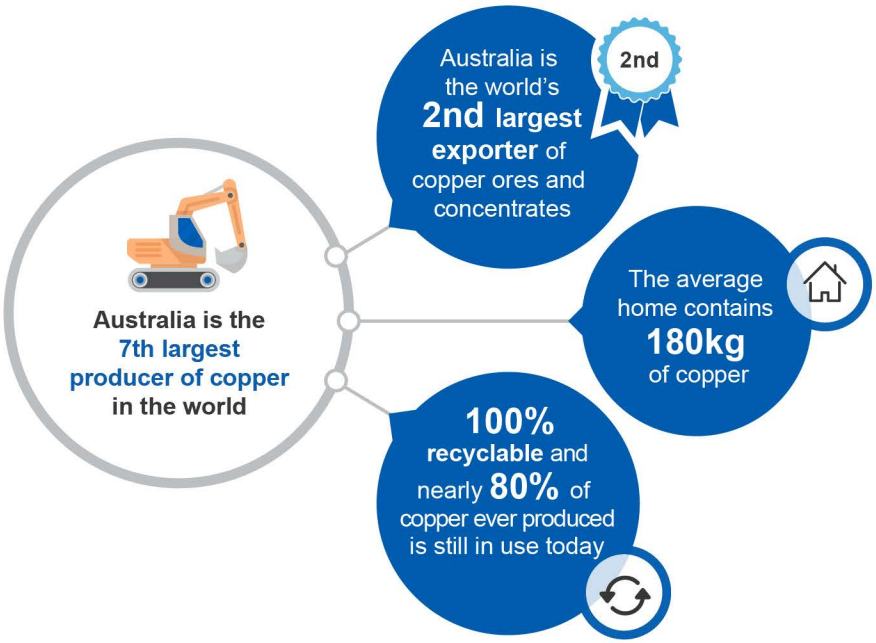
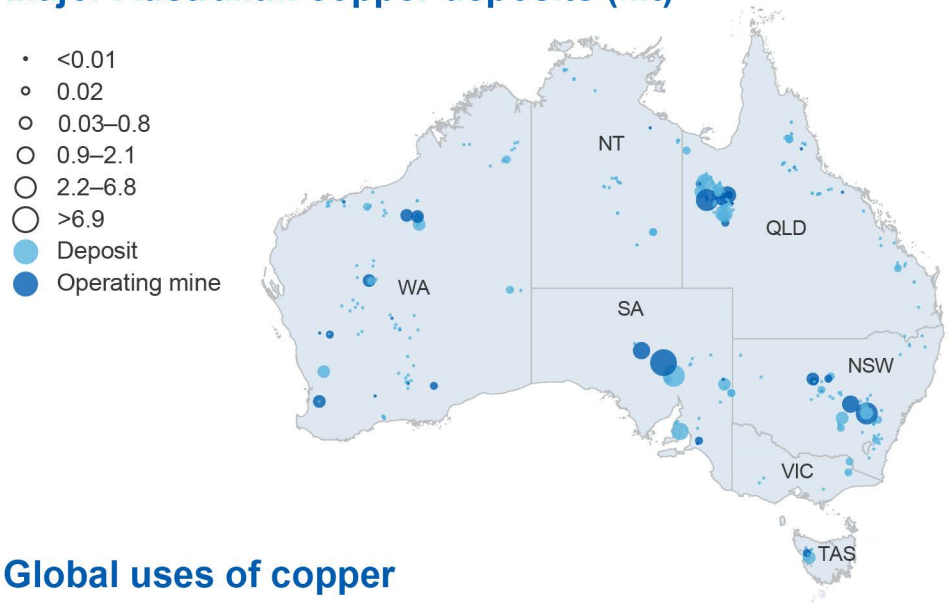
Copper

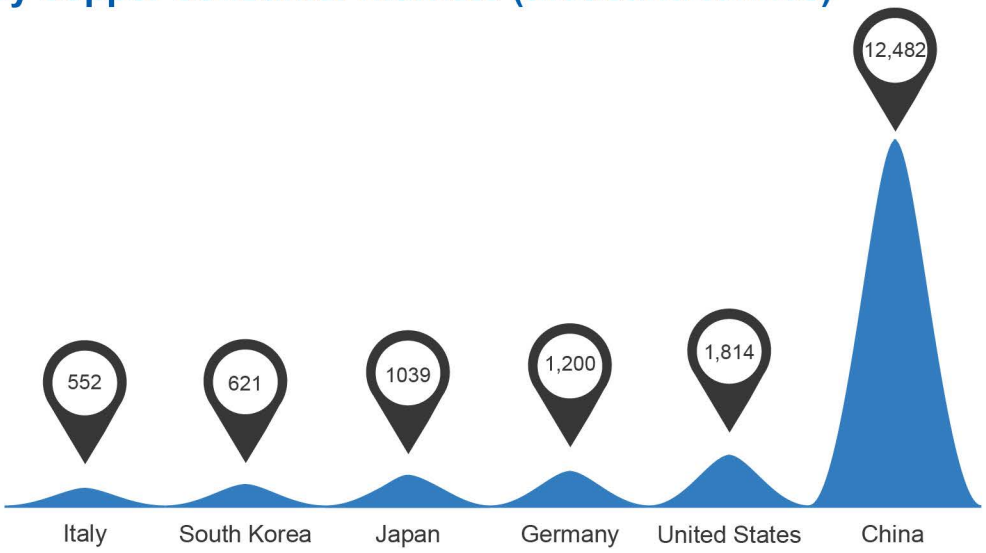
Resources and Energy Quarterly December 2019



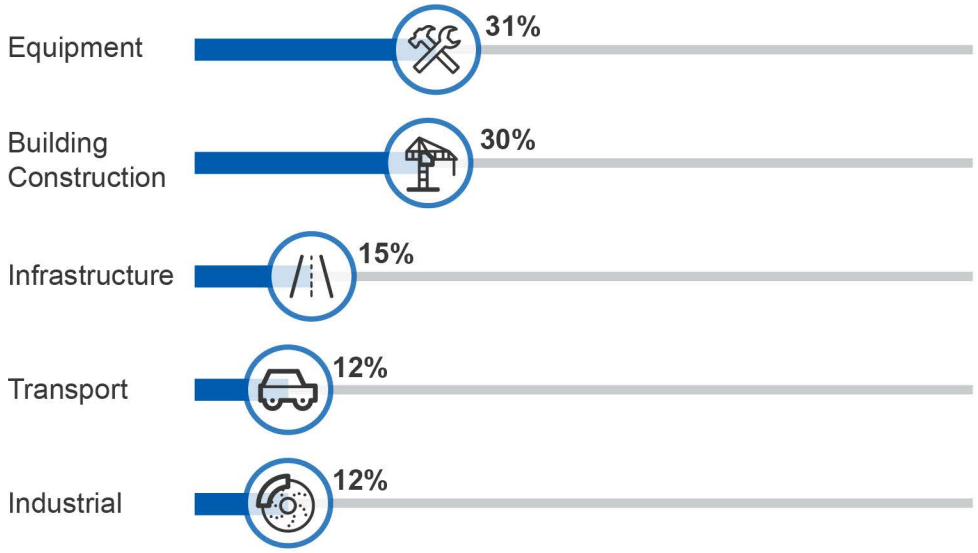
Major Australian copper deposits (Mt)



Key copper consumer markets (thousand tonnes)



Global uses of copper



12.1 Summary

- Copper prices declined in 2019 to an average of US$5,980 a tonne, weighed down by slowing economic growth. Over the outlook period, rising consumption is expected to boost prices, with the price forecast to reach US$6,190 a tonne in 2021.
- Australia's copper exports are expected to grow in line with higher production, supported by expansions and new projects. Export volumes are forecast to rise from 932,000 tonnes in 2018–19 to 1.0 million tonnes in 2020–21 (metal content terms).
- Higher volumes and stronger prices are expected to increase Australia's copper export earnings. Export earnings are forecast to exceed $10 billion in 2020–21, up from $9.8 billion in 2018–19.

13.2 Prices

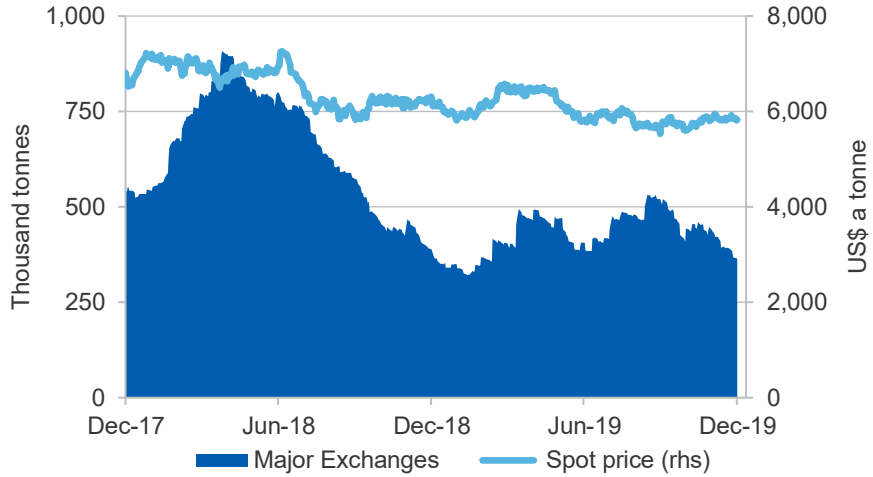
Copper prices remained subdued

Slower economic growth and concerns about the impact of escalating US-China trade tensions weighed on copper prices in 2019 (Figure 12.1). The estimated copper price was US$5,980 a tonne for the year, 8.3 per cent lower than in 2018. In the second half of the year, protests in Chile and Peru caused uncertainty and production outages, in turn supporting some price strength. Despite this, the copper price averaged US$5,793 a tonne in the December quarter, 6.1 per cent lower year-on-year.

Consumption growth and supply deficit to support price rises

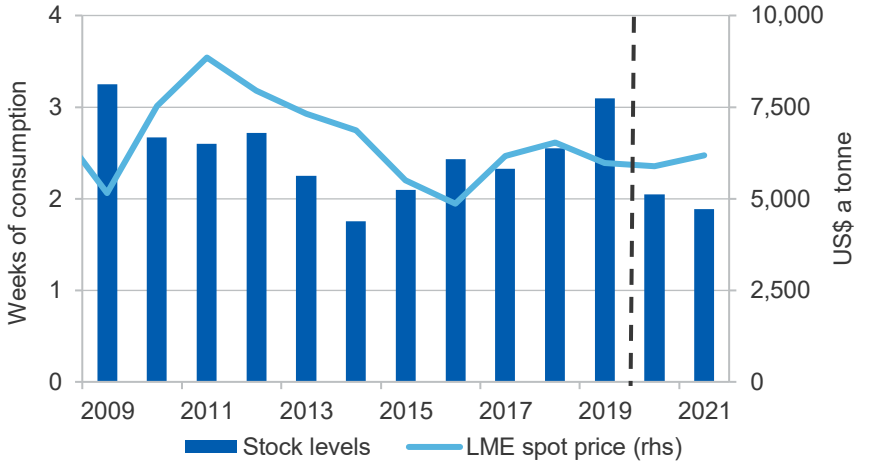
Over the outlook period, rising consumption and constrained production are expected to combine to support a modest recovery in copper prices. Prices are forecast to increase in 2020 and 2021, at an average rate of 1.8 per cent a year, to reach US$5,890 a tonne in 2020 and US$6,190 a tonne in 2021 (Figure 12.2). Consumption growth will be impacted by the pace of world economic growth, which in turn will be influenced by any resolution or escalation of US-China trade tensions.

Figure 12.1: Recent copper price and stock movements



Source: LME (2019) official cash price; Bloomberg (2019) inventories LME, COMEX, SHFE

Figure 12.2: Outlook for stocks and prices



Source: LME (2019) official cash price; Bloomberg (2019) Department of Industry, Innovation and Science (2019)

13.3 World consumption

Economic conditions weigh on copper consumption

US-China trade tensions and an associated slowing in world economic growth continue to weigh on copper consumption. Consumption in the year to September was 17 million tonnes, 1.5 per cent lower than the same period in 2018, despite a slight uptick in consumption in the September quarter.

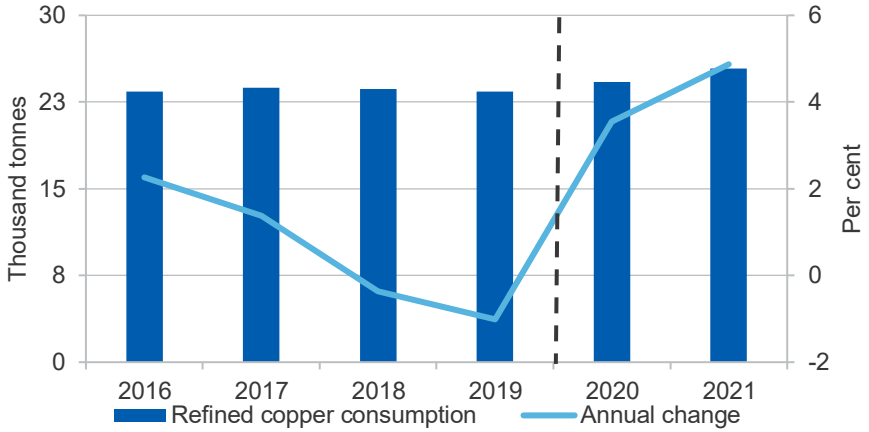
For 2019 as a whole, consumption is estimated to be 24 million tonnes, consistent with 2018 (Figure 12.3). Around half the world's refined copper is consumed in China, where consumption increased modestly in 2019 as increases in domestic refining capacity balanced decreases in copper imports. Consumption growth was flat in Europe and the US.

Expanding markets to support copper consumption growth

After lacklustre growth in 2018 and 2019, consumption is forecast to increase at an annual average rate of 3.6 per cent over the outlook period, to exceed 25 million tonnes in 2021 (Figure 12.3). This forecast is heavily dependent on the level of industrial activity in China. China's consumption is expected to be bolstered by stimulus to promote economic growth, which could promote higher copper consumption through energy grid infrastructure.

The vital role copper plays in electric vehicles, batteries and grid investment, including wind and solar generation, is expected to support strong growth beyond the outlook period. In the International Energy Agency's latest World Energy Outlook, in Stated Policies Scenario, the share of wind and solar generation is projected to double to reach 13 per cent of world generation in 2025. Electric vehicles are copper intensive, in batteries and charging infrastructure. There are strong projections of electric vehicle production increases, however there is uncertainty around the timing of production growth. Electric vehicle uptake is currently dependent on relative energy costs, government subsidies, market offerings and charging technology.

Figure 12.3: Outlook for refined copper consumption



Source: World Bureau of Metal Statistics (2019); Department of Industry, Innovation and Science (2019)

13.4 World production

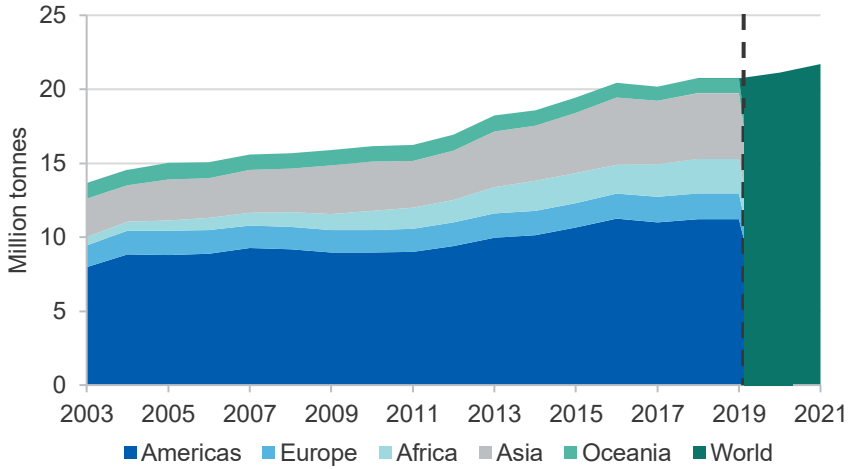
Mine production challenges smoothed over 2019

Production outages and declining ore grades have constrained mine production in 2019, however, production has expanded more recently. Mine output is estimated to be 21 million tonnes in 2019, as per 2018. Many of the world's major copper producers are facing production challenges. Rising electricity costs, civil unrest and changes to tax regimes are plaguing operations in a low price environment. Mine production is forecast to expand by an average 2.5 per cent a year over the outlook period, to reach 22 million tonnes in 2021 (Figure 12.4).

Chile's copper production decreased an estimated 3.0 per cent in 2019, as the state-owned Codelco dealt with lowering ore grades, heavy rains and protests at Chuquicamata mine. Codelco's production to September 2019 was 1.2 million tonnes, 6.7 per cent lower year-on-year. Codelco is seeking finance for new mines and expansions, which are expected to support healthy production growth over the outlook period, as Chile maintains its status as the world's largest producer of mined copper.

In Panama, higher production has been supported by the continued ramp-up of the Cobre Panama mine, which started operations in February 2019 (an annual capacity of 340,000 tonnes). Protests at the Tia Maria project in Peru have impacted mine logistics and production. Recent capacity expansions in Peru are expected to support higher production in 2020 and 2021, growing an average 1.5 per cent a year.

Figure 12.4: Outlook for copper mine production



Source: World Bureau of Metal Statistics (2019); Department of Industry, Innovation and Science (2019)

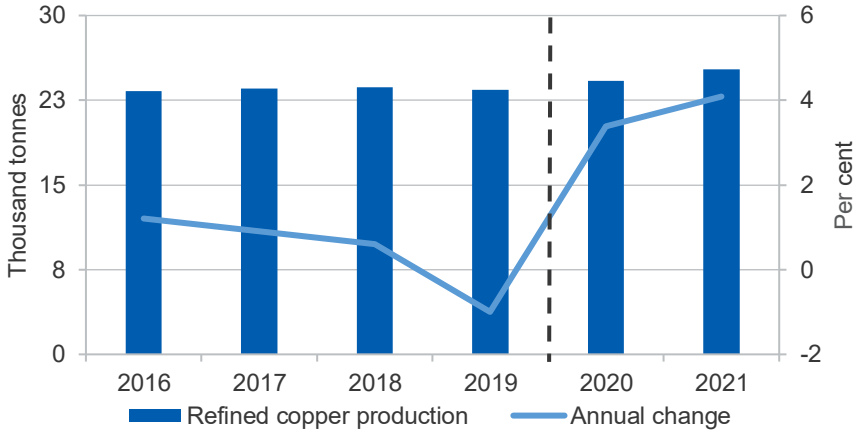
In Indonesia, the transition of the Grasberg mine from open pit to underground has reduced production over 2019. Zambia's copper production is struggling to maintain current levels, amid higher electricity costs and taxation. Zambia's new taxation regime, where royalty rates increase in-line with the LME copper price, was introduced this year. The closure of Glencore Mutanda mine in the Democratic Republic of the Congo was brought forward a month to close at the start of December 2019. The mine is expected to be on care & maintenance for two years.

Healthy growth in refined production expected to continue

Expanding refinery capacity in China and India have supported increases in world refined production in 2019. World refined production is estimated to be 24 million tonnes in 2019, 2.1 per cent higher than 2018 (Figure 12.3). China accounts for around 40 per cent of world refined production, and 450,000 tonnes of new capacity have come online in 2019. Chile, the world's second largest refined copper producer, has seen production losses in 2019 that are expected to be broadly maintained over the outlook period. A number of facility closures are expected to keep refined production around current levels over the next two years.

Output of refined copper is forecast to increase by an average rate of 3.1 per cent a year to exceed 25 million tonnes in 2021, primarily supported by new refinery capacity in China (Figure 12.5). Refined production is likely to be affected by availability of concentrate supply, electricity costs and tightening environmental restrictions over the outlook period.

Figure 12.5: Outlook for refined copper production



Source: World Bureau of Metal Statistics (2019); Department of Industry, Innovation and Science (2019)

13.5 Australia

Copper production expected to rise with new projects

After significant growth in 2018–19, Australia's copper production is expected to lower slightly in 2019–20, to a forecast 922,000 tonnes, as some mines suspend operations. Towards the end of the outlook period

new projects are expected to come online and production is forecast to rise 6.1 per cent to reach 978,000 tonnes in 2020–21 (see *Major Projects* chapter).

The start-up of Oz Mineral's Carrapateena mine in South Australia, which has an annual capacity of 65,000 tonnes, is expected to contribute to this growth. The project start was delayed from November to December, due to the delivery of incorrect machinery equipment, and operations have not commenced at the time of writing. Recent low copper prices have prompted the sudden closure of Metals X's Nifty mine in Western Australia after an operational review. Production has also been suspended at EMR's Golden Grove mine in Western Australia.

Copper mines in drought affected areas, like Newcrest's Cadia mine and AMI's Peak mine in NSW, have introduced water efficiency measures and alternative water sourcing. Under current conditions these factors are not expected to reduce production, however production costs may increase.

Australia's export earnings grow in line with higher production

In 2019–20, subdued copper prices are expected to weigh on export earnings, which are forecast to fall 6.2 per cent to $9.1 billion, down from $9.7 billion in 2018–19. In 2020–21, earnings are forecast to grow at 11 per cent a year to exceed $10 billion (Figure 12.6). Modest price increases are expected to add to the impact of volumes growth.

Copper exploration continues to grow

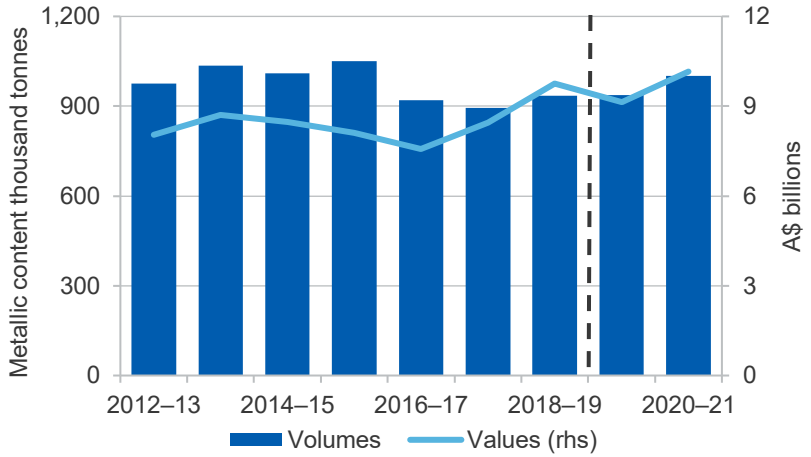
Copper exploration was $117 million in the September quarter, 60 per cent higher than the same time last year (Figure 12.7). This follows strong expenditure increases in the June quarter, as strong gold prices stimulate interest in co-existing gold and copper deposits.

Higher expenditure has primarily been in Western Australia, which has tripled over the year and exploration activity in Queensland also increased.

Revisions to the outlook

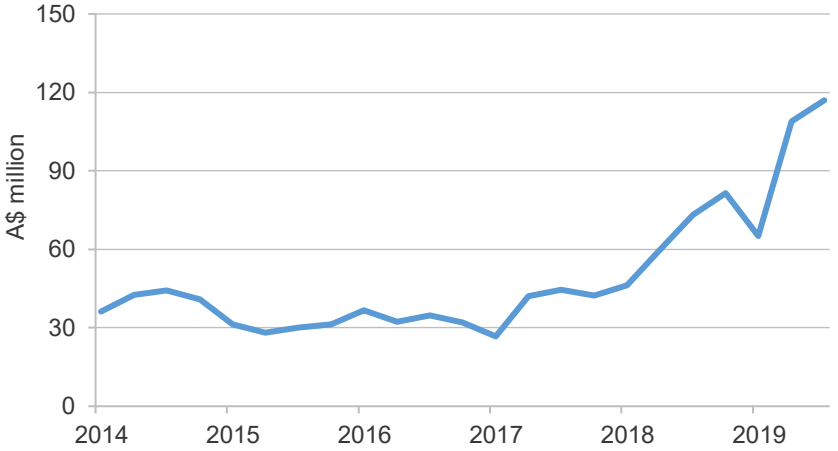
Australia's forecast copper export earnings for 2020–21 have been revised up by $136 million since the September 2019 *Resources and Energy Quarterly*, as higher production volume forecasts outweigh a modest downward revision to copper prices.

Figure 12.6: Australia's copper export volumes and values



Source: ABS (2019) International Trade in Goods and Services, 5368.0; Department of Industry, Innovation and Science (2019)

Figure 12.7: Quarterly copper exploration expenditure



Source: ABS (2019) Mineral and Petroleum Exploration 8412.0

Table 12.1: Copper outlook

						Annual percentage change		
World	**Unit**	**2018**	**2019[s]**	**2020[f]**	**2021[f]**	2019[s]	**2020[f]**	**2021[f]**
Production								
– mine	kt	20,674	20,650	21,118	21,701	-0.1	2.3	2.8
– refined	kt	23,545	24,030	24,824	25,813	2.1	3.3	4.0
Consumption	kt	23,645	23,706	24,417	25,422	0.3	3.0	4.1
Closing stocks	kt	1 158	1 394	954	923	20.3	-31.6	-3.2
– weeks of consumption		2.5	3.1	2.0	1.9	20.0	-33.6	-7.0
Prices LME								
– nominal	US$/t	6,525	5,981	5,890	6,188	-8.3	-1.5	5.1
	USc/lb	296	271	267	281	-8.3	-1.5	5.1
– real[b]	US$/t	6,638	5,981	5,769	5,936	-9.9	-3.6	2.9
	USc/lb	301	271	262	269	-9.9	-3.6	2.9
Australia	**Unit**	**2017–18**	**2018–19**	**2019–20[f]**	**2020–21[f]**	**2018–19**	**2019–20[f]**	**2020–21[f]**
Mine output	kt	867	934	922	978	7.7	-1.3	6.1
Refined output	kt	369	435	395	391	17.7	-9.2	-1.0
Exports								
– ores and cons[c]	kt	1,987	1,908	1,991	2,230	-4.0	4.4	12.0
– refined	kt	317	396	363	364	24.9	-8.3	0.2
– total metallic content	kt	894	932	937	1 001	4.2	0.6	6.8
Export value								
– nominal	A$m	8,451	9,733	9,142	10,156	15.2	-6.2	11.2
– real[d]	A$m	8,739	9,901	9,142	9,967	13.3	-7.8	9.2

Notes: b In 2019 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 (2019) International Trade, 5465.0; LME (2019) spot price; World Bureau of Metal Statistics (2019) World Metal Statistics; Department of Industry, Innovation and Science (2019)