Copper

Major Australian copper deposits (Mt)
- Deposit
  - <0.01
  - 0.02
  - 0.03–0.8
  - 0.9–2.1
  - 2.2–6.8
  - >6.9
- Operating mine

Copper facts
- The average home contains 180 kg of copper
- 80% of copper ever produced is still in use today
- An electric car contains about 5x more copper than an equivalent ICE car
- 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 no 2 for copper resources
- 7th largest copper producer in the world
- Copper exports worth more than $10 billion in 2019
12.1 Summary

- Copper prices are forecast to fall to US$5,560 a tonne in 2020, as the COVID-19-related economic slowdown weighs on consumption. Copper prices are then expected to lift over the outlook period, rising an average 6.0 per cent a year to a forecast US$6,240 a tonne in 2022.
- Australia’s copper exports are forecast to rise from an estimated 925,000 tonnes in 2019–20 to around 966,000 tonnes in 2021–22 (in metal content terms), as output from existing mines expands and new mines start.
- As copper prices and export volumes rise, Australia’s export earnings are forecast to steadily lift, from an estimated $9.6 billion in 2019–20 to $9.9 billion by 2021–22.

12.1 Prices

Copper prices stabilise at reduced levels

After a dramatic fall in the copper price in the first four months of the year — to a low of US$4,620 a tonne at the end of March — prices have recently strengthened. Copper prices have been impacted by both the COVID-19 induced slowdown in economic activity and pessimistic expectations about the world economy going forward. Towards the end of the June quarter, prices improved slightly, supported by expectations of production constraints and improved economic conditions. In the June quarter, the LME copper spot price averaged an estimated US$5,250 a tonne, 14 per cent lower year-on-year (Figure 12.1). After building in the March quarter, stock levels fell in the June quarter, as China’s imports returned to previous levels.

Copper prices to reflect market surplus

Copper prices are expected to strengthen over the remainder of the year, though without reaching 2019 levels. In 2020, the LME copper spot price is forecast to average US$5,560 a tonne, 7.5 per cent lower than the 2019 average of $6,000 a tonne. The forecast for world copper consumption in 2020 has been revised down, and a market surplus is expected in both 2020 and 2021.

Figure 12.1: Recent copper prices and stock movements

Source: LME (2020) official cash price; Bloomberg (2020) inventories LME, COMEX, SHFE

Figure 12.2: Copper stocks and prices

Although it is difficult to know how the COVID-19 pandemic and the anticipated economic recovery will unfold, current indicators suggest the largest impact on world economic activity will have been in the June quarter 2020. Full year consumption is expected to fall, although government stimulatory measures may provide some support to usage in the second half of 2020.

Towards the end of the outlook period, copper prices are forecast to rise steadily, in line with gradual improvements in economic activity and falling copper inventories. The copper price is forecast to rise 6.0 per cent a year to average US$6,240 a tonne in 2022 (Figure 12.2).

12.2 World consumption

Copper consumption down in major markets

Forecast world copper consumption has been revised down, as the impacts of COVID-19 alter the economic landscape. In 2020, negative world GDP growth and extremely weak industrial production are expected to weigh on copper use: copper consumption is forecast to fall 2.5 per cent to 23 million tonnes (Figure 12.3).

China is expected to drive the decline in world copper consumption, given it consumes around half of the world’s copper, followed by Europe and the US. Although China’s industrial production figures have improved, China’s copper consumption is forecast to fall 2-3 per cent in 2020. Copper used in China’s auto manufacturing sector dropped significantly in the March quarter with extended industrial shutdowns, the effect of which has been replicated in Europe and the US. In China, stimulus measures may support consumption, as well as government programs to stockpile copper concentrates (to both support product markets and alleviate supply chain shortages).

Expanding markets and consumption growth expected to return

In 2021 and 2022, a gradual lift in economic activity is expected to support copper usage. World consumption is forecast to reach 25 million tonnes in 2022, up an average 2.9 per cent a year (Figure 12.4). This forecast is dependent on economic growth in China as well as the rest of the world.
Stronger economic growth is expected to support higher copper consumption for traditional uses like infrastructure and construction, which may be the target of government stimulus spending. There is also a growing role for copper in low-carbon technologies, including renewable electricity generation, electric vehicles and grid infrastructure, which is expected to support copper usage over the medium-long term.

12.3 World production

Copper production slows with shut-downs and lower demand

Low prices, lower consumption and industrial shutdowns are expected to lead to a fall in copper production in 2020. World mine production is forecast to contract 2.4 per cent to 20 million tonnes in 2020 (Figure 12.5).

The immediate impacts of COVID-19 shutdowns on major producers are still becoming apparent. In the March quarter, mine closures led to lower production in Peru, China and Africa. In many instances concentrate stocks have been used to maintain refinery processing.

In Chile, the world’s largest copper producer, total copper output increased in the March quarter, as large facilities continued to produce amid national shutdowns. Production from the state-owned Codelco and BHP’s Escondida mine increased in the March quarter, as production was maintained with a reduced workforce. Large output reductions have been experienced at other facilities, including First Quantum’s Cobre Panama mine — which temporarily suspended operations in April — and the El Abra copper mine — where processing activity was reduced by 40 per cent due to COVID-19. The Las Bambas copper mine in Peru has also reduced operations.

Mine production to expand as prices recover

Mine production is expected to recover amid improved prices and normalised operating conditions. World mine production is forecast to reach 22 million tonnes in 2022, growing 4.9 per cent a year (Figure 12.6). Low copper prices have impacted the copper development pipeline with a number of new projects put on hold or expansions delayed.
Refined production interrupted but expected to recover

Refined copper production has been weighed down by plant closures, as well as constraints on refinery inputs, including supplies of concentrate and sulphuric acid. In the March quarter 2020, lower production in China and Russia were major contributors to the quarter-on-quarter decline in world refined production. Rio Tinto’s Kennecott mine and smelter facilities in the US also decreased production, following an earthquake in March.

Refined production is forecast to decline by 1.7 per cent to 23 million tonnes in 2020, primarily due to constrained production in China (Figure 12.6). As prices improve and new refinery capacity comes online, production is forecast to increase an average 2.9 per cent a year to reach 25 million tonnes in 2022. Secondary copper production has been constrained by shutdowns in China and Malaysia, followed by lower consumption requirements. Going forward market uncertainty — including uneconomic prices for some mines and lacklustre demand — are expected to influence copper production levels.

12.4 Australia

Short-term export decreases overcome with higher prices and production

In 2019–20, a decline in copper prices weighed on export earnings, which are estimated to have fallen by 2.2 per cent to $9.6 billion. Over the outlook period, a gradual recovery in copper prices and expanding domestic production are expected to lift export earnings by 2.0 per cent a year to reach $9.9 billion in 2021–22 (Figure 12.7).

Copper production subdued although not related to COVID-19

After significant growth in 2018–19, Australia’s mined copper production is estimated to have fallen by 4.6 per cent to 888,000 tonnes in 2019–20. Production was reduced by the closure of two Western Australian mines (Metals X’s Nifty mine and EMR’s Golden Grove) and FMR Investments’ Eloise mine in late 2019. Production from South Australia recently declined with the closure of Hillgrove’s Kanmantoo operation and the changing of ore bodies at Oz Minerals’ Prominent Hill mine (Figure 12.8).
Australia’s copper operations have managed COVID-19 related movement restrictions with minimal impact on output to date. Companies have addressed this by changing rostering arrangements, reverting to state-based employment or relocating contractors previously interstate.

There has been one closure related to COVID-19: Heron Resources’ recently reopened Woodlawn facility suspended operations after a 1,700 tonne shipment of copper concentrate in the March quarter.

At other sites, maintenance and development activities have been delayed or postponed due to COVID-19, including at BHP’s Olympic Dam site and KGL’s Jervois site. More broadly, ongoing low copper prices could pose a risk to the viability of some operations, although a large proportion of copper is co-produced with gold and may benefit from high gold prices.

Copper production growth over the short term

Over the outlook period, Australia’s production is expected to grow steadily to reach a forecast 940,000 tonnes in 2021–22. The continued ramp-up of Oz Minerals’ Carrapateena mine in South Australia — which started operations in late 2019 and has an annual capacity of 65,000 tonnes — is expected to reach full production by the end of 2020, ahead of schedule.

Other new projects that could potentially come online over the outlook period include Golden Cross Resources’ Copper Hill project in NSW and Havilah Resources’ Kalkaroo project in South Australia, which has found rare earth elements in exploration drilling. These projects are at the feasibility stage, and have not received a final investment decision.

Interest in gold continues to help spur copper exploration

In the March quarter, copper exploration expenditure was $97 million, 46 per cent higher year-on-year (Figure 12.9). High gold prices and medium-term expectations about copper consumption may be contributing to this growth.

Revisions to the outlook

The forecast for Australia’s copper export earnings has been revised down since the March 2020 Resources and Energy Quarterly, primarily as a result of COVID-19 related falls in current and forecast copper prices. Most significantly, forecast export earnings have been revised down by $450 million in 2020–21.
## Table 12.1: Copper outlook

<table>
<thead>
<tr>
<th>World</th>
<th>Unit</th>
<th>2019</th>
<th>2020f</th>
<th>2021f</th>
<th>2022f</th>
<th>2020f</th>
<th>2021f</th>
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<tbody>
<tr>
<td><strong>Production</strong></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– mine</td>
<td>kt</td>
<td>20,689</td>
<td>20,186</td>
<td>21,134</td>
<td>22,211</td>
<td>-2.4</td>
<td>4.7</td>
<td>5.1</td>
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<tr>
<td>– refined</td>
<td>kt</td>
<td>23,690</td>
<td>23,286</td>
<td>24,101</td>
<td>24,655</td>
<td>-1.7</td>
<td>3.5</td>
<td>2.3</td>
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<td><strong>Consumption</strong></td>
<td>kt</td>
<td>23,573</td>
<td>22,988</td>
<td>23,823</td>
<td>24,513</td>
<td>-2.5</td>
<td>3.6</td>
<td>2.9</td>
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<td><strong>Closing stocks</strong></td>
<td>kt</td>
<td>1,394</td>
<td>1,390</td>
<td>1,317</td>
<td>1,139</td>
<td>-0.3</td>
<td>-5.2</td>
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<td>– weeks of consumption</td>
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<td>3.1</td>
<td>3.1</td>
<td>2.9</td>
<td>2.4</td>
<td>0.8</td>
<td>-8.5</td>
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<td><strong>Prices LME</strong></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>– nominal</td>
<td>US$/t</td>
<td>6,005</td>
<td>5,555</td>
<td>5,968</td>
<td>6,235</td>
<td>-7.5</td>
<td>7.4</td>
<td>4.5</td>
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<td>USc/lb</td>
<td>272</td>
<td>252</td>
<td>271</td>
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<td>7.4</td>
<td>4.5</td>
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<td>– realb</td>
<td>US$/t</td>
<td>6,132</td>
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<td></td>
<td>USc/lb</td>
<td>278</td>
<td>252</td>
<td>265</td>
<td>271</td>
<td>-9.4</td>
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<tr>
<td><strong>Mine output</strong></td>
<td>kt</td>
<td>888</td>
<td>883</td>
<td>940</td>
<td>940</td>
<td>-4.6</td>
<td>-0.6</td>
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<td><strong>Refined output</strong></td>
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<td>410</td>
<td>400</td>
<td>400</td>
<td>400</td>
<td>0.7</td>
<td>-2.6</td>
<td>0.1</td>
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<td><strong>Exports</strong></td>
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<td></td>
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<td></td>
<td></td>
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<td></td>
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<tr>
<td>– ores and consc&lt;sup&gt;c&lt;/sup&gt;</td>
<td>kt</td>
<td>1,895</td>
<td>1,896</td>
<td>1,868</td>
<td>2,085</td>
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<td>-1.5</td>
<td>11.6</td>
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<tr>
<td>– refined</td>
<td>kt</td>
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<td>381</td>
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<td>375</td>
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<td>– total metallic content</td>
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<td>925</td>
<td>909</td>
<td>966</td>
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<td><strong>Export value</strong></td>
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<tr>
<td>– nominal</td>
<td>A$m</td>
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<td>9,555</td>
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<td>9,920</td>
<td>-2.2</td>
<td>-3.4</td>
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<td>– real&lt;sup&gt;d&lt;/sup&gt;</td>
<td>A$m</td>
<td>9,953</td>
<td>9,555</td>
<td>9,049</td>
<td>9,523</td>
<td>-4.0</td>
<td>-5.3</td>
<td>5.2</td>
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</tbody>
</table>

Notes: b In 2020 calendar year US dollars; c Quantities refer to gross weight of all ores and concentrates; d In 2019–20 financial year Australian dollars; f Forecast; s Estimate.
Source: ABS (2020) International Trade, 5465.0; LME (2020) spot price; World Bureau of Metal Statistics (2020); Department of Industry, Science, Energy and Resources (2020)