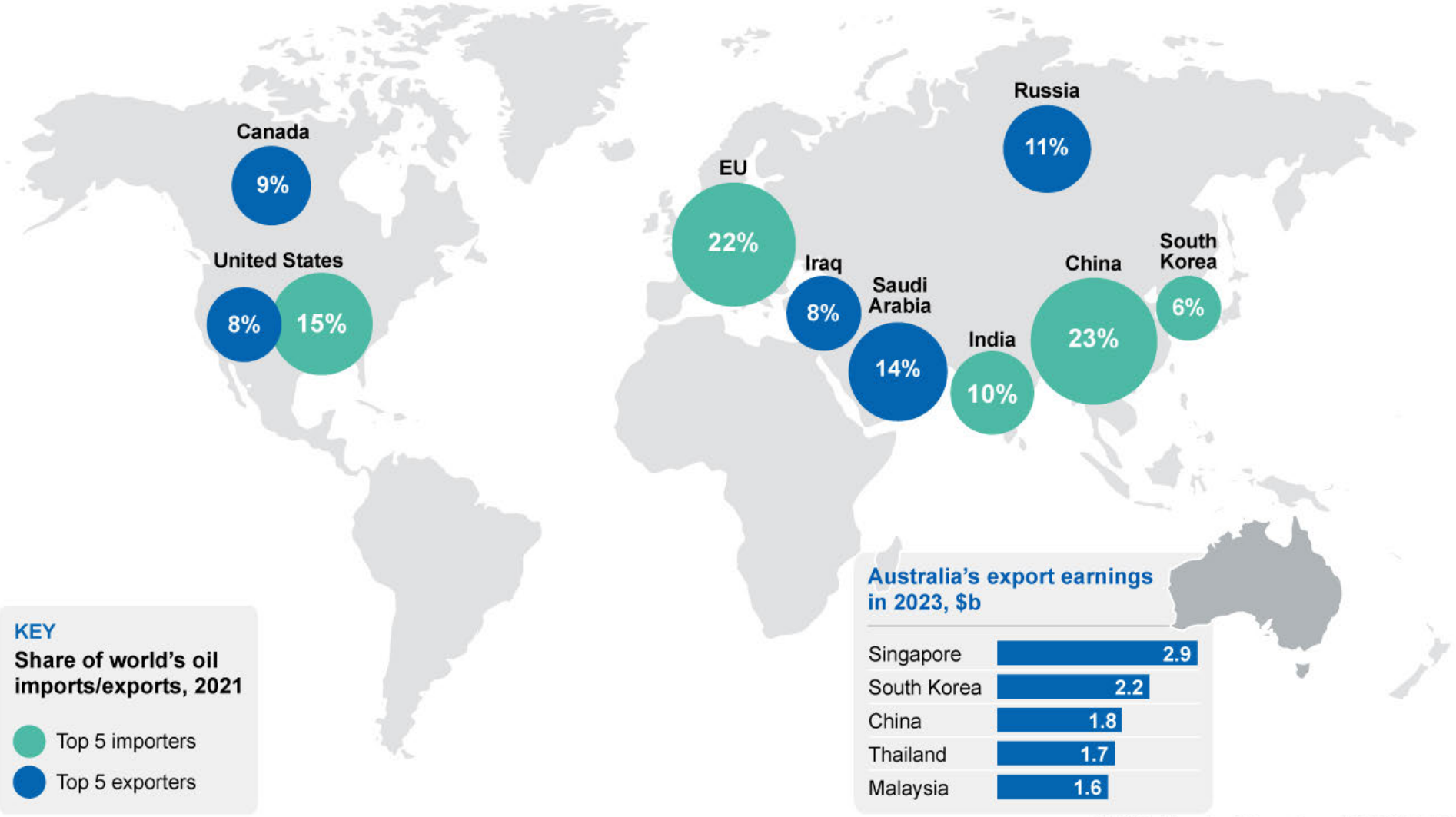
Earnings to **fall from 2024-25** as prices fall and basins deplete

Australian production **volumes ease** as offshore fields depletes

Petroleum **exploration expenditure rose** in the March quarter of 2023

SOURCE: GA; DISR; OCE

Oil TRADE MAP



SOURCE: International Energy Agency, World Oil Statistics

Note: Trade data includes crude oil, natural gas liquids, refinery feedstocks, addititves and other hydrocarbons for 2021

8.1 Summary

- The Brent crude oil price is projected to fall from an average US$83 a barrel in 2023 to US$78 a barrel in 2026. The fall is expected to be driven by both weak demand and gains in ex-OPEC production.
- Australia's crude and condensate production is projected to fall steadily, from 276,000 barrels a day in 2023–24 to about 252,000 barrels per day by 2025-26, as mature fields see diminishing output.
- Australia's crude and condensate export earnings are projected to fall from A$13.2 billion in 2023–24 to A$9.6 billion by 2025–26, as prices fall and output declines.

8.2 World consumption

Growth in global oil demand to slow as post-COVID recovery ends

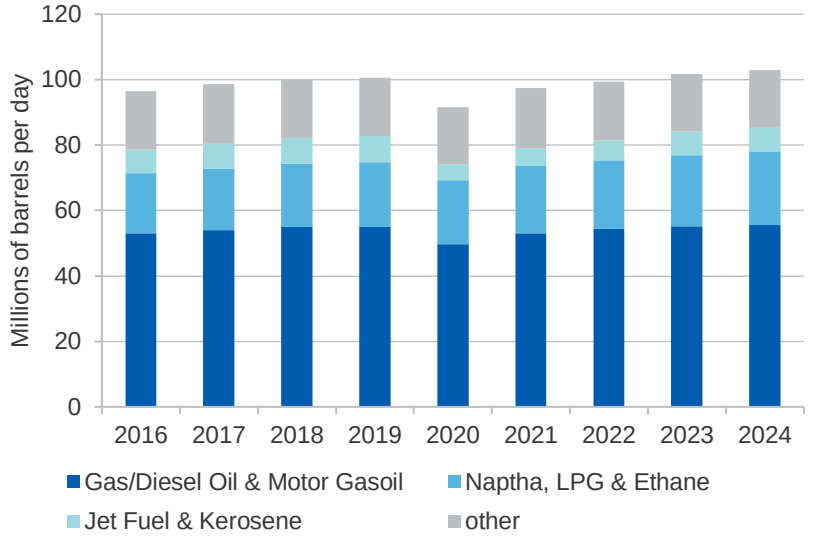
The International Energy Agency (IEA) estimates that annualised growth in global oil usage eased to 1.6 million barrels a day (mb/d) in the March quarter 2024, a marked return to pre-COVID pandemic baselines and the lowest level of growth since the March quarter 2023 (see Figure 8.1). With slower growth expected through 2024 and 2025, demand is expected to increase by a modest 1.2mb/d in calendar 2025 led by non-OECD countries, with OECD demand declining slightly.

Growth in oil consumption throughout the outlook period is projected to be driven by a rise in the demand for plastics and petrochemicals and thus petrochemical feedstock demand growth (LPG, ethane and naphtha). The rise in plastics and petrochemical demand is due to increasing industrial production and demand for lightweight materials. In addition, moderate gains in aviation fuel demand are expected. Motor gasoline demand is expected to plateau and fall slightly. Global oil demand is projected to reach 105.3 mb/d by in 2026 from 102.2 mb/d in 2023.

EV adoption and efficiency gains to reduce diesel and petrol demand

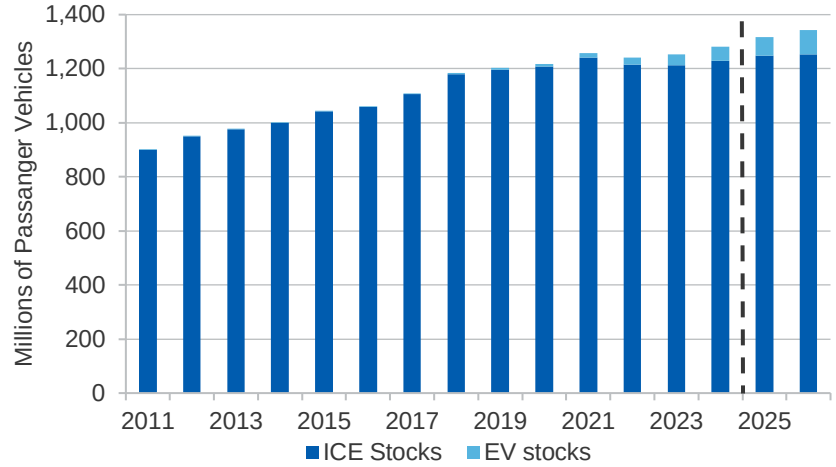
The share of electric vehicles (EVs) in the global passenger vehicle market is forecast to exceed 6% by 2026, with strong adoption expected in China and Europe (see Figure 8.2). Though the rate of EV market penetration in

Figure 8.1: Global oil consumption by refined petroleum product



Source: International Energy Agency (2024)

Figure 8.2: Global passenger vehicle stocks



Notes: EV stocks include battery electric vehicles (BEVs) and plug in hybrid electric vehicles (PHEVs).

Source: Department of Industry, Science and Resources (2024), IEA(2024)

China and the European Union fell in the March quarter 2024, the proportion of EVs in the Chinese passenger vehicle fleet is expected to rise from 7.6% in 2023 to 15% by 2026.

The increased adoption of EVs will displace transport fuel demand from new internal combustion vehicles. In addition, new ICE vehicles are becoming more efficient and moving away from diesel towards petrol burning engines. The adoption of petrol over diesel vehicles may result in an increase in demand for petrol over diesel in the short-term. The efficiency gains will likely result in a longer-term decline in demand for transport fuels.

Ex-OECD demand growth no longer dominated by China

China is the world's largest consumer of oil, with demand of 16.4 mb/d in 2023. Following the easing of pandemic restrictions, demand for oil in China has been growing rapidly — increasing from 14.3 mb/d in 2022. However, as China leaves its COVID recovery period, demand growth is expected to slow. In 2024, Chinese gains as a percentage of non-OECD growth are forecast to fall to 43% and 29%. More balanced growth is now expected amongst non-OECD countries, according to the IEA.

Chinese demand is still expected to drive global petrochemical feed stocks. March saw demand for LPG and ethane reach highs of 2.5 mb/d with naphtha deliveries also growing. China is expected to contribute 70% of the increase in global petrochemical capacity in 2024.

Economic growth is set to drive India's demand for oil. India's demand is set to increase across all oil products over the outlook period. This should largely be driven in tandem with India's expected GDP growth of 6.8% (as forecast by the IMF).

Road transport is a major area of growth in India and is set to contribute significantly to rising oil demand. Domestic air travel in India remains relatively low but should rise over time as India's economy continues to grow and GDP per capita increases. India's demand for oil is further bolstered by the fact it imports large amounts of Russian crude at a discount. Importing at a discount allows India to keep domestic prices lower than would otherwise be the case.

OECD demand to decline but US manufacturing to boost ethane demand

OECD demand is set to fall slightly — by approximately 50kb/d in 2024 and 2025. The fall in demand is likely to be driven by lacklustre economic growth, increased efficiency gains and fuel demand displaced by EVs.

Despite the overall decrease in OECD demand, US petrochemical feedstock demand surged in the March quarter 2024, rising by almost 460 kb/d. The IEA expects this trend to continue in the first half of 2024. Increasing tariffs on US imports of certain Chinese products will likely further lift demand for petrochemical feedstocks: the tariffs are intended to provide a stimulus to US domestic manufacturing.

8.3 World production

World supply continues to rise, driven by production in the Americas

Led by strong production from ex-OPEC+ (the Organisation of Petroleum Exporting Countries + other oil-producing countries), especially in the Americas, world oil supply is forecast to reach at 105.3 mb/d by 2026, surpassing the pre-COVID peak of 100.7 mb/d. According to the IEA, increased supply from the Americas is projected to lift global supply by 1.1 mb/d in 2024 and again in 2025. This is expected to be driven primarily by the US, Guyana, Canada, and Brazil.

There are some meteorological risks to US production in the Gulf of Mexico. The US is currently the largest producer of oil ever at 13.3 mb/d in December 2023, according to the (US) Energy Information Agency. The (US) National Oceanic and Atmospheric Administration predicts above average storm activity in 2024. Increased storm activity has the potential to take some oil and gas production offline — as occurred in 2005 with Hurricane Katrina and in 2021 with Hurricane Ida.

New supply is also expected from Guyana. After a series of discoveries beginning in 2008, offshore production in Guyana began in 2019, and projects currently in the pipeline are expected to continue to bring

additional capacity online. Over the outlook period, the IEA forecasts Guyana's output to rise by 200 kb/d in 2024 — or 16% of the global output increase in 2024. A further 120 kb/d will come online when the Yellowtail installation comes online in 2025 accounting for around 10% of increased supply due come online in 2025. About 66% of Guyana, including much of its oil reserves, is in territory disputed by Venezuela. In recent months, Venezuela has lifted its military presence on the border, further raising the chances of a regional conflict that would threaten Guyanese oil supply.

OPEC+ cuts to continue into 2025

There are currently two sets of OPEC+ cuts in place. The first are 3.7 mb/d of cuts that were initially due to expire at the end of 2024. The second set of cuts are voluntary cuts of 2.2 mb/d, agreed at the November 2023 meeting. The voluntary cuts were initially set to expire at the end of March 2024. They were subsequently extended to expire on 30 June 2024. Following the June 2024 OPEC+ meeting, the 3.7 mb/d cuts have been extended until the end of 2025. The voluntary 2.2 mb/d cuts will be gradually phased out between October 2024 and September 2025.

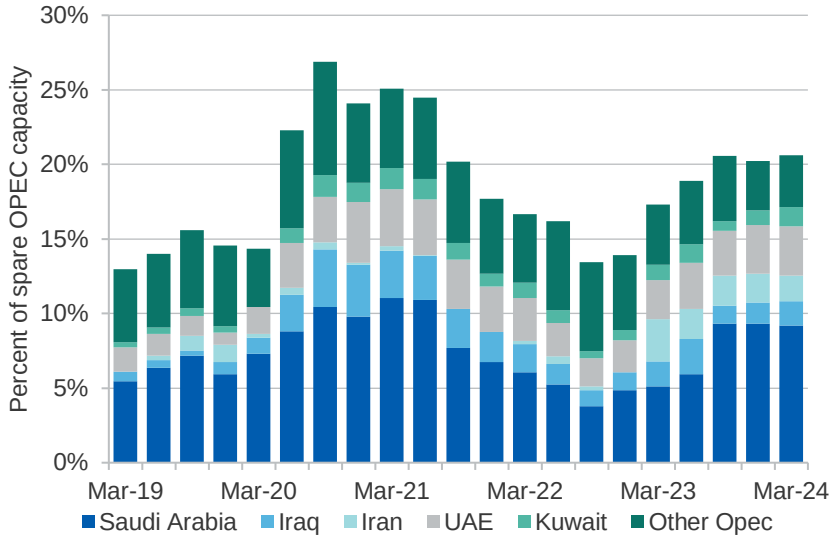
Despite capital expenditure by Saudi Aramco rising to US$10.8 billion in the March quarter 2024, Saudi Arabia has suspended its plans to lift its production capacity by 1 mb/d up to 13 mb/d by 2027. Instead, the capital expenditure is being used to offset depleting fields and expand gas exploration programs. Given that Saudi Arabia has already made production cuts of almost 25% of its total production capacity, the suspension of this additional capacity is unlikely to impact overall supply.

In the March quarter 2024, OPEC crude oil spare capacity was estimated at a little over 20% (Figure 8.3). This is likely to have risen a little in the June quarter 2024 as the cuts announced in November were implemented.

Russia cuts production slightly and redirects exports

Russia reduced its crude output slightly by 150 kb/d in the first half of 2024 in line with its agreed OPEC+ production cuts. Since the invasion of Ukraine in the March quarter of 2022, Russian oil exports have diverted away from OECD countries, with India becoming the largest consumer for Russian seaborne crude oil exports (Figure 8.4). The G7, EU and Australia all imposed the price caps on seaborne exports of Russian crude oil and refined petroleum products from 4 December 2022.

Figure 8.3: OPEC spare crude oil capacity, as a percentage of total



Notes: Spare capacity is the estimated capacity which can produce within 90 days. Condensate excluded.

Source: Wood Mackenzie (2024), International Energy Agency (2024), Department of Industry, Science and Resources (2024)

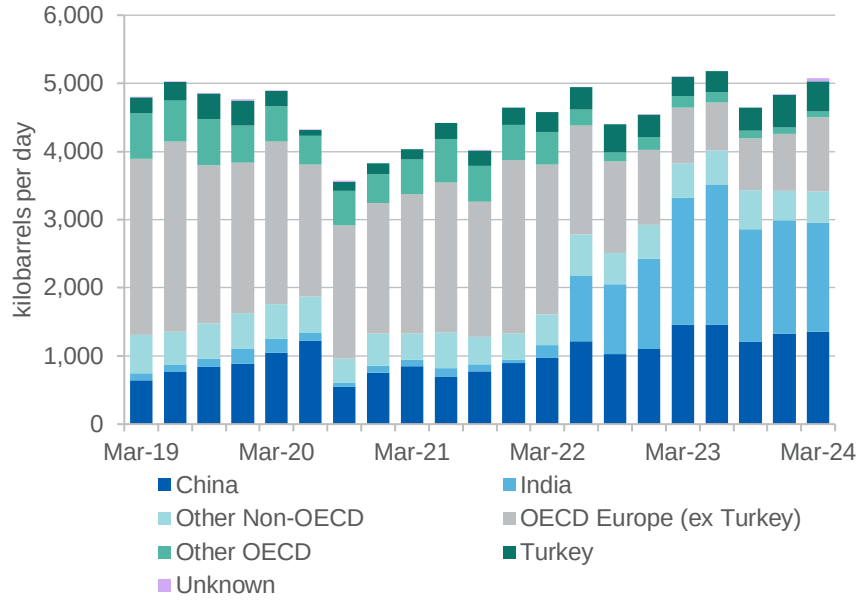
Price caps imposed on Russian oil have required new and complex monitoring and enforcement measures. Russian oil exporters seek to avoid these by using older tankers operating outside of the Western shipping system, to circumvent the insurance bans and price caps.

The Kyiv School of Economics estimates that only 31% of Russian seaborne crude oil exports were shipped by tankers using insurance from G-7 and EU firms in September 2023.

The war with Ukraine resulted in damage to Russian refineries in the March quarter 2024. The damage has caused volumes of Russian

seaborne refined product shipments to drop by around a third, though crude seaborne export volumes are holding steady. Crude production levels have also been steady, which should mean that additional Russian crude has or will become available to refineries.

Figure 8.4: Russian seaborne crude oil and condensate exports



Notes: Export volumes are estimated using vessel tracking data and may deviate from customs data.

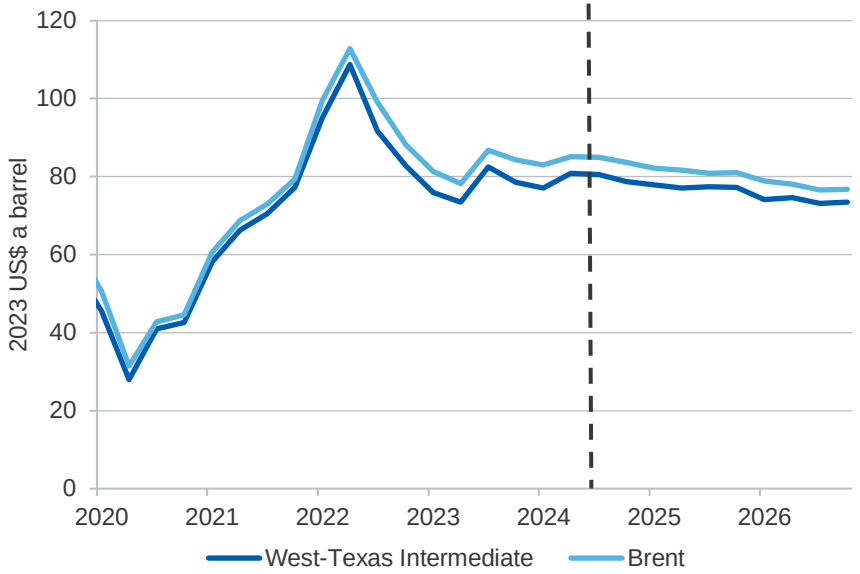
Source: Kpler (2024)

8.4 Prices

High supply and soft demand are bringing prices down

Demand for transport fuels is expected to grow slowly over the outlook period. Most growth in oil demand is expected to come from petrochemicals (see World Consumption section). Growth of ex-OPEC supply will continue to put downward pressure on prices. WTI and Brent prices are projected to decline steadily through the outlook period in the absence of unforeseen supply disruptions. By end 2026, Brent crude is expected to fall to USD$77 a barrel and WTI is expected to fall to US$73 a barrel (see figure 8.5).

Figure 8.5: Price outlook



Source: Bloomberg (2024); Department of Industry, Science and Resources (2024)

Tensions in the Middle East are adding to risk premiums and volatility

The Persian Gulf contains ports where some of the largest oil exporters transit their oil supply. In 2023, 16 mb/d of seaborne crude supply transited via the Persian Gulf and out of the Gulf of Oman into the Red Sea. Disruptions in the region thus present risks to a large proportion of global oil supply. Iran borders the Persian Gulf and holds one side of Strait of Hormuz through which Persian Gulf oil exits to the Indian Ocean.

As tensions between Iran and Israel rose in April, a risk premium was applied to oil prices, with Brent increasing to US$93 a barrel. As perceived conflict risks in the Middle East have cooled, Brent prices have fallen to

$80 a barrel, which is within the US$80-90 a barrel range prior to the fears of a conflict.

Tensions in the Red Sea escalated throughout the December quarter 2023 and March quarter 2024, after Houthis in Yemen began attacking ships transiting via the Red Sea. Disruptions to Red Sea trade have resulted in the realignment of contracts and the rerouting of ships around the Cape of Good Hope. The increased travel distance has resulted in offshore stocks increasing as greater volumes are held on ships in transit. Increased volumes of offshore stocks and the fall in onshore stocks may result in acute local price shocks at times of peak consumption.

8.5 Australia

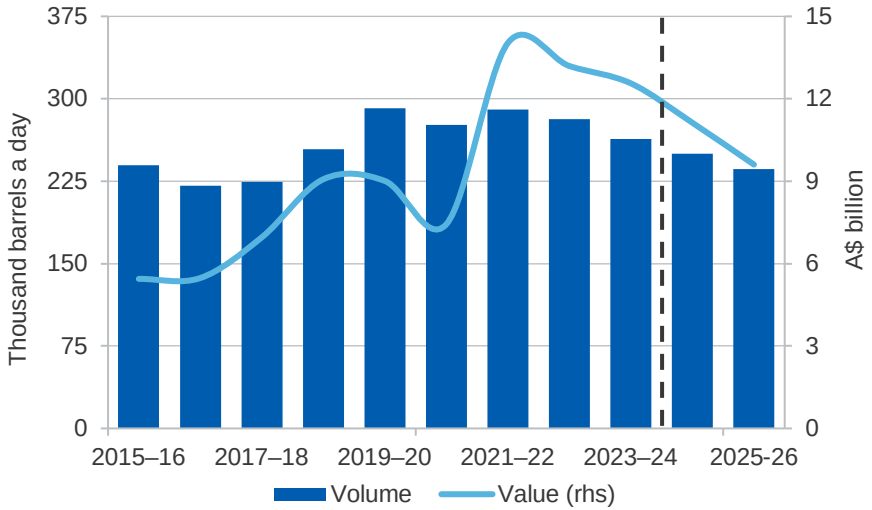
Delays over investment decisions are causing uncertainty

Australian crude oil and condensate export earnings rose by 12% year-on-year to reach $3.1 billion in the March quarter 2024. The rise reflected higher prices as a result of elevated geopolitical tensions in the Middle East.

Australian crude oil and condensate output fell by 10% in 2023, to 285 kb/d from 316 kb/d in 2022. The fall was due to lower output in the Carnarvon Basin, which is approaching end of life. This includes fields such as the North West Shelf and Greater Enfield. Output is forecast to fall further over the outlook period — to 252 kb/d in 2025–26 — as the Carnarvon Basin fields deplete further. Export values are projected to fall to $9.6 billion by 2025-26, as production and prices both fall throughout the outlook period (Figure 8.6).

A final investment decision for the Dorado oil and gas field is expected this year, having been delayed from late 2022. Carnarvon Energy divested a 10% stake in the project to Taiwan's CPC Corporation in February 2023. If the project proceeds, it will bring around 90 kb/d of additional production capacity online, but this new capacity will likely come online beyond the outlook period.

Figure 8.6: Australian crude oil and condensate exports



Source: Australian Bureau of Statistics (2024); Department of Climate Change, Energy and Water; Department of Industry, Science and Resources (2024).

Australian refineries to remain open with government support

In 2021, falling demand resulted in the closure of two of Australia's oil refineries. The remaining two refineries signed contracts with the Australian Government to remain open until at least 2027, in exchange for a subsidy on each litre of refined product sold.

Australia's two remaining refineries are expected to have their operational life extended, with plans to extend the Lytton plant announced in April 2022, and plans to extend the Geelong plant announced in January 2023. Australian refined production is expected to remain at around 250 kb/d over the outlook period.

Australia's consumption of refined oil products rose by 4.4% year-on-year in the March quarter 2024. The gain was driven by a 23% lift in jet fuel consumption and reflects the ongoing recovery in air travel since the opening of Australia's international borders in November 2021. Consumption of automotive gasoline rose 2% year-on-year in March

quarter 2024. Rising adoption of electric vehicles is expected to slow growth in demand for petrol over the outlook period.

Exploration

Australia's petroleum exploration expenditure in the March quarter 2024 was $337 million, up slightly on the $254 million in 2023 and 2023 average but still below the highs of 2010-2020. The increase was driven by an increase in offshore exploration, that rose to $142 million compared to the 2022 and 2023 average of $97 million.

Revisions to forecasts

Since the March 2024 *Resources and Energy Quarterly*, the forecast for Australia's crude and condensate export earnings has been revised down. Estimated earnings in 2023–24 (revised down by $0.3 billion to $12.8 billion), forecast 2024-25 earnings have been revised down slightly to $11.1 billion in 2024-25 and down by $0.1 bn to $9.6 billion in 2025-26.

Table 8.1: Oil Outlook

						Percentage changes		
World	Unit	2023	2024 [s]	2025 [f]	2026 [f]	2024 [f]	2025 [f]	2026 [f]
Production[a]	mb/d	102	103	105	105	0.4	2.3	0.4
Consumption[a]	mb/d	102	103	105	105	1.1	1.2	0.7
WTI crude oil price								
– nominal	US$/bbl	78	79	77	74	2.2	-2.4	-4.7
– real[b]	US$/bbl	80	79	76	71	-0.8	-4.3	-6.6
Brent crude oil price								
– nominal	US$/bbl	83	84	81	78	1.9	-3.3	-4.8
– real[b]	US$/bbl	85	84	80	74	-1.0	-5.2	-6.7
Australia	Unit	2022–23	2023–24 [s]	2024–25 [f]	2025–26 [f]	2023–24 [s]	2024–25 [f]	2025–26 [f]
Crude and condensate								
Production[ac]	kb/d	288	275	262	252	-4.5	-4.7	-4.0
Export volume[a]	kb/d	282	264	250	236	-6.3	-5.1	-5.6
– Nominal value	A$m	13,193	12,560	11,127	9,604	-4.8	-11.4	-13.7
– Real value[h]	A$m	13,730	12,560	10,790	9,064	-8.5	-14.1	-16.0
Imports[a]	kb/d	169	170	189	188	0.6	11.1	-0.8
LPG production[acd]	kb/d	93	94	91	90	1.2	-3.5	-1.3
Refined products								
– Refinery production[a]	kb/d	252	256	254	252	1.3	-0.5	-0.8
– Export volume[ae]	kb/d	6	7	7	7	20.5	5.5	-5.9
– Import volume[a]	kb/d	856	892	884	891	4.2	-0.9	0.8
– Consumption[ag]	kb/d	1,021	1,058	1,059	1,064	3.6	0.1	0.5

Notes: **a** data was revised in the December quarter 2021 to align with the Australian Petroleum Statistics; **d** Primary products sold as LPG; **e** Excludes LPG; **f** Forecast; **g** Domestic sales of marketable products, including imports; **h** In 2023-24 financial year Australian dollars; **r** Compound annual growth rate (per cent), for the period from 2023 to 2029 or for the equivalent financial years; **s** Estimate.

Source: ABS (2024) International Trade in Goods and Services, Australia, Cat. No. 5368.0; International Energy Agency (2024); US Energy Information Administration (2024); Department of Industry, Science and Resources (2024); Department of Climate Change, Energy and Environment (2024).

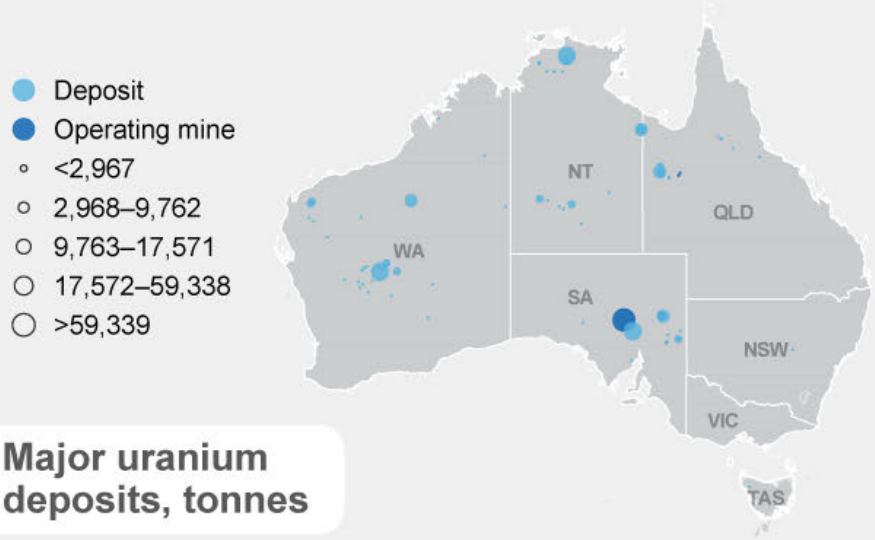
Uranium

Australia's uranium sector

Ranked 1st for uranium **resources, 4th** for world **supply**

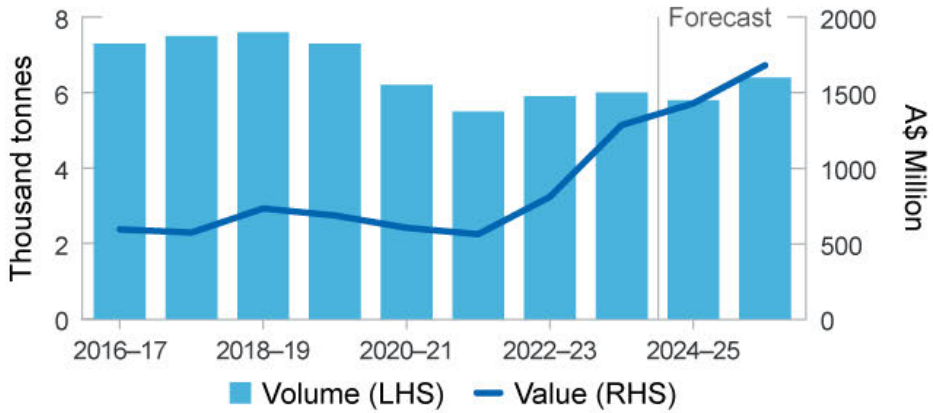
4,809 tonnes exported in 2022–2023

$812 million value of exports 2022–2023



Major uranium deposits, tonnes

Australian uranium exports



Outlook

Prices have been **rising**, with **further growth** expected through the outlook

Earnings **have passed a low point**, with higher prices and volumes in prospect

The opening of the Honeymoon mine in South Australia to **boost exports**

Exploration spending has risen solidly from its low point in 2020 and 2021

SOURCE: DISR; OCE

9.1 Summary

- Prices have settled around US$90 a pound after declining from a peak in early 2024.
- Price pressures are expected to persist through till 2026, with the price settling at US$99 a pound in 2026.
- Price and volume growth are projected to lift Australian export values from A$1.3 billion in 2023–24 to A$1.7 billion by 2025–26.

9.2 World consumption

Demand for energy leading to reactor construction and life extensions

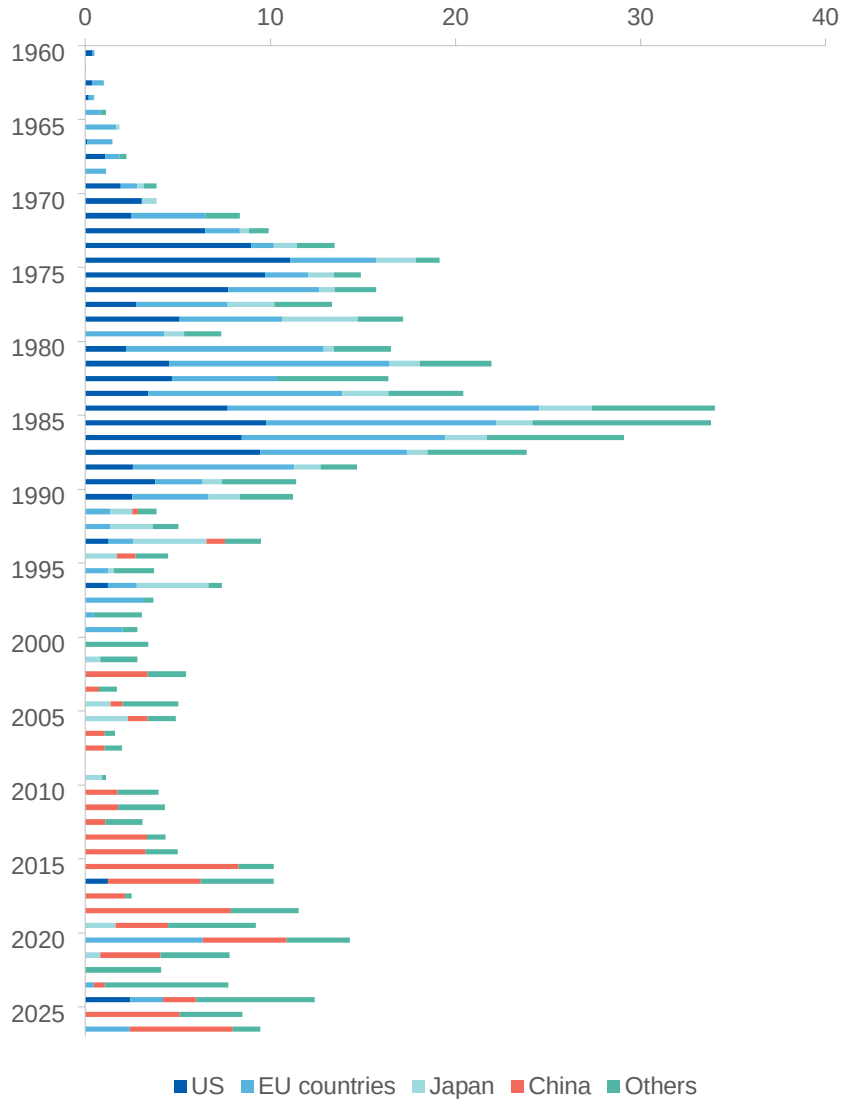
Globally, uranium is primarily used to generate energy in nuclear reactors. Reactors typically consume a relatively steady quantity of uranium over time, replacing a portion of their fuel load each year. New reactors have a much higher initial demand as they need to be supplied with a full fuel load in advance before they commence operation. The pace of reactor construction is therefore a significant driver of uranium demand.

Worldwide reactor demand is forecast to be 95 kt of U3O8 (unenriched uranium oxide concentrate) in 2024 (excluding inventory build), before falling slightly to 92 kt in 2025 then rising again to 95 kt in 2026.

In addition to increasing nuclear energy demand in Asia, there has been renewed interest in nuclear power in Eastern Europe (see Figure 9.1). The Czech Republic is expanding its nuclear energy capacity. Currently, it is offering a tender for 4 units to expand the size of its reactor fleet from 6 to 10. In addition, construction on the first Westinghouse AP1000 reactor has begun in Ukraine. Further, World Nuclear News reports that the Ukrainian Cabinet put forward draft legislation in April for the construction and completion of two reactors which began construction in 1987, but were never completed. Ukraine's Energy Minister has stated these could come online within the next few years.

In addition to new reactor constructions the renewed appetite for nuclear power has resulted in several reactor life extensions and restart projects,

Figure 9.1: Nuclear power generation capacity completed by year (GWe)



Source: International Energy Agency (2024); World Nuclear Association (2024); Department of Industry, Science and Resources (2024)

notably in Japan and Canada. In Canada, there have been moves to extend the life of four of its CANDU reactors. The reactors are due to close in 2026 but the extension would extend their lives by 25 years. Combined, the 4 reactors have a total capacity of 2000 MWe. Japan is in the process of restarting the reactors shut down in the years following the incident at Fukishima in 2011. So far 12 reactors have been restarted, with a further 2 making progress towards restart which will increase Uranium Demand

9.3 World production

Production is growing, however a market deficit remains

There are primary and secondary supplies of uranium available to the global market. Primary supply comes from mines where uranium is extracted. Secondary supplies include draws from commercial inventories, re-processors, recyclers, and enricher sales. Secondary sources make up the difference between demand and primary production.

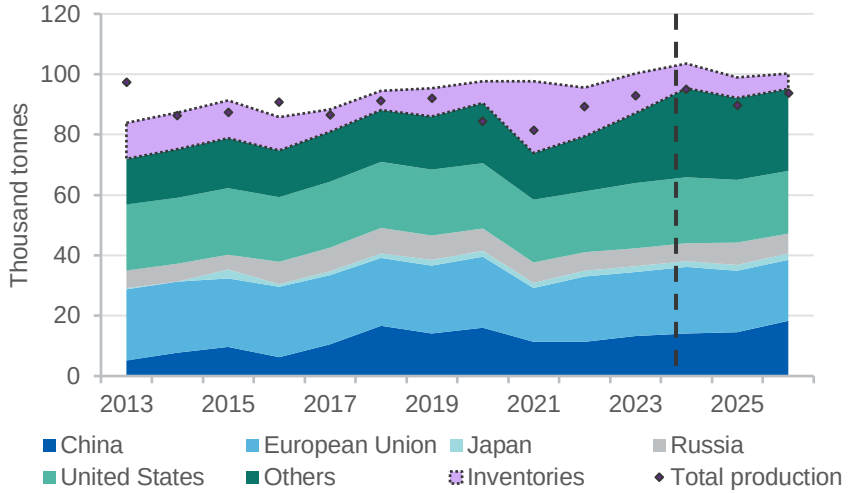
Recent uranium price gains reflect a market shortfall linked to years of global under-investment. World supply has picked up and new mines are being considered, but shortfalls in supply are still expected (Figure 9.3).

Uranium mining in South America is expanding. The Santa Quitéria mine could receive environmental approvals this year. In the early part of 2024 Paladin Energy announced that it has restarted production in Langer Heinrich in Namibia (the world's 3rd largest uranium mine). The mine was put into care and maintenance 6 years ago.

Mixed effects on secondary supplies

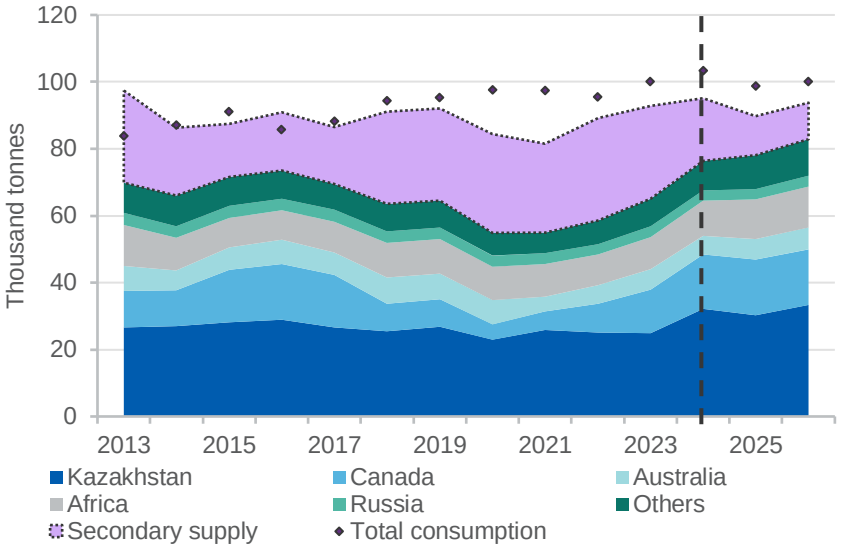
Enrichment plants can allocate capacity to either standard production of nuclear fuel, or 'underfeeding', a form of secondary production in which fuel is produced with lower quantities of natural uranium. They can then sell on excess natural uranium on the open market. Following the Fukushima incident there was a global loss in appetite for nuclear power. At that time, the sales by enrichers rose as excess capacity increased. As demand for fuel increases and spare enrichment capacity falls in the coming years, less underfeeding can take place, and thus there will be a reduction in the available secondary supplies from enrichers.

Figure 9.2: World uranium consumption and inventories (U3O8)



Source: International Energy Agency (2043); World Nuclear Association (2024); Ux Consulting (2023)Figure 9.3: World uranium output (U3O8)

Figure 9.3: World uranium Output (U3O8)



Source: International Energy Agency (2024); World Nuclear Association (2024); Ux Consulting (2023)

Another major emerging component of secondary supply is recycled reactor fuel. The recycling of fuel can produce MOX (mixed oxide) and RepU (reprocessed uranium) fuels that can displace natural uranium demand. France's Ministry for Industry recently announced it intended to build MOX and RepU plant. In 2023, France fuelled a reactor entirely with recycled fuel for the first time. Currently, 10% of France's nuclear power is produced with recycled MOX. French company Orano has signalled this could rise to 25%. Similarly, Japan has plans to have 12 reactors running on MOX fuel by 2030, reducing Japanese demand for primary uranium.

9.4 Prices

Steady gains expected as structural shortfall persists

Prices rose to reach a short-term peak in the March quarter 2024, hitting US$105/lb. Prices have since fallen and steadied around US$90/lb. The price surge in the March quarter followed the announcement by Kazatomprom – the world's largest uranium producer – that it would not meet the upgraded production targets for 2024 and 2025 due to sulphuric acid shortages.

Over the outlook higher prices are likely to incentivise the development of new mines and increased output from existing mines, however, this is unlikely to be sufficient to meet the projected supply shortfall. With a primary market shortfall expected to persist, prices are projected to remain high and to continue rising through till 2026 as inventories and existing mine capacity come under pressure.

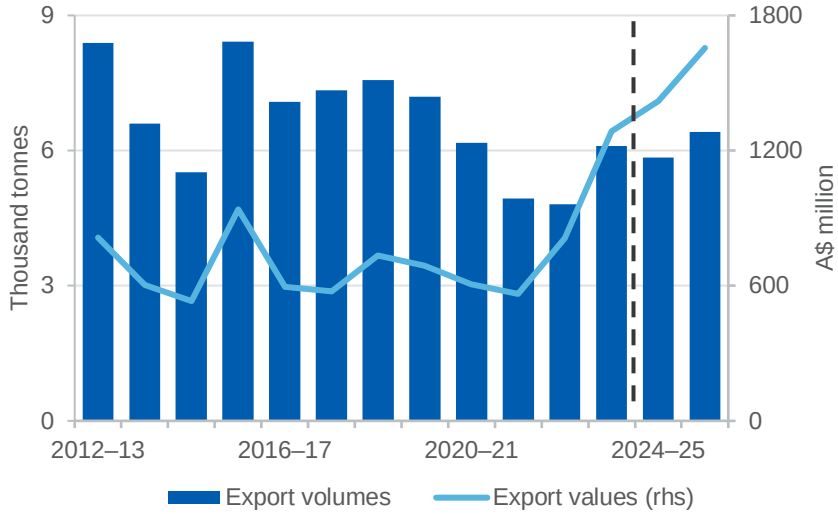
Kazakh export risks largely mitigated by trade route diversification

A large proportion of Kazakh uranium due for Western nations formally shipped via St Petersburg. Due to sanctions on Russia, there were concerns that exports may be disrupted. These risks have been largely resolved, with 64% of shipments due for Western nations now travelling via the Trans-Caspian International Transport Route. The diversification of trade routes should reduce the risks associated with a significant amount of western uranium transiting via St Petersburg.

Figure 9.4: Uranium price outlook

Source: Cameco Corporation (2024) Uranium Spot Price; Ux Consulting (2024) Uranium Market Outlook

Figure 9.5: Australia's uranium exports



Source: Department of Industry, Science and Resources (2024)

9.5 Australia

Higher prices and volumes are set to boost export earnings

Australia's uranium exports are currently produced at the Four Mile and Olympic Dam mines in South Australia. Boss Energy's newly reopened Honeymoon mine (also in South Australia), recently announced that they expect their first uranium sale to occur in July 2024 and plan to ramp up production to an annual nameplate capacity of 1.2 kt by 2026. The ramp-up at Honeymoon are expected to push Australia's export earnings up to about $1.4 billion in 2024–26 (Figure 9.5), with exports forecast at $1.7 billion in 2025-26.

Revisions to the outlook

Since the March 2024 *Resources and Energy Quarterly*, the forecast for Australia's uranium export earnings have been revised down by $210 million to $1.4 billion in 2024–25, and down $250 million to $1.7 billion in 2025-26.

Table 9.1: Uranium outlook

						Annual percentage change		
World	Unit	2023	2024 [f]	2025 [f]	2026 [f]	2024[f]	2025[f]	2026 [f]
Production	Kt	65.5	70.1	77.7	82.8	6.9	11.0	6.6
Africa [b]	Kt	10.2	10.5	11.7	12.2	2.3	11.7	4.1
Canada	Kt	13.0	16.3	16.7	16.6	25.9	2.0	-0.5
Kazakhstan	Kt	24.9	25.6	29.9	33.2	3.0	16.7	11.0
Russia	Kt	3.2	3.1	3.1	3.2	-3.1	0.0	5.9
Consumption	Kt	87.0	95.4	92.1	95.1	9.6	-3.4	3.3
China	Kt	13.2	14.1	14.6	18.3	6.9	3.6	25.2
European Union 28	Kt	21.2	22.0	20.3	20.3	3.8	-7.8	0.0
Japan	Kt	2.0	2.0	2.0	2.0	0.0	0.0	0.0
Russia	Kt	6.0	6.0	7.3	6.6	0.0	21.2	-9.5
United States	Kt	21.5	21.8	20.8	20.8	1.2	-4.7	0.0
– nominal	US$/lb	62.5	92.8	98.0	101.4	48.4	5.7	3.4
– real [c]	US$/lb	64.4	92.8	96.1	97.4	44.1	3.6	1.4
Australia	Unit	2022–23	2023–24 [s]	2024–25 [f]	2025–26 [f]	2023–24 [s]	2024–25 [f]	2025–26 [f]
Production	t	5,873	6,028	5,842	6,417	2.6	-3.1	9.8
Export volume	t	4,809	6,096	5,842	6,417	26.8	-4.2	9.8
– nominal value	A$m	812	1,259	1,411	1,697	55.1	12.1	20.3
– real value [d]	A$m	845	1,259	1,368	1,602	49.1	8.7	17.1
Average price	A$/kg	168.7	206.5	241.5	264.5	22.4	16.9	9.5
– real [d]	A$/kg	175.6	206.5	234.2	249.6	17.6	13.4	6.6

Notes: **b** Includes Niger, Namibia, South Africa, Malawi and Zambia; **c** In 2024 US dollars; **d** in 2023–24 Australian dollars; **s** estimate; **f** forecast; **r** Annual growth rate; **z** Projection.
Source: Department of Industry, Science and Resources (2024); Cameco Corporation (2024); Ux Consulting (2024) Uranium Market Outlook

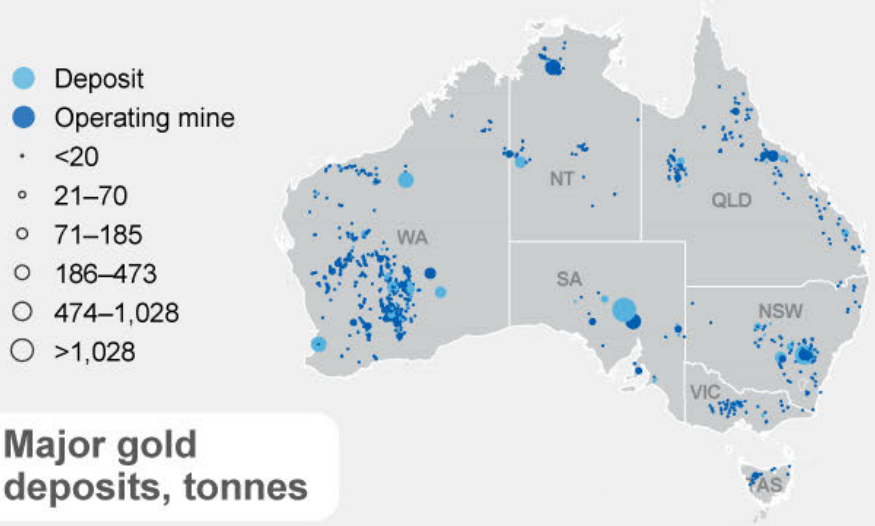
Gold

Australia's gold sector

World's 3rd
largest **producer** of gold, 2022

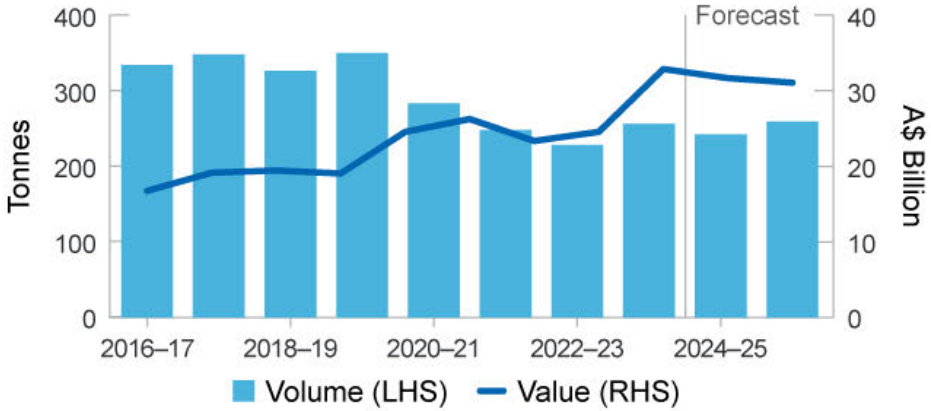
22%
of gold resources, the **largest** global share

228 tonnes
exported in 2022-23, valued at **$24 billion**



Major gold deposits, tonnes

Australian gold exports



Outlook

Due to demand, prices expected to **remain elevated** in 2024–25, ease slightly in 2026

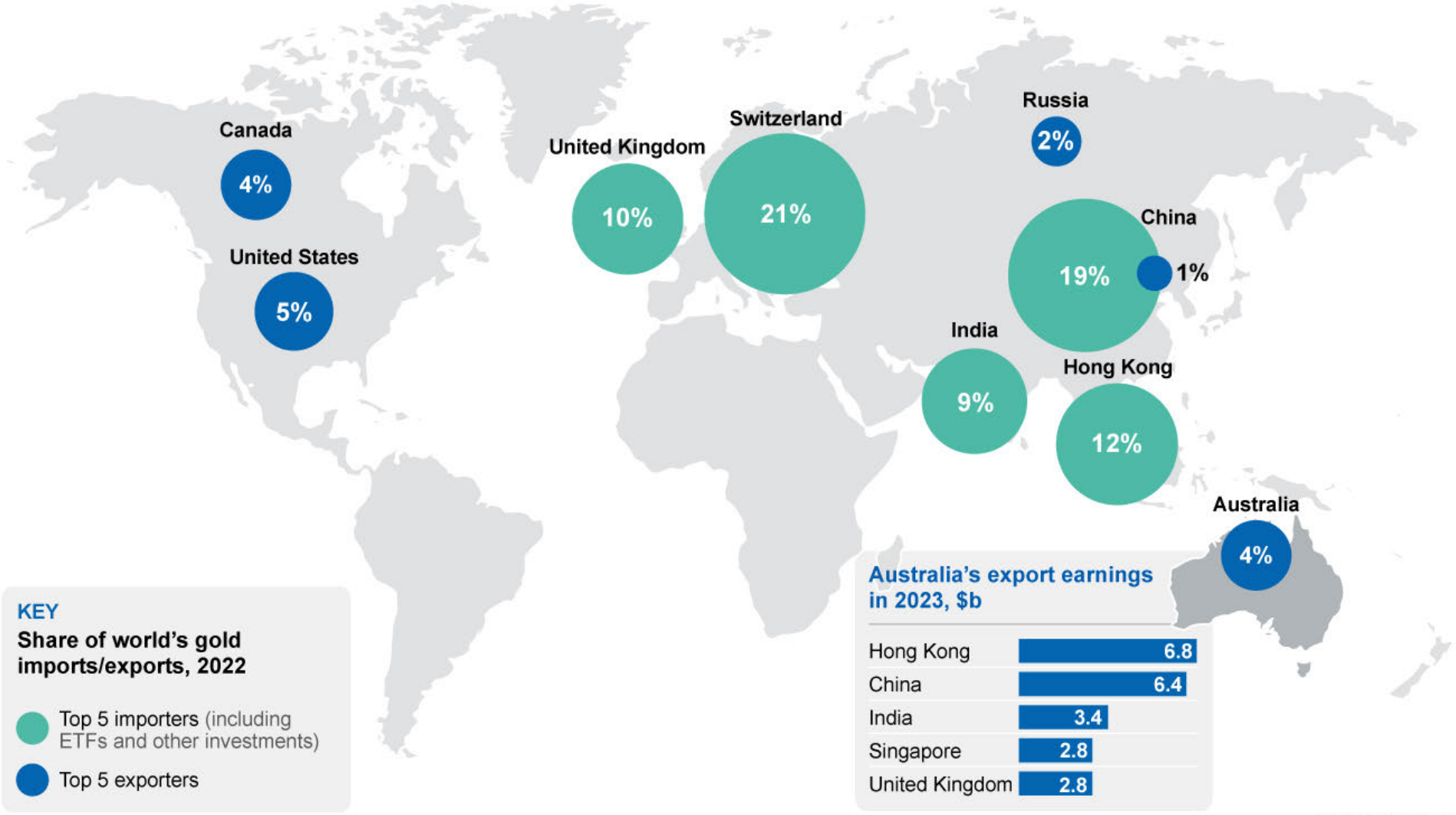
Australian export earnings forecasted to remain elevated, with record **$33b**, 2023–24

Production to **increase** as new projects and expansions come online

Exploration spending at a **4-year low**, following record highs in 2022

SOURCE: GA; DISR; OCE

Gold TRADE MAP



SOURCE: UN ITC; ABS

Note: Reflects trade in HS code 7108 (gold, inc. gold plated with platinum, unwrought or not further worked than semi-manufactured or powder form)

10.1 Summary

- Gold prices averaged about US$2,200 an ounce in the first half of 2024, up 15% year-on-year due to strong demand from investors and central banks. Prices are forecast to remain elevated throughout 2024 and 2025, before easing slightly in 2026.
- Australian gold production decreased by 4.0% year-on-year in the March quarter 2024, due to lower grades and disruptions from heavy rainfall. Production is forecast to grow over the outlook period as major new projects and expansions come online.
- Gold export earnings are expected to reach a record $33 billion in 2023–24, easing to around $31 billion in 2025–26 as prices gradually decline from record levels in Australian dollar terms.

10.2 World consumption

World gold usage decreased in the March quarter 2024

World gold demand decreased by 5.3% year-on-year to 1,100 tonnes in the March quarter 2024. This fall was largely driven by a 28% decline in investment demand, with central bank demand continuing to be elevated.

Official sector (central banks and other government financial institutions) gold buying rose marginally year-on-year to 290 tonnes in the March quarter 2024 — a record March quarter total. Official sector demand has been strong since mid-2022, with purchases dominated by emerging market central banks eager to lift gold reserves to diversify their reserve portfolio and boost the liquidity of reserves.

According to World Gold Council data for declared gold purchases, Türkiye was the largest buyer, adding a reported 30 tonnes (or 6%) to its reserves. China continued to make significant purchases over the quarter, acquiring a reported 27 tonnes to bring gold reserves up to a total of 2,262 tonnes — up by 16% since reported purchases recommenced in October 2022. Other notable central bank purchases were reported for India (19 tonnes), and Kazakhstan (16 tonnes).

Gold purchases by non-government buyers were lower year-on-year in the March quarter 2024, with slight growth in technological applications offset by weaker investment demand, particularly in gold-backed exchange-traded funds (ETFs).

Investment in gold bars and coins increased by 2.8% year-on-year in the March quarter 2024, supported by record prices in major markets. Bar and coin investment in China rose sharply to a 7-year high of 110 tonnes. Demand was supported by a weaker Yuan and a weak and volatile performance from other asset classes (such as property and shares). Bar and coin investment rose strongly (by 19%) in India, supported by the continued weakening of the Rupee and the strong price outlook.

A total of 114 tonnes of gold flowed out of gold-backed ETFs in the March quarter 2024, following 245 tonnes of outflows in 2023. (ETF outflows are counted as reducing gold demand, while inflows are counted as additional.) Demand for gold ETFs remained weak in Western markets due to high bond yields and stronger currencies, while ETFs have continued to grow in Asia — especially in China.

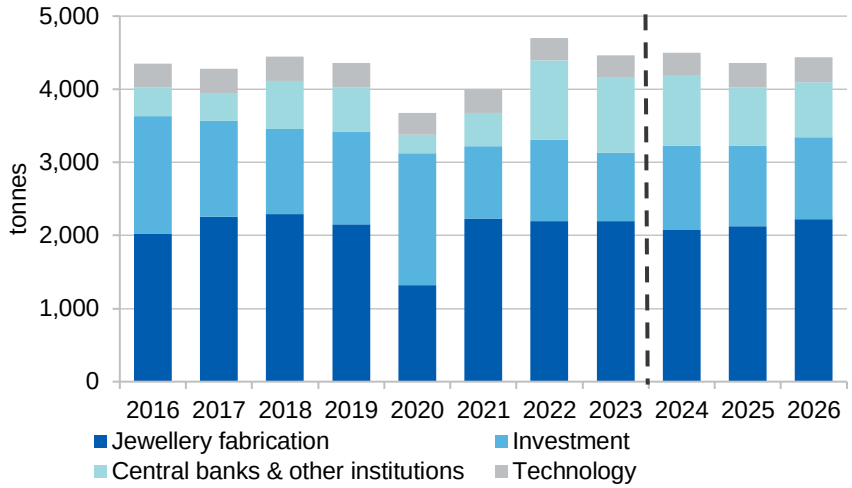
Global gold jewellery demand declined by 2.0% year-on-year in the March quarter 2024. Jewellery consumption fell in volume terms due to record domestic prices in many markets — particularly China. However, consumer demand was still strong, as indicated by 7% year-on-year growth in value terms to US$32 billion. Jewellery consumption in China fell by 6% year-on-year to 184 tonnes, with a price surge through March compounding the usual post-Lunar New Year lull in spending.

Demand for gold in technology increased by 10% year-on-year to 79 tonnes in the March quarter 2024. Recovery and growth in electronics demand (such as for AI-enabled consumer products) increased demand for gold in electronics such as light-emitting diodes and memory chips.

Strong investment demand to drive gold consumption to a peak in 2024

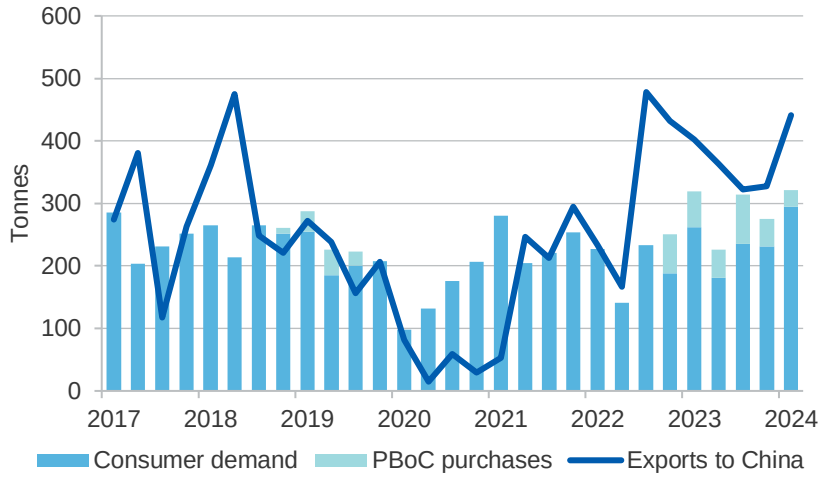
World gold consumption is forecast to rise by 1.9% to 4,500 tonnes in 2024 (Figure 10.1). This increase is expected to be mainly driven by growth in investment demand (particularly for gold bars and coins) and to a lesser extent, a rebound in consumer electronics demand.

Figure 10.1: World gold demand by sector



Notes: Investment includes ETFs, bars and coins. Technology includes gold used in the electronic, dentistry and other industrial sectors.
Source: DISR (2024); Metals Focus (2024); World Gold Council (2024)

Figure 10.2: Gold exports to China and demand within China



Notes: Consumer demand comprises jewellery, gold bars and coins. "PBoC" refers to the People's Bank of China.

Source: UN Comtrade (2024); World Gold Council (2024)

Official sector demand is forecast to ease to 950 tonnes in 2024, down by 8.4% from near-record levels in 2023. While central bank purchases have accelerated so far in 2024, this forecast decline is premised on the expectation that some central banks may reach near-term targets for increasing their gold reserves — following two record years of buying.

Investment demand (gold-backed ETFs or bar/coin holdings) is forecast to recover from low levels seen in 2023, to be 22% higher in 2024. Gold bar and coin demand is expected to continue at recent strong levels, offsetting weak demand for gold-backed ETFs in western markets. In emerging markets, ongoing economic and geopolitical uncertainty, currency volatility and poor performance of other assets (such as property and equities in China) will support physical gold demand over the forecast period.

Physical gold demand in China (from both consumers and the central bank) has been very strong so far in 2024, leading to significant gold imports (Figure 10.2). This is expected to continue in H2 2024, playing a key role in keeping prices elevated near record levels (see *Prices* section).

Jewellery consumption is forecast to decline by 4.2% to 2,080 tonnes by 2024. Robust consumer demand in key markets such as China and India is expected to be pressured by continued strength in gold prices, leading consumers to purchase less gold jewellery in volume terms.

World gold consumption is then forecast to decline by an average of 1.2% a year from 2024 to reach 4,700 tonnes in 2026. The decline will largely be driven by lower central bank purchases, as jewellery and technological fabrication increase in line with growing consumer demand.

Persistent strength in gold prices is expected to contain growth in jewellery consumption in 2025. From 2026, consumption will be supported by an expected easing in gold prices, improving consumer sentiment, and rising incomes — particularly in the key markets of China and India.

Investment demand is forecast to track relatively steady over the outlook period. Monetary easing in advanced economies throughout 2025 should drive renewed inflows into ETFs, however, high prices may also lead to some profit-taking in 2026. Institutional investors are expected to support

demand growth over the medium-term as they lift gold holdings to maintain portfolio balance, assuming equity markets resume long-term growth.

Official sector demand is forecast to ease further to 750 tonnes in 2026, continuing well above pre-2022 levels as emerging market central banks continue to diversify their reserves with gold. Historically, economic and geopolitical uncertainty have increased a country's propensity to increase gold reserves, as has the presence or threat of sanctions from major currency nations. Non-western economies have actively increased gold holdings in foreign exchange reserves since sanctions (and a freezing of Russia's offshore reserves) commenced following the invasion of Ukraine.

10.3 World production

World supply increased in the March quarter 2024

World gold supply increased by 2.6% year-on-year to about 1,240 tonnes in the March quarter 2024, driven by both higher mine production and increased recycling. Global mine production reached 890 tonnes in 2023, the highest March quarter total on record. Production growth was led by China, Canada, Indonesia and Ghana.

Production in China — the world's largest gold producing nation — rose marginally year-on-year to 86 tonnes in the March quarter 2024. The World Gold Council reported increased output from the key provinces of Shandong and Henan, while output from lower grade operations is expected to expand in response to high prices.

In Australia — the world's third-largest gold producing nation — output decreased by 4.0% year-on-year to 69 tonnes in the March quarter 2024. Production was lower due to disruptions from heavy rainfall in March, alongside decreasing mine grades and several mine closures.

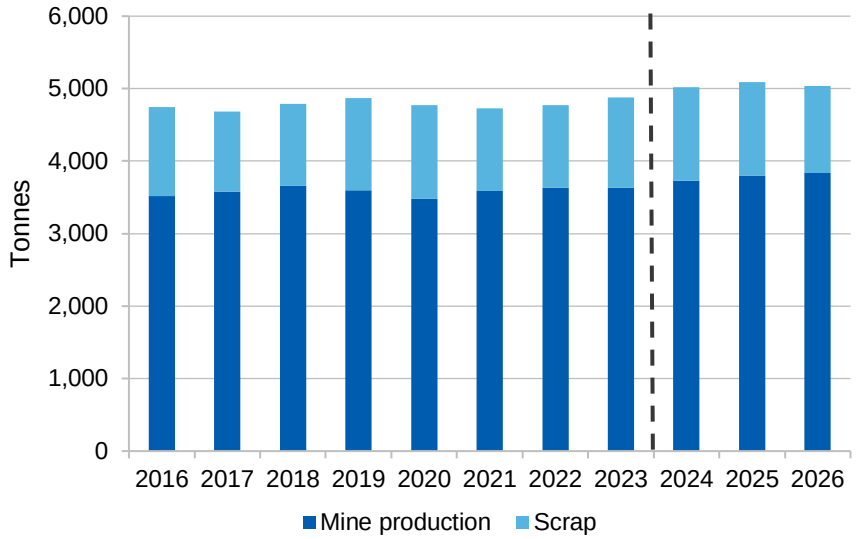
Production in Canada rose by 2.2% year-on-year to about 49 tonnes in the March quarter 2024, with higher production reported at Agnico Eagle's Meadowbank complex (up by 15% year-on-year) and Argonaut's Magino mine continuing to ramp up after initial production in June 2023. Output in Ghana is estimated to have risen by 15% year-on-year as operations improved at the Ahafo mine (following outages to the mine's processing facilities). Indonesian output is also expected to have risen by about 14% year-on-year due to a rise in output from the Grasberg mine.

Gold recycling increased 12% year-on-year to 351 tonnes in the March quarter 2024 — the strongest March quarter total in 10 years — largely due to record gold prices in China. Recycling activity outside of China was weaker than expected given the higher prices. This is possibly the result of high levels of recycling in recent years — which has limited the stocks of jewellery ready for recycling — or because consumers in nations with a high degree of economic or geopolitical uncertainty (such as Egypt, Iran and Türkiye) now prefer to hold onto their gold as a safe-haven asset.

World gold supply to peak in 2025 as new projects come online

World gold supply is forecast to rise on average by 1.6% a year from 2023, peaking at 5,090 tonnes in 2025. Increasing world gold mine production will be supported by further strength in recycling activity (Figure 10.3).

Figure 10.3: World gold supply



Source: DISR (2024); Metals Focus (2024); World Gold Council (2024).

Gold recycling activity is forecast to rise to 1,290 tonnes in both 2024 and 2025, in line with what is expected to be the peak in gold prices. World gold mine production is forecast to rise by 2.2% a year on average by 2025 to 3,800 tonnes, led by gains in Canada, the US, Chile and Brazil.

In the short-term, Newmont's 4 tonnes per year Peñasquito mine is expected to return to full production following lower production in 2023 (due to industrial action). Gold Fields' 10.9 tonnes per year Salares Norte project delivered first gold on 28 March and will ramp up to steady state production within the forecast period.

Canadian mine output is forecast to rise by 24% from 2023 to 2025, to reach 249 tonnes, driven by significant new projects and expansions. Gains will include the 11 tonnes per year Côté project and the 10 tonnes per year Blackwater project, both commencing operations.

World gold supply is projected to ease slightly in 2026 to around 5,040 tonnes, as recycling volumes ease in line with lower forecast prices.

Continued industry consolidation and environmental regulations in China

are expected to lead output lower in the medium-term, alongside reserve depletion and grade decline in current projects. With that said, China is still expected to be the world's largest gold producer over the outlook period.

10.4 Prices

Gold prices rose sharply to new records in the first half of 2024

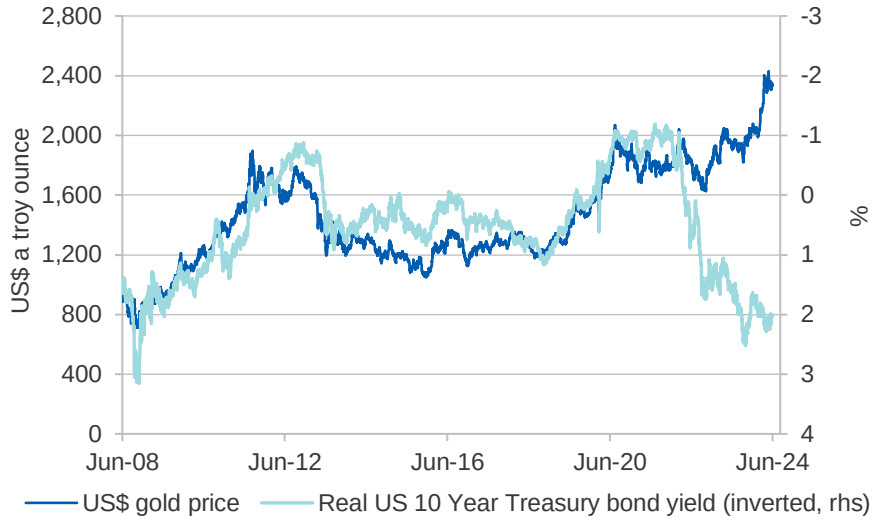
The London Bullion Market Association (LBMA) gold price is estimated to have averaged about US$2,200 an ounce in H1 2024 — 15% higher than in 2023. The gold price outperformed market expectations in the June quarter 2024, with prices reaching a record high of US$2,427 an ounce on 21 May. Price rises were broadly driven by strong gold demand from emerging market central banks and safe-haven investment — given geopolitical risks such as escalations in the Middle East.

Rising bond yields have historically tended to decrease gold's appeal to institutional and retail investors as a secure asset to hedge against inflation or other risks. This is because increases in the yield of a US Treasury (or other credible government bond) increases the so-called market "risk-free rate", and hence the opportunity cost of holding gold (pushing prices down). However, the relationship between real (inflation compensating) bond yields and gold prices weakened sharply following the Russian invasion of Ukraine — as prices were lifted by heightened safe-haven demand for gold (Figure 10.4).

As a result of this, gold price movements through 2022 and 2023 followed more of a relationship with the US dollar (Figure 10.5). This co-movement dislocated entirely in mid-February 2024 as geopolitical risks increased safe-haven demand while central bank demand continued to be strong.

Gold's significant out-performance, given rising bond yields and a strong US dollar, can also be attributed to physical gold demand in China. Combined with the effects of persistent purchases by the People's Bank of China, domestic gold price premiums (domestic prices relative to prices outside of China, adjusted for exchange rates) rose sharply over the first half of the year. Strength in gold demand, combined with elevated risks driving safe-haven investment, further weakened the relationship between

Figure 10.4: Gold price and real US 10-Year Treasury yield



Source: Bloomberg (2024); LBMA (2024) Gold price PM

gold prices and traditional drivers such as bond yields and the US dollar.

Gold prices to remain near record levels in 2024 and 2025 before easing

Gold prices are forecast to average about US$2,230 an ounce in 2024 — a 10% upward revision compared with the March 2024 *Resources and Energy Quarterly*. Prices are forecast to remain steady just below the record level of the June quarter 2024, based on a scenario where monetary easing commences by the end of the year in the US and other major economies. In this scenario, investor demand is expected to be strong over H2 2024, as bond yields ease in anticipation of rate cuts.

Once monetary easing commences, gold prices are expected to receive continued support through 2025, as the US dollar eases and investors gain greater clarity on the pace and scale of further rate cuts. Gold prices are forecast to average US$2,200 an ounce in 2025, an 8.7% upward revision from the March 2024 *Resources and Energy Quarterly* driven by strength in safe-haven demand and higher forecast central bank demand.

After 2025, gold prices are forecast to gradually ease to around US$2,000 an ounce by the end of 2026 (Figure 10.6) as monetary easing cycles near completion and safe-haven demand eases. A geopolitical risk premium is expected to persist over the forecast period to a greater extent than was expected in the March 2024 *Resources and Energy Quarterly*.

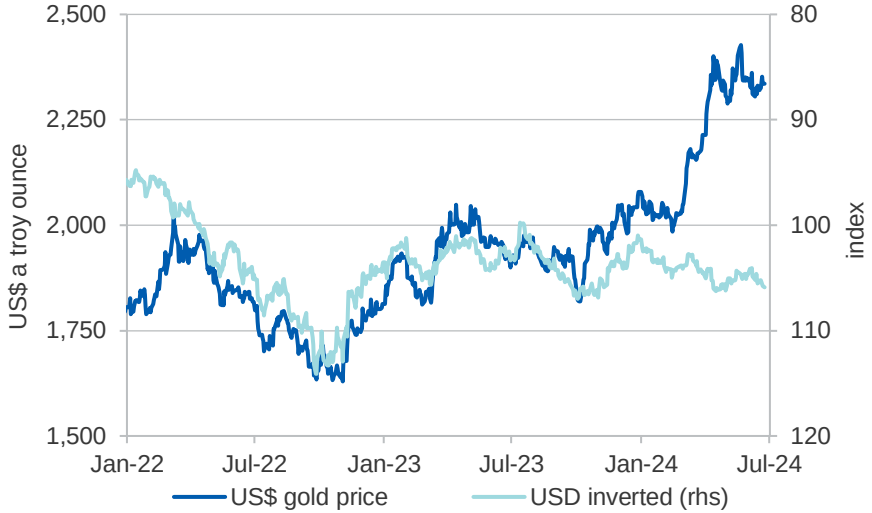
In combination with an assumed appreciation in the Australian dollar against the US dollar, the Australian dollar gold price is projected to decline over the forecast period, from around A$3,400 an ounce in 2024 to around A$2,900 an ounce in 2026 (Figure 10.6).

10.5 Australia's trade, production and exploration

Australian gold exports rose in the March quarter 2024

Australia's gold exports rose by 41% year-on-year to $8.5 billion in the March quarter 2024, a record in nominal terms. The gain was driven by higher gold prices and a weaker Australian dollar (export unit value up by 26%) and a 12% year-on-year increase in export volumes.

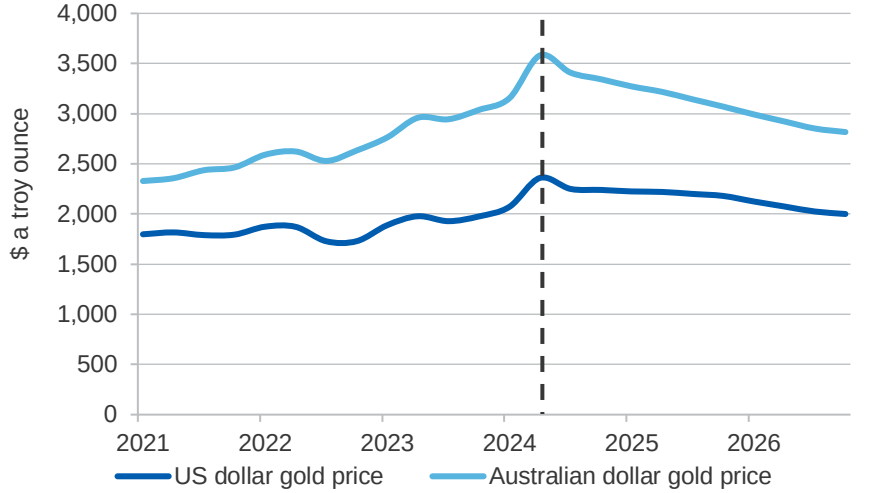
Figure 10.5: Gold price and the US dollar



Notes: USD refers to a trade-weighted index of the US dollar

Source: Bloomberg (2024); LBMA (2024) Gold price PM

Figure 10.6: US and Australian dollar gold prices



Source: DISR (2024); LBMA (2024) Gold price PM

Growth in Australian exports was driven by a doubling (102%) in export earnings to the financial hubs (US, UK, Switzerland, Hong Kong and Singapore), which collectively purchased $5.5 billion worth of gold. Within the financial hubs, exports to Hong Kong were particularly large, more than quadrupling to $3.7 billion. Among the key consumer markets, gold exports to China fell by 23% year-on-year to $1.6 billion, while exports to India fell by 43% year-on-year to $293 million.

Australian gold export earnings to decline as prices ease gradually

Australian gold export earnings are estimated to have risen by 34% to $33 billion in 2023–24. Growth was largely be driven by the strong increase in Australian dollar gold prices, 12% year-on-year growth in export volumes and a strong September quarter 2023 result (in both volume and price terms).

Export earnings are forecast to decline by on average 2.9% a year, to be just below $31 billion in 2025–26 (Figure 10.7). Declines in 2024–25 will be driven by lower forecast export volumes (in line with forecast mine production), partially offset by higher forecast Australian dollar gold prices. Export volumes are then projected to recover in 2025–26, however earnings are still expected to ease due to a forecast 8.4% decline in Australian dollar gold prices.

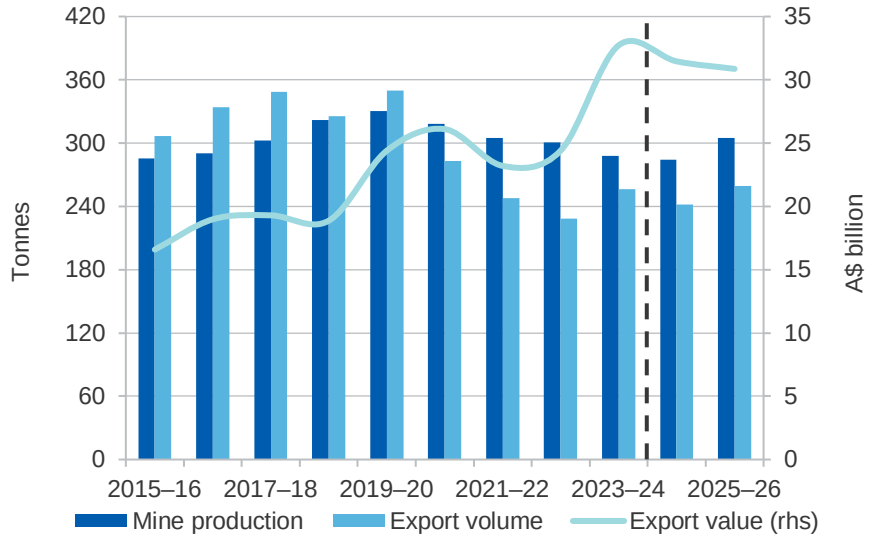
Australian gold mine production decreased in the March quarter 2024

Australia's gold industry produced 69 tonnes of mined gold in the March quarter 2024, down by 4.0% year-on-year. Year-on-year declines were the result of wet weather at several projects and lower grades due to mine sequencing at several major projects (Figure 10.8).

Production was lower at several major operations in the March quarter 2024, on account of planned mine sequencing.

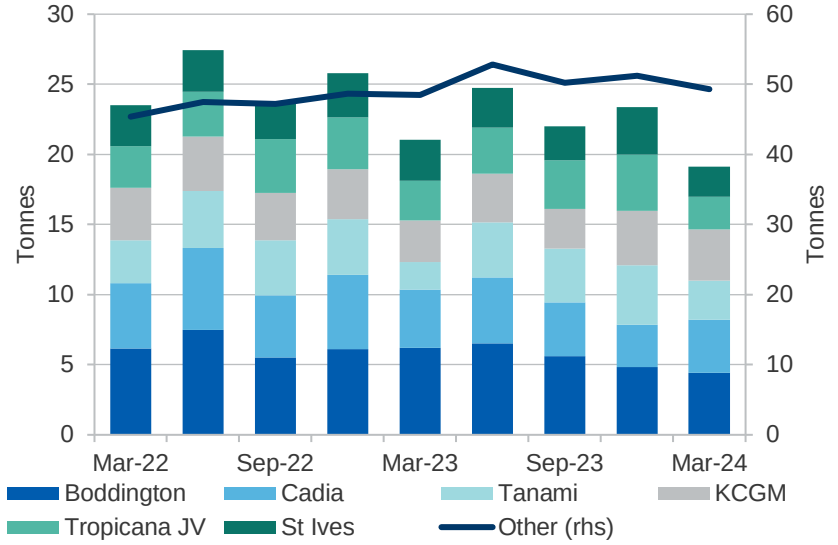
- Production at Newmont's Boddington mine in Western Australia (WA) fell by 29% year-on-year to 4.4 tonnes in the March quarter 2024, largely due to a planned mine sequencing campaign resulting in higher strip ratios.

Figure 10.7: Australian gold exports and mine production



Sources: ABS (2024); DISR (2024)

Figure 10.8: Production from major Australian gold projects



Sources: DISR (2024)

- Production at Agnico Eagle's Fosterville operation decreased by 35% year-on-year to 1.8 tonnes due to lower planned ore grades.

Meanwhile, sequencing to new higher-grade ore bodies at other projects led to improvements in production levels.

- Production at Northern Star's KCGM operation in WA was up by 21% year-on-year in the March quarter 2024, at 3.6 tonnes. Improved production was largely the result of improved ore grades following the commencement of mining activities from the Golden Pike North cutback in the open pit and the Fimiston Underground.
- Production at Evolution Mining's Cowal operation in NSW increased by 5.9% year-on-year to 2.4 tonnes, as higher-grade ore output continued to ramp up from its new underground mine — with commercial production declared by the end of the quarter.

Heavy rainfall in Western Australian gold regions in March 2024 created substantial operational disruptions for some projects.

- Production at Regis Resources' and Anglogold Ashanti's Tropicana Joint Venture was 17% lower year-on-year at 2.4 tonnes, due to disruptions to power supply and road access from heavy rainfall. Rainfall in the region also led to disruptions at Regis' Duketon project, with production 12% lower year-on-year.
- Production at Gold Fields and Gold Roads Limited's Gruyere Joint Venture was also down by 22% year-on-year at 2.0 tonnes, with heavy rainfall flooding the primary access road (closed from 5 March to 30 April), cutting off supplies of reagents and diesel.

Australian gold production to be supported by major project expansions

Australian gold production is forecast to rise by 5.9% over the forecast period, from 288 tonnes in 2023–24 to 305 tonnes in 2025–26. Within this trajectory, the impact of significant new projects and mine expansions coming online will be offset in the short-term by mine closures and project delays — leading production to a short-term dip to 284 tonnes in 2024–25.

Production will continue to ramp up at recently commenced projects such as Pantoro's Norseman project, Calidus' Warrawoona Gold project and Bellevue Gold's namesake gold project. Genesis Minerals' 2.0 tonnes per year Ulysses project is under construction, with production expected to commence later in 2024. Westgold's 1.4 tonnes per year Great Fingall project continues to be developed and is also expected to achieve first production in H2 2024.

Northern Star's recently expanded Thunderbox mill ramped up to reach nameplate capacity in H2 2023, resulting in production increasing by 28% year-on-year to 5.9 tonnes. Further expansions to Northern Star's Thunderbox mill output are expected in 2024–25, as high-grade ore feed commences and mill optimisation continues.

Production from Newmont's Tanami and Boddington projects is expected to decline in 2024, due to lower ore grades (as part of planned mine sequencing). The company is on track to begin lifting Tanami's output from 2027, as its Tanami Expansion 2 project reaches completion.

Northern Star Resources' Super Pit gold operation is scheduled to begin a long-term expansion in 2024, rising to about 20 tonnes by 2025–26. In2023, Northern Star committed to a $1.5 billion mill expansion at KCGM to double processing capacity by 2029. The expansion will lift the Super Pit's output to 28 tonnes in 2028–29, up from 13 tonnes in 2022–23.

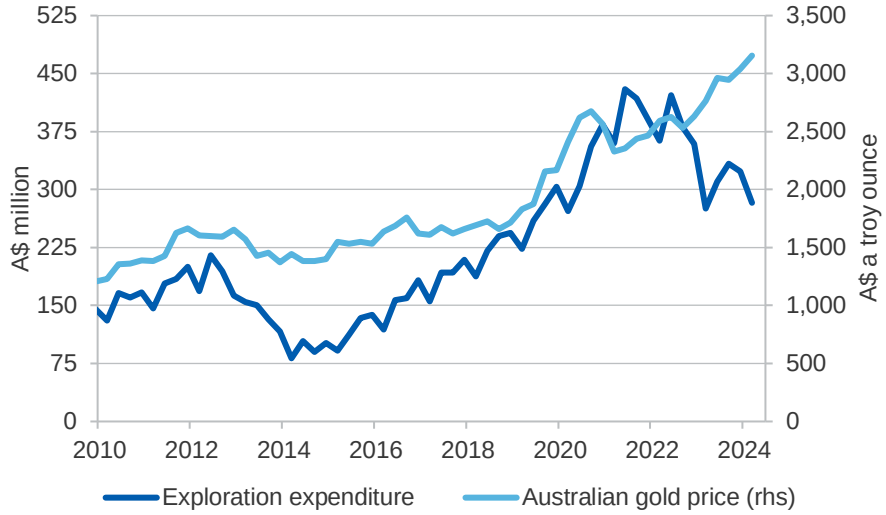
Early project implementation activities have commenced (following board endorsement of a definitive feasibility study) at De Grey Mining's Hemi Gold Project, which is expected to come online in H2 2026 — subject to regulatory approvals. Hemi Gold Project is forecast to produce 17 tonnes per year on average in its first 5 years of operation.

Gold exploration weak given high prices in the March quarter 2024

Australia's gold exploration expenditure rose 2.5% year-on-year to $283 million in the March quarter 2024 (Figure 10.9). Gold's share of Australian mineral exploration expenditure rose to 31% in the March quarter 2024 after averaging 29% in 2023. This decline in exploration occurred despite record high Australian gold prices — which have

historically motivated high exploration expenditure. Western Australia remained the centre of gold exploration activity in Australia, accounting for 70% of total gold exploration expenditure.

Figure 10.9: Australian gold exploration expenditure and prices



Source: ABS (2024)

Revisions to the outlook

Compared with the March 2024 *Resources and Energy Quarterly*, Australia's forecast gold export earnings have been revised up across the board: 2024–25 up by $8.3 billion (36%) and 2025–26 up by $7.9 billion (34%). This largely reflects upgrades made to price forecasts: a rising exchange rate will detract from earnings, and export volumes were revised down in both 2024–25 and 2025–26.

Forecast US dollar gold prices have been revised up across the board, due to persistent strength on the demand side from investors and central banks. Combining this with a slightly weaker than expected AUD/USD, Australian dollar gold prices have been revised up over the outlook period.

Export volumes have been revised down by 2.4% in 2024–25 and by 2.2% in 2025–26. Export volume revisions have been made in line with changes to forecast mine production (with these forecast changes informed by new or revised company guidance).

Table 10.1: Gold outlook

World	Unit	2023	2024[f]	2025[f]	2026[f]	Annual percentage change 2024[f]	2025[f]	2026[f]
Total demand	tonnes	4,468	4,495	4,298	4,375	0.6	-4.4	1.8
Fabrication consumption [b]	tonnes	2,490	2,395	2,398	2,505	-3.8	0.1	4.5
Mine production	tonnes	3,636	3,730	3,800	3,840	2.6	1.9	1.1
Price [c]								
– nominal	US$/oz	1,943	2,230	2,206	2,056	14.8	-1.1	-6.8
– real [d]	US$/oz	2,000	2,230	2,163	1,975	11.5	-3.0	-8.7
Australia	**Unit**	**2022–23**	**2023–24[s]**	**2024–25[f]**	**2025–26[f]**	**2023–24[s]**	**2024–25[f]**	**2025–26[f]**
Mine production	tonnes	301	288	284	305	-4.3	-1.2	7.2
Exports								
– volume	tonnes	228	256	242	259	12.2	-5.7	7.2
– nominal value	A$m	24,406	32,721	31,459	30,862	34.1	-3.9	-1.9
– real value [e]	A$m	25,400	32,721	30,507	29,124	28.8	-6.8	-4.5
Price								
– nominal	A$/oz	2,721	3,180	3,310	3,032	16.8	4.1	-8.4
– real [e]	A$/oz	2,832	3,180	3,210	2,861	12.3	1.0	-10.9

Notes: **b** includes jewellery consumption and industrial applications; **c** London Bullion Market Association PM price; **d** In 2024 US dollars; **e** In 2023–24 Australian dollars; **f** Forecast; **s** Estimate.
Source: ABS (2024); Department of Industry, Science and Resources (2024); London Bullion Market Association (2024) gold price PM; S&P Market Intelligence (2024); World Gold Council (2024).

Aluminium

Australia's aluminium sector

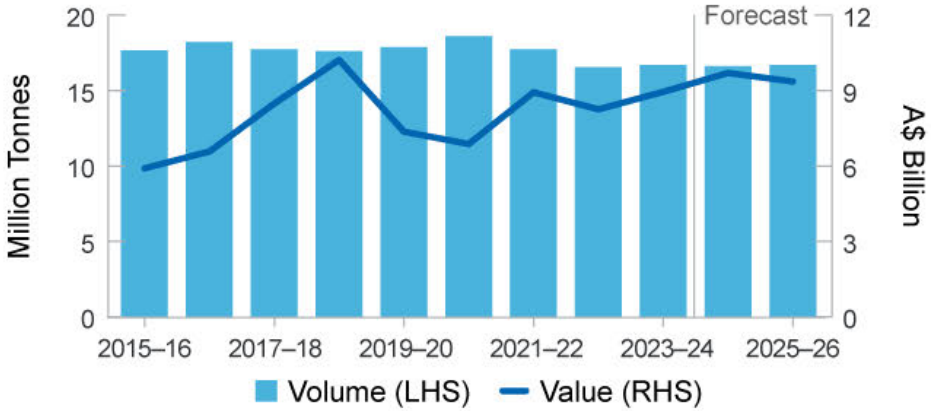
11%
of global primary aluminium exports are **Australian**

$16 billion
primary aluminium, alumina and bauxite **exported,** 2023

Over 98%
of Australian bauxite is **exported to China**

Major Australian bauxite deposits, Gt

Australian alumina exports



Outlook

Prices **set to rise** with Russian aluminium ban and possible rising US–China trade tensions

Australia's alumina exports set to reach nearly **$10 billion** in 2024-25

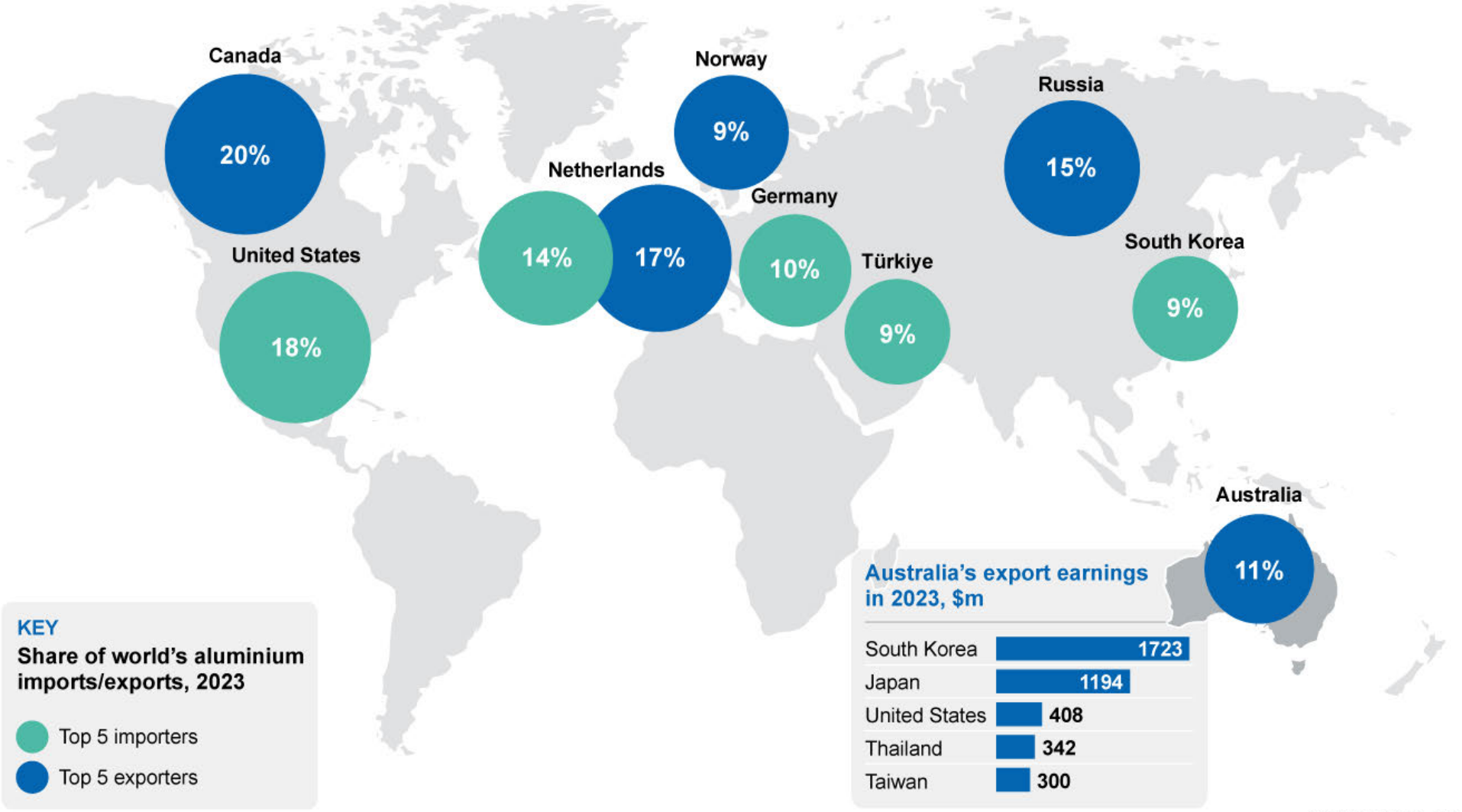
The Australian bauxite industry is on track to be a **$2 billion** export industry by 2024-25

Growing **global demand** for energy efficient cars and new tech support aluminium use & exports

*High Purity Alumina

SOURCE: DISR; OCE

Aluminium TRADE MAP



SOURCE: WBMS; ABS

11.1 Summary

- The London Metal Exchange (LME) primary aluminium spot price reached a two-year high in May 2024, as countries imposed sanctions on Russian aluminium exports. As the market adjusts to the ban and looks at the possibility of rising trade tensions between the US and China, aluminium prices are expected to rise over the outlook period (to end 2026).
- Australia's primary aluminium output is forecast to be 1.6 million tonnes (Mt) a year in 2024 and onwards. However, Alcoa's decision to curtail output at its Kwinana alumina refinery in WA by the end of the June quarter 2024 is likely to take Australian alumina output below 19 Mt a year. Mine expansions and new mines are expected to boost Australian bauxite output to 107 Mt by 2025–26.
- Higher aluminium prices and production ramp-ups at existing bauxite operations are likely to boost Australia's aluminium, alumina and bauxite exports to $18 billion by 2025–26.

11.2 World consumption

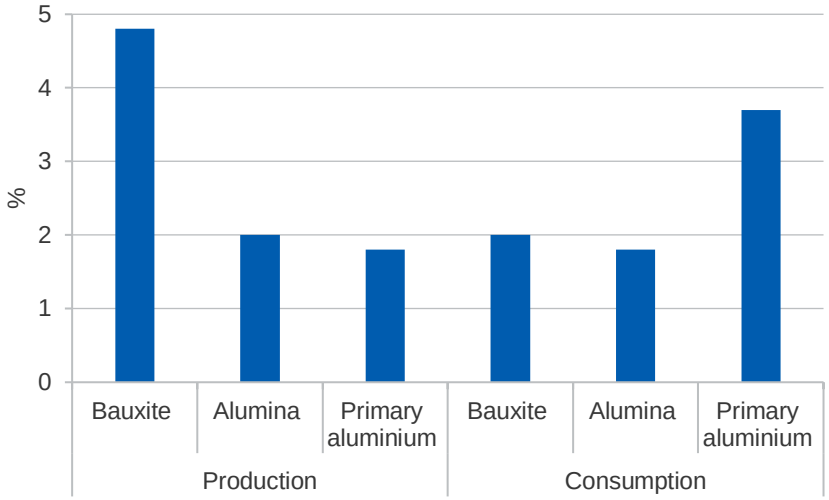
China led higher global consumption in the March quarter 2024

Global primary aluminium consumption rose by 5.5% year-on-year in the March quarter 2024 to 17 million tonnes (Mt), driven by a 6.4% year-on-year rise in Chinese primary aluminium consumption. Helping demand was strong passenger vehicle sales, with 5.68 million units sold in China in the March quarter 2024, up 11% year-on-year.

In Europe, subdued activity in the housing and construction sectors — the sectors worst affected by high interest rates — cut primary aluminium consumption by 5.6% year-on-year in the March quarter 2024. Italy and Greece's primary aluminium demand fell by 27% and 16% year-on-year in the March quarter 2024 to 154,000 and 87,000 tonnes, respectively.

World secondary aluminium consumption rose by 3.6% year-on-year in the March quarter 2024 to 6.5 Mt, as automotive makers in Asia, Europe, and the US sourced secondary — rather than primary — aluminium to cut input costs. In Asia, secondary aluminium usage in South Korea and Japan rose by 5.7% and 2.8% year-on-year in the March quarter 2024, respectively, while in the US, secondary aluminium consumption grew by 2.1% year-on-year. Amongst major European buyers, demand for secondary aluminium in Italy rose by 2.3% year-on-year in the March quarter 2024.

Figure 11.1: World aluminium/alumina/bauxite production and consumption, average year-on-year growth, 2025 to 2026



Source: World Bureau of Metal Statistics (2024); Wood Mackenzie (2024); Department of Industry, Science and Resources (2024)

World alumina consumption rose by 2.9% year-on-year to 34 Mt in the March quarter 2024. China remained the world's largest alumina consumer, accounting for 59% of global alumina usage, and drove most of the gain (up 3.4% year-on-year). Outside of China, alumina consumption in Canada and India rose by 6.0% and 1.9% year-on-year in the March quarter 2024, respectively.

World bauxite usage was virtually unchanged year-on-year in the March quarter 2024 at 86 Mt. China remained the world's largest bauxite consumer, accounting for 55% of global use.

Aluminium, alumina, and bauxite demand to rise over the outlook period

Strong growth in China's manufacturing sector lifts primary aluminium demand in 2024.

In an attempt to stabilise the property market, the Chinese Government is now encouraging local governments to buy unsold properties and turn them into affordable housing, is reducing deposits required from first home buyers, and has scrapped minimum interest rates on home loans. These initiatives are intended to lift confidence in the Chinese property sector. A recovery in this sector would drive up demand for aluminium, which is used intensively in the latter stages of construction.

On 21 June 2023, the Chinese Government's passenger electric vehicle (PEV) subsidy was extended to 2025, with half of this subsidy available until 2027. This extension will support aluminium demand from the Chinese automotive industry. Overall, world primary aluminium demand is forecast to rise by 4.8% year-on-year in 2024 to 72 Mt.

Beyond 2024, world primary aluminium consumption is forecast to grow at an annual average rate of 3.7% to 78 Mt by 2026 (Figure 11.1). Demand will be boosted by the rising sales of energy-efficient vehicles, which are more aluminium-intensive. In China, strong demand from the clean energy sector — where aluminium is used in the making of solar components and wind turbines — is expected to boost aluminium consumption. In Western economies, lower interest rates in 2025 and 2026 are likely to boost aluminium-intense housing and commercial building activity.

Rising primary aluminium prices and the use of low carbon aluminium are expected to boost secondary aluminium consumption. World secondary aluminium demand is forecast to rise by 3.6% year-on-year in 2024 to 26 Mt, and then by 4.9% a year over the outlook period to 2026.

Alumina demand is driven by primary aluminium production, which is forecast to lift by an average 1.8% a year between 2025 and 2026. In line with this, world alumina consumption is forecast to grow by 2.0% year-on-year in 2024 to 138 Mt.

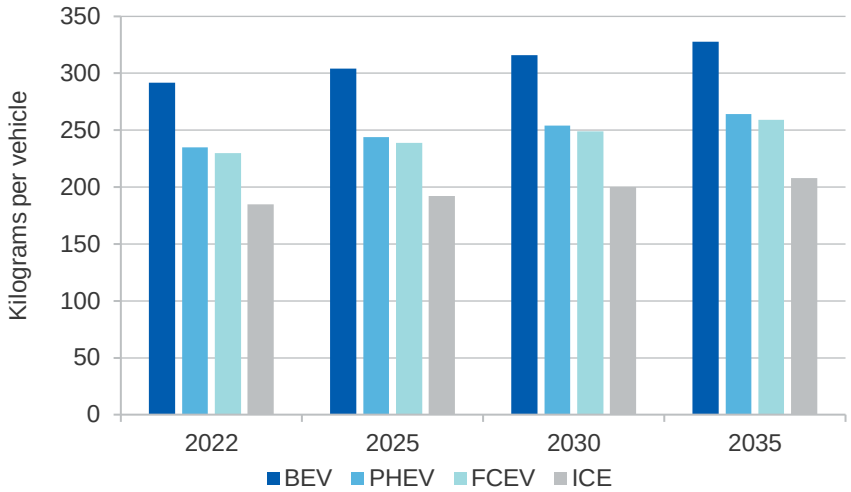
After 2024, world alumina demand is forecast to grow at 1.8% annually over the outlook period (Figure 11.1).

Global alumina production drives bauxite demand, which is projected to lift by an average 2.0% a year between 2025 and 2026. World bauxite use is forecast to increase by 1.1% in 2024 to 360 Mt, and then grow at an average annual rate of 2.0% over the outlook period to 2026 (Figure 11.1).

Energy transition provides opportunities for aluminium

The energy transition appears likely to provide enormous opportunities for the aluminium industry. Vehicle aluminium intensity — including electric vehicles (EVs) and internal combustion engine (ICE) vehicles — is projected to increase for the next 10 years. Aluminium usage per battery EV is projected to rise from 292 kilograms in 2022 to 328 kilograms in 2035. Aluminium usage per ICE vehicle is also projected to rise from 185 kilograms in 2022 to 208 kilograms in 2035 (Figure 11.2).

Figure 11.2: Aluminium intensity per vehicle



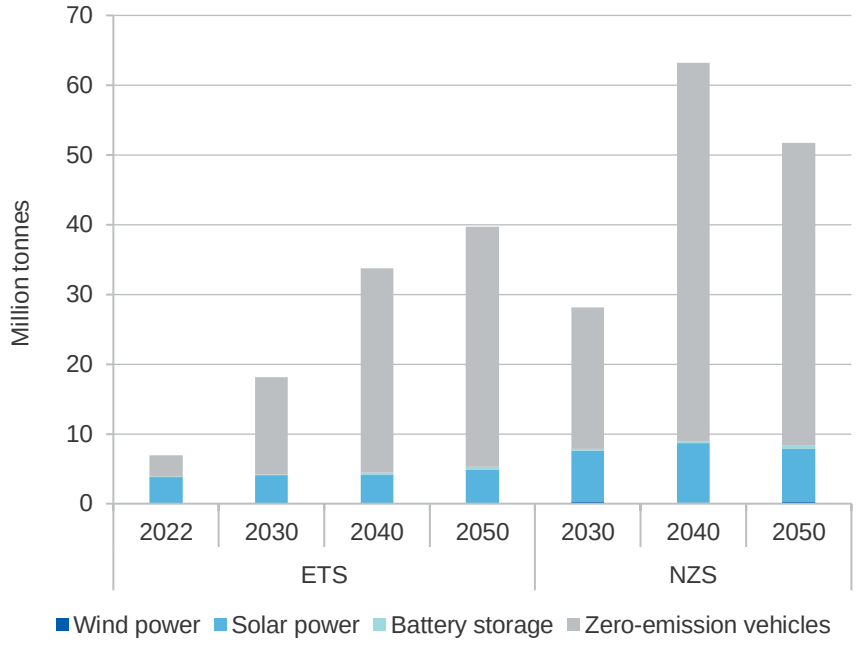
Notes: BEV: Battery electric vehicles, PHEV: Plug in hybrid electric vehicles, FCEV: Fuel cell electric vehicle, ICE: Internal combustion engine.

Source: BloombergNEF, *Transition Metals Outlooks* (2023)

Aluminium demand is expected to skyrocket over the period to 2050. Solar power and zero emission vehicles are expected to be the two largest contributors to rising aluminium demand in coming decades. Their combined demand for aluminium is projected to increase from 18 Mt in 2030 to 39 Mt in 2050 (under the ETS) and from 28 Mt in 2030 to 51 Mt in 2050 (under the NZS) (Figure 11.3).

It is estimated EV sales will rise from 14 million units in 2023 to over 26 million units in 2026. With an estimated average aluminium content of 292 kilograms per EV, aluminium usage in EVs is forecast to increase from 4.1 Mt in 2023 to 7.7 Mt in 2026.

Figure 11.3: Aluminium demand under economic transition and net zero scenarios



Notes: ETS: Economic transition scenario, NZS: Net zero scenario

Source: BloombergNEF, *Transition Metals Outlooks* (2023)

11.3 World production

Aluminium and alumina output grew in the March quarter 2024

World primary aluminium production increased by 2.9% year-on-year in the March quarter 2024 to nearly 18 Mt, propelled by higher output in China — the world's largest aluminium producer. China produced over 10 Mt of primary aluminium in the March quarter 2024, up by 3.4% year-on-year. In Europe, primary aluminium output in France and Romania increased by 102% and 16% year-on-year in the March quarter 2024, as smelters responded to higher demand and lower energy costs.

World secondary aluminium production decreased by 2.1% year-on-year in the March quarter 2024 to nearly 7.7 Mt, due to lower output from Germany and Italy. Over this period, Italy's secondary aluminium fell by 30% year-on-year, while Germany's secondary aluminium production fell by 24% year-on-year.

World alumina supply rose by 1.2% year-on-year in the March quarter 2024 to nearly 34 Mt, driven by higher output in Australia (refer *Australia section*) and Indonesia. Production in Indonesia rose by 34% year-on-year, as Indonesian refiners raised output to accommodate higher aluminium production.

World bauxite production fell by 5.9% year-on-year in the March quarter 2024 to 91 Mt, due to lower output in Guinea — the world's largest bauxite producer. Production in Guinea fell by 32% year-on-year in the March quarter 2024 to 20 Mt, with output affected by an explosion at the main fuel depots in December 2023. Over this period, production in Australia rose by 7.2% year-on-year to 25 Mt (see *Australia* section).

China drives higher aluminium, alumina and bauxite output

Production ramp-ups in China and India are expected to boost global primary aluminium output by 2.0% year-on-year in 2024 to 71 Mt. China's primary aluminium output is forecast to reach 42 Mt in 2024, up 2.2% year-on-year. Outside of China, primary aluminium production in India is forecast to increase by 2.0% year-on-year to 4.2 Mt in 2024.

After 2024, world primary aluminium production is forecast to rise by 1.8% a year over the outlook period, reaching 74 Mt by 2026. The gains will be driven by China, as more output is produced from greenfield aluminium smelters. China's primary aluminium production is forecast to reach over 43 Mt by 2026. This is close to the capacity cap of 45 million tonnes per year which was introduced by the Chinese Government in 2017 in response to environmental and oversupply concerns.

Ongoing challenges in Yunnan's hydropower supply pose downside risks to the Chinese aluminium production outlook. Yunnan is China's fourth largest aluminium producing province. On 16 April 2024, the Yunnan provincial authority issued a warning of extreme drought conditions in Yanshan county over the coming months. As a result, some local aluminium smelters have cut production by 10-40%.

In March 2024, the US Department of Energy awarded up to US$500 million to Century Aluminium under the Inflation Reduction Act. With the help of this funding, Century Aluminium plans to build the first new US primary aluminium smelter in 45 years.

In April 2024, Vinacomin (a Vietnamese state-owned miner) announced a plan to invest US$7.3 billion to ramp up its bauxite and alumina production to meet the rising demand for aluminium in Vietnam. The investment will go to two bauxite exploration projects and five refining projects in the central highland province of Dak Nong. The timeframe for completion of these projects is still unknown.

Higher output from China, the US and Europe is expected to contribute to a 4.0% year-on-year rise in global secondary aluminium output in 2024 to nearly 33 Mt (Figure 11.1). Output in China is forecast to increase by 5.1% year-on-year in 2024, the US (up by 6.2% year-on-year) and Europe (up by 2.8% year-on-year). After 2024, world secondary aluminium output is forecast to rise by 4.9% a year, reaching 36 Mt by 2026. Rio Tinto's 30,000 tonnes a year Arvida recycling facility in Quebec, Canada, is expected to be commissioned in the March quarter 2025.

Rising output from new and existing refineries in China and Indonesia is expected to bring global alumina output up by 2.3% year-on-year in 2024 to 143 Mt (Figure 11.1). Indonesian output is forecast to rise by 11% year-on-year in 2024 to 2.5 Mt, driven by the commencement of the 2 Mt a year Mempawah alumina refinery in H2, a joint venture between the China Aluminium Company and its Indonesian partners, PT Indonesia Asahan Aluminum and PT Antam Tbk.

After 2024, world alumina output is forecast to rise by 1.8% a year over the outlook period, reaching 148 Mt by 2026 (Figure 11.1). The gains are forecast to be driven by China and Indonesia. It is expected that eight new alumina refineries will be built in Indonesia in the coming years, with a total capacity addition of around 10 Mt.

Higher output from Australia — the world's second largest bauxite producer — is expected to push global bauxite output up by 0.9% year-on-year in 2024 to 395 Mt. Output from Guinea and Indonesia is expected to be lower in 2024. Growth has been affected in the short-term by an explosion at the main fuel depots in Guinea and by Indonesia's bauxite export ban. In 2024, Guinea and Indonesia's bauxite output are forecast to fall by 3.7% and 33% year-on-year, respectively.

After 2024, world bauxite production is forecast to increase by 4.8% a year, reaching 434 Mt by 2026 (Figure 11.1). Australia and Guinea are expected to contribute most to this rise. In Guyana, the expansion of Bosai Minerals Group's Metallurgical Bauxite Project is currently underway. Once completed, it will increase Bosai's bauxite production from 1 Mt to 3 Mt a year.

Green aluminium, alumina and bauxite

The push to lower the industry's carbon footprint continues in all stages of the sector, both in Australia and offshore.

In Brazil, the aluminium industry emits around 5.5 tonnes of carbon equivalent emissions per tonne of primary aluminium produced, much lower than the global average of 15 tonnes. The industry has plans to cut

these emissions further by increasing the use of renewable energy and more recycling. Hydro's subsidiary Hydro Rein commissioned a solar power plant in March 2024 to supply power to its Alunorte alumina refinery. The company is also developing a hybrid and wind power project to supply energy to both its Paragominas bauxite mine and Alunorte alumina refinery.

Bosnian aluminium firm Aluminij signed a deal with Glencore in May 2023 to build a 60 MW solar power project and aluminium recycling facility to produce green aluminium (green aluminium is made without the use of fossil fuels and may include recycled aluminium). The plant is expected to be commissioned in 2025.

Nissan Motors, a Japanese automotive maker, will use green aluminium from Kobe Steel for its mass-produced vehicles in the Japanese and North American markets in the fiscal year ending March 2024. Around 10% of the weight of Nissan's vehicles is made up of aluminium parts.

The future is recycled

The increasing use of low carbon aluminium and rising primary aluminium prices attribute to higher production and consumption of secondary aluminium. World secondary aluminium production and consumption are forecast to grow at an average annual growth rate of 4.6% and 4.5% between 2024 and 2026, respectively. The share of secondary aluminium production in global aluminium production is forecast to rise from 21% in 2023 to 24% in 2026.

The Austrian Institute of Technology is leading the European Union (EU) project *RecAL (Recycling Technologies for Circular Aluminium)*, which focuses on sustainability, the circular economy and resource efficiency in the aluminium industry.

In May 2024, Aluminium Bahrain — one of the world's largest aluminium smelters outside China — launched its low carbon aluminium product line with two variants: EternAl-30 and EternAl-15 with a 30% and 15% recycled content.

In the United Kingdom (UK), the aluminium packaging recycling rate hit 68% in 2023, to 162,357 tonnes. Over this period, the aluminium beverage can recycling rate was 81%, with more than four in five beverage cans collected and recycled.

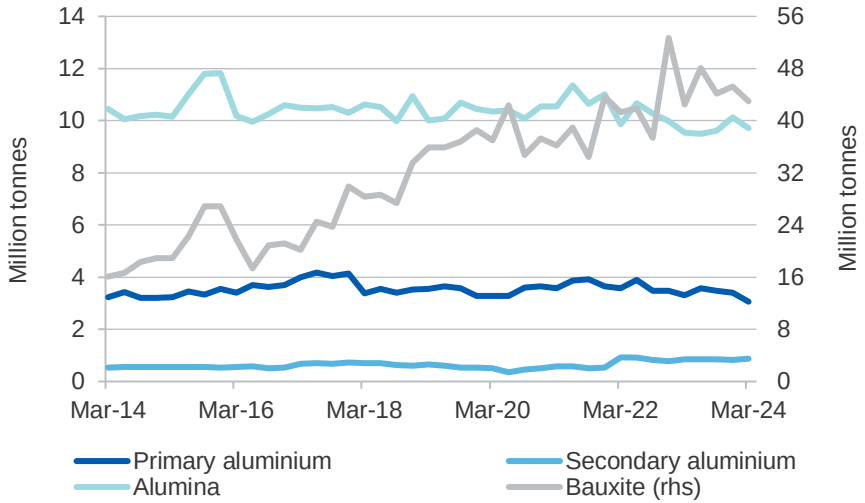
11.4 World trade

Higher alumina and bauxite exports in the March quarter 2024

World primary aluminium exports fell by 8.1% year-on-year in the March quarter 2024 to 3.0 Mt, largely due to lower exports from Russia (Figure 11.4). The fallout from Russia's invasion of Ukraine has continued with Russian primary aluminium exports declining by 88% year-on-year in the March quarter 2024 to 56,000 tonnes.

Offsetting the fall in aluminium exports from Russia were higher primary aluminium exports from Norway (up 25% year-on-year in the March quarter 2024) and Canada (up 21% year-on-year in the same period).

Figure 11.4: World aluminium, alumina and bauxite exports



Source: World Bureau of Metals Statistics (2024); UN Comtrade (2024); Department of Industry, Science and Resources (2024)

World secondary aluminium exports rose by 4.1% year-on-year in the March quarter 2024 to 880,000 tonnes, driven by higher exports from Europe (Figure 11.4). Exports from the Netherlands and Poland increased by 63% and 30% year-on-year in the March quarter 2024, respectively.

World alumina exports increased by 6.8% year-on-year in the March quarter 2024 to 10 Mt (Figure 11.4). Over this period, exports from Australia — the world's largest alumina exporter — rose by 17% year-on-year (see *Australian exports and production* section). Contributing to the rise in global alumina exports was an increase in exports from Indonesia, rising 34% year-on-year in the March quarter 2024.

World bauxite exports increased by 8.2% year-on-year in the March quarter 2024 to nearly 46 Mt (Figure 11.4). This was propelled by a 55% year-on-year rise in Australia (see *Australia's exports and production* section). Over the same period, bauxite exports from Guinea — the world's largest bauxite exporter — rose by only 0.5% year-on-year. Societe Miniere de Boke (SBM)-Winning, Guinea's leading bauxite producer and exporter, is planning to invest up to US$1 billion over the next 5 years to upgrade its terminals and buy more vessels to lift exports.

China's imports of primary aluminium rise

Higher imports by China led to an 8.7% year-on-year rise in global primary aluminium imports in the March quarter 2024 to 4.4 Mt. Over this period, China imported 758,000 tonnes of primary aluminium, up 244% year-on-year (Figure 11.6). Russian primary aluminium accounted for 58% of China's total primary aluminium imports. With low carbon aluminium produced from Siberian hydropower, Russian aluminium is attractive to Chinese buyers. Outside of China, US primary aluminium imports rose by 13% year-on-year in the March quarter 2024 to 759,000 tonnes.

Secondary aluminium consumption has declined in many European countries as a result of sluggish construction activity. In Italy, secondary aluminium imports in the March quarter 2024 fell by 17% year-on-year to 45,000 tonnes. Over the same period, secondary aluminium imports from Poland also fell by 9.9% year-on-year to 82,000 tonnes. As a result, global imports of secondary aluminium fell by 8.4% year-on-year in the March quarter 2024 to 855,000 tonnes.

Lower imports from Russia reduced global alumina imports by 1.1% year-on-year in the March quarter 2024 to 8.6 Mt. Over the same period, Russia imported 481,000 tonnes of alumina, down by 24% year-on-year. Russian imports fell as Russian domestic alumina output rose.

Higher imports from China and India led to a 7.3% year-on-year rise in global bauxite imports in the March quarter 2024. Over this period, China and India imported nearly 37 Mt and 2.4 Mt of bauxite, up 3.0% and 316% year-on-year, respectively.

In April 2024, the Guinean Government announced that it would prioritise local processing of bauxite, marking a strategic shift. Possible actions to support the development of a local refining industry include a ban on bauxite exports. It is unclear when any resulting changes from the policy shift will be implemented.

New sanctions on Russian aluminium

On 12 April 2024, the US and UK governments announced new sanctions banning the LME and the Chicago Mercantile Exchange from taking delivery of Russian aluminium produced after 12 April 2024. Russian warrants — the right to purchase Russian aluminium stocks — in existence at the end of 12 April 2024 can still be re-warranted at the same warehouse and moved between warehouses. Glencore bought US$1.1 billion of aluminium from Russian producer Rusal in 2023 as part of their long-term contract. The contract ends in 2024 with no new contract signed.

Russia is the world's second largest exporter of primary aluminium, accounting for 15% of global primary aluminium exports in 2023. The impacts of the ban to date appear to be large, with the share of Russian aluminium in LME on-warrant primary aluminium stocks reducing from 89% in April 2024 to 42% in May 2024 (Figure 11.5).

More Russian aluminium is expected to enter the Chinese market because of the bans. China's imports of Russian aluminium have been rising since

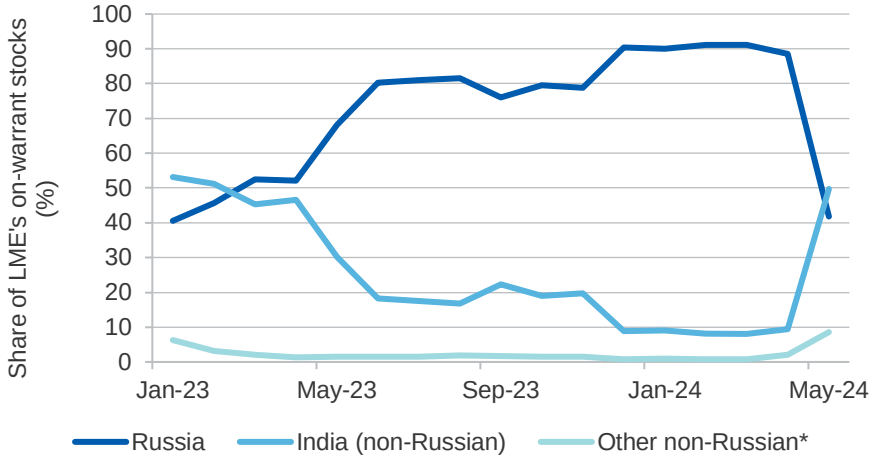
the March quarter 2022 (after Russia's invasion of Ukraine in February 2022). China's imports of Russian aluminium are not expected to slow down in the short term (Figure 11.6).

US announces increased tariffs on Chinese aluminium

On 14 April 2024, the US Government announced a tariff hike on some Chinese exports to the US, including a lift in tariffs on Chinese aluminium from the current rates of 0-7.5% to a new rate of 25% this year. The new tariffs are expected to have a minimal impact on China's aluminium exports, as the US only accounts for 0.2% and 1.3% of China's total primary aluminium and alumina exports, respectively (Figure 11.7). Escalating US-China tensions pose risks for further trade measures, adversely affecting global aluminium trade.

Theoretically, increased tariffs on Chinese aluminium imports provide incentives to US aluminium producers to upgrade technology or develop

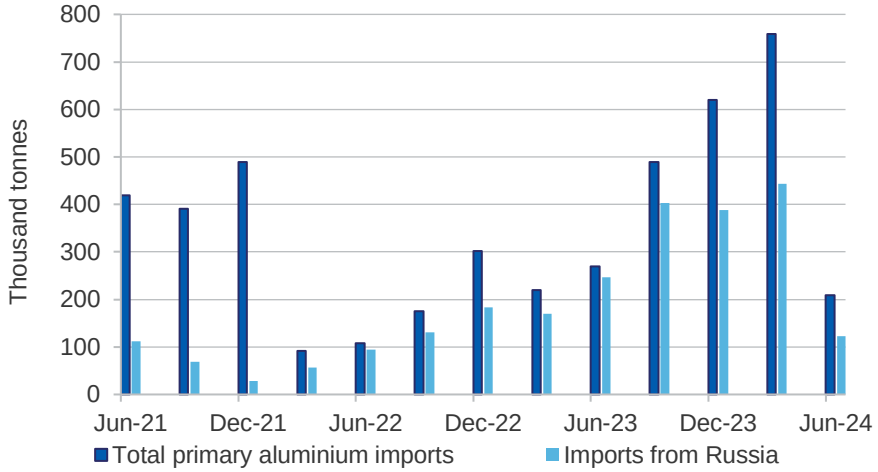
Figure 11.5: LME on-warrant primary aluminium stocks



Notes: Non-Russian includes Australia, Bahrain, Canada, India, Indonesia, Iran, Malaysia, Oman, Saudi Arabia, South Africa, the UAE and the US.

Source: London Metal Exchange (2024)

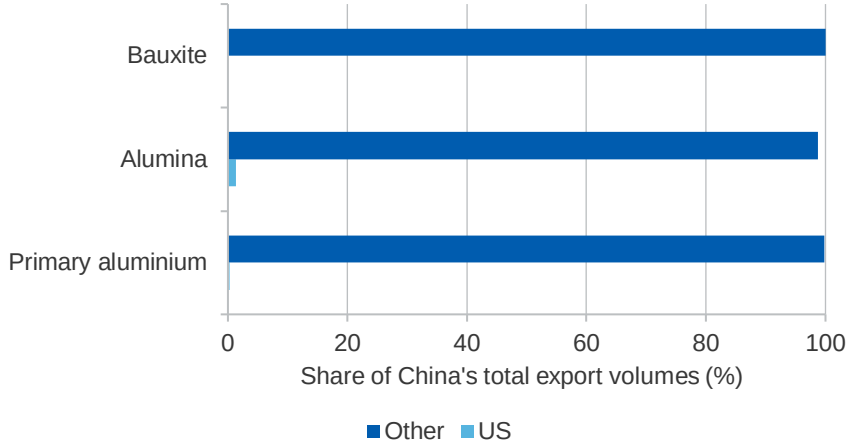
Figure 11.6: China's primary aluminium imports



Note: June quarter 2024 data only includes April

Source: China Customs (2024)

Figure 11.7: China's export to the US and the world, 2023



Source: International Trade Centre (2024)

new capacity. However, such upgrades would not necessarily create long-term competitive installations, given the established technology footprint. Similarly, any development of greenfield smelters — as part of an integrated supply chain using cheap energy sources — would face substantial and potentially prohibitive capital costs.

Aluminium is a versatile material and is used in numerous goods to which new US tariffs now apply. China is a major producer/consumer and exporter/importer of global primary aluminium, alumina and bauxite (Figure 11.8). While the full indirect effect of the tariff increases is not yet apparent, there is potential for global demand to slow and prices to fall in the short term, adversely affecting Australian export earnings.

Over 98% of all Australian bauxite exported goes to China (Figure 11.9). Given this high dependence, any reduction in China's primary aluminium and alumina demand is likely to impact Australian bauxite exports.

The overall impact of the higher US tariffs on China for Australian primary aluminum and alumina exports is expected to be minimal. China is not a major export destination for Australian primary aluminium and alumina, accounting for just 1.8% and 5.3% of Australia's total primary aluminium and alumina export earnings in 2023, respectively (Figure 11.9).

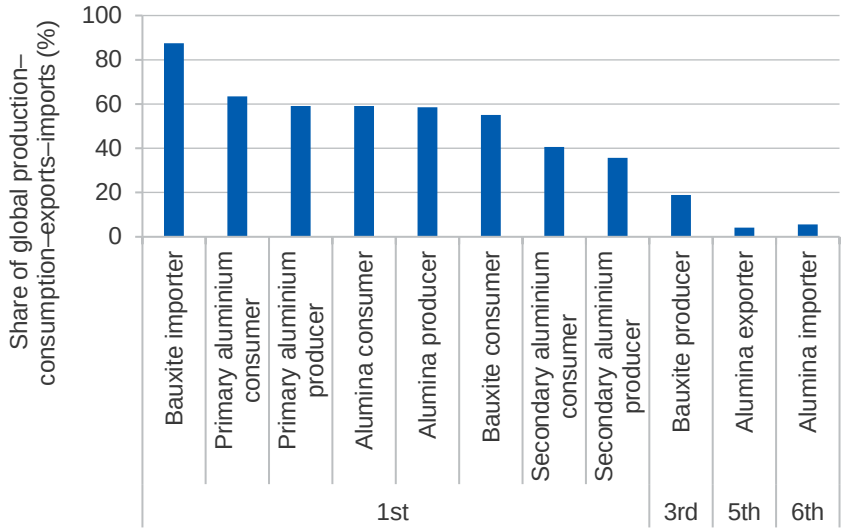
Australia exported 104,000 tonnes of primary aluminium to the US in 2023, with a value of $408 million, accounting for 7% of Australia's total primary aluminium exports (Figure 11.9).

Australian alumina exporters are expected to benefit from the US Government's decision. If the US responds to the higher tariffs by restarting idled aluminium capacity, demand for alumina will likely rise. Australia exported 268,000 tonnes of alumina to the US in 2022, with a value of $120 million.

Mexico removes tariffs on aluminium imports

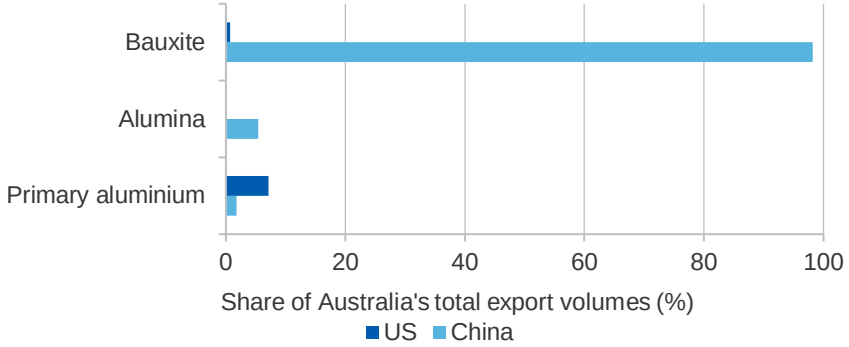
In early May 2024, Mexico removed tariffs on aluminium imports — which were levied at a rate of 35% — amid shortages of aluminium for the automotive and electronic industries. Mexico imports most of its aluminium

Figure 11.8: China's world rankings, 2023



Source: World Bureau of Metal Statistics (2024); Department of Industry, Science and Resources (2024)

Figure 11.9: Australia's exports to China and the US, 2023



Source: ABS (2024) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2024).

from Asia, with China accounting for 42% of Mexico's total aluminium imports. Australia exported around 1 kilotonne of primary aluminium to Mexico for A$3.7 million. Mexico accounts for 0.07% of Australia's total primary aluminium exports in 2023.

11.5 Prices

LME's ban of Russian aluminium pushes prices higher

The LME spot price reached a two-year high of US$2,695 a tonne on 29 May 2024 as the markets responded to the move to ban Russian aluminium from LME warehouses after 12 April 2024. The price has risen by 4.9% so far in 2024, to US$2,452 a tonne on 25 June 2024 — compared to an average US$2,258 a tonne in the second half of 2023. The LME aluminium spot price is forecast to rise by 6.2% year-on-year in 2024 to average US$2,390 a tonne (Figure 11.11).

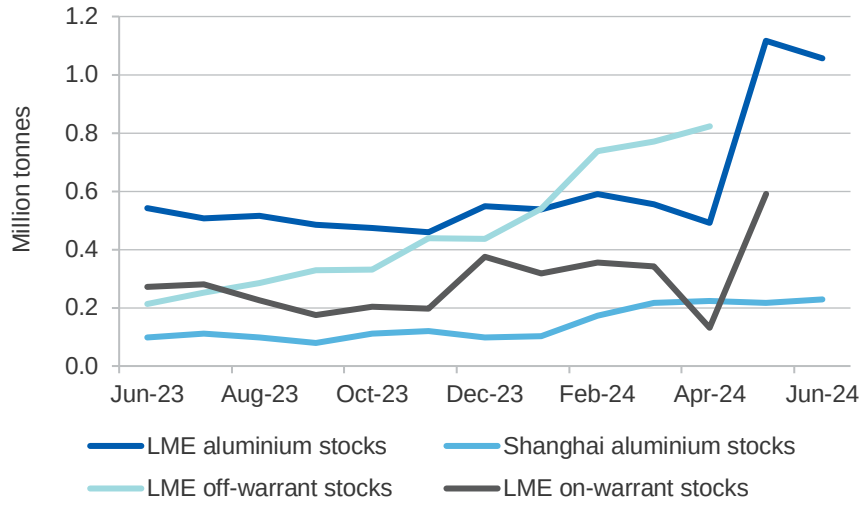
The markets are expected to adjust to the ban of Russian aluminium and the new US tariffs on Chinese aluminium exports in H2 2024. The ban on Russian aluminium is already impacting LME stock holdings. Large amounts of Russian aluminium appear to have been held off-warrant in the LME warehouses prior to 13 April 2024. However, since 13 April 2024, holders of Russian aluminium have switched their holdings back on-warrant. As a result, LME aluminium stocks rose from 490,750 tonnes in April 2024 to 1.1 Mt in June 2024 (Figure 11.10).

The phasing out of production in Australia's Kwinana alumina refinery has pushed the free on board (FOB) Western Australia alumina price up by 47% so far in 2024, at US$510 a tonne on 25 June 2024 — compared to an average of US$335 a tonne in the second half of 2023. The production curtailment at Kwinana alumina refinery is likely to keep the Western Australia alumina price at historically high levels, averaging US$380 a tonne (FOB) in 2024, up 11% year-on-year (Figure 11.11).

Higher aluminium prices expected in the short term

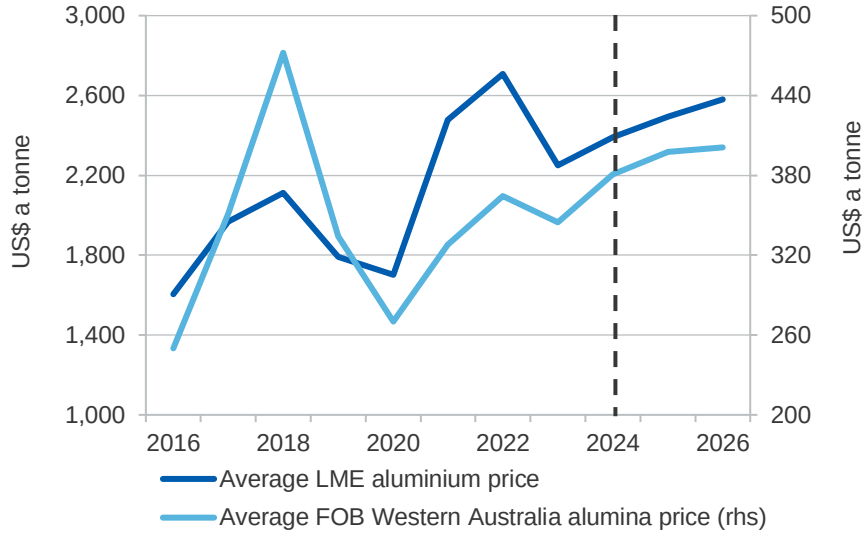
After 2024, the LME aluminium price is forecast to rise, averaging US$2,495 and US$2,580 a tonne in 2025 and 2026, respectively

Figure 11.10: Exchange aluminium stocks



Source: London Metal Exchange (2024); Bloomberg (2024)

Figure 11.11: Primary aluminium and alumina prices



Source: Bloomberg (2024); Department of Industry, Science and Resources (2024)

(Figure 11.11). Growing global demand for new, energy-efficient cars and technologies will lift aluminium usage and keep stocks relatively low. The FOB Western Australia alumina price is forecast to increase in 2025 and 2026, reaching US$400 a tonne in 2026 (Figure 11.11).

11.6 Australian exports and production

Higher alumina and bauxite exports boosted earnings in the March quarter

Australia's aluminium, alumina and bauxite (AAB) exports increased by 9.0% year-on-year in the March quarter 2024 to $4.2 billion, driven by higher alumina and bauxite export volumes and values. Over this period, Australia exported 4.0 Mt of alumina and 7.9 Mt of bauxite, up 4.9% and 13% year-on-year, respectively. In terms of values, alumina export earnings were up by 13% year-on-year in the March quarter 2024 to nearly $2.2 billion. Bauxite export earnings rose by 46% year-on-year in the March quarter 2024 to $0.42 billion.

Export earnings set to rise

An expected rise in aluminium prices and bauxite exports in 2024 is likely to boost Australia's AAB export earnings to $17.3 billion in 2023–24, up 8.0% year-on-year (Figure 11.12).

The risk to the 2023–24 assessment is Rio Tinto's force majeure announcement in mid-May 2024, due to gas shortage, on third party contracts for alumina exports from its alumina refineries in Queensland. This unforeseeable circumstance prevents Rio Tinto from fulfilling its sales of alumina to third parties.

Over the outlook period, Australia's AAB exports are forecast to reach $18 billion by 2025–26, with the price of primary aluminium forecast to rise in 2025 and 2026 (Figure 11.12).

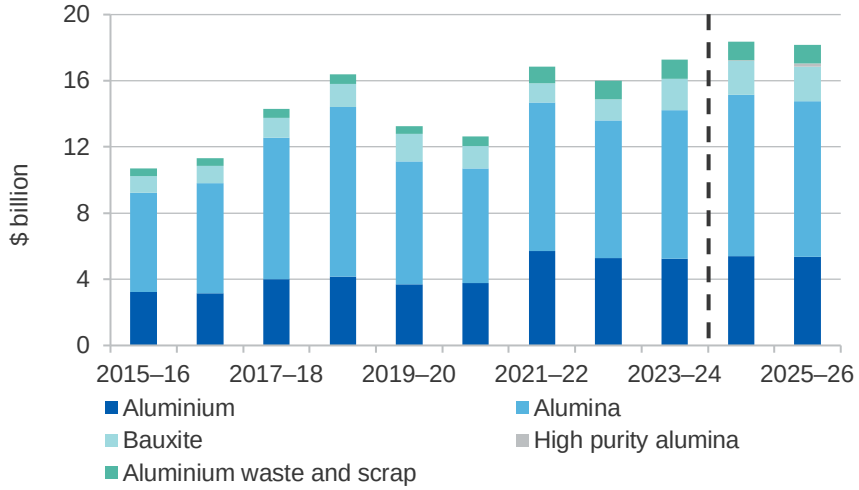
Australia's aluminium and bauxite production rose in the March quarter

Australia's primary aluminium output increased by 0.7% year-on-year in the March quarter 2024 to 386,000 tonnes, driven by a 7.7% year-on-year rise at Rio Tinto's Boyne Island smelter in Queensland and a 4.4% year-on-year rise at Rio Tinto's Bell Bay aluminium smelter in Tasmania. As a result, Australia's primary aluminium output is estimated to increase by 2.3% year-on-year in 2023–24 to nearly 1.6 Mt.

Australia's alumina output fell by 1.3% year-on-year in the March quarter 2024 to 4.5 Mt, partially driven by lower production at Rio Tinto's Yarwun alumina refinery in Queensland. Australia's alumina output is estimated to increase by just 0.3% in 2023–24 to 19 Mt. Production at Rio Tinto's QAL and Yarwun alumina refineries in Queensland is expected to be lower in the June quarter 2024, due to a disruption to gas supply.

Australia's bauxite production rose by 7.2% year-on-year in the March quarter 2024 to nearly 25 Mt, driven by a 20% year-on-year rise at Rio Tinto's Gove bauxite mine in the Northern Territory and a 9.8% year-on-year rise at Rio Tinto's Weipa bauxite mine in Queensland. As a result, Australia's bauxite output in 2023–24 is estimated to have risen by 7.5% year-on-year to 106 Mt.

Figure 11.12: Australian aluminium/alumina/bauxite exports

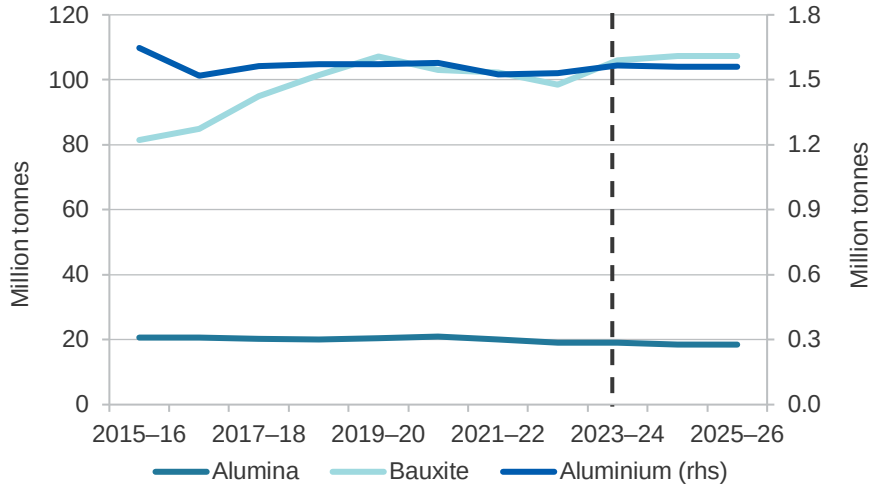


Source: ABS (2024) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2024).

Higher bauxite output forecast over the outlook period

No expansions or major disruptions are expected at existing aluminium smelters in Australia over the outlook period. Australia's primary aluminium output is forecast to be around 1.6 Mt a year (Figure 11.13).

Figure 11.13: Australian aluminium/alumina/bauxite output



Source: Department of Industry, Science and Resources (2024)

The production curtailment at Alcoa's Kwinana alumina refinery in WA, starting in July 2024, is likely to reduce Australian alumina output from 19 Mt in 2023–24 to 18.5 Mt a year from 2024–25 and beyond (Figure 11.13).

Australia's bauxite output is forecast to increase by 0.6% a year in 2024–25 and 2025–26, reaching 107 Mt in 2025–26 (Figure 11.13). The expansion of Metro Mining's Bauxite Hills mine in Queensland — from 3.5 million tonnes a year to 7 million tonnes a year — and higher production in other bauxite mines, will be the main drivers of this increased output.

As part of its *Future Made in Australia* initiative, the Australian Government announced on 17 April 2024 it will provide $400 million in new loans to Alpha HPA in Queensland to support Stage Two of its HPA First project.

In May 2024, Alpha HPA made a final investment decision on Stage Two of the HPA First project. Construction is expected to commence in H2 2024, creating 300 jobs during construction. Once completed the expansion will boost the plant's production to 10,430 tonnes of HPA a year and make Alpha HPA the world's largest HPA producer.

The Australian Government also provided $94 million, under the *Powering the Regions Fund*, to the Queensland Alumina Limited refinery to install a low temperature digestion circuit into its existing high temperature unit to reduce coal and gas consumption.

Impact Minerals' Lake Hope high purity alumina pre-feasibility study is on track for completion by the end of 2024.

In June 2024, Rio Tinto announced to purchase nearly 12% stake in Boyne Island aluminium smelter in Queensland from Mitsubishi Corporation. The acquisition is expected to be finalised in the second half of 2024 and will increase Rio Tinto's share in Boyne Island aluminium smelter to nearly 74%.

Revisions to the outlook

The forecasts for Australia's AAB export earnings in 2024–25 and 2025–26 have been revised up from the March 2024 *Resources and Energy Quarterly (REQ)* — by $823 million and $117 million, respectively. The revision reflects an upwards revision to forecast LME aluminium price over the outlook period.

Table 11.1: Aluminium, alumina and bauxite outlook

						Annual percentage change		
World	**Unit**	**2023**	**2024 [f]**	**2025[f]**	**2026[f]**	**2024[f]**	**2025[f]**	**2026[f]**
Primary aluminium								
Production	kt	69,962	71,384	72,819	73,934	2.0	2.0	1.5
Consumption	kt	69,000	72,310	75,142	77,740	4.8	3.9	3.5
Prices aluminium[c]								
- nominal	US$/t	2,249	2,390	2,495	2,580	6.2	4.4	3.4
- real[d]	US$/t	2,316	2,390	2,446	2,479	3.2	2.3	1.3
Prices alumina spot								
- nominal	US$/t	344	381	398	401	10.5	4.4	0.9
- real[d]	US$/t	355	381	390	385	7.4	2.4	-1.2
Australia	**Unit**	**2022–23**	**2023–24[s]**	**2024–25[f]**	**2025–26[f]**	**2023–24[s]**	**2024–25[f]**	**2025–26[f]**
Production								
Primary aluminium	kt	1,532	1,567	1,561	1,561	2.3	-0.4	0.0
Alumina	kt	18,971	19,023	18,484	18,564	0.3	-2.8	0.4
Bauxite	Mt	98.5	106.0	107.3	107.3	7.5	1.3	0.0
Consumption								
Primary aluminium	kt	151	135	114	114	-10.4	-16.1	0.0
Exports								
Primary aluminium	kt	1,440	1,474	1,495	1,495	2.3	1.5	0.0
- nominal value	A$m	5,281	5,232	5,417	5,368	-0.9	3.5	-0.9
- real value[e]	A$m	5,497	5,232	5,253	5,066	-4.8	0.4	-3.6
Alumina	kt	16,566	16,711	16,636	16,708	0.9	-0.5	0.4
- nominal value	A$m	8,308	8,980	9,735	9,398	8.1	8.4	-3.5
- real value[e]	A$m	8,646	8,980	9,441	8,869	3.9	5.1	-6.1
Bauxite	kt	34,113	40,542	45,075	45,075	18.8	11.2	0.0
- nominal value	A$m	1,284	1,921	2,059	2,096	49.6	7.2	1.8
- real value[e]	A$m	1,336	1,921	1,997	1,978	43.8	4.0	-0.9
Total value								
- nominal value	A$m	16,005	17,279	18,358	18,178	8.0	6.2	-1.0
- real value[e]	A$m	16,658	17,279	17,803	17,154	3.7	3.0	-3.6

Notes: Total nominal and real values of Australian exports include primary aluminium, aluminium waste and scrap, alumina, high purity alumina and bauxite. **c** LME cash prices for primary aluminium; **d** In 2024 calendar year US dollars; **e** In 2023–24 financial year Australian dollars; **f** Forecast; **s** Estimate. Sources: ABS (2024) International Trade in Goods and Services, 5368.0; Bloomberg (2024); London Metal Exchange (2024); Department of Industry, Science and Resources (2024); World Bureau of Metals Statistics (2024).

Copper

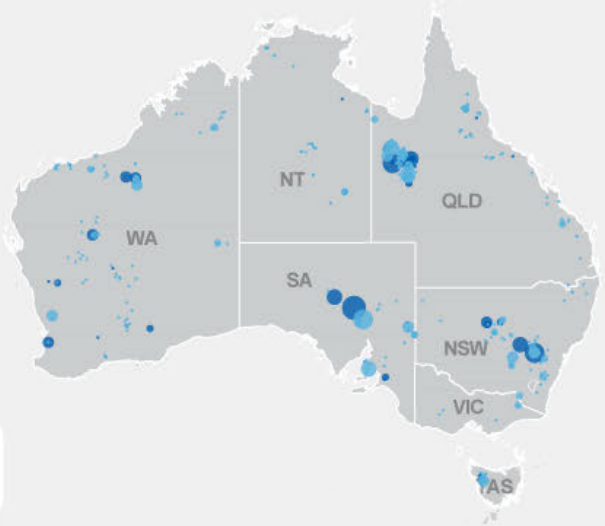
Australia's copper sector

Ranked 2nd
in the world for copper **resources** in 2023, with 10%

4th largest
exporter and **9th largest producer** globally, 2023

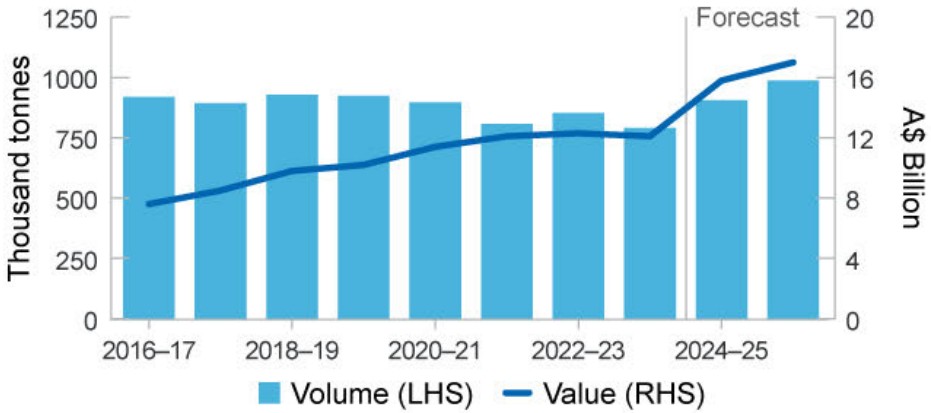
200k tonnes
produced per year at Australia's largest mine, Olympic Dam

- Deposit
- Operating mine
- <0.01
- 0.02
- 0.03–0.8
- 0.9–2.1
- 2.2–6.8
- >6.9



Major copper deposits, Mt

Australian copper exports



Outlook

Prices **surged** in recent months with **strong growth** in global demand and expected to persist

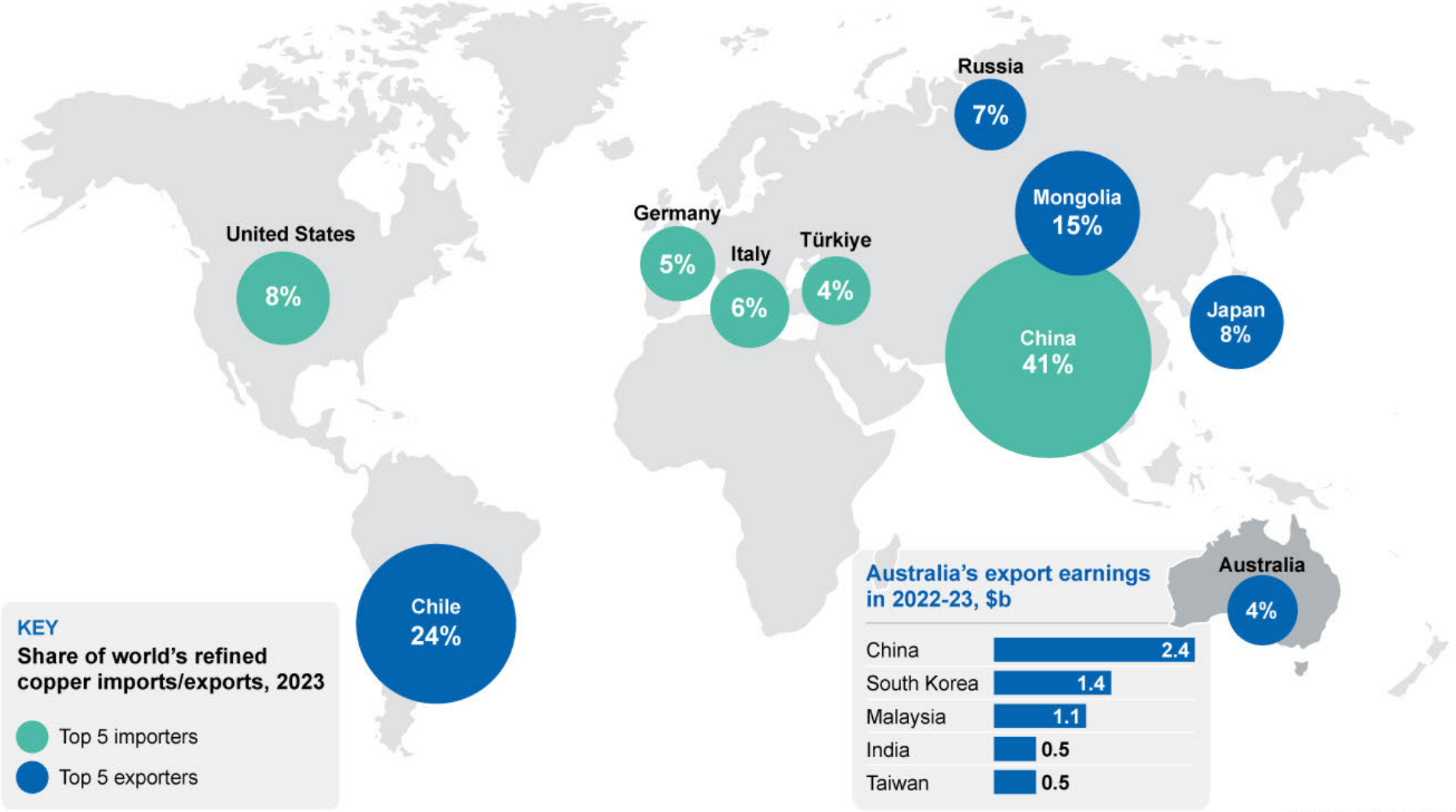
Export earnings forecast to grow to **$15.8 billion** in 2024-25, **$17.0 billion** in 2025-26

Exports volumes **expected to rise** with production growth over the study period

Exploration expenditure showed **solid growth** since 2017, expected to continue over the period

SOURCE: GA; DISR; OCE

Copper TRADE MAP



SOURCE: ABS; GA; WBMS

Note: Reflects metal content of ores and concentrates and refined metal, export earnings may not be complete due to partial confidentialisation of trade data

12.1 Summary

- Copper prices have continued to trend higher in recent months, averaging about US$9,700 a tonne in the June quarter — up 14% since the start of the year. The surge in prices reflects strong growth in global demand, which is expected to largely persist over H2 2024. LME copper prices are forecast to average about US$9,500 a tonne in 2024 (up from US$8,700 a tonne in 2023), rising to US$9,970 a tonne in 2026.
- Global copper consumption is forecast to grow by about 2.1% in 2024. China and the US will account for the bulk of this growth, driven by rising manufacturing activity and large investment in energy infrastructure.
- Australian copper export earnings are forecast to reach around $15.8 billion in 2024–25. Higher production growth and export volumes, combined with continued strength in prices will see export earnings reach $17.0 billion in 2025–26.

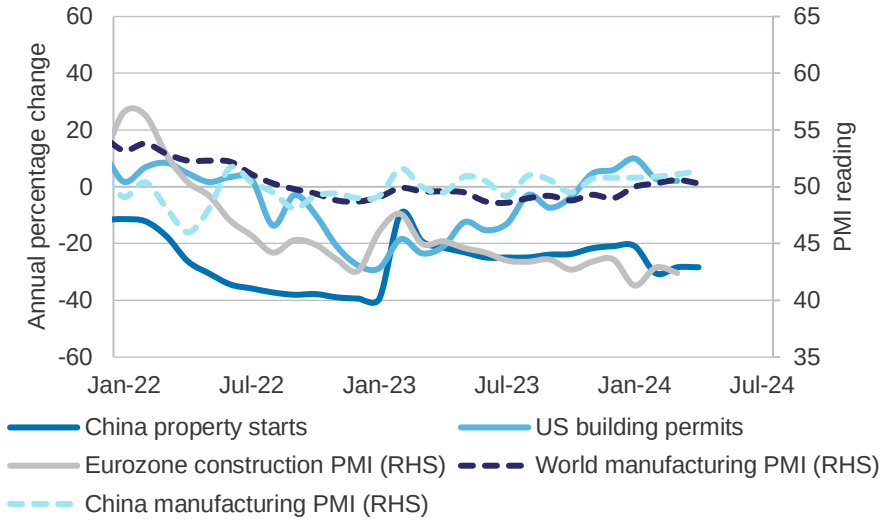
12.2 Global copper consumption

China and US seeing strong copper consumption so far in 2024

Global refined copper consumption grew 5.9% year-on-year in the March quarter 2024, sustaining a consistent recovery from 2020-COVID lows. Global consumption growth was mainly driven by China (up 11%) and the US (up 4.5%). Refined copper consumption remained flat in the EU, while Asia excluding China fell 5.5% over the period (Figure 12.2).

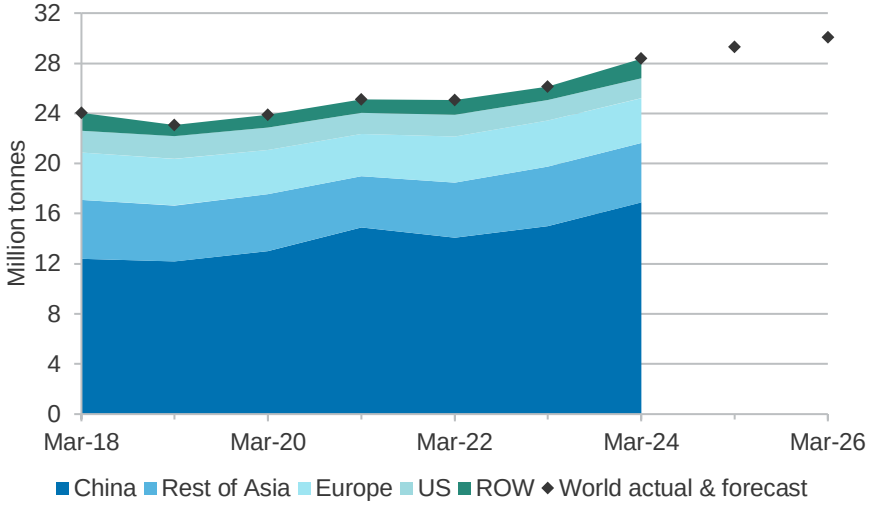
Global refined copper consumption is forecast to grow by around 2.1% in 2024 to reach 28.5 million tonnes (Mt). Growth in key end-use sectors such as property construction (in China and Europe) and manufacturing (in Europe) is expected to remain muted in the near term. However, resilient conditions in other parts of the world economy (especially the US) and strong infrastructure investment globally are expected to drive solid growth in copper demand in H2 2024. Beyond 2024, global consumption is expected to rise by 2.6% per annum in both 2025 and 2026. Clean energy applications (such as electric vehicles and low emissions power generation) and grid infrastructure are expected to drive growth.

Figure 12.1: Leading global indicators for copper consumption



Source: Bloomberg (2024)

Figure 12.2: Refined copper actual consumption & forecast



Source: World Bureau of Metal Statistics (2024); Department of Industry, Science and Resources (2024)

Low emissions applications drive China's copper demand

China achieved GDP growth of 5.3% in the March quarter 2024, with industries related to China's energy transition a primary driver of the expansion. Power grid and generation investment rose by 15% and 7.7% year-on-year in the March quarter 2024, respectively, while new installations of solar and wind power capacity grew by 36% and 49% respectively. China's EVs remained a continued source of demand over the period, with EV production growing by 28% year-on-year, and China's EV exports up 24% over the period.

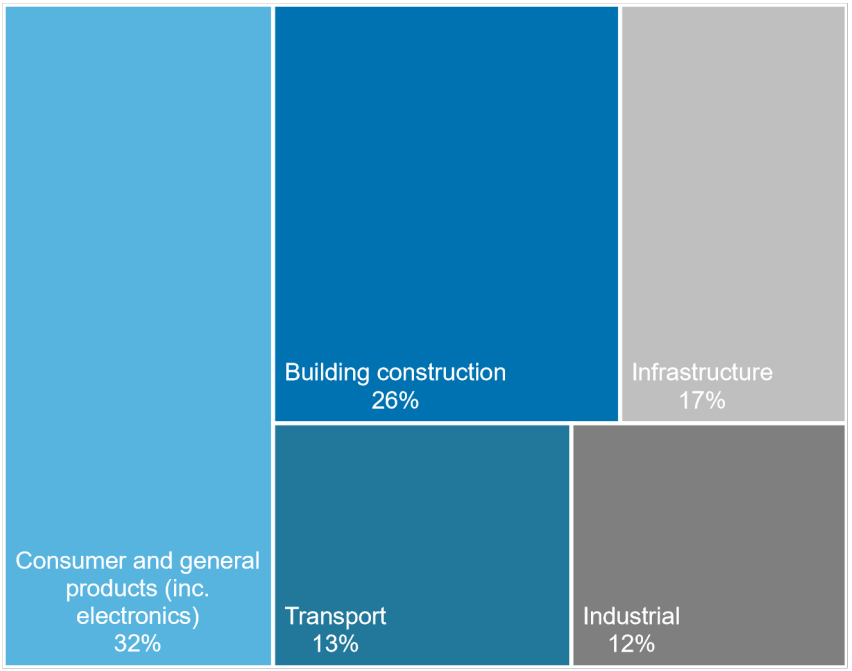
Earlier this year, the China Electricity Council (CEC) reported that the country is expecting to add around 1,300GW of additional solar and wind power generation capacity by the end of 2024. This would see the nation reach its official 2030 target 5 years early. Using current mineral intensities for these technologies, this additional renewable energy capacity equates to around 25% of the nation's total copper demand over the same period.

Amongst other key sectors, activity in China's real estate sector remains weak, with new construction starts continuing to record double digits declines year-on-year in early 2024. However, in May this year China's government announced further measures to support its property sector, including the central bank committing $138 billion in new funding to this sector and easing mortgage rules, and government repurchase programmes for unsold homes and land.

Mixed outlook for global copper demand (ex. China) from manufacturing and construction sectors

Industrial production fell in both the Europe and Japan in the March quarter 2024, while the US economy experienced a moderation in manufacturing activity (albeit from comparatively high levels) over the March quarter 2024. Despite the slowdown, leading indicators suggest the potential for some improvement in the near term, with the J.P. Morgan Global Manufacturing Purchasing Managers' Index (PMI) in May posting its highest reading (50.9) since July 2022, and retaining an expansionary outlook in June.

Figure 12.3: World copper consumption in 2022, by end use



Source: International Copper Study Group (2024)

Global construction activity — which accounted for about 26% of world copper demand in 2022 — has helped to mitigate recent weakness in ex-China manufacturing. By sector, infrastructure construction is helping to maintain strong aggregate demand for copper, while tighter financial conditions have mitigated activity (and demand) in the residential and commercial sectors. The Middle East, Africa and the Americas continue to see the strongest activity, though growth appears to be slowing in North America. Europe continues to see a noticeable deterioration in both activity and year-ahead expectations.

Continued challenges for European manufacturing and construction

European copper consumption in the March quarter 2024 was flat year-on-year, reflecting weakness in its manufacturing and construction sectors.

The Eurozone manufacturing PMI rose to 47.3 in May, up from 45.7 in April while remain in its contractionary territory. The Eurozone construction PMI total activity index slightly rose to 42.9 in May, up from 41.9 in April, but nonetheless posted one of its lowest readings in the past 11 years of contractionary conditions.

Amongst other economies, India continues to see strong advancement in its domestic economy, with investment in the construction industry forecast to expand by 6.2% in 2024. However, the Indian manufacturing sector remained in relatively slower expansionary territory in May, with a PMI reading of 57.5, down from 58.8 in April.

US manufacturing and trade policies alteration to absorb more copper

The US economy has proved resilient so far in 2024, with more persistent inflation and combative monetary policy weighing on the economy and its manufacturing sector. The US manufacturing PMI rose to 51.3 in May 2024, up from 50.0 in April. Increase in new orders, alongside better material availability, led manufacturing to expand production at a solid pace in May and retaining a substantial expansion outlook for June.

New US investment in manufacturing capacity is expected to accelerate copper consumption over the outlook period. This includes considerable spending on domestic infrastructure (mainly clean energy and EVs related manufacturing), supported by the Inflation Reduction Act and the Infrastructure Investment and Jobs Act.

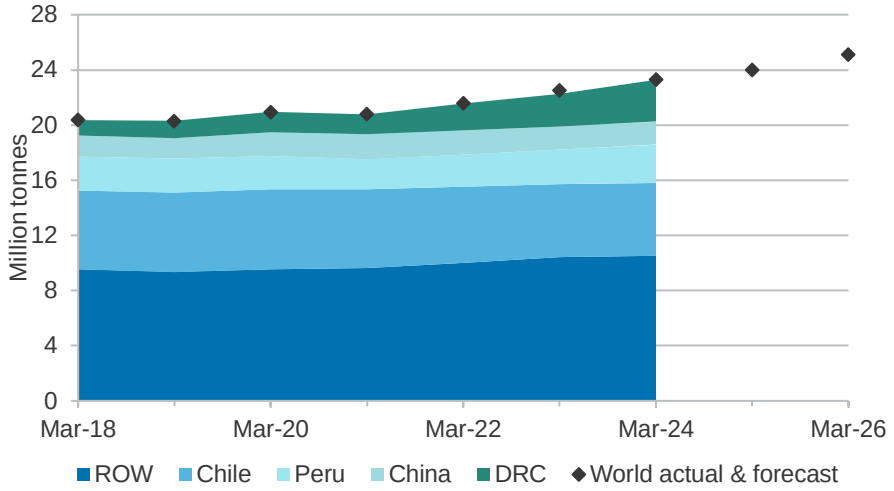
In May 2024, the US announced increased tariff rates on a range of Chinese imports (worth around $18 billion) including EVs, computer chips and medical products. These tariffs are expected to reallocate the copper trade globally over the outlook period.

12.3 World production

Capacity expansion mainly drive mined output growth over 2024

Global mined copper production in the March quarter 2024 grew by 7.9% year-on-year. This growth came despite a number of operational issues that emerged over the period. Amongst major producers, Peru saw significant production growth, up 3.5% year-on-year, while Chile — the world's largest producer — saw copper output fall by 0.7%. Chilean copper production in 2024 continues to be impacted by a range of issues, including adverse weather, equipment and technical issues, community action, and lower grades from many existing operations. Codelco — Chile's largest copper miner — reported a 10% fall in production in the March quarter of 2024. The fall in Codelco's copper output in the March quarter of 2024 was partially offset by higher output from other major Chilean copper mines. BHP's joint venture, Escondida, recorded growth in total production in March 2024 of 9.7%. The Glencore-Anglo-American JV, Collahuasi also grew 16%.

Figure 12.4: Mined copper actual production & forecast



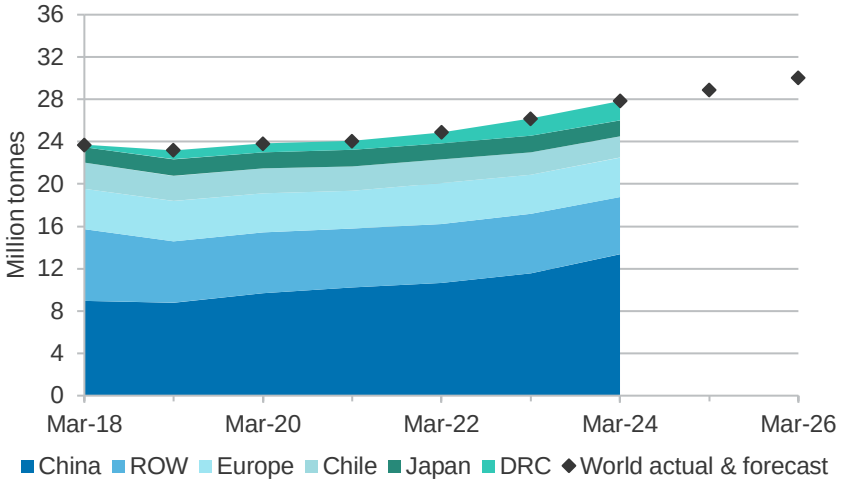
Source: World Bureau of Metal Statistics (2024); Department of Industry, Science and Resources (2024)

Peruvian mine output grew 3.5% in the March quarter of 2024 compared to the same period last year. This included higher output from Southern Copper and Minera Antamina by 20% and 13% respectively in the March quarter of 2024.

Among other major producers, Ivanhoe Mines produced 86,203 tonnes of copper from its Kamoa-Kakula in the Democratic Republic of Congo (DRC), a 9% fall compared to the same period last year. This result reflects issues relating to instability of power grid infrastructure and typical seasonal weather. Despite the challenges, the Phase 3 concentrator of the Kamoa is expected to be ready for operation at the end of June 2024 with expectation to increase the annual production capacity of Kamoa to 600,000 tonnes.

Panama's mined copper output remains impacted by the ongoing closure of its biggest mine, Cobre Panama. The mine accounted for about 1% of global copper output in 2023.

Figure 12.5: Refined copper actual production & forecast



Source: World Bureau of Metal Statistics (2024); Department of Industry, Science and Resources (2024)

Mined output to grow moderately due to various disruptions

Global mine output is forecast to grow 1.8% in 2024 to reach about 22.8 Mt. Mined production is then forecast to reach 25.1 Mt by 2026, (Figure 12.4). Growth over the outlook period is expected from a combination of increased production capacity of existing mines and ramp up of new mines. Major contributors to the production growth are expected to be Chile, Peru, and the DRC. However, declining ore grades, unfavourable weather, geopolitical instability, environmental challenges, and logistical issues remain key downside risks to disrupt the expected growth over the outlook period.

The Chilean copper commission (Cochilco) is expected to produce a record 5.8 million tonnes of copper in 2025, a 6% increase from 2024 forecast levels. This growth is mainly driven from the rise of production of existing projects and the ramp up of new projects. According to the ICSG, the new copper mine projects such as El Espino, Comahue, and Chanaral Bay SX-EW are scheduled to come online sometime late 2024 or early 2025 and are expected to add around 42,000 tonnes of additional capacity to the copper production of the country.

Peru's largest existing mine, Antamina, received environmental approval for an expansion in H2 2023. This will see construction begin in 2024, with the project aimed at extending mine life (from 2028 to 2036). Quellaveco copper mine will increase its production capacity to 350,000 tonnes in 2024 and 2025, while its production capacity will increase to 330,000 tonnes by 2026. Tia Maria copper mine is also expected to come online by 2026 and add 50,000 tonnes of additional capacity per year.

In the DRC, the mined production capacity for the Kamoa–Kakula copper complex (jointly owned by Zijin Mining Group, Ivanhoe mines, the DRC, and Crystal River Global) is expected to increase from 450,000 tonnes in 2024 to 600,000 tonnes in 2025 and 2026. The considerable growth in DRC production reflects the significant Chinese investment made by China Molybdenum Company Limited (CMOC's) in many of the country's copper projects in recent years, including the Tenke Fungurume expansion. The CMOC's reported a 123% production increase in the March quarter of 2024.

Mine production capacity (concentrates and leach) in China is also expected to increase from 1.7Mt in 2024 to 2Mt in 2026, driven by major mines operations including Qulong, Dexing, Duobaoshan Copper, Jiama and Yulong.

China and DRC lead global growth in refined copper production in 2024

Global refined copper output grew by 4.5% (year-on–year) in the March quarter. This included significant growth in the DRC and China. These gains helped offset falls amongst other major producers, including Europe and Chile.

Refined copper production in China was 8.8% higher year-on-year, reaching 1.2Mt in the March quarter of 2024. The result came despite a tight concentrate market (that is, low supply of mined copper). Strong end demand and the recent price surge saw domestic refining charges fall close to zero, with companies in China even reverting to using secondary supply (scrap) from discarded pots, pipes, and wires to boost production. Rising domestic output in part reflected considerable growth in China's demand for copper in 2024, a consequence of the large investment made in the country's energy infrastructure (particularly renewable energy) and domestic electric vehicle production (see World Consumption section).

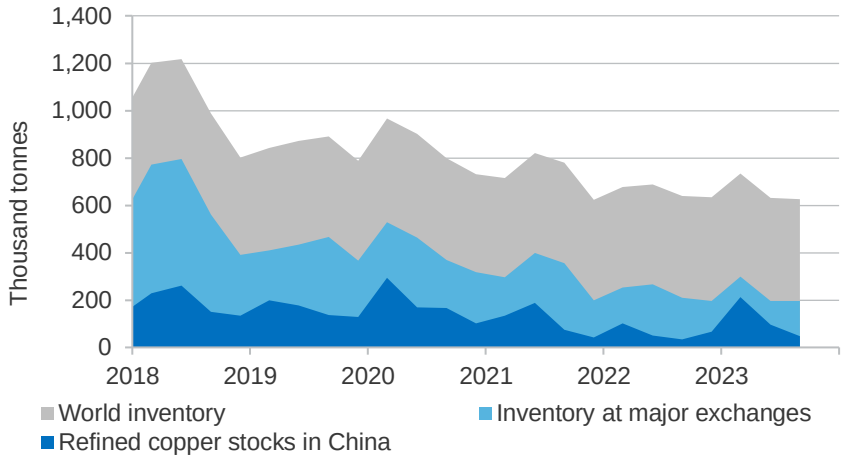
China, DRC, Indonesia, India, & Russia drive refined output rise to 2026

World refined copper production is forecast to grow year-on-year by 3.0% in 2025 and by 4.0% in 2026. The major contributors to this new capacity are expected to be China, the DRC, Indonesia, India, and Russia.

In China, growth is expected to come from the capacity expansion of existing projects such as the Hongsheng refinery (increasing from 100,000 tonnes in 2022 to 400,000 tonnes by 2026), as well as new starts such as the Humon Shandong (with 200,000 tonnes of capacity) and Tongling Refineries (300,000 tonnes capacity) in 2025 and 2026 respectively.

In the DCR — KFM Mine (Kisanfu) (SX-EW) and Kalongwe refinery projects, started operation in 2023 with annual production capacity of 95,000 tonnes. However, these refinery projects are expected to expand their annual production capacity to 120,000 tonnes in 2025 and 2026. Also, Mutoshi and Musonoi refineries started their production in 2024 with an annual capacity of 30,000 tonnes. These refineries are expected to increase their annual production capacity to 90,000 in 2025 and 2026.

Figure 12.6: Global copper inventories



Source: Bloomberg (2024)

Indonesian refined copper output is expected to increase in the next few years, a consequence of a 2018 government policy to process all ores domestically. The country's largest mine, PT Freeport, currently has construction underway on its Manyar Maju refinery, with first production expected in the second half of 2024 with 80,000 tonnes annual production capacity and the capacity is expected to increase to 350,000 tonnes in 2025 and to 400,000 in 2026.

India is also expected to see strong growth in refined copper output over the next few years. Adani Group's Gujarat refinery is expected to be operational in early 2024. According to ICSG, the annual production capacity is expected to be 500,000 tonnes in 2025 and 2026.

In Russia, new projects owned by Udokan Copper and Norilsk Nickel is scheduled to start production in 2024 and 2025, respectively. Udokan Copper started production in April 2024 and is expected to increase its annual production capacity from 40,000 tonnes in 2024 to 68,000 tonnes in 2025 and 2026. Likewise, Norilsk Nickel will start its Kola refinery operations in 2025 with 120,000 tonnes; annual production capacity is expected to rise to 150,000 tonnes in 2026.

12.4 Prices

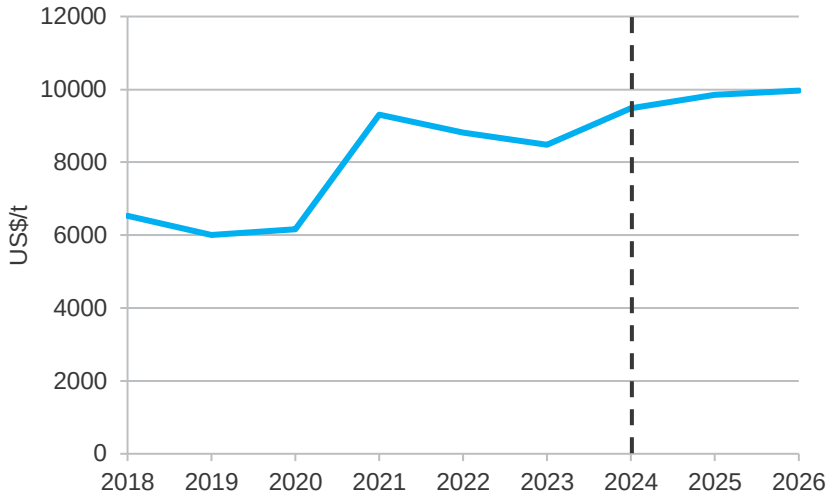
Prices have surged and markets expect continued strength

Copper prices have risen strongly so far in 2024, led by an uptick in Chinese demand (particularly from its manufacturing sector and infrastructure). Price rises have been further propelled by new restrictions on Russian copper entering the London Metal Exchange (LME) and the Chicago Mercantile Exchange (CME) warehouses (discussed in more detail below). The average price in the June quarter is forecasted to be (US$9,700 a tonne), up 14% since the start of the year. This includes the benchmark prices breaching US$10,000 a tonne during April and hitting its highest levels since June 2022.

Copper price is forecast to average about US$9,488 a tonne in 2024 (up from US$8,700 a tonne in 2023). Rising consumption of copper from end uses such as power grid infrastructure and clean energy power generation are expected to offset moderating demand from sectors such as residential construction and manufacturing. Beyond 2024, the copper price is expected to rise year-on- year by around 3.9% and 1.1% to reach US$9,859 and US$9,967 a tonne in 2025 and 2026 respectively (Figure 12.7). Higher prices will be driven by stronger consumption in copper-intensive sectors such as construction, power grid infrastructure, EVs and energy transition manufacturing.

Historically low levels of global inventories pose an ongoing upside risk for copper prices over the outlook period. Stronger demand in coming quarters will likely further draw down inventories, putting upward pressure on prices. Larger-than-expected expansions of clean energy manufacturing, construction, and the ongoing rise of EV adoption in major economies such as China and the US also present upside risks to copper prices over the outlook period.

Figure 12.7: Copper price



Source: LME (2024) Official cash copper price (refined)

Russia's LME ban, lead its copper export toward sanction-neutral nations

The US and UK banned delivery of new Russian copper to the LME and CME effective from 13 April 2024.Currently Russia accounts for around 4% of global refined copper production.

Some contracts require that the metal should be LME deliverable. So, the LME ban means, Russian producers have limited markets access, and they may export copper to sanction-neutral nations such as China. In this case, Russian copper producers will have to accept lower prices as they need to sell their copper out of LME warehouses. According to the World Bureau of Metal Statistics (WBMS), in 2023, China imported around 371,000 tonnes of refined copper and 302,000 tonnes of copper ores and concentrates from Russia. The recent LME ban may support an increase in these trade flows over the outlook period.

12.5 Australia

Surge in prices to result in higher output and export earnings

Export volumes are forecast to reach 905,000 tonnes in 2024–25, representing a 14.5% increase from 2023–24 (Figure 12.8). Higher prices are expected to improve export earnings in 2024–25 to reach around $15.8 billion. In 2025–26, further growth in export volumes and stronger prices are expected to contribute to export earnings of around $17.0 billion.

Mine production continues to grow over the outlook period

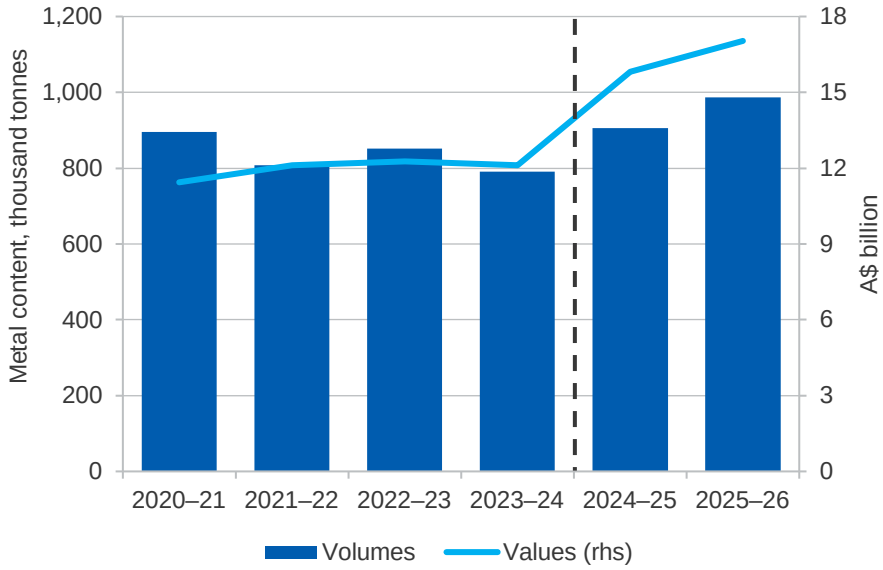
Australian mine production in 2024–25 is forecast to grow to 800,000 tonnes — an increase of 1% compared to 2023–24. In 2025–26, production should reach to 875,000 tonnes — an increase of 9.4% year-on-year. The projected growth will come from a range of new projects and expansions of existing operations over the outlook period.

Hillgrove Resources' Kanmantoo copper mine project in South Australia started production in early 2024, with 122,000 tonnes of ore mined in the March quarter 2024. Kanmantoo is a significant brownfield project and is expected to add around 43,500 tonnes of copper per year to Australian mine production. Hillgrove Resources is also expected to develop further projects through its strong pipeline of exploration opportunities over the outlook period.

The Hillside copper mine project in South Australia is expected to start operations early 2026. This project is estimated to add annual production capacity of around 42,000 tonnes to Australian production.

BHP's acquisition of OZ Minerals in May 2023 saw the consolidation of Olympic Dam, Carrapateena and Prominent Hill as a new single-operated asset known as Copper South Australia. Over the outlook period, the consolidation is expected to significantly increase refined copper output from Copper South Australia as ores from the Carrapateena and Prominent Hill can be refined at the Olympic Dam site. According to the BHP's operational review, production from Copper South Australia increased by 49% and reached 233,000 tonnes in 2023-24.

Figure 12.8: Australia's copper export volumes and values



Source: Source: ABS (2023) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2024)

The addition of new mined supply from Prominent Hill and Carrapateena, combined with a strong underlying operational performance from Olympic Dam, saw BHP achieve its strongest quarter for material mined in over 10 years in the March quarter 2024. Commissioning of its new Carrapateena feeder in coming months is expected to support further production rises. Looking beyond 2026, BHP is aiming to stablish a new two-stage smelter, with an ambition of copper production lift to around 500,000 tonnes per annum.

BHP's unsuccessful takeover bid for Anglo American targeted a potential expansion of its copper assets elsewhere. Anglo-American's assets include significant copper projects in South America, with potential expansions at the Los Bronces, EI Soldado and Collahuasi copper mines in Chile and Quellaveco copper mine in Peru.

Some significant copper mine projects are expected to start operation in Western Australia over the outlook period. Caravel Minerals intends to start production at its Caravel (stage1) project in early 2026 and is expected to add around 65,000 tonnes of annual production from early 2026. Auking Mining is expected to start operations from the Koongie Park project, Cyprium Metals is aiming to start the Nifty concentrators project, Develop Global is expected to commence production at the Sulphur Spring Copper–Zinc Project in early 2025, and Anax Metals is ready to bring online the Whim Creek project sometime late 2024. Collectively, these projects are estimated to add around 75,000 tonnes respectively to the Australian annual production capacity in the medium-term.

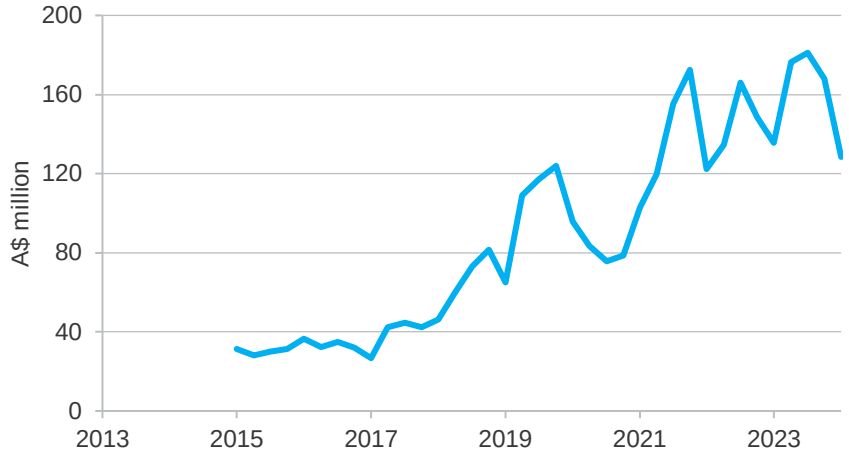
The rise in Australian mined production will come despite the closure of Glencore's Mount Isa copper mines and concentrator in H2 2025, announced by the company in October 2023. However, Glencore's copper smelter in Mount Isa and refinery in Townsville are expected to continue operating to 2030, subject to approval of additional capital investment.

Copper exploration has been healthy through 2023 and into 2024

Copper exploration expenditure indicates a 23% decline in March quarter compared to the last quarter of 2023. However, copper exploration expenditure on average rose to $165 million in 2023. This was around 15% higher compared to exploration expenditure in 2022, and continues a general upward trend seen since 2017 (Figure 12.9).

BHP plans to continue its significant exploration and drilling campaign in South Australia. In February 2024, BHP announced the identification of high-grade copper at its Oak Dam deposit in South Australia. This discovery is notable for future Australian copper production. Currently, BHP is seeking approval for an underground decline to enable faster and lower cost resource definition drilling of the mineral deposit. BHP is expected to provide more details on the inferred Mineral Resource for Oak Dam by the end of 2024.

Figure 12.9: Australian copper exploration



Source: ABS (2024) Mineral and Petroleum Exploration, Australia. 8412.0

Revisions to the outlook

Since the March 2024 *Resources and Energy Quarterly*, the forecasts of Australia's copper export earnings in 2023-24 remains unchanged. However, export earnings in 2024–25 and 2025-26 has been revised up by $2.5 billion, and $2.7 billion respectively, due to an upward revision of forecast prices and higher export volumes of metal content includes copper ores, concentrates, and refined.

Table 12.1: Copper outlook

World	Unit	2023	2024[f]	2025[f]	2026[f]	Annual percentage change 2024[f]	2025[f]	2026[f]
Production								
– mine	kt	22,397	22,807	24,016	25,121	1.8	5.3	4.6
– refined	kt	27,535	28,020	28,861	30,015	1.8	3.0	4.0
Consumption	kt	27,980	28,564	29,315	30,075	2.1	2.6	2.6
Closing stocks	kt	666	741	287	228	11.3	-61.2	-20.6
– weeks of consumption		1.2	1.3	0.5	0.4	9.0	-62.2	-22.6
Prices LME								
– nominal	US$/t	8,483	9,488	9,859	9,967	11.8	3.9	1.1
	USc/lb	385	430	447	452	11.8	3.9	1.1
– real[b]	US$/t	8,733	9,488	9,666	9,575	8.6	1.9	-0.9
	USc/lb	396	430	438	434	8.6	1.9	-0.9
Australia	**Unit**	**2022-23**	**2023–24[f]**	**2024–25[f]**	**2025–26[f]**	**2023–24[f]**	**2024–25[f]**	**2025–26[f]**
Mine output	kt	804	792	800	875	-1.4	1.0	9.4
Refined output	kt	454	458	472	457	0.9	3.1	-3.1
Exports								
– ores and concs[c]	kt	1,511	1,322	1,496	1,872	-12.5	13.2	25.1
– refined	kt	415	415	472	457	-0.1	13.8	-3.1
– total metallic content	kt	852	791	905	987	-7.2	14.5	9.1
Export value								
– nominal	A$m	12,262	12,117	15,820	17,034	-1.2	30.6	7.7
– real[d]	A$m	12,761	12,117	15,341	16,075	-5.0	26.6	4.8

Notes: **b** In 2024 calendar year US dollars; **c** Quantities refer to gross weight of all ores and concentrates; **d** In 2023–24 financial year Australian dollars; **f** Forecast.

Source: ABS (2024) International Trade, 5465.0; LME (2024) spot price; World Bureau of Metal Statistics (2024); Department of Industry, Science and Resources (2024).

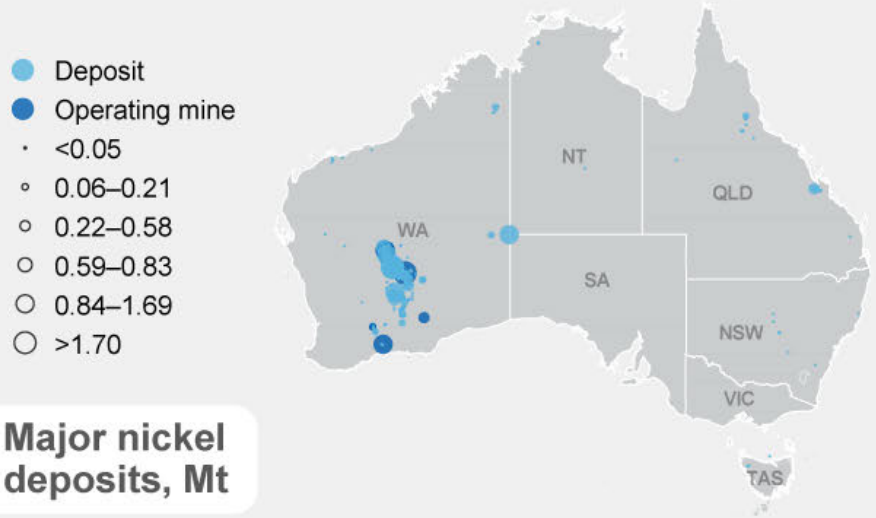
Nickel

Australia's nickel sector

18%
of global total **resources, second largest** global reserve

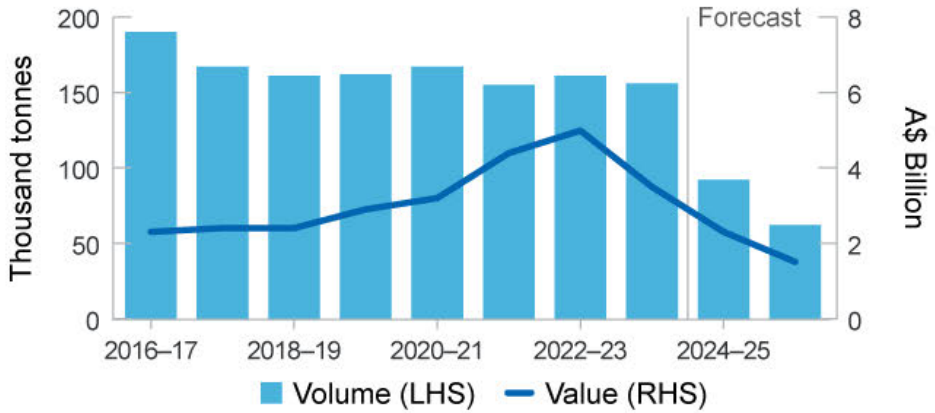
5th largest
nickel **miner** globally, 2023

7th largest
nickel **refiner** globally, 2023



Major nickel deposits, Mt

Australian nickel exports



Outlook

Prices have **stabilised** in recent months, on strong demand and supply cuts

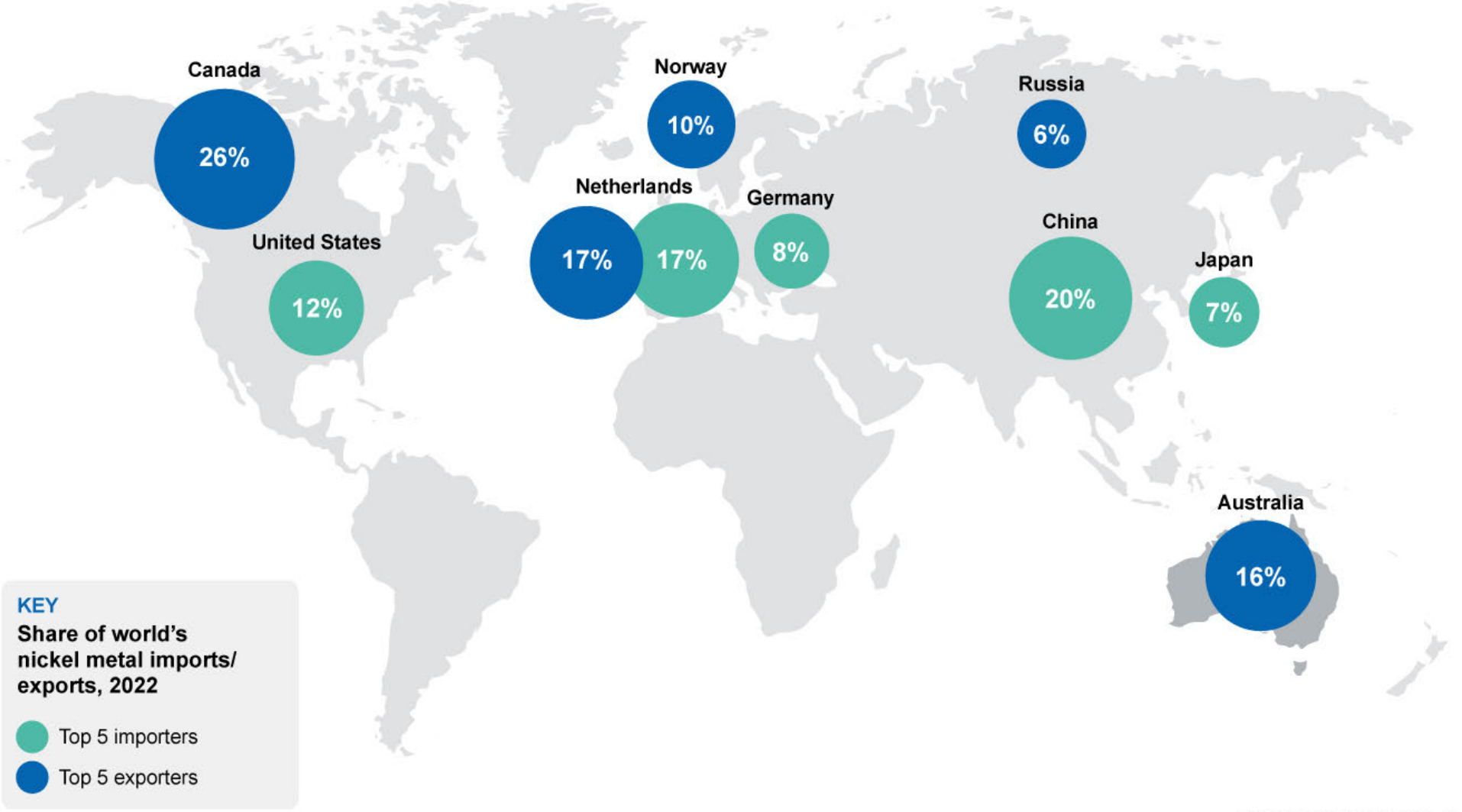
Export earnings to fall to **$3.5 billion** in 2023-24, following sustained price falls

Oversupply in the global nickel market an **ongoing risk** in the next few years

15% of global nickel demand in 2023 for EV batteries and other low emissions tech

SOURCE: INSG; IEA; USGS; ABS; DISR, GA

Nickel TRADE MAP



SOURCE: WBMS; ABS; DISR; GA

13.1 Summary

- Nickel prices rebounded strongly in the June quarter, with the average price in the month of May (US$19,500 a tonne) up 25% from February lows. However, the continued magnitude of new supply growth presents an ongoing risk of further price falls over the outlook period.
- Despite slowing activity in the global economy in the last 12 months, world demand for nickel remained robust in the March quarter 2024, driven by China and Indonesia.
- The outlook for Australian nickel exports remains broadly consistent with the March 2024 REQ, with weaker prices and reduced production expected to see Australian nickel export earnings fall around 35% to $2.3 billion in 2024–25 and further decline to $1.5 billion in 2025–26.

13.2 World consumption

Global nickel demand continuing to see solid growth so far in 2024

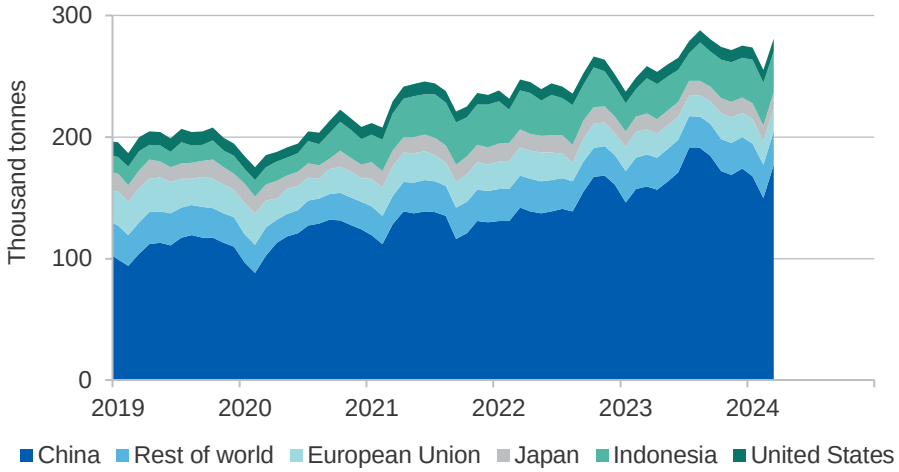
Global nickel demand grew 8.8% year-on-year in the March quarter 2024, maintaining a consistent recovery from 2020 COVID-lows. The increase in global demand in the last 12 months has primarily been led by Indonesia and China, with other major markets such as Europe and the US stable in year-on-year terms (Figure 13.1).

World stainless steel production — two-thirds of global nickel demand in 2023 — continues to be a primary driver of growth. This included the world's largest stainless steel producer, China, with stainless steel output up 1.8% year-on-year in the March quarter (after 11% growth in 2023).

Despite ongoing weakness in China's construction sector — a key end user of nickel — other sectors appear to be offsetting any major impacts to the nation's total demand. China's total nickel usage has been bolstered by a recovery of its manufacturing sector from early 2023, and the rapid rise of its EV sector (for both domestic sales and exports). China also has a considerable build out of its energy (especially renewable and nuclear) infrastructure underway, a growing end-user of nickel (Figure 13.2).

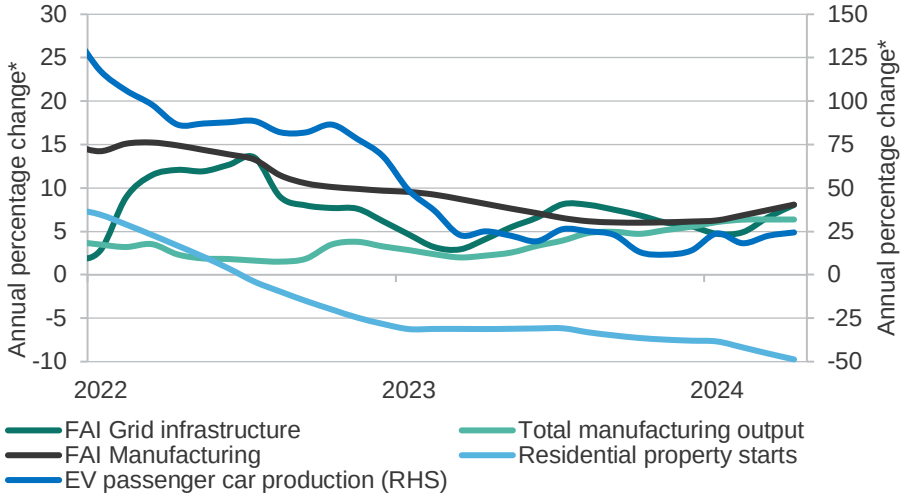
Ex-China global nickel demand has remained muted so far in 2024.

Figure 13.1: World nickel demand



Source: International Nickel Study Group (2024); Department of Industry, Science and Resources (2024)

Figure 13.2: Major drivers of China's nickel consumption



Notes: FAI = Fixed Asset Investment; *6-month average growth rate

Source: International Nickel Study Group (2024); Department of Industry, Science and Resources (2024)

Tighter monetary conditions have continued to act as a drag on broader economic conditions, though this has been partially offset by ongoing strength in infrastructure-led construction activity. Indonesia has also rapidly expanded its nickel consumption, rising 19% year-on-year in the March quarter 2024. The country has emerged as the world's second largest producer of stainless steel in recent years and is also expected to produce its first EV battery in 2024.

Easing EV sales growth and new chemistries creating more sober outlook

Global EV sales expanded 25% year-on-year in the March quarter 2024, marking a robust but slowing rate of growth from the meteoric levels seen in recent years. While the IEA expects healthy growth in global EV sales to continue in H2 2024, recent destocking through the EV battery supply chain and the slowing rate of expansion for this sector have weighed on sentiment. The global EV market is forecast to show relatively slow growth over the outlook period, which is expected to contain nickel demand growth to lower, more sustainable levels in coming years.

Emerging battery technologies such as lithium iron phosphate (LFP) and sodium-ion are also expected to contribute to more moderate levels of demand for nickel from the EV battery industry over the outlook period. Global installations of non-nickel-based lithium-ion batteries (in GWh terms) grew by 34% year-on-year in the March quarter 2024, and now account for around 30% of total EV battery demand. The last 12 months has also seen the growing commercialisation of sodium-ion batteries (see *Lithium* chapter), which is expected to have both EV and stationary storage applications. Despite these emergent challenges, the energy transition and the widespread take-up of EVs globally is likely to see noticeable growth in nickel demand from this sector in the next few years.

US trade and industrial policies to alter global nickel market

In the US, considerable new investment in domestic manufacturing capacity is expected to result in growing demand for nickel from the North American market over the outlook period. The surge in investment comes as a consequence of policies such as the Infrastructure Investment and Jobs Act (IIJA) and Inflation Reduction Act (IRA). A key emerging industry is the US' domestic electric vehicle sector, with more than US$100 billion of reported investment in the US battery supply chain following the introduction of the IRA. Similarly, investments in nickel-intensive clean energy applications such as hydrogen, nuclear and wind power generation have totalled more than US$6.5 billion post-IRA.

Higher tariff rates on Chinese materials and technologies announced in May by the US Administration are likely to contribute to further shifts in global nickel consumption patterns over the outlook period to 2026. The US Government is proposing an increase in tariff rates on electric vehicles (from 25% to 100% in 2024) and related clean energy technologies such as battery components and critical minerals (to 25%). While the impacts to China's EV exports are likely to be limited (see *Lithium chapter*), the tariff increases are expected to have a significant impact on stationary storage products and materials, and further stimulate consumption of nickel in the US, the world's fourth largest consumer in 2023.

World nickel demand is projected to grow by 3.6% annually over the outlook period. Clean energy technologies, including EVs and low emission power generation technologies — such as wind, hydro and geothermal — are expected to be the primary driver of growth. Demand from traditional uses of nickel (such as stainless steel in consumer goods and construction) is expected to be steady.

13.3 World production

Indonesia fuelling further supply growth in 2024

World mined nickel production grew by 6.9% year-on-year in the March quarter 2024, driven almost exclusively by a continued expansion of Indonesian supply. World refined nickel output rose by 7.4% in the March quarter 2024, with Indonesia again accounting for the vast majority of growth (Figure 13.4). Indonesia is estimated to have added more than 86,000 tonnes of new nickel output so far this year (compared to the comparable period in 2023), and is on track to add 10% to global production capacity in 2024 (Figure 13.3). This has come despite notable delays in the nation's issuance of mining permits so far in 2024.

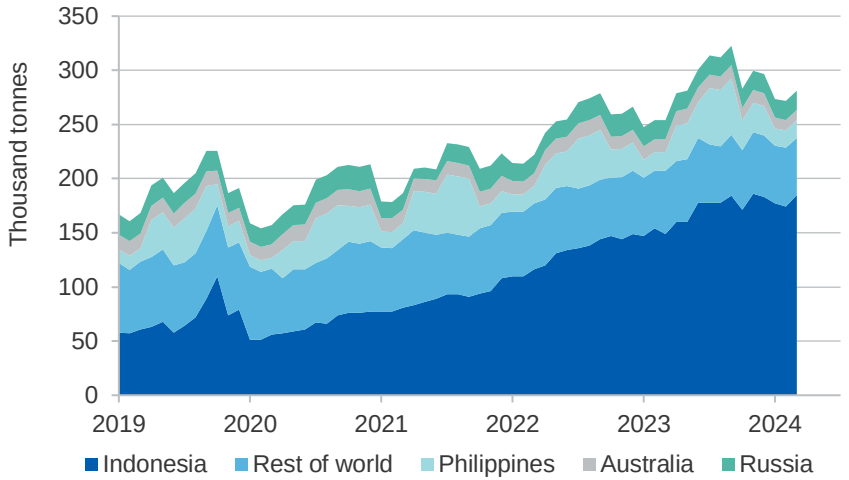
Indonesia's vast reserves and recent government policies have seen the nation's nickel production grow from 10% of world mine output in 2016, to 55% in 2023. The nation's recent expansion has driven cuts to production elsewhere — estimated to be about 10% of world supply capacity — by other major producers in 2024, including New Caledonia, Dominican Republic, Myanmar and Australia (see *Australia* section). New Caledonia is seeing social unrest which could further alleviate the supply glut.

The ongoing geographical concentration of global nickel mining is forecast to be a key trend over the outlook period, with Indonesia expected to account for more than 60% of global mined supply by 2026. The Indonesian Government is also reported to be exploring an 'OPEC-like' organisation for a small cohort of major nickel-producing countries, in an effort to better coordinate future supply of the mineral.

Over the outlook period, annual world mine output is forecast to rise by 5.7%. Growth will continue to be driven by increased Indonesian supply through the continued ramp up of existing industrial parks such Weda Bay and Morowali, and prospective projects such as the IGP Pomalaa project. New projects in Canada and Africa will also make a small contribution to the global expansion in nickel production in the next few years.

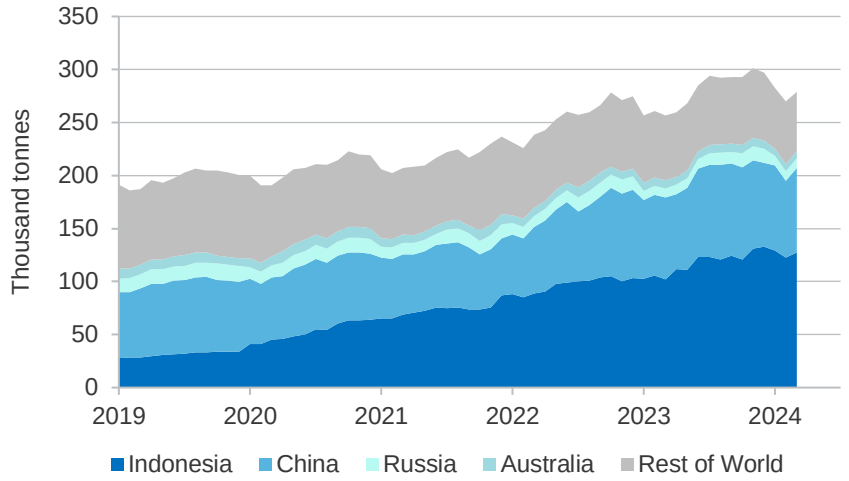
The 2020 ban on the export of nickel ores by the Indonesian Government has led to considerable Chinese investment — more than US$30 billion by some estimates — in Indonesian processing capacity. This has prompted a dramatic rise in the production of intermediate and refined products in Indonesia in recent years (Figures 13.4 and 13.5), with over 80% of Indonesian battery-grade nickel production expected to come from majority Chinese-owned producers in 2024. While this commercial development has prompted considerable growth in the production of nickel matte in Indonesia in the last few years, the markedly higher emissions associated with this process (about 6 times the intensity of sulphide-based production according to the IEA) is considered by some market viewers as limiting the upside potential of this product over the longer-term.

Figure 13.3 World mined nickel production



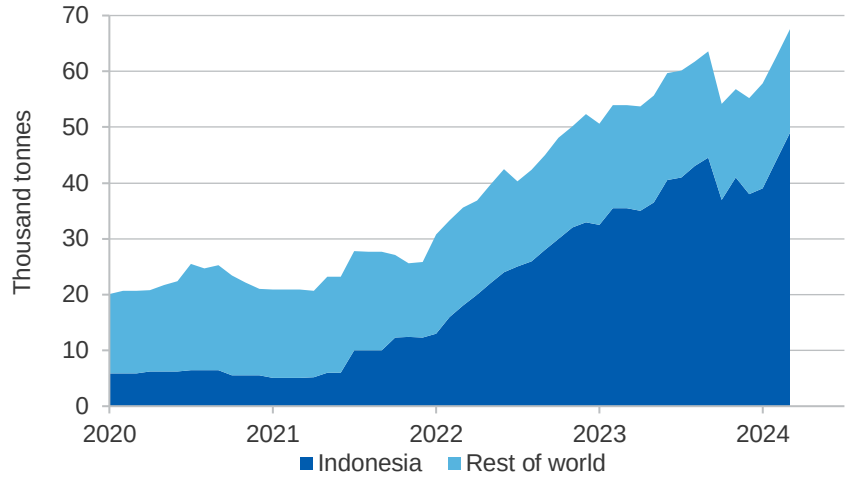
Source: International Nickel Study Group (2024); Department of Industry, Science and Resources (2024)

Figure 13.4 World refined nickel production



Source: International Nickel Study Group (2024); Department of Industry, Science and Resources (2024)

Figure 13.5 World intermediate nickel production



Source: International Nickel Study Group (2024); Department of Industry, Science and Resources (2024)

Global production of intermediate products — which can then be refined into nickel metal or directly into the battery supply chain — continued to see strong growth in the March quarter 2024, rising 19% year-on-year. Indonesia accounts for the vast majority of global production, around 70% so far in 2024 (Figure 13.5). Indonesia has been aided by technological innovation commercialised by Chinese firm Tsingshan in 2021, which made possible the processing of lower-quality, laterite nickel pig iron (NPI) into grade 1 'battery grade' nickel products (via the production of matte).

The rapid growth of Indonesian nickel refining capacity in recent years reflects ongoing government policies to grow the country's downstream processing of minerals, as well as more recent ambitions to establish a domestic electric vehicle sector. Indonesia expects its first EV battery cell factory to start production in 2024.

World refined nickel production is forecast to grow 4.3% annually over the outlook period. Indonesia and China are expected to be the major contributors to this growth, and account for around 75% of global refined nickel supply by 2026.

13.4 Prices

LME bans and supply cuts stabilised prices in recent months

Following a 40% fall in the benchmark world nickel price (to a low of US$15,660 a tonne in February 2024), prices have stabilised and risen in recent months. The estimated average price in the June quarter was US$18,500 a tonne, around a 20% gain on February lows (Figure 13.6).

Despite a structural oversupply in global nickel markets, recent closures and cuts to global production (see *World Production* section), have helped to drive the recent price recovery, alongside continued strength in global demand (particularly from China). This has come despite a slowing rate of growth in global EV sales so far in 2024, as well as the continued rise in non-nickel lithium-ion batteries (see *World Demand* section).

The London Metals Exchange (LME) notice in April that it would no longer accept nickel originating from Russia also appears to have contributed to the recent rise in prices. Russia was the world's fourth largest producer of refined nickel in 2023 (4% of global output). Russian nickel also accounted for one-third of total LME stocks immediately prior to the ban.

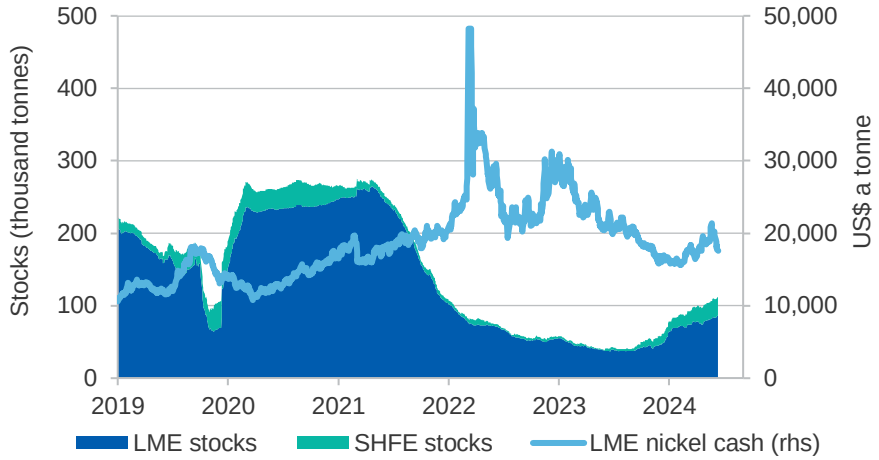
Healthy growth in nickel supply in the last year has seen a rebuild of inventories on the major exchanges (the LME and Shanghai Futures Exchange) so far in 2024. However, current levels remain well below their 10-year averages, providing a further upside risk to prices in the near term.

Excess global supply an ongoing downside risk to prices over outlook

The benchmark LME nickel price is forecast to average around US$17,800 a tonne in 2024. China and Indonesia are expected to see further growth in demand this year, across traditional and emerging downstream users. Announced mine production cuts so far in also appear to be contributing to a better-than-expected global nickel supply balance in the near-term.

With solid growth in mined and refined supply projected to continue over the outlook period, the resulting oversupply is likely to contain nickel prices to 2026. The LME nickel price is expected to average US$18,400 a tonne in 2025, and around US$18,800 a tonne in 2026.

Figure 13.6 Nickel spot price and stock at exchanges



Source: LME (2024); Department of Industry, Science and Resources (2024)

13.5 Australia

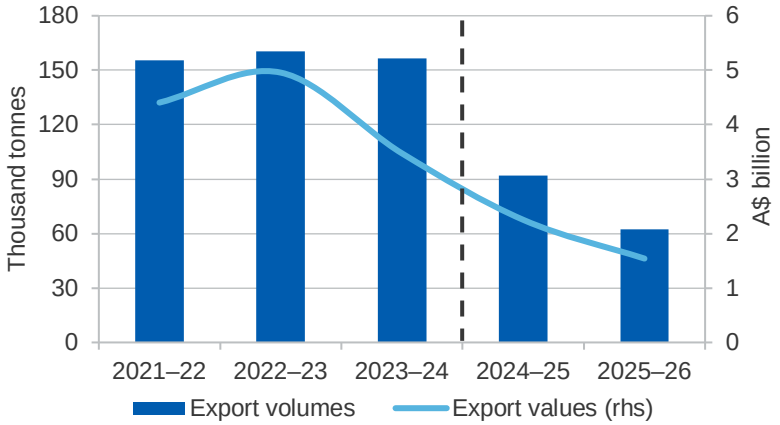
Lower prices continuing to impact Australian production in the near-term

The recent (and significant) fall in nickel prices is expected to result in a substantial drop in Australia's total mined and refined nickel production through to 2025–26. Recent price falls have seen mine closures and reduced output from several Australian producers, as well as delays in planned projects. In April, First Quantum announced Ravensthorpe would enter care and maintenance, after reducing operations earlier in 2024. BHP is also continuing to study options for Nickel West, including its prospective nickel-copper greenfield project West Musgrave.

Australian mined nickel production is projected to fall by around 25% in 2024–25, with a similar fall in refined output. Reduced export volumes are expected to persist through to end of the outlook period (Figure 13.7).

Despite recent price falls, new Australian nickel projects are expected to come into production from 2026. These include emerging products such as Mixed Hydroxide Precipitate and nickel sulphate (an emerging process for the production of cathode materials for lithium-ion batteries).

Figure 13.7 Nickel export volumes and values



Source: ABS (2024) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources estimates (2024)

Export earnings to be impacted by falling nickel prices and production cuts

Weaker prices and lower export volumes are expected to impact Australia's nickel export earnings over the next few years. Total earnings in 2023–24 are estimated to have fallen to $3.5 billion (from $5.0 billion in 2022–23). Australia's export earnings from nickel are forecast to fall further to $2.3 billion in 2024–25 and $1.5 billion in 2025–26 as lower prices and export volumes continue to impact Australia's nickel industry.

Exploration expenditure in 2024 lower on weaker nickel price

Nickel and cobalt exploration expenditure in Australia for the March quarter 2024 was $49 million. This was 40% lower than the comparable period in 2023. Exploration expenditure in the last 12 months to the March quarter 2024 was also 11% lower year-on-year.

Revisions to the outlook

Compared to the March 2024 *Resources and Energy Quarterly*, nickel exports earnings have been revised down by $0.2 billion in 2024–25 and $0.9 billion in 2025–26. This is a result of a downward revision to Australian production forecasts over the period.

Table 13.1: Nickel outlook

						Annual percentage change		
World	**Unit**	**2023**	**2024[f]**	**2025[f]**	**2026[f]**	**2024[s]**	**2025[f]**	**2026[f]**
Production								
– mine	kt	3,675	3,896	4,067	4,349	6.0	4.4	6.9
– refined	kt	3,357	3,618	3,791	3,940	7.8	4.8	3.9
Consumption	kt	3,192	3,478	3,530	3,734	9.0	1.5	5.8
Global balance		165	140	261	206			
Closing stocks	kt	856	996	1 257	1 463	16	26	16
– weeks of consumption		14	15	19	20	7	24	10
Prices LME								
– nominal	US$/t	21,470	17,772	18,375	18,800	-17	3.4	2.3
	USc/lb	974	806	833	853	-17	3.4	2.3
– real [b]	US$/t	22,102	17,772	18,015	18,061	-20	1.4	0.3
	USc/lb	1,003	806	817	819	-20	1.4	0.3
Australia	**Unit**	**2022–23**	**2023–24[f]**	**2024–25[f]**	**2025–26[f]**	**2023–24**	**2024–25[f]**	**2025–26[f]**
Production								
– mine [c]	kt	153	133	96	87	-13	-28	-9
– refined	kt	97	87	71	51	-10	-18	-28
– intermediate		38	42	17	7	12	-59	-59
Export volume [dg]	kt	161	156	92	62	-2.6	-41	-32
Export value[g]								
– nominal value	A$m	4,956	3,473	2,252	1,540	-30	-35	-32
– real value [e]	A$m	5,158	3,473	2,184	1,454	-33	-37	-33

Notes: **b** In 2024 calendar year US dollars; **c** Quantities refer to gross weight of all ores and concentrates; **d** In 2023–24 financial year Australian dollars; **f** Forecast; **r** Average annual growth between 2023 and 2029 or 2022–23 and 2028–29; **z** Projection.

Source: ABS (2024) International Trade, 5465.0; LME (2024) spot price; World Bureau of Metal Statistics (2024) World Metal Statistics; Department of Industry, Science and Resources (2024).

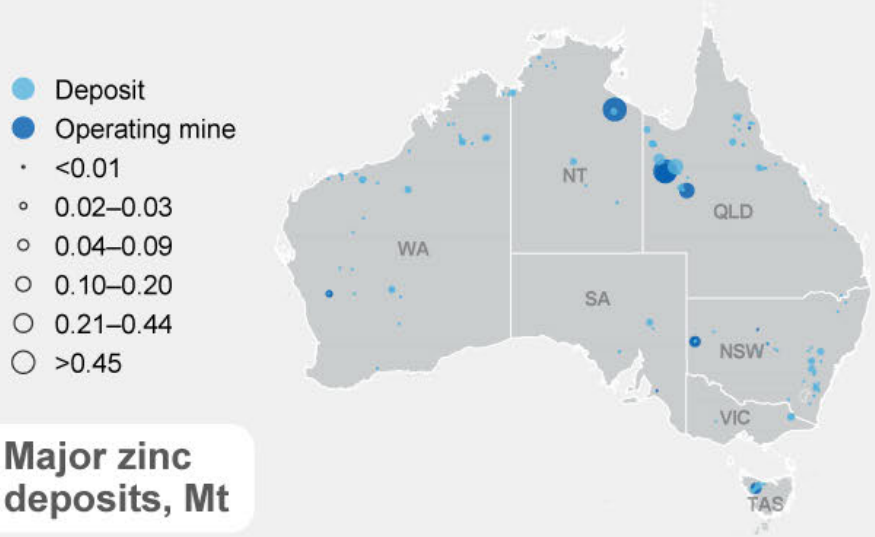
Zinc

Australia's Zinc sector

About 1/3
ores & concentrate production **refined domestically**

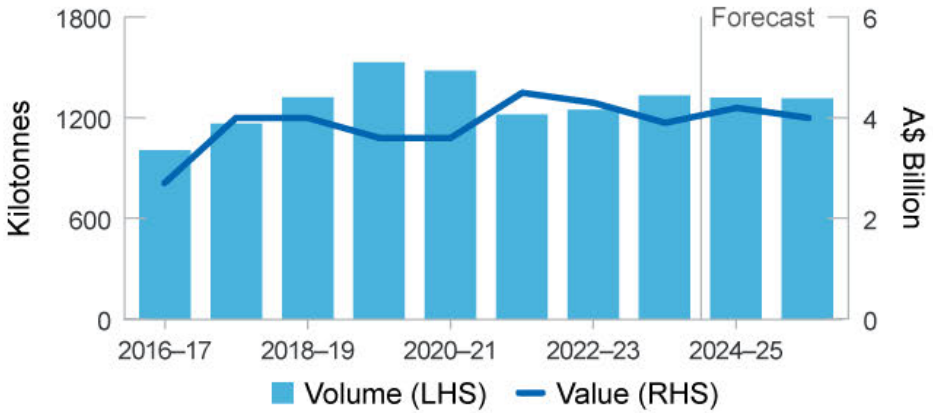
31%
of the world's known **zinc resources**

3rd largest
zinc producer globally in 2022



Major zinc deposits, Mt

Australian zinc exports



Outlook

Prices strengthened in the June quarter

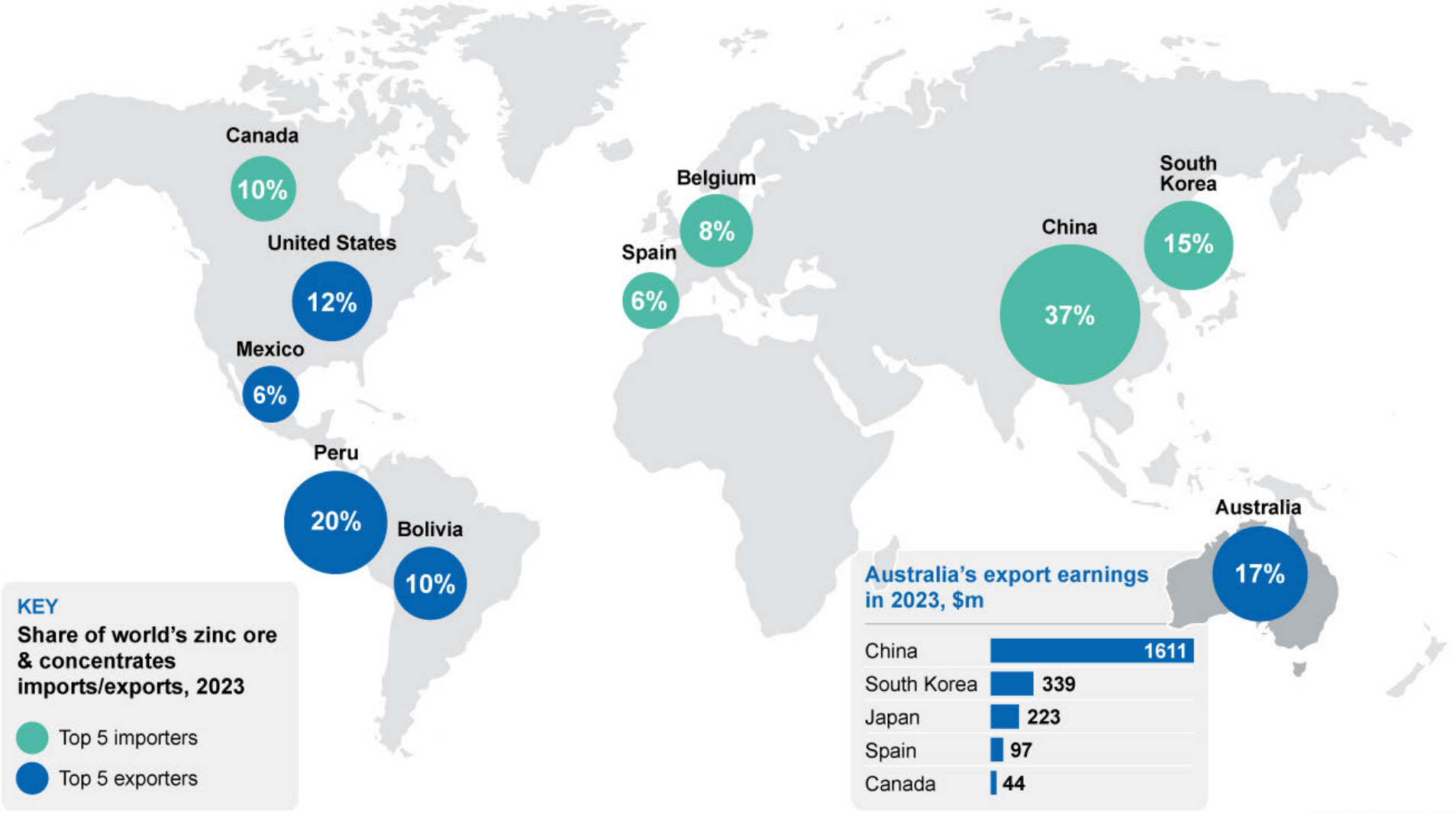
Future earnings to **remain stable**

Australian **production** outlook expected to **pick up** over the outlook

Zinc exploration expenditure **rises** in March quarter

SOURCE: GA; DISR; OCE

Zinc TRADE MAP



SOURCE: ILZSG; ABS

14.1 Summary

- Zinc demand has strengthened in recent months due to improvements in the outlook for global industrial production. After large falls in 2023, the zinc price is forecast to rise modestly over the outlook period, from about US$2,700 a tonne in 2024 to about US$2,800 a tonne by 2026.
- Australia's zinc production is expected to ease over the outlook as production tapers off in some of Australia's older zinc mines.
- Australia's zinc exports are forecast to increase from $3.9 billion in 2023–24 to $4.2 billion in 2024–25 before easing to $4.0 billion in 2025–26.

14.2 World consumption

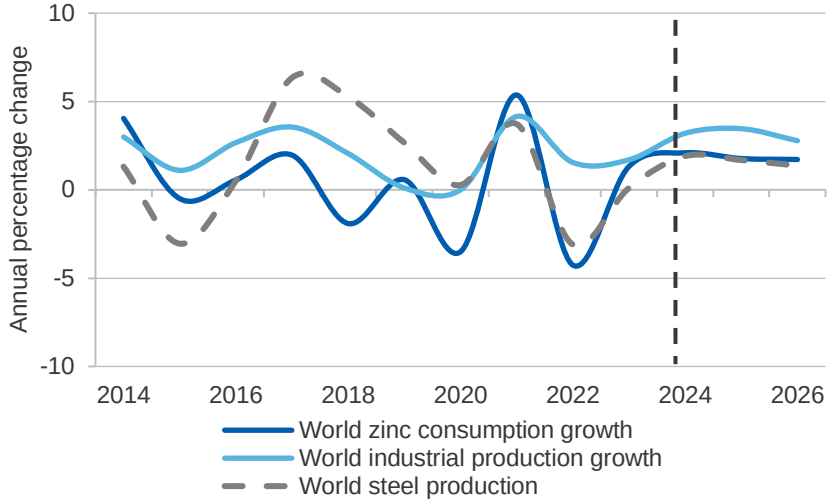
Global refined zinc consumption strengthened in the March quarter 2024

Zinc consumption is heavily affected by the global industrial cycle, reflecting its primary role in galvanising steel (see Figure 14.1) and its use in the manufacturing, construction and automotive sectors. Growth in these sectors pushed global refined zinc consumption up an estimated 2.2% year-on-year in the March quarter 2024. Consumption rose in China (1.6%) and ex-China Asia (6.8%) but fell in the US (by 6.9%). Consumption was effectively flat in the European Union.

China is the world's largest consumer of zinc, and its demand has recently been supported by growth in infrastructure and manufacturing investment, along with steel-intensive exports (including automobiles and whitegoods). However, conditions in China's property sector remain poor despite government support, with many projects stalled and consumer confidence low. New home sales, floor space under construction and fixed asset investment in real estate were all down substantially in year-on-year terms in the March quarter 2024 (see *Steel* chapter).

World zinc consumption is forecast to grow at a relatively modest 1.7% a year on average over the outlook period to 2026 (see Table 14.1). This reflects a softening global growth outlook and persistent economic issues in China (see *Macroeconomic Outlook* chapter).

Figure 14.1: Zinc consumption vs industrial and steel production



Source: International Lead Zinc Study Group (2024); CPB Netherlands Bureau for Economic Policy Analysis (2024); Department of Industry, Science and Resources (2024).

The global energy transition will likely have mixed effects on zinc demand, increasing zinc demand for some applications but potentially reducing it for others. Growing construction and rapid deployment of renewable energy infrastructure should support zinc demand given the complementary role zinc plays with steel as an input to wind turbines, solar panels and transmission towers. However, growing electric vehicle adoption could weaken demand for zinc as automakers replace steel with lighter materials such as aluminium and composites to improve battery range.

14.3 World production

Mine closures and project delays continue to disrupt supply

World mine production fell by around 2.8% year-on-year in the March quarter 2024. Mine production fell 2.6% year-on-year in China, which accounts for a third of global production. Production also fell in the EU (by 3.4%) and US (by 1.0%).

Sharp falls in zinc prices over the past two years disrupted global zinc mine supply, with several mines being placed into care and maintenance. Over the past year production has paused at the Tara mine in Ireland — which is the largest zinc mine in Europe and the Aljustrel mine in Portugal. Several projects also face delays in startup, including the Buenavista project (Mexico), Ozernoye (Russia) and Vares (Bosnia).

Global refined zinc production rose by 0.4% in the March quarter 2024. Output in China — the world's largest zinc refiner — rose by 2.0% in the March quarter 2024. A surge in refining capacity in China combined with a shortage of concentrate has resulted in a rapid decline in the spot treatment price for zinc ore imported to China. Spot treatment costs fell to US$20–45 per tonne in recent months, down from an average of US$181 a tonne in 2023. Treatment costs were pushed up in 2023 when high energy prices forced the closure of some European zinc smelters, leading to a shortfall in global refining capacity.

Surplus in concentrate market eases due to falling mine production

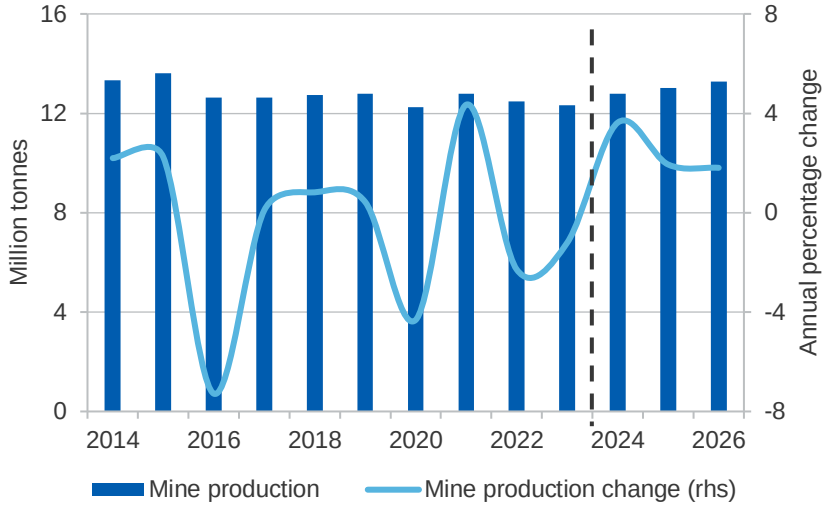
Over the outlook period, global zinc mine output is forecast to achieve average annual growth of 1.9% (Figure 14.2). The fall in mine production and rise in refining production over the past year has eliminated much of the surplus in the concentrate market evident in previous years. Refined production is expected to rise by 1.8% a year on average, with most new capacity located in China.

14.4 Prices

Zinc prices rise as base metal prices surge

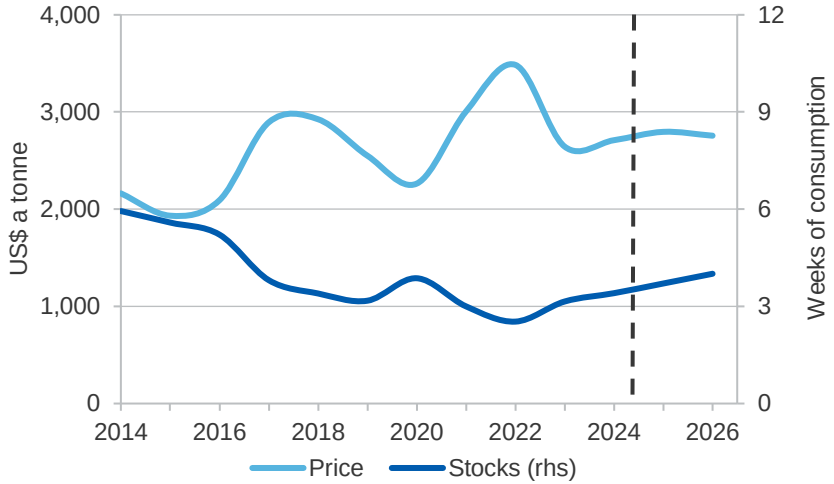
The London Metal Exchange (LME) spot zinc price rose sharply in the June quarter 2024. After averaging about US$2,450 a tonne in the March quarter 2024, daily LME zinc spot prices reached US$3,000 a tonne in late May following surging global investor interest in base metals over the June quarter. Prices remain below the 2023 highs (of above US$3,400 a tonne), which came about due to market concerns over shortfalls in refining capacity. After experiencing substantial volatility in 2023 zinc stocks have recovered, averaging around 250,000 tonnes in May 2024.

Figure 14.2: World zinc mine production, metallic content



Source: International Lead Zinc Study Group (2024); Department of Industry, Science and Resources (2024).

Figure 14.3: Zinc prices and stocks



Source: LME (2024); International Lead Zinc Study Group (2024); Department of Industry, Science and Resources (2024).

The LME zinc price is forecast to average around US$2,700 a tonne in 2024, picking up slightly in 2025 and 2026 as global industrial production and construction grow (Figure 14.3). Higher zinc prices should take pressure off mine margins, easing pressure for further price-induced mine closures.

14.5 Australia's exports and production

Export earnings fell in March quarter due to weak prices and ore volumes

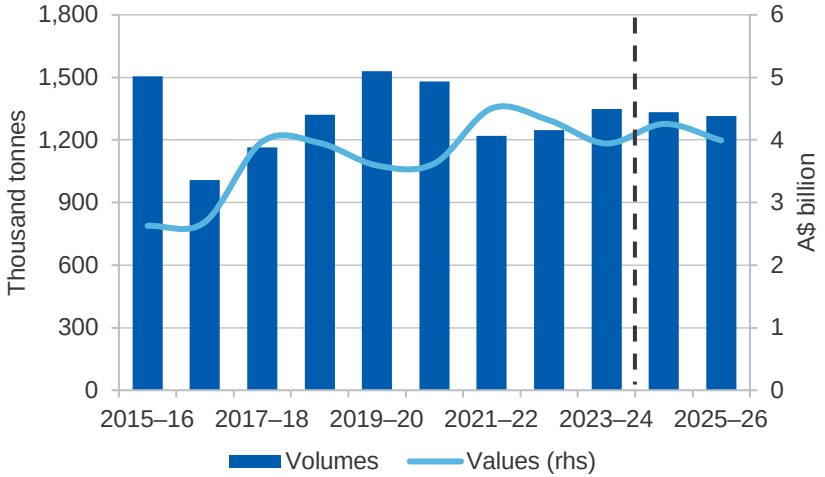
Australia's export earnings for both zinc concentrates and refined zinc (combined) fell 20% year-on-year, to $0.8 billion in the March quarter 2024. The decline was largely driven by falls in prices received for exports of ore and refined zinc (down 21% and 13%, respectively). A decline in zinc ore export volumes (by 8.6% year-on-year) also reduced earnings in the March quarter.

Australian mine production rose by 16% year-on-year in the March quarter 2024. This came off a low base, with production in 2023 adversely affected by the closure of several small mines affected by low prices. Australian production was further disrupted in early 2024 when concentrate shipments to China were suspended after flooding prevented the movement of material from mines in Queensland. The rail line serving Cannington, Dugald River and Mt Isa re-opened in late-February.

Australian mine output is expected to grow by an average 3.7% per year over the outlook, supported by an expansion of the Century mine and production from Golden Grove following the completion of upgrades.

Australia's export earnings for concentrates and refined zinc (combined) are estimated to have fallen by 9.7% to $3.9 billion in 2023–24 from 2022–23. A rise in export volumes was more than offset by the impact of falling prices over the year (Figure 14.4). Australian export earnings are forecast to remain at around $4 billion over the next two years.

Figure 14.4: Australia's zinc exports, metallic content



Source: ABS (2024) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2024).

Exploration expenditure increased in the March quarter

Exploration expenditure for silver, lead and zinc increased 0.5% year-on-year in the March quarter 2024. Exploration expenditure slumped in 2020 — due to the COVID pandemic — but recovered as zinc prices rose over 2021 and 2022. Exploration expenditure can be expected to increase further if zinc prices remain at the current high levels through the rest of 2024.

Revisions to the outlook

Compared to the March 2024 *Resources and Energy Quarterly*, forecast export earnings for 2024–25 and 2025–26 have been revised up by 9.1% and 7.4% respectively, due to an upward revision in the zinc price forecast.

Table 14.1: Zinc outlook

						Annual percentage change		
World	**Unit**	**2023**	**2024[f]**	**2025[f]**	**2026[f]**	**2024[f]**	**2025[f]**	**2026[f]**
Production								
– mine	kt	12,336	12,783	13,031	13,266	3.6	1.9	1.8
– refined [a]	kt	13,935	14,012	14,270	14,517	0.6	1.8	1.7
Consumption	kt	13,640	13,926	14,173	14,416	2.1	1.8	1.7
Closing stocks	kt	824	910	1,007	1,108	10.4	10.7	10.0
– weeks of consumption		3.1	3.4	3.7	4.0	8.2	8.7	8.1
Price								
– nominal	US$/t	2,644	2,710	2,796	2,756	2.5	3.2	-1.4
	USc/lb	120	123	127	125	2.5	3.2	-1.4
– real [b]	US$/t	2,722	2,710	2,741	2,648	-0.4	1.1	-3.4
	USc/lb	123	123	124	120	-0.4	1.1	-3.4
Australia	**Unit**	**2022–23**	**2023–24[s]**	**2024–25[f]**	**2025–26[f]**	**2023–24[s]**	**2024–25[f]**	**2025–26[f]**
Mine output	kt	1,154	1,153	1,243	1,239	-0.1	7.8	-0.3
Refined output	kt	424	477	515	525	12.3	8.1	1.9
Export volume								
– ore and concentrate [c]	kt	1,886	1,978	1,853	1,823	4.9	-6.3	-1.6
– refined	kt	388	442	482	492	13.8	9.1	2.0
– total metallic content	kt	1,247	1,333	1,319	1,315	6.9	-1.1	-0.3
Export value								
– nominal	A$m	4,315	3,896	4,209	3,992	-9.7	8.0	-5.1
– real [d]	A$m	4,491	3,896	4,081	3,768	-13.2	4.7	-7.7

Notes: **a** Includes secondary refined zinc; **b** In 2024 US dollars; **c** Quantities refer to the gross weight of all ores and concentrates; **d** In 2023–24 Australian dollars; **f** Forecast; **s** Estimated.

Source: ABS (2024) International Trade in Goods and Services, Australia, Cat. No. 5368.0; Company reports; Department of Industry, Science and Resources (2024); International Lead Zinc Study Group (2024); Wood Mackenzie (2024); LME (2024).

Lithium

Australia's lithium sector

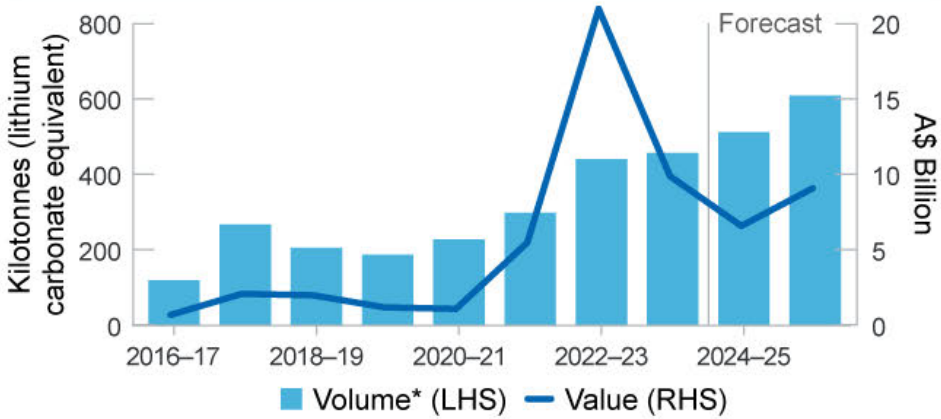
98%
of spodumeme **exported to China**, 2022-23

45%
of global lithium **extraction** in 2023, with **2nd** highest reserves globally

12%
of lithium mined in Australia to be **domestically refined** by 2026

Major lithium deposits, Kt

Australian lithium exports



Outlook

Export earnings projected to **more than halve** due to falling prices

EV sales slows as governments implement policies to shift global supply chains

Australian mine production to **keep growing** due to a strong project pipeline

Argentina and Zimbabwe are expected to emerge as **major producers**

SOURCE: ABS; GA; Wood Mackenzie; WA DMIRS; DISR; OCE

*Volume in this chart reflects lithium content export in products including spodumene concentrates and lithiuim hydroxide

15.1 Summary

- Australia's lithium export earnings are projected to fall by more than half over the forecast period — from $20 billion in 2022-23 to $9.1 billion in 2025-26. The fall is set to be driven by weaker lithium prices, which are expected to be partially offset by a 53% increase in Australia's lithium mine production over the outlook period. Export earnings forecasts were revised down from the March 2024 REQ.
- Global lithium demand is projected to rise by 17% a year between 2023 to 2026, driven by the rising adoption of electric vehicles. However, weak Chinese demand and shifting policies in the US and EU could see EV sales growth continue to remain slow.
- Rise in global lithium supply will see the lithium market remain in surplus. Chinese lithium lepidolite production have seen only modest declines despite falls in prices, and there are sizeable project pipelines in Australia and among emerging producers such as Argentina and Zimbabwe.

15.2 World Demand

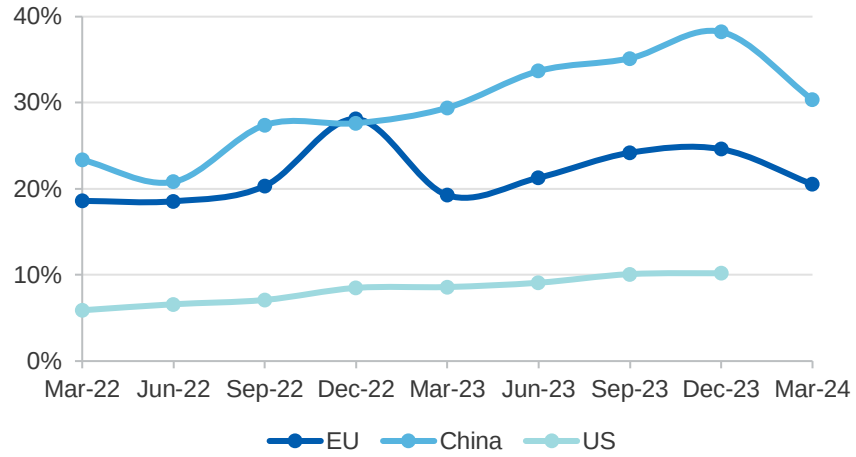
EV penetration fell in key markets, defying historical growth trends

Electric vehicle (EV) penetration in major vehicle markets fell in the March quarter 2024. Soft consumer demand in China and policy shifts in the US and the EU contributed to the reversal in EV market penetration growth. In the passenger vehicle market, EV penetration fell quarter-on-quarter in China and the EU in the March quarter 2024, by 7.9 and 4.1 percentage points respectively (see Figure 15.1). Kelly Blue Book estimates that penetration rates of battery electric vehicles (BEVs) in the US fell from 8.1% to 7.3% quarter-on-quarter in the same period.

In the US, tightened eligibility requirements for IRA tax credits contributed to the fall in adoption. The US released draft rules on eligibility for EV tax credits under the IRA in early December 2023. While the rules were labelled as draft, enforcement began at the start of 2024. As a result, eligible EV models shrank from 43 at end 2023 to 19 on 2 January 2024.

The draft rules mean EVs with battery components or critical minerals sourced from a "foreign entity of concern" (FEOC) do not qualify from part or all of the EV tax credits under the IRA from 2024 and 2025 respectively. An entity is considered a FEoC if 25% or more of its board seats, voting rights or equity interests, are held by or subject to the jurisdiction or direction of the governments of China, North Korea, Russia or Iran. The final rules were released in May 2024, confirming the eligibility requirements relating to the sourcing of lithium, amongst other mineral inputs to EVs.

Figure 15.1: EV penetration rate in major vehicle markets



Notes: Data presented for the EU and China are for the passenger vehicle market, while data presented for the US is for the light duty vehicle market. EVs include both BEV and plug-in hybrid electric vehicle (PHEV).

Source: European Automobile Manufacturers Association (2024), China Association of Automobile Manufacturers (2024), Alliance for Automotive Innovation (2024), Marklines (2024)

Much of the fall in EV penetration in the EU was driven by Germany, where EV subsidies of up to 4,500 euros per vehicle ended abruptly in late 2023. In November 2023, Germany's Federal Constitutional Court ruled that the subsidy's funding mechanism violated a constitutional limit on the

federal deficit. The German parliament approved the 2024 Budget in February, confirming the EV subsidy will not be reinstated in 2024.

Additional factors contributing to the recent reversal in EV penetration in the US and the EU include higher interest rates, which raise the cost of EVs relative to internal combustion engine vehicles (ICEVs) because EVs tend to have a higher upfront price. EVs have also faced much higher depreciation costs over the last few years, as large cuts in the price of new EVs have led to falls in the value of second-hand EVs.

The decline in EV penetration rates in China reflects broader weakness in household consumption (see *Macroeconomic Outlook* chapter). ICE passenger vehicle sales in China have proved to be more resilient, as the sales volume in major cities is heavily influenced by government quotas.

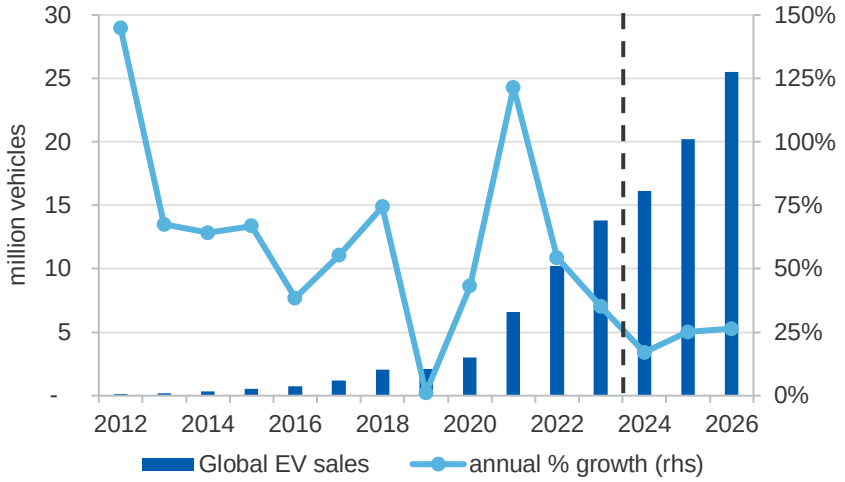
EV sales growth to slow as geostrategic competition drives policy

Global EV sales growth is forecast to slow to 17% in 2024, compared to an average of 46% a year between 2018 and 2023 (see Figure 15.2). EV adoption faces challenges ranging from rising trade barriers and supply chain concerns in an environment of ongoing geostrategic competition, including impacts from the new eligibility rules for IRA tax credits. The required reorientation in supply chains will likely slow EV cost declines in major vehicle markets around the world. Some of the March quarter 2024 weakness in EV adoption rates attributable to policy shifts is expected to be temporary, as some EV buyers brought forward plans to buy EVs to the December quarter 2023 rather than the March quarter 2024, to take advantage of subsidies ahead of rule changes in the US and Germany.

The European Commission announced on 12 June 2024 it had concluded that BEVs from China are being subsidised and will impose duties on Chinese producers ranging from 17.4% to 38.1% from 4 July 2024. These tariffs could reduce sales or raise prices of Chinese EVs in Europe. The European Federation for Transport and Environment found that 20% of BEVs sold in the EU in 2023 were imported from China.

At present, Chinese EV exports to the US are insignificant, as they are subject to a 27.5% tariff (inclusive of a general 2.5% duty on all foreign-made autos) and are not eligible for IRA tax credits. Tariffs on Chinese EV exports to the US are being increased to 102.5% this year, and tariffs on batteries and battery parts will increase from 7.5% to 25%. The tariff on batteries will likely raise costs for US EV models which use these imported batteries.

Figure 15.2: Global passenger electric vehicle sales



Source: IEA (2024), Department of Industry, Science and Resources (2024)

Policymakers in the EU and the US have stepped back from more ambitious vehicle emissions standards proposals which might have boosted EV sales. The US Environmental Protection Agency announced new vehicle emissions standards in March 2024, requiring average fleet emissions to be reduced by 56% by 2032 — less than the 67% previously proposed. In April 2024, in a departure from a 2022 proposal, the European Council approved a new Euro 7 vehicle emissions standard that does not reduce emissions limits for cars and vans.

Weakness in Chinese consumer spending is also expected to slow EV sales, as China makes up the majority of the global EV market. Part of this

will be offset by policy changes including a government incentive offering for up to 10,000 yuan (about US$1,400) for an ICE vehicle when purchasing an EV. The scheme was announced in April and took effect from May until end 2024.

EV sales growth is forecast to recover to about 25% a year in 2025 and 2026, as improving battery technology promotes EV adoption. Costs per kWh for lithium-ion batteries fell by an average of 16% a year between 2013 and 2023, and technical performance has also improved. Bloomberg New Energy Finance (BNEF) forecasts that average battery prices will decrease from an average of US$139/kWh in 2023 to $80/kWh in 2030, which will deliver substantial improvements to the cost competitiveness of EVs relative to ICEVs.

Box 15.1: China's intervention in EV markets – an industrial policy case study

Targeted government interventions in selected industries have been on the rise globally, with high-profile programs in recent years such as the US Inflation Reduction Act and CHIPS Act, and the European Union's Green Deal Industrial Plan. In a 2023 paper titled *The New Economics of Industrial Policy*, Juhasz and others found that the number of industrial policies implemented by government globally rose rapidly from 2018, from an average of 202 policies a year between 2013 and 2017 to 1070 policies a year between 2018 and 2022. The International Monetary Fund (IMF) *Fiscal Monitor, April 2024* found that direct, well-targeted fiscal support towards specific sectors or technologies that generate high knowledge spillovers could be more effective at raising economy-wide innovation and productivity growth than sector-neutral research and development support.

The emergence of Chinese companies as market leaders in EV and batteries provides an example of the impact of government intervention in markets can support new technologies. In 2023, Chinese companies BYD and CATL held 17% of the global EV market and 37% of the global EV battery market, respectively. China has also emerged as a leader in battery research: the Australian Strategic Policy Institute's *Critical Technology Tracker* found that authors associated with Chinese institutions accounted for 66% of the top 10% most-cited English language papers on batteries between 2018 and 2022.

When major intervention by the Chinese government in the EV industry began in 2009, China's vehicle manufacturing sector made up of a mix of private and state-owned firms, many in joint venture with foreign car makers. The industry made ICE vehicles for the domestic market, protected by tariffs on imported cars. China was also a producer of batteries for mobile devices, where both BYD and CATL's predecessor, Amperex Technology Limited, held market share. However, these firms were a small part of the global market for mobile device batteries, which was dominated by Japanese and Korean companies at the time.

China transformed its vehicle industry through strong fiscal support

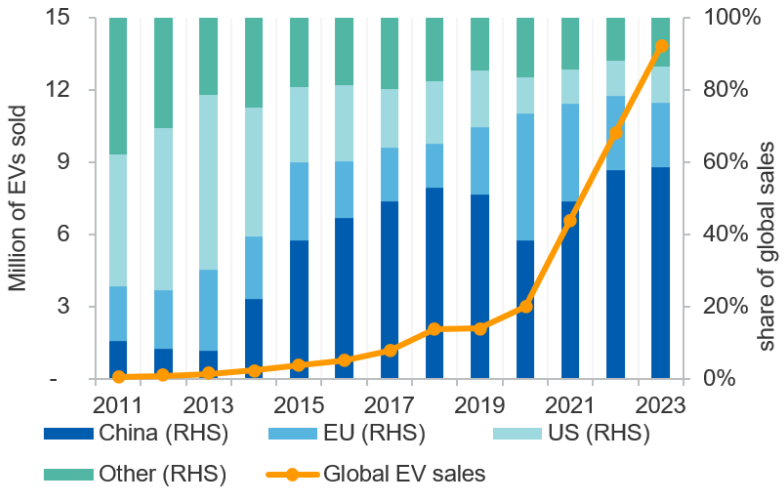
Starting from 2009, China implemented a mix of policies focused on EV demand, resulting in a rapid rise in EV sales. In 2009, China began offering subsidies for each EV sold in 13 pilot cities, for both commercial and passenger vehicles. The program was extended to 88 cities by 2013 and made nationwide from 2016, which drove up China's EV sales. As a share of the global market, China's EV sales rose from 8% in 2013 to 53% in 2018 (see Figure 15.3). The value of the subsidy typically covered a large portion of the cost of the vehicle[a] and was dependent on the range of the vehicle. To be eligible for the subsidy, the vehicle must source its battery from a whitelist of approved Chinese suppliers. In many cases, provincial governments would offer an additional matching subsidy.

Furthermore, foreign automakers must enter into a joint venture with a Chinese partner to produce vehicles in China, allowing them to avoid tariffs and access the subsidy. In a 2022 paper titled *Quid Pro Quo, Knowledge Spillover, and Industrial Quality Upgrading: Evidence from the Chinese Auto Industry*, Bai and others estimate that joint ventures in China's automobile industry improved quality of cars for affiliated Chinese firms between 2007 and 2014, driven by learning and knowledge spillover

through worker flow and supplier networks.

Other policies which supported EV demand in China included a waiver of sales tax (generally 10%) from 2011, although the tax has been adjusted from time to time. In a 2022 report *Red Ink: Estimating Chinese Industrial Policy Spending in Comparative Perspective* from the Centre for Strategic & International Studies (CSIS) estimates that between 2009 and 2017, China spent 393 billion yuan (about US$58 billion) on the EV sector, with about 60% spent on direct consumer subsidies. Sales tax exemption and government procurement made up the large majority of the remainder. State investment funds were also a channel to support EV companies by providing cheap capital.

Figure 15.3: Region shares of global passenger EV sales



Source: IEA (2024)

Non-financial incentives were also offered, including preferential issuance of licence plates for EVs (in major cities such as Shanghai, Beijing and Guangzhou, licence issuance is subject to strict quotas, allocated through auctions or lotteries), exemption from pollution-related driving restrictions, and preferential access to parking and bus lanes.

In a 2018 report *China's Risky Drive into New Energy Vehicles* from the CSIS, Kennedy argued that a key motivation for Chinese policymakers to support the EV industry was to reduce reliance on foreign technical expertise, in addition to pollution and energy security concerns. Chinese companies could not replicate the best internal combustion engines, but electric motors have fewer parts and are easier to master.

Given the range limitations of electric vehicles in the early 2010s, many of the vehicles built in China during this period were buses and taxies with ranges as low as 80km, which would be returned to a depot to be recharged after completing a route. These vehicles were often built using LFP batteries, which contributed to their short range, while battery manufacturers outside of China focused on NMC batteries to meet range requirements. This difference in research direction contributed to the dominance of Chinese companies in LFP battery technology.

Industry competitiveness rose as government withdrew support

Concerns over the rising fiscal costs as EV adoption rates lifted, as well as the emergence of subsidy fraud cases (with some manufacturers paid subsidies without selling vehicles, or selling vehicles which did not meet technical standards), led to a shift in China's EV policy to reduce the sector's reliance on state support. In 2015, the Chinese government laid out a plan to reduce subsidy support from 2017 and phase out the subsidy fully by 2020. However, the subsidy was extended due to concerns over the pandemic and was only fully phased out at the end of 2022. Chinese EV buyers continue to receive government support in the form exemption from sales tax.

The vehicle emissions standard style "Dual Credit" program was introduced in 2018. The program allows automakers to earn credits from selling EVs or more fuel-efficient vehicles and requires automakers to reach a credit target either by earning the credits or buying them from other automakers.

The Chinese government also relaxed rules requiring foreign companies to entire into joint ventures. Tesla with given an exemption on the joint venture rules to build a fully owned gigafactory in 2018, and the requirement was abolished in 2022. Tesla went on to capture about 7% of China's market share by 2023. According to the IEA's *Global EV Outlook 2024*, there were far more EV companies in China than can possibly survive in a competitive market, and as subsidies were gradually withdrawn, shrinking margins is resulting in consolidation around a small number of robust champions.

Government intervention underpinned the creation of China's EV industry

The experience of China's EV industrial policy supports the findings in the IMF's *Fiscal Monitor, April 2024* that industrial policy targeting sectors with high knowledge spillover can raise innovation and productivity. China's experience also shows that early investment in immature technologies can be a pathway to overtake incumbent technology leaders. The successful establishment of a competitive EV industry in China will create ongoing knowledge spillover benefits without the need for the same level of government support. Furthermore, the policy pivot in 2017 to apply greater competitive pressures to the sector contributed to the establishment of a competitive EV industry in China.

However, China's implementation of its policies focused on leveraging domestic consumer demand, and its large share of the global EV market provides Chinese businesses the certainty needed to make large investments in research and production in EVs and batteries. This experience will be more difficult to be achieved in smaller economies, where domestic demand is not likely to be sufficient to support a strategy to build an end-to-end manufacturing industry. A smaller domestic market means that achieving the required economics of scale for efficient operation will require companies to operate as part of global supply chains. Furthermore, China's EV industry has attracted trade restrictions from the US and the EU, highlighting challenges with managing international relationships when engaging with industrial policy.

Notes: **a** In a 2021 paper titled *The Role of Government in the Market for Electric Vehicles: Evidence from China,* Li and others found that, in 2015, a BEV sold in a participating city with a range greater than 250 km is eligible for 54 thousand yuan (about US$8,600) from the Chinese Central Government, while a BEV with a range of 80 km would be eligible for 31.5 thousand yuan (about US$5,000). The total subsidy including matching provincial government contributions reached up to 100 thousand yuan (about US$16,000) in some cities.

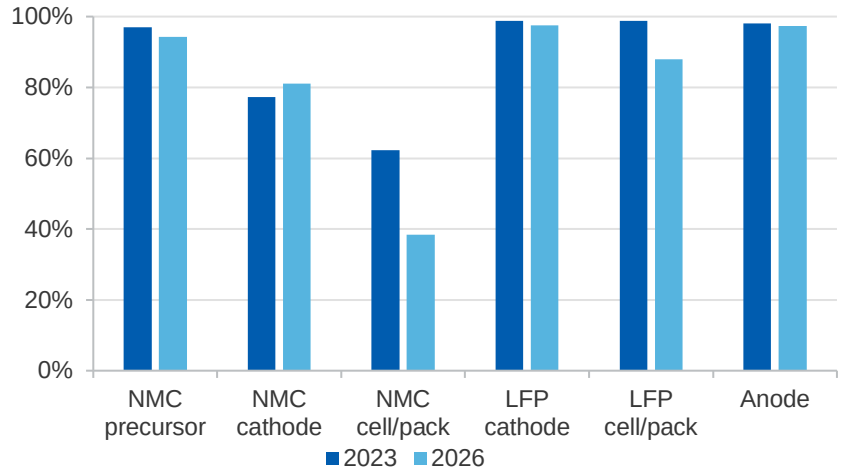
LFP/LMFP batteries cements China's dominance in battery supply chains

Battery production is expected to remain concentrated in China over the outlook period, due to the rising market share of lithium iron phosphate (LFP) and lithium manganese iron phosphate (LMFP) batteries. The vast majority of production of LFP/LFMP batteries is expected to be located in China (see Figure 15.4). The IEA's 2024 report *Batteries and Secure Energy Transition* found that LFP/LMFP batteries in the passenger vehicle market rose to 40% in 2023 and projected the share would reach close to 50% by 2030 in the Stated Policies Scenario (STEPS). For lithium nickel manganese cobalt (NMC) battery production, major investments in recent years should support a rise in shares of production from South Korea, the US, and the EU.

The lower cost of materials for LFP/LFMP batteries is a key advantage in the EV market, as vehicle costs represent the major barrier to EV adoption. The IEA estimates that LFP batteries were over 20% cheaper compared to NMC batteries in 2023. While major patents for LFP batteries expired in 2022, much of the technical expertise remains in China, and investment in LFP batteries outside of China remains limited.

Chinese companies are expected to leverage their expertise in LFP batteries to ramp up production of LMFP batteries over the outlook period. LMFP batteries are expected to retain the material cost advantages of LFP batteries over NMC batteries but achieve a higher energy density than LFP batteries. Industry analysts, including CRU and Fastmarkets, expect older lithium-nickel chemistries with lower energy densities — such as NMC 622 — to be particularly vulnerable to competition from LMFP batteries.

Figure 15.4: China's share of world battery production capacity



Notes: China's share of production capacity is based on DISR analysis of BNEF data. China's share of anode for 2023 is sourced from the IEA.

Source: BNEF (2024), IEA (2024), Department of Industry, Science and Resources (2024)

Sodium-ion batteries to gain market share as performance improves

EVs powered by a sodium-ion battery have begun to be sold commercially in China this year. The IEA projects that sodium-ion batteries will power 5% of EVs sold by 2030 in the STEPS. Sodium-ion batteries could follow a similar commercialisation pathway to LFP batteries: targeting consumers who prefer a lower cost product with acceptable performance over higher cost and higher performance options. The IEA estimates that, if produced at similar scale, sodium-ion batteries can cost 20-30% less than LFP batteries, due to the cheaper material costs. Current versions of sodium-ion batteries have low levels of energy density, but battery manufacturers are targeting substantial improvement in performance.

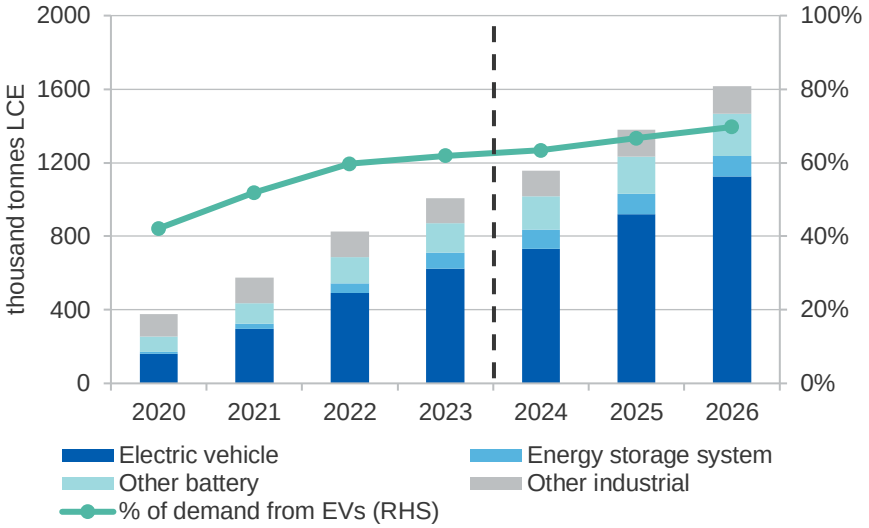
Slower than expected EV demand will pressure lithium demand

Driven by a slowdown in EV adoption, lithium demand growth is expected to be weak in 2024. Demand is expected to pick up in 2025 and 2026 but could face threats from emerging battery chemistries which use less or no lithium. In lithium carbonate equivalent (LCE) terms, global lithium consumption is forecast to rise by 17% per year to 1.6 mt in 2026 (see Figure 15.5), with demand from EVs driving the bulk of the rise.

Improving energy densities of lithium-ion batteries should reduce lithium-intensity of batteries on a per kWh basis. Technologies which could deliver these increases include LMFP batteries and improved NMC batteries — such as the anticipated NMC 955 and NMC 9525 batteries. Sodium-ion batteries, which use no lithium, are expected to take a small share of the EV market over the outlook period.

Offsetting some of this loss in demand is rising average battery pack size, as improving battery technology makes EVs more competitive in markets for larger vehicles.

Figure 15.5: World lithium consumption, by demand source



Notes: Projections are based on DISR analysis of Wood Mackenzie data.

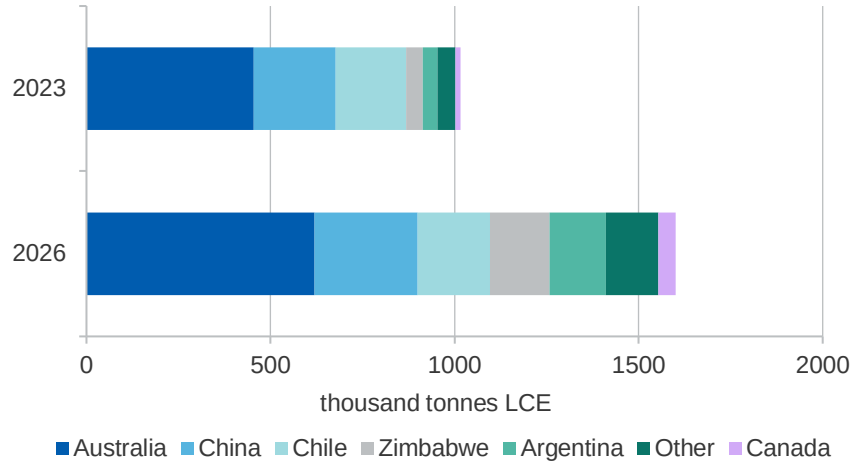
Source: Department of Industry, Science and Resources (2024), Wood Mackenzie (2024)

15.3 World production

Argentina and Zimbabwe to emerge as major lithium producers

Global lithium extraction is forecast to rise by 17% per year to 1.7 mt LCE by 2026 (see Figure 15.6). Australia, Zimbabwe and Argentina are expected to drive supply growth over the outlook period. While production in Australia is expected to increase (see Australia section), Australia's share of global lithium extraction is projected to fall from 45% in 2023 to 39% by 2026 as supply picks up across a diverse range of countries.

Figure 15.6: Global lithium extraction, 2023 vs 2026



Notes: Includes lithium extracted from brines or mines. Projections are based on DISR analysis of Wood Mackenzie data.

Source: Department of Industry, Science and Resources (2024), Wood Mackenzie (2024)

Argentina's lithium extraction is expected to rise from 42 kt in 2023 to 152 kt by 2026. Argentina holds 12% of global lithium reserves and generally has access to lower cost brine resources compared to Australia's hard rock resources. In 2021, the Argentine government's "Investment Promotion Regime for Exports" relaxed capital controls to allow foreign investors to withdraw up to 60% of export earnings from Argentina, for purposes such as paying interest and dividends abroad, triggering a wave of foreign investment into its lithium sector. The Argentine Association of Mining Companies estimate that investment in the sector reached US$1.5 billion in 2022.

Companies continue to invest in new lithium projects in Argentina, despite the fall in lithium prices. Recent investment commitments include a new US$350 million project by Rio Tinto in March 2024 and a US$550 million project by UAE-owned United Mining Projects Corporation in April 2024.

Zimbabwe's lithium extraction is expected to rise from 44 kt in 2023 to 161 kt by 2026. Over 2021 and 2022, Chinese companies invested about US$1 billion in hard rock lithium projects in Zimbabwe, according to CRU Group. In 2022, Zimbabwe's government banned the practice of direct ore shipment, requiring ores to be processed into lithium spodumene concentrates domestically before export. The commissioning of some of those processing plants saw Zimbabwe's lithium extraction rise sharply over 2023. Many of these projects will continue to ramp up over 2024, and new projects are expected to begin production over the outlook period.

While China's lithium production is expected to rise over the outlook period, its share of global production is expected to fall from 22% in 2023 to 18% by 2026. China has access to a mixture of brine, spodumene and lepidolite resources, but much of China's production comprises relatively high cost lepidolite mining, which is amongst the most vulnerable to falls in lithium prices. Despite the high cost of processing lithium lepidolite and speculation that production may have been impacted by environmental inspections, major Chinese lepidolite refineries have reported only modest curtailment of production in the first four months of 2024.

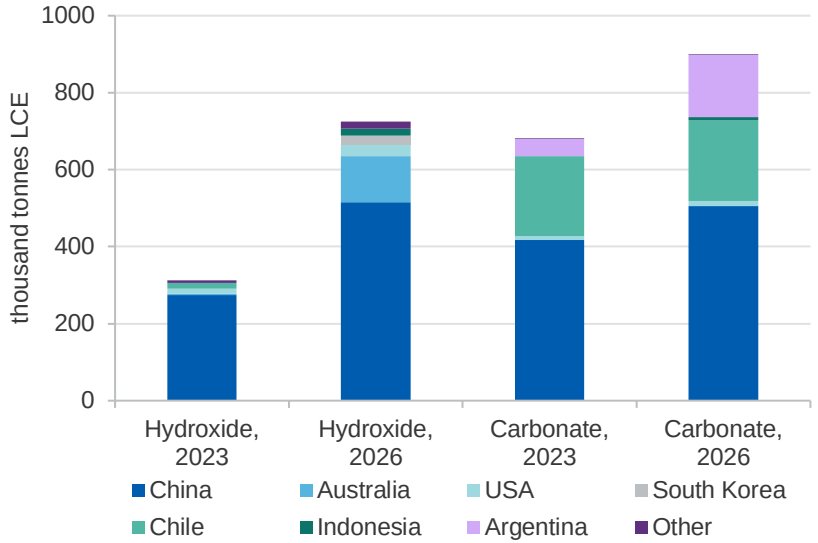
Global lithium hydroxide supply to expand rapidly over the outlook period

Lithium ores produced from hard rock mining must be refined into lithium chemicals to be used in the production of battery cathodes, while evaporating brines produces lithium chemicals (largely lithium carbonate) that require no further refining. Lithium hydroxide can be used in NMC and

LFP batteries, while lithium carbonate can be used in LFP batteries but must be processed into lithium hydroxide to be used for NMC batteries.

Global primary lithium hydroxide production is forecast to rise by 32% a year to 0.7 mt LCE by 2026 (see Figure 15.7). China's share of global production for lithium hydroxide is forecast to fall from 88% in 2023 to 67% by 2026, due to investments in lithium refinery capacity outside of China, particularly in Australia and the US.

Figure 15.7: Primary lithium chemical supply, 2023 vs 2026



Notes: Includes supply from refineries and from brines, and therefore partially overlap with supply shown under lithium extraction. Lithium carbonate may be used as feedstock to produce lithium hydroxide. Excludes supply from recycling. Projections are based on DISR assessment, informed by Wood Mackenzie research.

Source: Department of Industry, Science and Resources (2024), Wood Mackenzie (2024)

Offsetting some of the increase is falling production from facilities converting lithium carbonate into lithium hydroxide. There will be little margin in such conversion, as lithium hydroxide no longer commands a substantial price premium over lithium carbonate in spot markets. This is due to rising demand for lithium carbonate for the production of LFP batteries. After adjusting for lithium content, lithium hydroxide spot prices were only 1% higher than lithium carbonate spot prices in the March quarter of 2024, compared to an average premium of 24% over 2022.

Global primary lithium carbonate production is forecast to rise by 10% a year to 0.9 mt LCE by 2026. China's share of global lithium carbonate production is forecast to rise from 61% in 2023 to 65% by 2026.

There is currently no substantial investment in facilities refining spodumene into lithium carbonate outside of China, and most of the new supply is expected to come from Argentinian brine projects. Offsetting some of the increase is lower production from Chinese facilities refining lithium lepidolite. Lower lithium prices have significantly lowered the profitability of mining and refining lepidolite, and this seems likely to persist over the outlook period.

15.4 Prices

Lithium prices to remain subdued as demand undershoots expectations

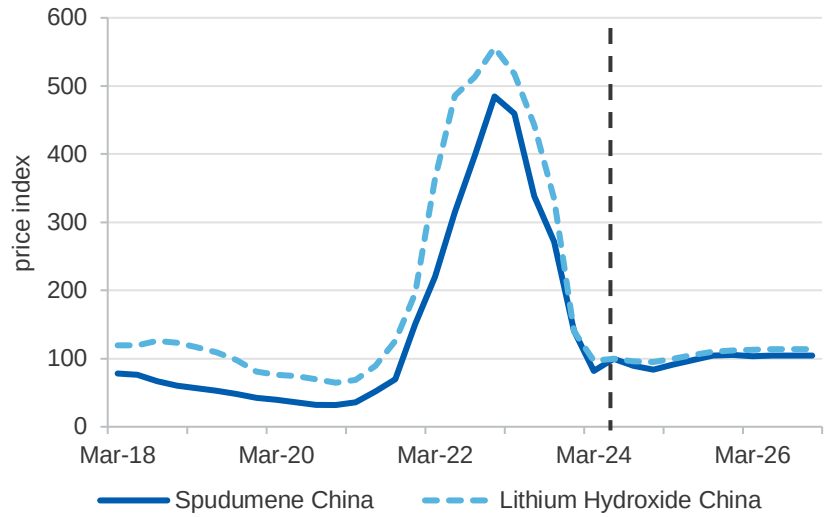
The rapid rise in adoption of EVs drove a record rally in lithium prices over 2021 and 2022 (Figure 15.9). China's lithium spodumene and hydroxide prices peaked in November 2022, with spodumene averaging US$6,108 a tonne and the lithium hydroxide price averaging $75,393 a tonne.

Since H2 2023, slowing growth in EV sales has resulted in lithium demand growth falling below expectations. The wave of investment in lithium production spurred on by the high prices of 2022 is bearing fruit. As a result, the lithium sector overcapacity has emerged. Prices fell over 2023 and stabilised in H1 2024. In May 2024, spodumene averaged US$1,220 a tonne, while the lithium hydroxide price averaged US$13,612 a tonne.

China's lithium spodumene price is forecast to remain weak over H2 2024, averaging US$1,100 a tonne over the year, before picking up to US$1,300 a tonne by 2026. This is largely driven by lithium demand, which faces headwinds over H2 2024 due to weak growth in EV demand. The market is expected to remain in surplus, as low prices have yet to result in sufficient supply to exit the market. Similarly, China lithium hydroxide price

is forecast to average at about US$14,000 a tonne over 2024 before rising to about US$16,000 a tonne by 2026.

Figure 15.8: China lithium price index, quarterly



Notes: The spodumene price is CIF (cost including freight), with an average grade of 5-6%. The lithium hydroxide price is FOB (free on board). Index is normalized to March 2024 quarter as 100.
Source: Bloomberg (2024); Department of Industry, Science and Resources (2024)

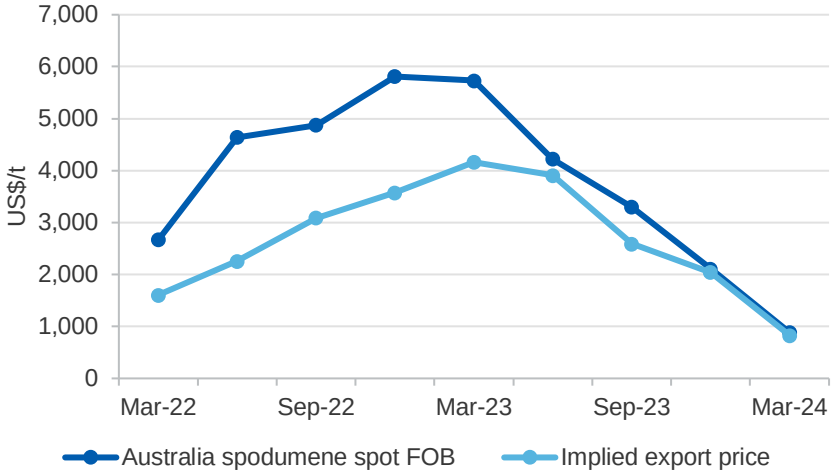
15.5 Australia

Export earnings fall from record high as contract price were renegotiated

Australian lithium spodumene export earnings fell 84% year-on-year in the March quarter 2024 to A$1.0b. This was largely driven by lower prices: the implied export price of Australian spodumene (at an equivalent to spodumene with 6% lithium content basis) fell 80% year-on-year (Figure 15.10). Substantial parts of Australian lithium exports trade under offtake agreements, which have in the past been linked to historically high spot prices over several months. However, there was no substantial deviation between spot and implied export price over the December 2023 and March 2024 quarters, likely as a result of contract renegotiations which followed the downturn in EV demand growth.

In lithium carbonate equivalent (LCE) terms (1 kt of lithium spodumene with 6% lithium content is equivalent to 0.148 kt in LCE terms), export volumes fell by 25% year-on-year in the March quarter 2024. This is substantially below estimated production over the quarter, and suggests that miners are holding more ores in inventories — perhaps due to a reluctance to sell spodumene at low prices or an inability to find buyers in a relatively illiquid market. 99% of spodumene exported from Australia over the March quarter 2024 was sent to China.

Figure 15.9: Australian spodumene export prices



Notes: The Australian export implied price is derived from export volumes and values published by the ABS, adjusting export volumes to be equivalent to spodumene with 6% lithium content.
Source: S&P Global (2024); ABS (2024); Department of Industry, Science and Resources (2024)

Australian lithium mine output is estimated to have risen 15% year-on-year to 116 kt LCE in the March quarter 2024. The bulk of this gain came from mines operated by Mineral Resources, with higher output at Mt Marion and with the re-opening of Bald Hill in November 2023. Also contributing to the

gains is Mt Holland (owned by Covalent, a joint venture between Wesfarmers and SQM), which officially opened in March 2024. Temporary production cut at Greenbushes offset some of these gains.

Australian lithium hydroxide exports rose by 45% quarter-on quarter to 1.6 kt in LCE terms in the March quarter 2024, after exceeding 1kt LCE in the December quarter 2023 (1 kt of lithium hydroxide is equivalent to 0.88 kt in LCE terms). Output of lithium hydroxide at the Tianqi Kwinana refinery rose to 954t over the March quarter 2024, up 55% quarter on quarter. However, output remains below nameplate capacity of 48kt per year. Train 1 of Albemarle's Kemerton refinery is reported to have achieved a 50% operating rate milestone, while train 2 is still being commissioned. The two trains have a combined nameplate capacity of 50kt a year.

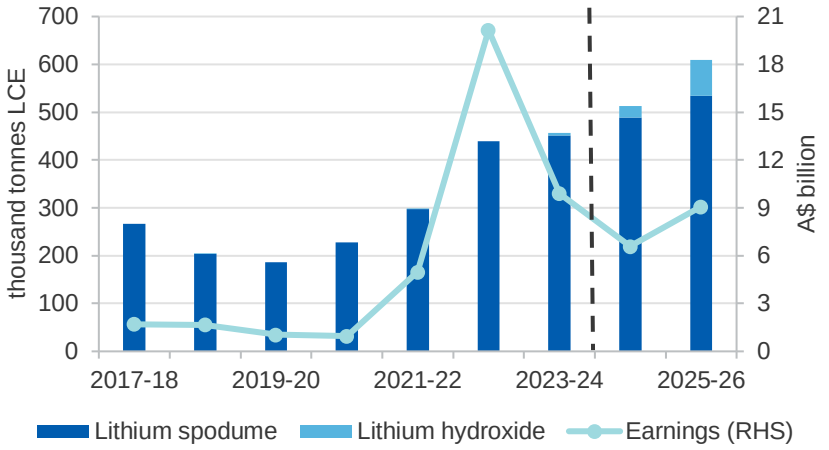
Export earnings to fall as lithium prices remain low

Mine production is expected to rise by about 10% per annum over the outlook period (Figure 15.10). The production increase will be driven by a ramp-up at Mt Holland, the re-opening of Bald Hill, and an expected opening at Kathleen Valley later this year, as well as expansions at Greenbushes and Mt Marion. Mineral Resources have paused the ramp up of Wodgina's third train until market conditions improve.

Australian output of lithium hydroxide is forecast to reach 74 kt in LCE terms by 2025–26, meaning around 12% of forecast Australian lithium mine production will be processed in Australia. Production ramp-ups at the Tianqi Kwinana refinery and the Kemerton refinery are expected to continue. Construction at the Covalent Kwinana refinery is ongoing, and the facility is expected to begin production in H1 2025.

Lithium export earnings are expected to fall from a record A$20 billion in 2022–23 to A$6.6 billion a year in 2024-25 (Figure 15.11). Export earnings are forecast to recover to $9.1 billion a year by 2025-26 as prices recover and output expands.

Figure 15.10: Australia lithium export volumes and earnings



Source: Department of Industry, Science and Resources (2024)

Revisions to the outlook

Since the March 2024 *Resources and Energy Quarterly*, the forecast for Australia's lithium earnings has been revised down from $11.3 billion to $9.9 billion in 2023-24 and down from $9.5 billion to $6.6 billion in 2024–25. This is due to a lower price forecast for lithium spodumene (see Prices section), weakness in global EV demand growth, and lower volumes from the pause in ramp up for Wodinga's train three (see Australia section). Ramp-ups in lithium hydroxide production were also slower than previously forecast. The relationship between the benchmark price and export price has been recalibrated as contracted spodumene increasingly trades at spot prices.

Table 15.1: Lithium outlook

						Annual percentage change		
World	**Unit**	**2023**	**2024[f]**	**2025[f]**	**2026[f]**	**2024[f]**	**2025[f]**	**2026[f]**
Production [b]	LCE[a] kt	1,040	1,236	1,460	1,680	18.9	18.2	15.0
Demand	LCE[a] kt	1,008	1,158	1,381	1,615	14.8	19.3	17.0
Spodumene price								
– nominal	US$/t	3,730	1,107	1,227	1,286	-70.3	10.8	4.8
– real [c]	US$/t	3,839	1,107	1,203	1,235	-71.2	8.7	2.7
Lithium hydroxide price								
– nominal	US$/t	50,288	13,614	14,983	15,950	-72.9	10.1	6.5
– real [c]	US$/t	51,768	13,614	14,689	15,324	-73.7	7.9	4.3
Australia	**Unit**	**2022–23**	**2023–24[s]**	**2024–25[f]**	**2025–26[f]**	**2023–24[s]**	**2024–25[f]**	**2025–26[f]**
Production								
– Mine (spodumene)	LCE[a] kt	397	478	512	609	20.4	7.1	18.8
Export volume								
– Ore and concentrate (spodumene)	LCE[a] kt	440	451	488	535	2.6	8.2	9.5
– Refined (lithium hydroxide)	LCE[a] kt	-	6	24	74	n/a	337.1	207.4
Export value								
– Ore and concentrate (spodumene)	A$m	20,069	9,633	5,844	7,030	-52.0	-39.3	20.3
– Refined (lithium hydroxide)	A$m	-	142	570	1,878	n/a	301.8	229.6
– Total (nominal) [d]	A$m	20,149	9,887	6,581	9,075	-50.9	-33.4	37.9
– Total (real) [d h]	A$m	20,970	9,887	6,382	8,564	-52.9	-35.5	34.2

Notes: **a** Lithium carbonate equivalent: this is a measure of the quantity of refined product; **b** Refined lithium products include lithium hydroxide and lithium carbonate; **c** In current calendar year US dollars; **d** Revenue from spodumene concentrate, lithium hydroxide and other lithium products; **h** In current financial year Australian dollars; **f** Forecast; **s** Estimate.

Source: ABS (2024); Bloomberg (2024); Company reports; Department of Industry, Science and Resources (2024); Wood Mackenzie (2024)

Principal markets for Australia‘s resource and energy exports

Table 16.1: Principal markets for Australia's total resource and energy exports

	Unit	2018–19	2019–20	2020–21	2021–22	2022–23	*Share (2022-23)*
China	$m	111,167	126,595	148,787	149,538	165,086	35%
Japan	$m	50,605	45,539	34,223	75,941	98,956	21%
Other Asia [a]	$m	34,648	29,546	33,491	46,261	51,439	11%
Korea, Rep. of	$m	21,746	21,423	23,042	43,210	45,182	10%
India	$m	14,427	9,449	11,612	26,418	21,265	5%
EU28	$m	11,616	18,633	15,546	13,711	14,389	3%
Other [b]	$m	35,862	38,304	41,793	66,612	70,020	15%
Total	**$m**	280,071	289,489	308,494	421,691	466,338	-

Notes: **a** Other Asia excludes China, Japan, South Korea and India **b** may include 'No Country Detail' where various confidentiality restrictions may apply, see *International Merchandise Trade, Australia: Concepts, Sources and Methods 2018 Data confidentiality* for more information.
Source: ABS (2024) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2024)

Table 16.2: Principal markets for Australia's iron ore exports

	Unit	2018–19	2019–20	2020–21	2021–22	2022–23
China	$m	63,467	84,786	124,820	108,307	104,777
Japan	$m	5,757	7,038	9,080	10,257	8,073
Korea, Rep. of	$m	4,667	6,222	9,033	8,293	6,932
Taiwan	$m	1,768	1,876	3,070	2,793	1,974
India	$m	237	21	9	34	67
Indonesia	$m	44	27	40	38	38
Other [a]	$m	1,614	2,891	6,922	2,766	2,270
Total	**$m**	77,553	102,861	152,975	132,489	124,131

Notes: **a** may include 'No Country Detail' where various confidentiality restrictions may apply, see *International Merchandise Trade, Australia: Concepts, Sources and Methods 2018 Data confidentiality* for more information.
Source: ABS (2024) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2024)

Table 16.3: Principal markets for Australia's LNG exports[a]

	Unit	2018–19	2019–20	2020–21	2021–22	2022–23
Japan	$m	21,210	19,928	11,649	24,800	34,508
China	$m	17,482	16,277	11,377	21,420	19,833
South Korea	$m	5,307	5,161	3,343	11,473	18,310
Taiwan	$m	2,343	2,593	2,237	7,521	12,070
Singapore	$m	1,237	1,039	175	2,377	3,165
Malaysia	$m	872	1,456	499	559	2,121
Other [b]	$m	1,276	1,071	1,198	2,421	2,231
Total	**$m**	49,727	47,525	30,477	70,571	92,237

Note: **a** Department of Industry, Science and Resources estimates based on International Trade Centre data. **b** may include 'No Country Detail' where various confidentiality restrictions may apply, see *International Merchandise Trade, Australia: Concepts, Sources and Methods 2018 Data confidentiality* for more information.
Source: ABS (2024) International Trade in Goods and Services, 5368.0; International Trade Centre (2024); Department of Industry, Science and Resources (2024)

Table 16.4: Principal markets for Australia's thermal coal exports

	Unit	2018–19	2019–20	2020–21	2021–22	2022–23
Japan	$m	11,630	8,347	7,009	23,819	37,712
Taiwan	$m	3,162	2,386	2,060	6,636	9,456
Korea, Rep. of	$m	3,812	2,843	2,568	6,819	4,774
China	$m	4,230	3,930	487	0	3,505
Malaysia	$m	905	534	560	1,432	2,363
Vietnam	$m	664	1,041	711	1,688	2,205
Other [a]	$m	1,555	1,295	2,613	5,863	5,485
Total	**$m**	25,958	20,376	16,009	46,258	65,500

Notes: **a** may include 'No Country Detail' where various confidentiality restrictions may apply, see *International Merchandise Trade, Australia: Concepts, Sources and Methods 2018 Data confidentiality* for more information.
Source: ABS (2024) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2024)

Table 16.5: Principal markets for Australia's metallurgical coal exports

	Unit	2018–19	2019–20	2020–21	2021–22	2022–23
India	$m	11,242	7,489	7,580	20,889	17,078
Japan	$m	7,657	6,084	4,744	14,131	15,642
Korea, Rep. of	$m	4,023	3,033	2,732	9,430	8,249
Taiwan	$m	2,597	1,993	1,332	3,967	3,752
Netherlands	$m	1,792	1,242	885	4,102	3,609
China	$m	9,890	9,777	1,668	0	492
Other [a]	$m	6,436	4,626	4,246	15,070	13,101
Total	**$m**	43,637	34,245	23,187	67,588	61,922

Notes: **a** may include 'No Country Detail' where various confidentiality restrictions may apply, see *International Merchandise Trade, Australia: Concepts, Sources and Methods 2018 Data confidentiality* for more information.
Source: ABS (2024) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2024)

Table 16.6: Principal markets for Australia's gold exports

	Unit	2018–19	2019–20	2020–21	2021–22	2022–23
China	$m	5,072	824	2,028	8,179	8,141
Hong Kong	$m	4,370	3,341	1,410	4,893	3,778
Singapore	$m	1,589	1,423	2,933	1,607	3,480
Switzerland	$m	1,161	1,899	1,889	1,878	2,239
India	$m	578	66	1,474	1,928	1,508
United States	$m	127	3,079	3,937	1,382	1,251
Other [a]	$m	5,969	13,762	12,433	3,334	4,008
Total	**$m**	18,867	24,394	26,105	23,200	24,406

Notes: **a** may include 'No Country Detail' where various confidentiality restrictions may apply, see *International Merchandise Trade, Australia: Concepts, Sources and Methods 2018 Data confidentiality* for more information.
Source: ABS (2024) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2024)

Table 16.7: Principal markets for Australia's lithium exports

	Unit	2018–19	2019–20	2020–21	2021–22	2022–23
China	$m	na	na	na	4,725	19,788
Belgium	$m	na	na	na	85	169
Korea, Rep. of	$m	na	na	na	46	90
United States	$m	na	na	na	37	15
Other [a]	$m	na	na	na	7	8
Total	**$m**	na	na	na	4,899	20,069

Notes: **a** may include 'No Country Detail' where various confidentiality restrictions may apply, see *International Merchandise Trade, Australia: Concepts, Sources and Methods 2018 Data confidentiality* for more information.
Source: ABS (2024) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2024)

Table 16.9: Principal markets for Australia's copper exports

	Unit	2018–19	2019–20	2020–21	2021–22	2022–23
China	$m	3,606	3,787	2,747	1,958	2,351
Korea, Rep. of	$m	683	651	1,315	1,375	1,410
Malaysia	$m	1,241	824	850	961	1,084
India	$m	444	463	626	941	457
Japan	$m	1,833	2,126	17	18	1
Other [a]	$m	1,962	2,357	5,885	6,875	6,959
Total	**$m**	9,770	10,208	11,440	12,128	12,262

Notes: **a** may include 'No Country Detail' where various confidentiality restrictions may apply, see *International Merchandise Trade, Australia: Concepts, Sources and Methods 2018 Data confidentiality* for more information.
Source: ABS (2024) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2024)

Table 16.10: Principal markets for Australia's alumina exports[a]

	Unit	2018–19	2019–20	2020–21	2021–22	2022–23
Bahrain	$m	0	0	0	923	1,559
UAE	$m	29	0	0	747	1,075
South Africa	$m	921	577	na	433	660
Canada	$m	17	0	0	424	638
Mozambique	$m	644	453	54	431	573
Other[b]	$m	8,633	6,401	6,894	6,019	3,804
Total	**$m**	10,245	7,431	6,948	8,977	8,308

Note: Department of Industry, Science and Resources estimates based on International Trade Centre data; **b** may include 'No Country Detail' where various confidentiality restrictions may apply, see *International Merchandise Trade, Australia: Concepts, Sources and Methods 2018 Data confidentiality* for more information.
Source: ABS (2024) International Trade in Goods and Services, 5368.0; International Trade Centre (2024); Department of Industry, Science and Resources (2024)

Table 16.11: Principal markets for Australia's aluminium exports[a]

	Unit	2018–19	2019–20	2020–21	2021–22	2022–23
Korea, Rep. of	$m	768	1,138	905	1,029	1,538
Japan	$m	1,320	1,016	956	1,505	1,319
United States	$m	841	247	256	596	533
Thailand	$m	392	290	349	521	347
Taiwan	$m	293	360	417	618	319
Indonesia	$m	120	95	111	164	143
Other [b]	$m	433	546	769	1,278	1,083
Total	**$m**	4,166	3,692	3,763	5,710	5,281

Note: Department of Industry, Science and Resources estimates based on International Trade Centre data; **b** may include 'No Country Detail' where various confidentiality restrictions may apply, see *International Merchandise Trade, Australia: Concepts, Sources and Methods 2018 Data confidentiality* for more information.
Source: ABS (2024) International Trade in Goods and Services, 5368.0; International Trade Centre (2024); Department of Industry, Science and Resources (2024)

Table 16.12: Principal markets for Australia's nickel exports

	Unit	2018–19	2019–20	2020–21	2021–22	2022–23
China	$m	339	479	307	244	572
India	$m	0	0	0	3	60
Other [b]	$m	2,110	2,443	2,898	4,158	4,324
Total	**$m**	2,450	2,922	3,204	4,405	4,956

Note: Department of Industry, Science and Resources estimates based on International Trade Centre data and company reporting; **b** may include 'No Country Detail' where various confidentiality restrictions may apply, see *International Merchandise Trade, Australia: Concepts, Sources and Methods 2018 Data confidentiality* for more information.
Source: ABS (2024) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2024)

Appendices

Appendix A
Definitions and classifications

A.1 Exchange rates

In this report, the AUD/USD exchange rate (Australian dollar relative to the US dollars) is based on the median of economic forecasters at the time that the report is prepared. The source is the Bloomberg survey of economic forecasters.

World commodity prices are typically denominated in US dollars, and exchange rate movements can have a significant effect on the actual outcomes of commodity prices and export earnings. A change in the value of the US dollar against other floating international currencies can influence movements in world resources and energy prices. A change in the Australian dollar against the US dollar will impact on export earnings for domestic commodity exporters and producers. There is substantial uncertainty surrounding any exchange rate forecast, with changes to exchange rates influenced by changes in financial market sentiment, sometimes resulting in strong volatility.

A.2 Conversion to real dollars

Nominal values and prices are converted to real dollars using Australian and US consumer price indexes (CPI). The Australian and US CPI forecasts are based on the median of economic forecasters at the time that the report was prepared. The source is the Bloomberg survey of economic forecasters.

A.3 Time periods

The terms 'estimate', 'forecast' and 'projection' refer to different time periods in this report. Estimate refers to a time period that has passed, but for which full historical data is not yet available, while 'forecast' and 'projection' refer to different periods in the future. It is important to distinguish between different future time horizons, as factors affecting production, consumption and prices in the short-term differ from factors affecting these components in the medium to long-term. Forecasts also become increasingly imprecise over longer time horizons, due to increased risk and uncertainty. For these reasons, the Department of Industry, Science and Resources' Office of the Chief Economist (DISR OCE) uses different terminology to distinguish between short-term forecasts and medium to long-term projections, as outlined in *Table A2*.

Table A1: OCE terminology for different time periods/horizons

Period	Years	Terminology
Historical	Time period has passed but complete data for the period is not yet available	Estimate
Short-term	1 to 2 years	Forecast
Medium-term	3 to 5 years	Projection
Long-term	Beyond 5 years	n/a

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

A.4 Commodity classifications

The DISR OCE defines exports for each commodity by a selected set of 8-digit Australian Harmonised Export Commodity Classification (AHECC) codes. Where possible, the choice of AHECC codes is based on alignment with international trade data, to ensure that direct comparisons can be made. For example, groupings for various commodities are aligned with classifications used by the International Energy Agency, World Steel Association, International Nickel Study Group, International Lead and Zinc Study Group, International Copper Study Group and World Bureau of Metal Statistics.

In this report, benchmark prices and Australian production and exports are forecast for 21 commodities, as shown in *Table A2*. In estimating a total for Australia's resources and energy exports, the remaining commodities, defined as 'other resources' and 'other energy', are forecast as a group.

Table A2: Resources and energy commodities groupings and definitions

	Resources (non-energy)	Energy
Definition	Resource commodities are non-energy minerals and semi-manufactured products produced from non-energy minerals	Energy commodities are minerals and petroleum products that are typically used for power generation
Australian Harmonised Export Commodity Classification (AHECC) chapters	25 (part); 26 (part); 28 (part); 31 (part); 73 (part); 74; 75; 76; 78; 79; 80; 81	27 (part)
Commodities for which data is published, forecasts are made and analysed in detail in this report	Aluminium; alumina; bauxite; copper; gold; iron ore; crude steel; nickel; zinc, lithium	Crude oil and petroleum products; LNG; metallurgical coal; thermal coal; uranium

Notes: The AHECC chapter is the first two digits of the trade code. Groupings are made at the 8-digit level.

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

Appendix B Glossary

Term	Description
A$	Australian dollar
ABS	Australian Bureau of Statistics
AHECC	Australian Harmonized Export Commodity Classification
AISC	All-In Sustaining Cost — an extension of existing cash cost metrics and incorporates costs related to sustaining production.
Base metals	A common metal that is not considered precious (includes aluminium, copper, lead, nickel, tin, zinc)
Bbl	Barrel
Bcm	Billion cubic metres
Benchmark	A standard specification used to price commodities.
BF and BOF	Blast furnace and basic oxygen furnace — used in an integrated steelmaking process that uses iron ore and coal.
Bulks	Non-liquid and non-gaseous commodities shipped in mass and loose (iron ore, coal, bauxite)
CAGR	Compound annual growth rate
Capex	Capital expenditure
CFR	Cost and freight — Seller clears exports, and pays freight.
CIF	Cost, Insurance, and Freight
Coal Seam Gas (CSG)	Natural gas found in coal seams. Also known as Coal Bed Methane (CBM)
Coke	Made by heating coal at high temperatures without oxygen, and used to reduce iron ore to molten iron saturated with carbon, called hot metal

Conventional gas	Natural gas that can be produced from reservoirs using traditional techniques. Contrasts with unconventional gas.
COVID-19	2019 Novel Coronavirus
CPB	CPB Netherlands Bureau for Economic Policy Analysis
CPI	Consumer Price Index — measures quarterly changes in the price of a basket of goods and services which account for a high proportion of expenditure by the CPI population group (i.e. metropolitan households).
Crude steel	Steel in the first solid state after melting, suitable for further processing or for sale.
DES	Delivered Ex Ship — price of LNG including shipping and insurance.
DISR	Department of Industry, Science and Resources
DMO	Domestic Market Obligation — a policy to reserve energy commodities for domestic usage
DRC	Democratic Republic of the Congo
ECB	European Central Bank
Economic growth	An increase in the capacity of an economy to produce goods and services, compared from one period of time to another. It is measured in nominal or real gross domestic product (GDP).
EIA	The United States Energy Information Administration
EAF	Electric arc furnace — a furnace that melts steel scrap using the heat generated by a high power electric arc.
ETF	Exchange Traded Fund — an exchange traded fund that allows investors to invest in gold on the exchange.
EUV	Export unit value — export value/volumes exported
EV	Electric vehicle
f	Forecast — a two year outlook
FEED	Front end engineering design
FID	Final investment decision

FOB	Free on board — seller clears export, buyer pays freight.
GAD	Gross air dried basis — For measuring coal quality.
GAR	Gross as received basis — For measuring coal quality.
GBP	Great Britain Pounds
GDP	Gross Domestic Product — measures the value of economic activity within a country/group.
GFC	Global Financial Crisis — the period of extreme stress in global financial markets and banking systems between mid-2007 and early 2009.
GJ	Gigajoule
GST	Goods and Services Tax — a value-added tax levied on most goods and services sold for domestic consumption.
HCC	Hard coking coal — The best grade of metallurgical coal used in the steel production process. Australian hard coking coal is regarded as the industry benchmark.
IEA	International Energy Agency
IMF	International Monetary Fund — an international organisation that promotes international financial stability and monetary cooperation.
IMO	International Maritime Organisation
IP	Industrial Production — measures the output of the industrial sector that comprises mining, manufacturing, utilities and construction.
IPO	Initial public offering — a process of offering shares of a private corporation to the public in a new stock issuance.
ISM	US Institute for Supply Management
ISM	Institute of Supply Management
JCC	Japan Customs-cleared Crude (or Japan Crude Cocktail) — average price of crude oil imported by Japan and a common price index in long-term LNG contracts.
JFY	Japanese fiscal year
kcal/kg	Kilocalories per kilogram

kt	Thousand tonnes
ktpa	Kilotonnes per annum
LBMA	London Bullion Market Association
LCE	Lithium Content Equivalent
Li OH	Lithium Hydroxide
LME	London Metal Exchange
LNG	Liquefied natural gas
LNY	Lunar New Year
LPG	Liquefied petroleum gas
LVPCI	Low volatile pulverised coal injection — a type of low volatile coal used in the PCI process
m	Million
MMbtu	Million British thermal units
Mt	Million tonnes
mtpa	Million tonnes per annum
MW	Megawatts
Nameplate capacity	The theoretical maximum annual production capacity
NAR	Net as received basis — For measuring coal quality
NDRC	China's National Development and Reform Commission
NEV	New energy vehicle — term used for plug-in electric vehicles eligible for public subsidies (battery electric vehicles and plug-in hybrid vehicles)

OCE	Office of the Chief Economist
OECD	Organisation for Economic Co-operation and Development
OPEC	Organisation of Petroleum Exporting Countries, a formal alliance of 14 countries to collaborate to manage the world oil market
OPEC+	Informal term for agreements between OPEC and ten other oil-producing countries (which are not members of OPEC)
Oz	Ounce
PCE	Personal Consumption Expenditure — a measure of the changes in price of consumer services and goods.
PCI	Pulverised coal injection — PCI coal is used for its heat value and injected directly into blast furnaces as a supplementary fuel, which reduces the amount of coke required.
PCI	Pulverised coal injection — a process used in blast furnace operations
PM	The afternoon price of gold set at 3.00pm each business day at the London Bullion Market Association
PMI	Purchasing Managers Index — an indicator of economic health for manufacturing and service sectors.
PPP	Purchasing Power Parity — a way of measuring economic variables in different countries that equalise the purchasing power of different currencies
RoW	Rest of world
s	Estimate — Incomplete data or subject to revision
Shale gas	Natural gas found in shales
SDR	Special drawing right
SHFE	Shanghai Futures Exchange
SSCC	Semi-soft coking coal — A type of metallurgical coal used in the steel production process alongside hard coking coal, but results in a lower coke quality and more impurities.
Tariff	A tax on imports or exports that is used by governments to generate revenue or to protect domestic industries from competition.
Tight gas	Natural gas found in low quality reservoirs

TWI	Trade Weighted Index — a measure of the foreign exchange value of the US dollar against a basket of major foreign currencies.
U3O8	Triuranium octoxide — a compound of uranium.
UAE	United Arab Emirates
UK	United Kingdom
Unconventional gas	Natural gas that is more difficult to extract, including coal seam gas, shale gas and tight gas. Contrasts with conventional gas.
US	United States
US$	United States dollar
WEO	The International Energy Agency's World Energy Outlook
WTI	West Texas Intermediate crude oil price
z	Projection a five year outlook

About this edition

The *Resources and Energy Quarterly* (REQ) contains forecasts for the value, volume and price of Australia's major resources and energy commodity exports.

The 'medium term' (five year) outlook is published in the March quarter edition of the *Resources and Energy Quarterly*. Each June, September and December edition of the *Resources and Energy Quarterly* features a 'short term' (two year) outlook for Australia's major resource and energy commodity exports.

Underpinning the forecasts/projections contained in the *Resources and Energy Quarterly* is the outlook for global resource and energy commodity prices, demand and supply. The forecasts/projections for Australia's resource and energy commodity exporters are reconciled with this global context. The global environment in which Australia's producers compete can change rapidly. Each edition of the *Resources and Energy Quarterly* factors in these changes and makes alterations to the forecasts and projections by estimating the impact on Australian producers and the value of their exports.

The *Resources and Energy Quarterly* uses IMF economic growth forecasts as the basis of its world growth forecasts.

In this report, commodities are grouped into two broad categories, referred to as 'resources' and 'energy'. 'Energy' commodities comprise metallurgical and thermal coal, oil, gas and uranium. 'Resource' commodities in this report are all other mineral commodities.

Unless otherwise stated, all Australian and US dollar figures in this report are in nominal terms. Inflation and exchange rate assumptions are provided in tables 2.1 and 2.2 in the *Macroeconomic outlook* chapter.

Information in this edition of the *Resources and Energy Quarterly* is current as of 20 June 2024.

Resources and Energy Quarterly publication schedule

Publication	Expected release date	Outlook period final year
September 2024	30 September 2024	Australian data: 2025–26 World data: 2026
December 2024	20 December 2024	Australian data: 2025–26 World data: 2026
March 2025	31 March 2025	Australian data: 2029–30 World data: 2030
June 2025	30 June 2025	Australian data: 2026–27 World data: 2027

Source: Department of Industry, Science and Resources (2024)