Copper
Resources and Energy Quarterly September 2018

Australia is the world’s 7th largest producer of copper in the world.

Copper is 100% recyclable and nearly 80% of the copper that has ever been produced is still in use today.

The average home contains 180 kg of copper.

Key copper consumer markets (thousand tonnes), 2017

- United States: 1,781
- Germany: 1,200
- Japan: 974
- South Korea: 656
- Italy: 652
- China: 11,923

Global uses of copper

- Equipment: 31%
- Building Construction: 30%
- Infrastructure: 15%
- Transport: 12%
- Industrial: 12%
12.1 Summary
- Trade tensions have hit copper prices in recent months, causing a 20 per cent decline. However, rising demand is expected to gradually reverse this fall, with prices forecast to rise from US$6,726 a tonne in 2018 to US$7,734 by 2020.
- Australia’s copper exports are forecast to rise from 888,000 tonnes in 2017–18 to over 1 million tonnes (in metal content terms) in 2019–20. This reflects an increase in production from several existing mines.
- Australia’s copper export earnings are forecast to lift from $8.5 billion in 2017–18 to $11.3 billion by 2019–20. Exports should benefit from rising production and from price growth later in the outlook period.

12.2 Prices

Copper prices have dropped, temporarily
Copper prices have turned bearish in recent months, plunging by 20 per cent to a 14-month low (of around $US6,000 a tonne) in early August. US–China trade tensions played a significant part in the recent decline: these tensions are widely considered to be one of the leading threats to global economic growth in the coming year. Copper is often considered a global economic barometer as a result of its importance for infrastructure development and manufacturing.

Instability in copper prices has been exacerbated by events in Turkey, where high current account deficits and a government freeze on interest rates have led to a currency crisis. Recent progress in wage talks at Escondida — the world’s largest copper mine — has also boosted copper supply, stemming potential upward pressure on copper prices.

Copper prices are expected to recover
Copper prices appear increasingly out of step with the fundamentals of global copper supply and demand, and are consequently expected to start recovering in the near-term. While trade tensions are likely to continue, it is...
expected that this will lead to greater price volatility rather than further declines. Rising demand (see Figure 12.2) should see copper prices recover late in 2018, and then lift to around $US7,088 a tonne in 2019 and $US7,774 a tonne in 2020. The fundamental conditions for copper remain strong, with industrial production rising and new consumer products emerging rapidly.

12.3 World consumption
Copper consumption is set for solid growth over the next two years
Global copper consumption is projected to rise from 24.5 million tonnes in 2018, to 25.7 million tonnes by 2020. Higher copper consumption reflects solid growth in global industrial production (see Figure 12.3) and a ramp-up in the development of copper-intensive technologies. Consumption over the short term is likely to be constrained to some degree by recent soft outcomes for fixed asset investment in Chinese manufacturing, real estate and infrastructure. Spending on Chinese infrastructure has been consistently below expectations in recent months (see Figure 12.4). As China consumes around half of all copper, this drop in usage has led to a significant fall in monthly consumption, even though industrial demand from the US and other countries has remained solid (see Figure 12.5).

Partly offsetting this, China has recently announced significant stimulus measures, in an effort to offset the impact of trade tensions with the US. These measures include tax cuts, which have been heavily targeted at research and development (R&D) spending. (Any resulting rise in R&D spending should benefit long term copper demand, due to copper’s use in many forms of emerging technology.) The Chinese Government has also brought forward a planned release of RMB1.35 trillion in bonds to sponsor infrastructure investment by local governments. These measures are expected to boost copper usage from mid-2019.

Dependence on China may also be reduced in the medium term by a rise in global electric vehicle usage. Electric vehicles typically contain about 90 kilograms of copper, and strong growth in sales across many nations is likely to result in a more balanced global market in the next few years.
12.4 World production

World copper mine production has been constrained by supply disruptions

Copper production faced some significant disruptions in the first half of 2018. Persistent threats of industrial action in Chile, export curbs in Indonesia, and sudden cuts in recycled supply from China have all created volatility and uncertainty within copper markets. However, the primary uncertainty now appears to have switched to the consumption side, and as supply has steadied, prices have plunged significantly. It is expected that, on the supply side at least, copper will have a less volatile end to 2018, with new supply kicking in from several sources.

The underlying supply picture remains strong, as Figure 12.6 shows. Output from South America and Southeast Asia provided a solid lift to global copper production during 2018. Production in Chile has increased by almost 14 per cent over the past year, and the threat of industrial action at the Escondida mine (which accounts for almost 5 per cent of global supply) has receded for the time being. Management at the mine has announced a deal in a new labour contract with the union, though the terms have yet to be put to the rank-and-file union members for a vote. At the time of writing, strikes at the mine have been put on hold after several months of unrest.

Copper supply from Zambia is also rising significantly, as substantial investment begins to unlock new ore deposits. Investment has been supported by improved stability in Zambia’s domestic power supply, as well as a period of strong growth in prices. Output from Indonesia is also growing significantly, after its temporary ban on concentrate exports was terminated in April.

Partly offsetting these positive supply trends, production in Canada and the US appears to be contracting at present, with trade tensions affecting investor confidence and discouraging some potential ramp-ups.
World mine production is expected to recover rapidly

Rising output from South Asia and South America should support a lift in global copper mine production, which is forecast to rise from 21.2 million tonnes in 2018 to 23.2 million tonnes in 2020. Two mines are likely to play a particularly significant role in enabling supply growth over the outlook period: First Quantum Minerals’ new Cobre Panama mine is expected to produce 330,000 tonnes annually from 2019, while Qulong’s new copper mine in Tibet is expected to supply 120,000 tonnes. A further 300,000 tonnes is expected to be added by expanded capacity and upgrades across numerous other mines around the world.

Rising production remains subject to several risks. These include a potential re-emergence of industrial unrest in Chile, as well as ongoing US-China and US-EU trade tensions, which could discourage output from marginal facilities. However, copper stocks are currently relatively sound (see Figure 12.7) which could curb supply risks somewhat.

World refined copper output is expected to rise over the outlook period

World refined copper output is forecast to grow from 24.3 million tonnes in 2018 to 25.5 million tonnes in 2020. This is expected to be driven by emerging markets, which have already accounted for virtually all growth in refined copper output over 2018 to date.

Over the first half 2018, output from Africa increased by about 10 per cent (through the year), while output from South America grew by just over 4 per cent, and output from Asia rose by 2 per cent. Output from the EU has been largely stable, while output from the US declined during the first half of 2018. Efforts to build new refinery capacity have been concentrated in countries with significant raw materials and relatively low labour costs, with Chinese companies making up the most significant investors.

Secondary production faced some volatility after China cut its imports of low grade scrap under new environmental laws (see Figure 12.8). Recycled copper output is expected to drop in 2019 and then rebound in 2020, as Thailand and the Philippines move into the recycling market.
12.5 Australia

Mine production will be supported by rising output from existing mines

Australian production is projected to rise from 885,000 tonnes in 2017–18 to just over 1 million tonnes in 2019 and 2020 (see Figure 12.9). This reflects higher output from several key mines, including Newcrest’s sizeable Cadia Valley mine, which is expected to ramp up its production significantly in 2019. CuDeco’s Rocklands mine in Queensland is also ramping up production, while Sterlite Industries’ Mount Lyell mine is set to return to normal production in 2019 following a brief period of care and maintenance.

Copper production in Australia is likely to be supported by the strong outlook of the fast-growing electric vehicle market. Growth in global electric vehicle sales are expected to lift sharply from the early 2020s as electric vehicles become fully price competitive with petrol vehicles. This is likely to draw significantly on copper supplies, which are essential for electric vehicle batteries. Rapid growth in battery supply chains is already encouraging firms to lock in additional raw materials and develop new refinery capabilities. Cassini Resources is currently seeking to develop substantial deposits of copper and nickel in South Australia to support the electric vehicle market, and the company has already received a $US3 million placement from Guanzhou Tinci Materials in China.

BHP is also assessing the options for a potential $2.1 billion expansion of its Olympic Dam mine. This expansion would lift copper output from the facility by around 50 per cent to over 300,000 tonnes per year. A decision is expected by 2020. Although the long-term prospects for Olympic Dam remain strong, the mine has had some mixed results this year, with copper production disrupted in August by the failure of boiler tubes at its acid plant. This led to some further technical difficulties which are expected to hinder production for around two months.

Copper exports are expected to keep rising over the outlook period

Australia’s copper export earnings are estimated to have lifted by 11.9 per cent to $8.5 billion in 2017–18. This represents a slight downward revision from the last Resources and Energy Quarterly, reflecting the recent price drop. Export earnings have, however, been supported by a return to normal production among operations at the Cadia Valley, Mount Lyell and Rocklands mines.

Higher production and modest price growth are expected to increase Australia’s copper export earnings from $8.5 billion in 2017–18 to $10.5 billion in 2018–19. Further price growth is then forecast to push earnings up to $11.3 billion by 2019–20 (see Figure 12.9).

Figure 12.9: Australia’s copper exports

[Graph showing copper exports]

Source: Department of Industry, Innovation and Science (2018)

Exploration expenditure is picking up, with broad growth across states

Exploration spending lifted from $46.2 million in the March quarter to $59.8 million in the June quarter 2018. Higher exploration was recorded in NSW, Queensland, South Australia and Western Australia.
### Table 12.1: Copper outlook

<table>
<thead>
<tr>
<th></th>
<th>World</th>
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<th>Unit</th>
<th>2017</th>
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<td>–mine</td>
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<td>20,193</td>
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<td>22,002</td>
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<td>24,281</td>
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<td><strong>Consumption</strong></td>
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<td>–nominal US$/t</td>
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<td>–ores and cons.&lt;sup&gt;c&lt;/sup&gt;</td>
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<td>1,752</td>
<td>1,988</td>
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<td>413</td>
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<td></td>
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<td>kt</td>
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<td></td>
<td>920</td>
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<td>11,691</td>
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Notes: b In 2018 calendar year US dollars; c Quantities refer to gross weight of all ores and concentrates; d In 2018–19 financial year Australian dollars; f Forecast