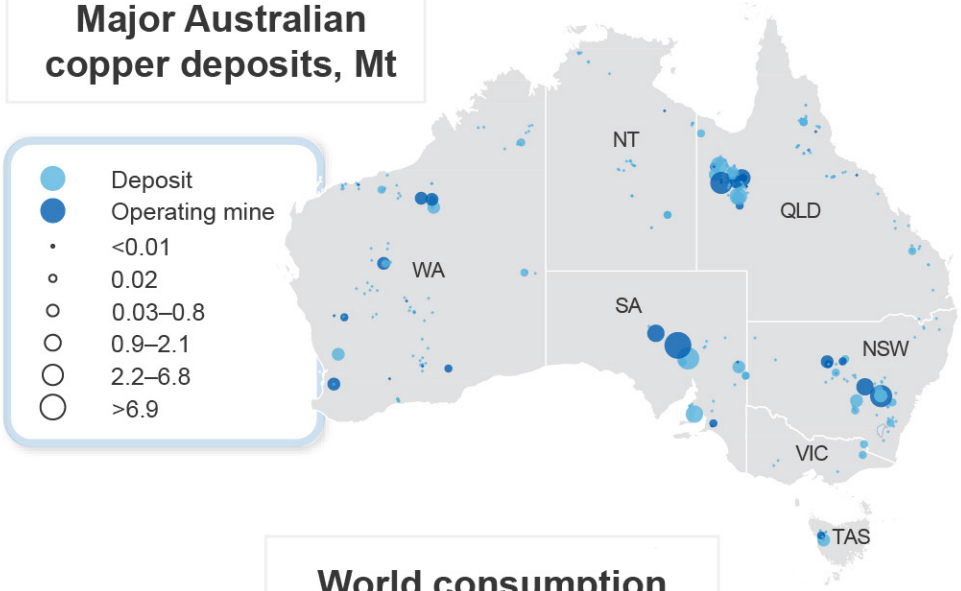
29 Cu 63.546 Copper

Major Australian copper deposits, Mt



Copper facts

- The average home contains **180 kg of copper**
- Being 100% recyclable, nearly 80% of copper produced is **still in use**
- An electric car contains about **5x more** copper than equivalent ICE cars
- China consumes half of the **world's copper**

World consumption

- **31%** Equipment
- **30%** Building Construction
- **15%** Infrastructure
- **12%** Transport
- **12%** Industrial

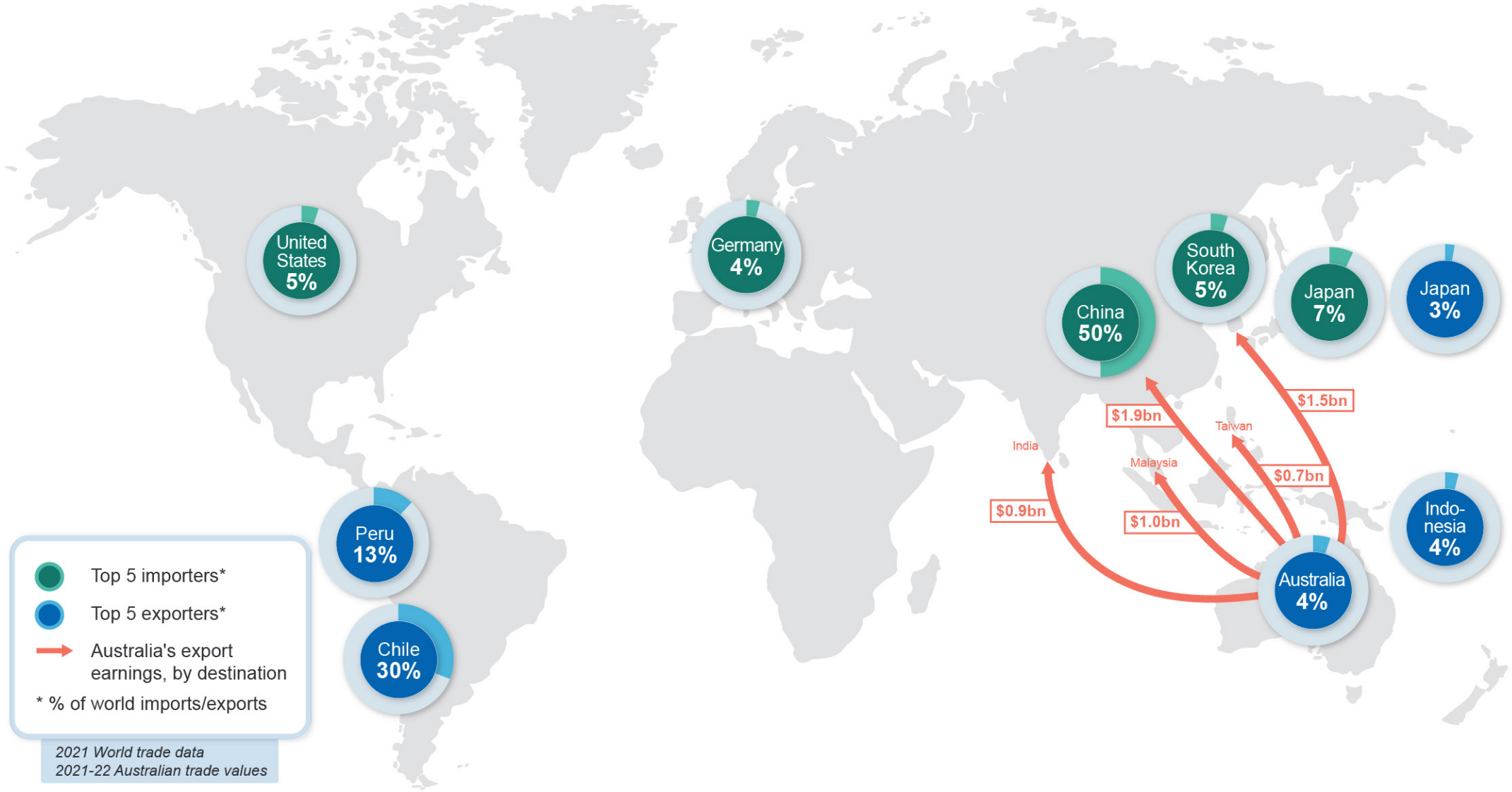
Australia's copper

- **Ranked 2nd** for **copper resources**
- **6th largest mined copper producer** in the world
- **$12 billion** of **copper exports** in 2021-22

Copper

29 Cu 63.546

Trade map | September 2022



12.1 Summary

- Copper prices are forecast to fall by 4.9% to below US$8,900 a tonne in 2022, as COVID-19 containment measures and high energy prices weigh on demand. Prices are forecast to fall to US$8,300 a tonne in 2024 as mine production grows.
- Australia's copper exports fell to 802,000 tonnes in 2021–22 as scheduled maintenance reduced production. Copper exports are expected to grow to 977,000 tonnes by 2023–24 as production from new mines and mine expansions come online (see *Australia section*).
- As output and export volumes grow, Australia's copper export earnings are projected to lift from $12.3 billion in 2021–22 to $13.9 billion in 2023–24.

12.2 World consumption

Global macroeconomic headwinds weigh on copper demand

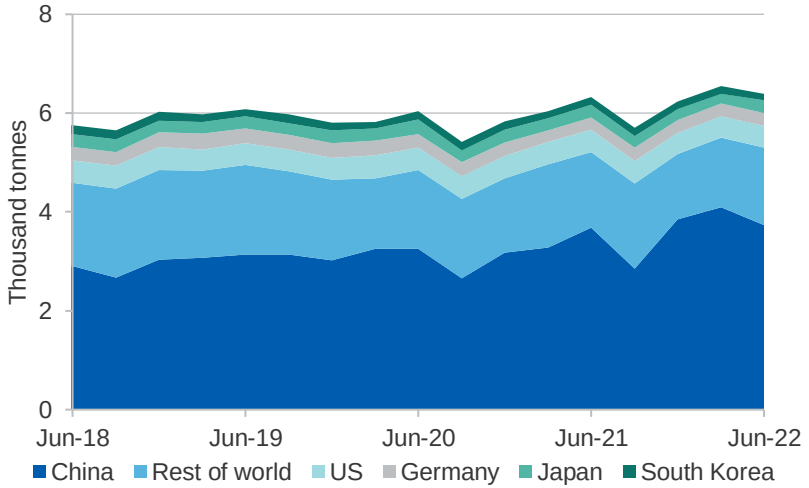
In the June quarter 2022, global copper consumption rose by 4.0% quarter-on-quarter, but was only 1.7% higher than the same period last year. Global consumption is seasonally strong each June quarter: in China, refinery shutdowns occur during the Chinese Lunar New Year celebrations in the March quarter, and then activity is strong before the Northern Hemisphere summer. The stunted year-on-year growth may largely reflect the severe lockdown restrictions in place in major Chinese cities (including Shanghai) between March and May this year.

While the COVID-19 situation in China is likely to remain uncertain, fewer lockdowns are likely to see rising Chinese usage over the remainder of the year. The weaker economic outlook in other major refined copper consuming nations (the US and Europe) has the potential to weigh on copper demand over the remainder of 2022 and in 2023 (Figure 12.1). In 2022, global refined copper consumption is expected to increase by 1.2% to more than 25 million tonnes.

In 2023, refined copper consumption is expected to increase by 3.7% to 26 million tonnes, and by a further 3.1% — to 27 million tonnes — in 2024, in line with growth trends in industrial production.

Over the longer term, the global energy transition is set to bolster the demand for copper, due to its relatively heavy use in renewable energy technologies, battery storage and electric vehicles. Uncertainty in traditional energy markets resulting from Russia's invasion of Ukraine is providing incentive for countries to accelerate this energy transition. This could see the increase in copper demand brought forward.

Figure 12.1: Refined copper consumption



Source: World Bureau of Metal Statistics (2022); Department of Industry, Science and Resources (2022)

Chinese growth, property sector key risks

Developments in China — the world's top consumer for refined copper — are contributing heavily to the risk landscape for global copper consumption forecasts. This includes COVID-19 outbreaks and ongoing issues in the Chinese property sector, where reports are that local buyers are refusing to make mortgage payments on unfinished properties by developers facing financial distress. Building activity (measured by floor area of new construction starts) fell by 37% year-on-year in July 2022, and a further downturn in construction activity would significantly affect copper demand (given the property sector accounts for 20% of Chinese demand). The Government took measures in August to support the property sector.

Industrial production also faces heightened uncertainty as a result of China's 'dynamic zero COVID' policy, and how the Chinese Government responds to future virus variants. It is likely that China will not reach its goal of 5.5% GDP growth for 2022, and further undershooting of growth will drag on copper consumption.

On the upside, following the easing of containment restrictions in major Chinese manufacturing hubs, passenger vehicle production rebounded in June, and recorded overall growth of 6% for the first half of 2022. Chinese production of electric vehicles (EVs) — which require five times as much copper as conventional vehicles — has also seen major gains this year, with volumes reaching a monthly record of 590,000 units in June.

Government investment in telecommunication technologies and to support a growing network of EVs, will also help to support copper consumption in the longer term. More than 150 billion yuan will be spent on upgrading the power transmission network, expanding the 5G network, and rolling out more EV charging facilities.

Industrial production growth softens in the US

Targeting 40-year high inflation, the US Federal Reserve has rapidly tightened official interest rates, raising its benchmark rate to 3-3.25% to tame consumer spending. With August's CPI results showing core inflation proving to be 'sticky', further tightening is anticipated by the Federal Reserve board to ensure inflation trends back towards its target.

There are signs that industrial production is losing momentum. In June 2022, manufacturing output fell by 0.5% month-on-month. While still being up 3.6% year-on-year, it was its second consecutive month-on-month fall. Unlike in China, automotive production in the US fell year-on-year in the first half of 2022. While vehicle demand is strong, the microchip shortage and general supply chain issues have seen production levels cut. At the current rate of production, half a million fewer vehicles will be produced in the US in 2022 compared to 2021. However, the recently signed Inflation Reduction Act has potential to increase future US copper demand through tax credits for solar panels and EVs.

12.3 World production

Chile and Peru disappoint on mine production

Chile and Peru are set to account for the majority of growth in mined copper production over the outlook period. However, both face significant production disruptions in the immediate term.

While mine production increased by 5.5% quarter-on-quarter in Chile, June quarter 2022 production was 5.4% lower compared to the same quarter in 2021. Antofagasta announced that its Los Pelambre operation suffered a leak in the concentrate pipeline. Production at BHP's Escondida increased quarter-on-quarter, and production is expected to increase in future years.

In Peru, MMG temporarily withdrew its production guidance for Las Bambas after on-and-off protest activity. It has subsequently reinstated its guidance for Las Bambas to 240,000 tonnes — down from previous guidance of 300,000-320,000 tonnes. Peruvian mine output fell 2.0% quarter-on-quarter, marking its second consecutive quarterly decline in mine production. However, the ramp up at Mina Justa and first concentrate production at Quellaveco are likely to see increased mine production for the second half of the year. Quellaveco's total capacity of 300,000 tonnes a year will boost Peruvian production by 10% once ramp up is complete.

Global mine production is expected to reach 22 million tonnes in 2022 (up 5.4% year-on-year). Mine production is expected to increase to 23 million tonnes in 2023, and to 24 million tonnes in 2024 (Figure 12.2). The gains will be largely driven by increased production in Chile, Peru and the Democratic Republic of Congo.

Refinery output growth slowing

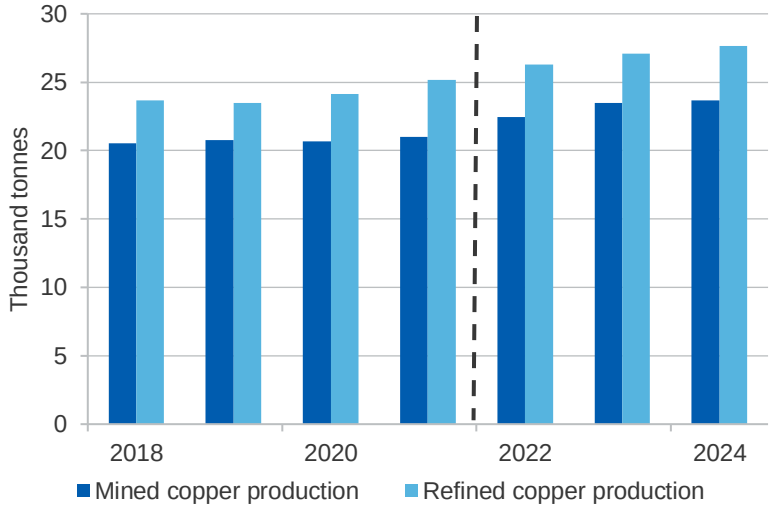
After a strong 2021, global refined copper production growth has slowed this year. In the June quarter 2022, refined output increased by 1.3% quarter-on-quarter, and was only 0.4% up on the same quarter in 2021.

In Europe, refined output was down 9.6% quarter-on-quarter, with half of the decline accounted for by a drop in Spanish production. In Asia,

quarter-on-quarter growth in refined output was 3.6%, with growth coming across the major refiners in China, Japan and South Korea.

Refined copper production is expected to grow by 2.1% to above 25 million tonnes in 2022. Refined production is forecast to reach almost 27 million tonnes in 2024 (Figure 12.2). However, the risks for refined copper production are skewed to the downside. A hot, dry summer in China — affecting hydro power generation — has led to power rationing, adversely affecting smelter output. In Europe, surging power prices are squeezing smelter profit margins, and they may look to cut output to manage costs.

Figure 12.2: Annual production of mined and refined copper



Source: World Bureau of Metal Statistics (2022); Department of Industry, Science and Resources (2022)

12.4 Prices

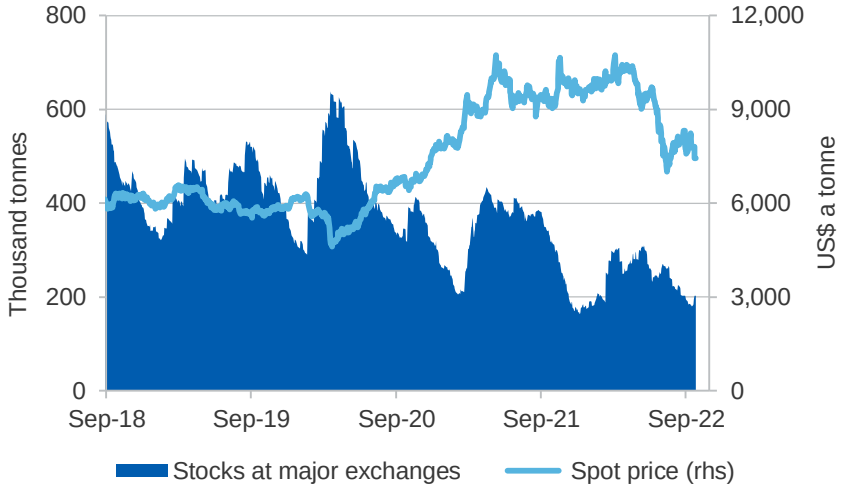
Prices declining from record levels in H1 2022

Copper prices were at record highs at the beginning of 2022, peaking at US$10,730 a tonne in March — an all-time record — and averaging almost US$10,000 a tonne in the March quarter 2022.

Despite averaging US$9,500 a tonne across the June quarter 2022, copper prices fell by more than US$1,000 a tonne across the month of June (Figure 12.3). Key to this price decline was weakening demand as a result of COVID-19 containment measures and weak property markets in China, a strengthening US dollar, and high energy prices in Europe.

The copper price is estimated to average around US$8,300 in the September quarter 2022, but is forecast to rise slightly in the December quarter. Across the full year, copper is expected to average close to US$8,900 a tonne in 2022 — down 4.9% from 2021.

Figure 12.3: Copper exchange inventories and spot price



Source: LME (2022) official cash price; Bloomberg (2022)

Stockpiles hold steady at low levels

In late 2021, warehouse inventories were drawn down to their lowest levels since 2014 (for the Shanghai Futures Exchange) and 2005 (for the London Metals Exchange). Warehouse inventories recovered in early 2022, however the build-up in inventories has since stalled. As at 26

September, stocks at major exchanges stood at 203,000 tonnes — 31% down from the 296,000 tonnes of stock as at the end of February.

The global copper market is forecast to trend into a modest surplus over the outlook period, putting only minor downward pressure on prices. While inventories will rise, they will remain relatively low. The price of copper is forecast to decline to average US$8,500 a tonne in 2023 and US$8,400 a tonne in 2024. However, upside risks exist if production from Chile and Peru disappoints.

12.5 Australia

Exports steady over the outlook period

Exports rose from $11.4 billion in 2020–21 to $12.3 billion in 2021–22, as record copper prices outweighed the impact of lower export volumes. Over the outlook period, growth in export volumes is likely to offset softer copper prices, with exports forecast to grow to $13.9 billion in 2023–24 (Figure 12.4).

Mine production to grow after 2021–22 disruptions

Australia's copper mine output fell by 10% to 788,000 tonnes in 2021–22. COVID-19 disruptions, extreme weather events and (both planned and unplanned) maintenance were key reasons for the fall.

In the June quarter 2022, Australian mined copper production increased by 4.2%. Newcrest's Cadia mine saw copper production increase by 23% quarter-on-quarter, due to increased mill throughput. Meanwhile, output at Carrapateena (Oz Minerals) fell by 30% quarter-on-quarter, attributed to belt splice delamination issues, equipment availability and workforce absenteeism.

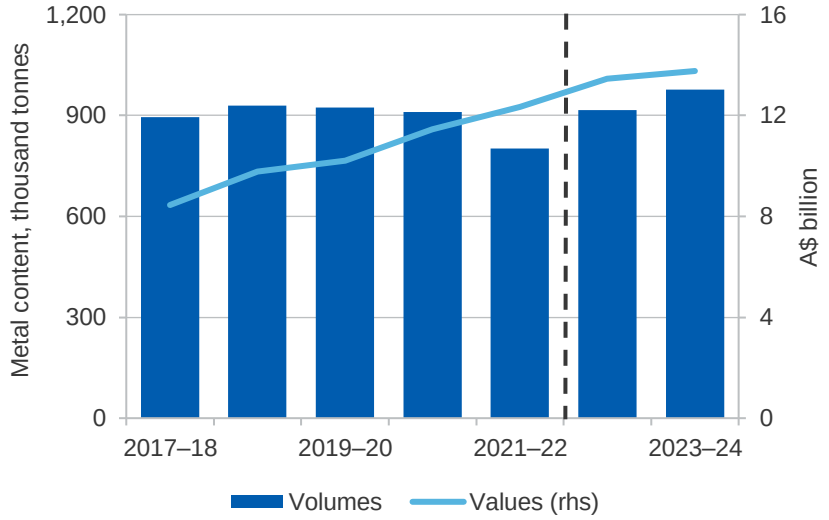
Completion of major maintenance, fewer COVID-19 workforce disruptions and new projects means that mined copper production is forecast to increase over the outlook period. Mined production is expected to grow to 902,000 in 2022–23, and to 963,000 tonnes by 2023–24.

New projects to boost Australian production throughout the outlook period

Several major projects are due to be delivered over the forecast period, while production is set to recover at most existing projects. The Nifty reactivation project (Cyprium) is expected to produce in 2023, while Oz Minerals reached a final investment decision on its West Musgrave project in September 2022.

The two-stage Cadia Expansion Project is expected to be complete by the end of September 2022. This is expected to increase the mill throughput rate to 35Mtpa in the December quarter 2022.

Figure 12.4: Australia's copper export volumes and values

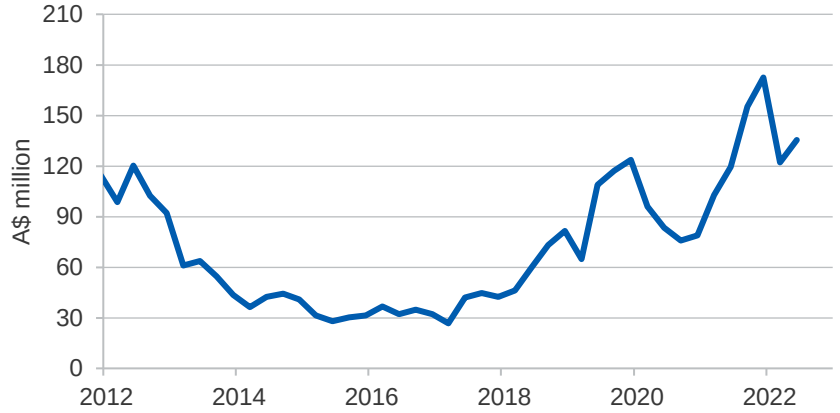


Source: ABS (2022) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2022)

Copper exploration falls, but still historically high

Copper exploration expenditure grew by 11% quarter-on-quarter, and reached $136 million in the June quarter 2022 (Figure 12.5).

Figure 12.5: Australian copper exploration expenditure



Source: ABS (2022)

Revisions to the outlook

Since the June 2022 *Resources and Energy Quarterly*, the forecast for Australia's copper export earnings in 2022–23 and 2023–24 have been revised down by $0.3 billion and $1.0 billion respectively, as a result of downward revisions to copper price forecasts.

Table 12.1: Copper outlook

						Annual percentage change		
World	**Unit**	**2021**	**2022[s]**	**2023[f]**	**2024[f]**	**2022[s]**	**2023[f]**	**2024[f]**
Production								
– mine	kt	21,025	22,161	23,180	24,015	5.4	4.6	3.6
– refined	kt	25,015	25,548	26,340	26,893	2.1	3.1	2.1
Consumption	kt	25,251	25,545	26,483	27,297	1.2	3.7	3.1
Closing stocks	kt	1 148	942	1 348	1 595	-18	43	18
– weeks of consumption		2.4	1.9	2.6	3.0	-19	38	15
Prices LME								
– nominal	US$/t	9,315	8,856	8,453	8,259	-4.9	-4.6	-2.3
	USc/lb	423	402	383	375	-4.9	-4.6	-2.3
– real[b]	US$/t	10,032	8,856	8,203	7,838	-12	-7.4	-4.5
	USc/lb	455	402	372	356	-12	-7.4	-4.5
Australia	**Unit**	**2020–21**	**2021–22**	**2022–23[f]**	**2023–24[f]**	**2021–22**	**2022–23[f]**	**2023–24[f]**
Mine output	kt	878	788	902	963	-10	14.5	6.8
Refined output	kt	452	349	444	448	-23	27	0.8
Exports								
– ores and concs[c]	kt	1,672	1,666	1,795	2,020	-0.4	7.7	13
– refined	kt	420	330	413	416	-21	25	0.8
– total metallic content	kt	910	802	916	977	-12	14	6.7
Export value								
– nominal	A$m	11,440	12,339	13,631	13,905	7.9	11	2.0
– real[d]	A$m	12,785	13,202	13,631	13,342	3.3	3.3	-2.1

Notes: **b** In 2022 calendar year US dollars; **c** Quantities refer to gross weight of all ores and concentrates; **d** In 2022–23 financial year Australian dollars; **f** Forecast.
Source: ABS (2022) International Trade, 5465.0; LME (2022) spot price; World Bureau of Metal Statistics (2022); Department of Industry, Science and Resources (2022).