

Zinc

Resources and Energy Quarterly September 2019

Australian zinc exports are tipped to **grow by 14%** to 1.4 million tonnes in 2019

Australia produced over **2 million tonnes** of zinc ores and concentrates in 2018

Zinc exports contributed **\$4 billion** to the Australian economy in 2018

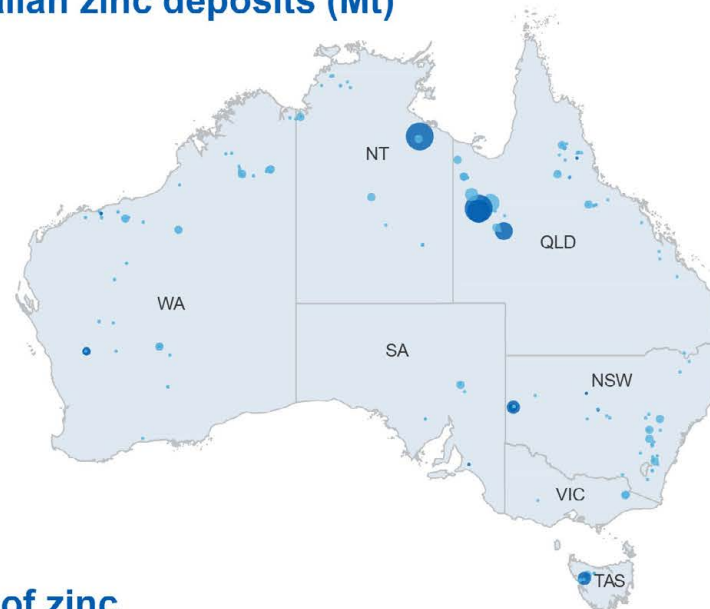
Australia is the **3rd highest** producer of zinc in the world



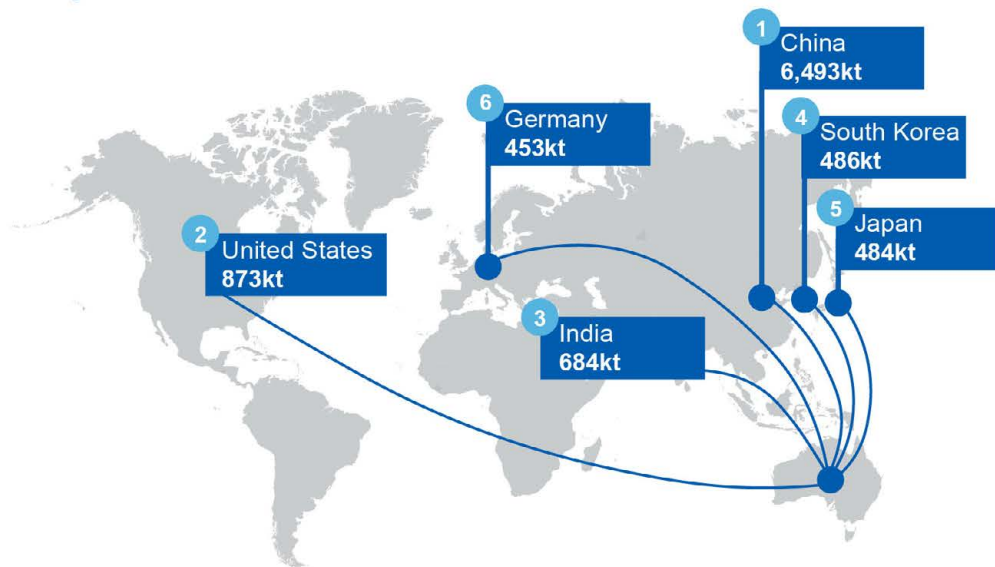
Australia holds **28%** of the world's known zinc resources

Major Australian zinc deposits (Mt)

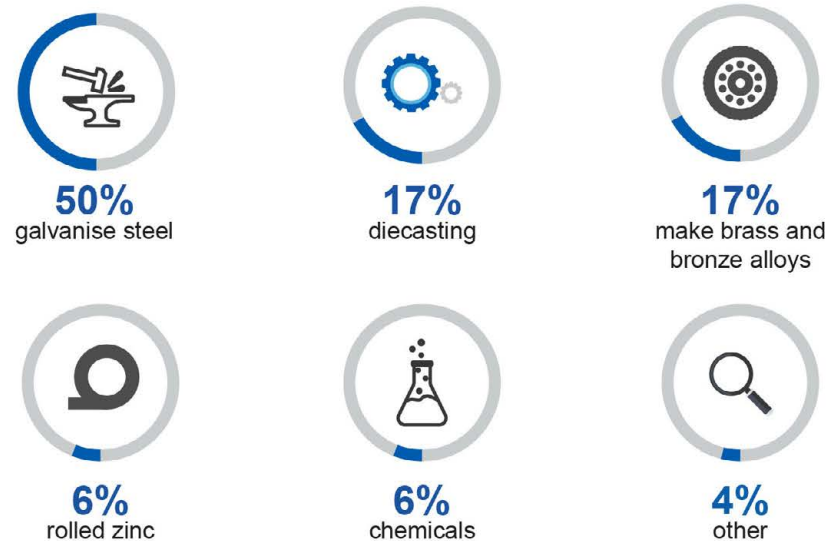
- <0.01
- 0.02–0.03
- 0.04–0.09
- 0.10–0.20
- 0.21–0.44
- >0.45
- Deposit
- Operating mine



Key zinc consumer markets



Global uses of zinc



14.1 Summary

- Zinc prices have been volatile in 2019. In April, prices eclipsed US\$3,000 per tonne, owing to an acute stock shortage, but have since dropped to three-year lows, reflecting trade tensions and supply growth. Prices are expected to decrease over the forecast period, as robust production growth boosts inventories and China's slowing economy shrinks demand for the metal.
- The rich lodes and tailings of the Mt Isa region are forecast to propel Australia's mined zinc production to 1.5 million tonnes in 2019—20, before production tapers off as a mix of smaller mines hit lower grades and some reach end of life.
- The value of Australia's zinc exports is forecast to decline from \$4.0 billion in 2018-19 to \$3.0 billion in 2021—21, due mainly to softer prices.

14.2 Prices

Prices to decline over the outlook period

Zinc prices have fluctuated in 2019. The London Metal Exchange (LME) zinc spot price breached US\$3,000 per tonne in April, as LME inventories reached an 11-year low of 50,000 tonnes. It then started to decline, falling to US\$2,190 per tonne in early September — the lowest it has been for three years (See Figure 14.1).

A number of tensions are at play. Zinc inventories are at record lows, owing to bottlenecks at Chinese smelters and the flow-on effects of a series of mine closures between 2013 and 2016. This helped boost prices in April 2019. However, it has not been enough to keep the price of zinc high in the face of deteriorating sentiment, an uncertain economic outlook and weak industrial output.

China's manufacturing purchasing managers index (PMI) and industrial products outputs have trended lower this year, and trade policy uncertainty has weighed on economic activity in advanced economies. All this suppresses demand for a metal closely tied to the manufacturing and automotive industries.

Figure 14.1: Historical zinc prices and stocks



Source: London Metal Exchange (2019) and Department of Industry, Innovation and Science

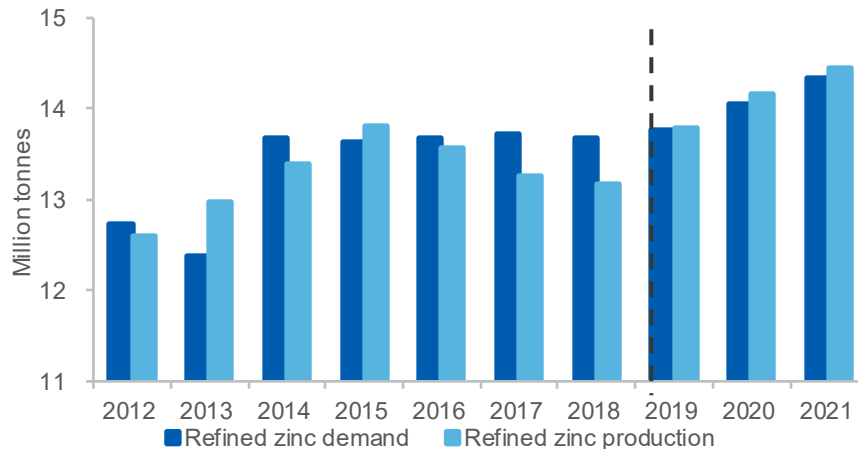
Anticipation of a zinc oversupply is also crimping prices. While there was a slight decrease in Chinese refined zinc production in July, production has still increased 11 per cent quarter-on-quarter, and shows signs it will continue to pick up speed. There are also a wave of new or expanded zinc mines ramping up production (see Section 14.3), such that world mined production is expected to grow by 4.4 per cent this year, after three years of decline.

The zinc market is set to return to surplus in 2019

With plenty of concentrate available, subdued demand, and Chinese smelters operating at greater capacity, the market for refined zinc is likely to return to a very small supply surplus this year, after three years of deficit (see Figure 14.2).

Over the longer term, rising zinc production and softer demand should see the price of zinc decrease by an average of 6.0 per cent per year over the forecast period — from an average of US\$2,594 per tonne during 2019 to US\$2,425 per tonne in 2021.

Figure 14.2: Refined zinc production versus refined zinc demand



Notes: The zinc market looks likely to return to a small surplus by the end of the year.

Source: International Lead and Zinc study Group (2019) and Department of Industry, Innovation and Science

World consumption

Emerging market economies to play key role in rising zinc consumption

Known as the ‘Great Protector’ for its anti-rust qualities, zinc’s fortunes are closely tied to steel production. Steel use is expected to rise over the outlook period, albeit at a slower pace than in previous years (see the *steel* chapter). Refined zinc consumption should follow suit; it is anticipated to increase by 568,000 tonnes from 2019 to 2021, or an average of 1.4 per cent each year (see Figure 14.3)

Emerging Asian economies are expected to continue playing an important role in fuelling zinc consumption. India, with its ambitious steel-making targets, will experience the highest demand growth from 2019 to 2021 — an average of 6.2 per cent per year. This is higher than China, which will average 3.2 per cent growth over the forecast period, due to its slowing economy. Outside of Asia there will likely be a general decline in refined

zinc consumption, as weakening industrial production dampens demand for the metal.

China expected to continue to consume large quantities of zinc, but downside risks to future demand have risen

China accounts for around half of global zinc and steel consumption, and its appetite for zinc remains large, though stunted in the short term. From January to June this year, refined zinc usage has been only three tonnes higher than last year (going from 3,074,000 to 3,077,000 tonnes) which means it is unlikely that zinc demand will grow much this year. Trade tensions, subdued industrial production, and a devaluation of the yuan — which curtails China’s purchasing power — appear to be the main causes.

There is a degree of uncertainty surrounding the pace of China’s future economic activity and industrial production growth. While the government is implementing economic stimulus measures in an attempt to offset the impacts of trade frictions, these are more restrained than in previous downturns. China also contends with economic challenges of a deeper, structural nature, such as mounting consumer debt, an ageing population, and low productivity, which complicate future growth prospects. Notwithstanding this, China’s rate of GDP growth remains robust and will continue to be one of the highest in the world, averaging between 5.5 and 6.0 per cent over the forecast period. This growth should sustain zinc demand, though perhaps not at previous rates.

14.3 World production

Mined output to rise over the outlook period

The forecast mined zinc production increase from 2018 to 2019 has been revised down from 6.2 percent to 4.4 per cent compared to the June 2019 *Resources and Energy Quarterly*, because of weaker than expected production results between January and June this year. China and Peru — the world’s two biggest zinc producers — experienced slightly negative growth in the first half of the year. Indian production growth has also been weaker, as the country navigates the transition from open pit to underground mining.

Mined output is expected to pick up pace in the second half of the year, as Vedanta Zinc International's 250,000 tonne per year Gamsberg mine and New Century's tailing project ramp up production. It should continue to rise over the outlook period, as a number of projects come online in response to the zinc supply deficit that emerged in 2016 (Figure 14.2).

Australia — the world's third biggest mined zinc producer — will make a hefty contribution to the anticipated increase in global mined output. From mid-2017 to December 2018, zinc exploration spending totalled \$151 million — almost equal to the total amount of expenditure for the three years prior to that. The results of this investment flurry have started coming to fruition, and mine production increased by 39.7 per cent from 2017—18 to 2018—19.

Refined production to lift with mine output after slow start in 2019

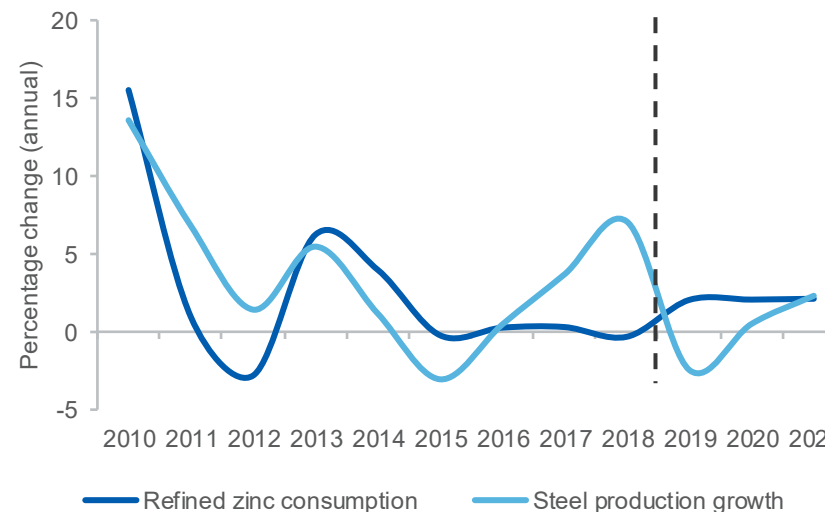
Refined zinc metal supply has suffered a number of short-term set-backs in 2019, which is reflected in weaker than forecast figures for the first half of 2019. Rising Chinese production and an increase in mine output are expected to compensate for this, and global refined production is expected to grow in 2019, after four years of decline. This trend should continue over the forecast period — total refined production is predicted to top 14 million tonnes in 2020 and grow to 14.4 million tonnes in 2021.

Refined production has faced complications in 2019. Smelters in China faced environmental restrictions, leading to bottlenecks. In addition, Africa's largest zinc refinery was shut-up for five weeks because of a strike. This has meant that refined output actually decreased from January to June in comparison with the same period last year.

However, Chinese production has since picked up pace, increasing steadily since February. Increased concentrate output and high treatment charges — prices charged by smelters for the cost of refining concentrates into pure zinc — are expected to incentivise production over the coming months, helping push the global market into a small surplus by 2019.

India is expected to see the largest growth in refined production output — a forecast 26.2 per cent increase from 2018 to 2021 to 942 thousand tonnes, or an average of 8.1 per cent each year.

Figure 14.3: Annual change in global steelmaking and zinc use



Source: International Monetary Fund (2018), Department of Innovation, Industry and Science (2019) estimates

14.4 Australia

Zinc exports are expected to grow in line with rising production

Australian mined zinc production surged to 1.3 million tonnes from 2018—19, a 39.7 per cent increase on 2017—18. By 2019—20, production will have almost recovered to the amounts achieved before the 2015 phase-out of the New Century mine, which roughly halved output. After hitting a five-year peak of 1.48 million tonnes in 2020, zinc production is forecast to taper off slowly.

Exports are tipped to grow in line with rising production, but lower prices will soften the revenue impact. Volumes (in metallic content terms) are forecast to peak at 1.43 million tonnes in 2019—20 and moderate in 2020—

21, returning to 2018—19 levels. Earnings are forecast to decrease from an estimated \$4.0 billion in 2018—19 to \$3.0 billion in 2020—21 (see Figure 14.4).

Australian mined production is surging

Australia's zinc production increased by almost 40 per cent year-on-year for January to July — to 1.3 million tonnes (in metal content terms). This increase was driven by production in the Mt Isa Region, where a number of producers have revitalised operations that were shuttered in 2015.

Queensland leads the way in terms of production and production growth (see Figure 15.5). New Century's ambitions to become one of the world's top ten zinc producers were bolstered by a 12 per cent production quarter-on-quarter increase in June and a landmark royalty agreement with the Queensland Government. Meanwhile, MMG's recently commissioned high-grade Dugald River mine had strong results, despite a planned maintenance shutdown, and Glencore's Mt Isa operations produced 59 per cent more zinc concentrate from January to June 2019 than the same period last year, owing largely to the resurgence of the Lady Loretta mine.

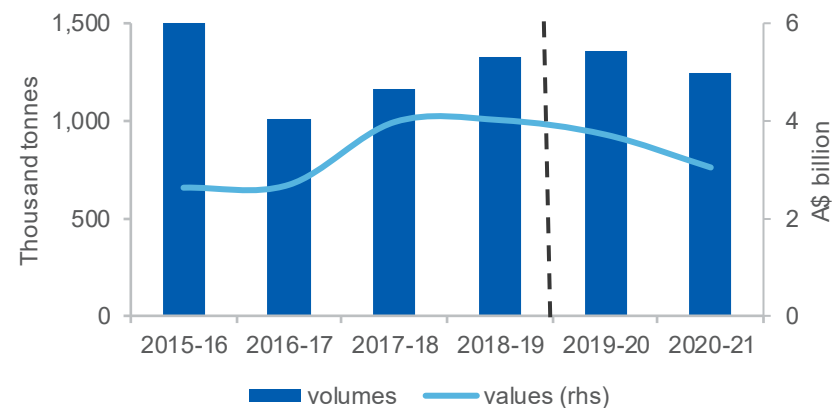
Production in other states has also been high. From January to June, Glencore's Northern Territory open-pit zinc mine, MacArthur River, produced 24 per cent more zinc than the same period year, and MMG's Rosebery's production increased by 4 per cent.

Exploration expenditure picks up pace after slow start to 2019

Exploration spending for silver, lead and zinc jumped to \$23 million in the June quarter of 2019. While this is not as high as the June quarter of 2018 — which hit \$28 million — it is 44 per cent higher than last quarter, and suggests that producers see room in the market for zinc concentrate. New Century and Heron Resources, in particular, continued their investment in exploration activities, as they seek to expand beyond recovering tailings to traditional mining.

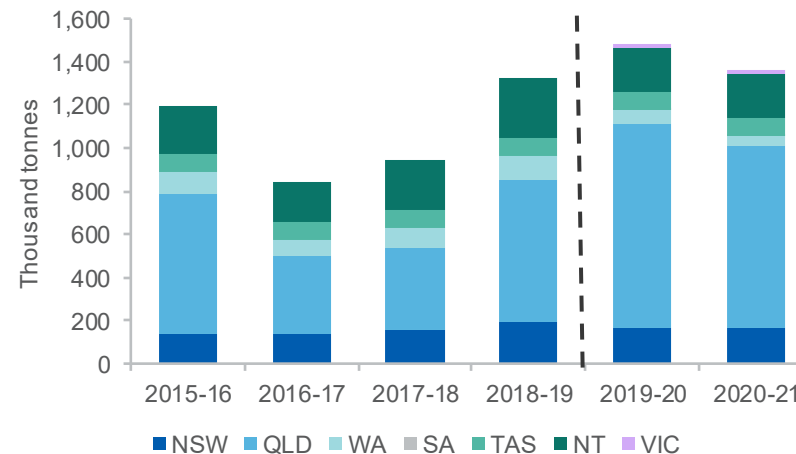
With zinc prices expected to decline over the forecast period and a number of zinc mines ramping up production, it is expected that exploration spending will become more subdued over the next two years.

Figure 14.4: Australian zinc exports, metallic content



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

Figure 14.5: Australian zinc production by state



Notes: Company reports; Department of Innovation, Industry and Science (2019)

Table 14.1: Zinc outlook

World	Unit	2018	2019 ^f	2020 ^f	2021 ^f	Annual percentage change		
						2019 ^f	2020 ^f	2021 ^f
Production								
– mine	kt	12,698	13,254	13,910	13,928	4.4	4.9	0.1
– refined	kt	13,177	13,789	14,066	14,356	4.6	2.0	2.1
Consumption	kt	13,677	13,689	13,966	14,256	0.1	2.0	2.1
Closing stocks	kt	894	994	1,094	1,194	11.2	10.1	9.1
– weeks of consumption		3	4	4	4	11.1	7.9	6.9
Price								
– nominal	US\$/t	2,925	2,594	2,440	2,425	-11.3	-6.0	-0.6
	USc/lb	133	118	111	110	-11.3	-6.0	-0.6
– real ^b	US\$/t	2,989	2,594	2,385	2,320	-13.2	-8.1	-2.7
	USc/lb	136	118	108	105	-13.2	-8.1	-2.7
Australia	Unit	2017–18	2018–19	2019–20 ^f	2020–21 ^f	2018–19	2019–20 ^f	2020–21 ^f
Mine output	kt	949	1,325	1,480	1,367	39.7	11.7	-7.7
Refined output	kt	474	478	473	475	1.0	-1.2	0.5
Export volume								
– ore and concentrate ^c	kt	1,738	2,098	2,538	2,260	20.7	21.0	-10.9
– refined	kt	417	421	333	336	0.8	-20.7	0.8
– total metallic content	kt	1,164	1,326	1,436	1,319	13.9	8.3	-8.2
Export value								
– nominal	A\$m	3,973	4,007	3,524	3,019	0.8	-12.1	-14.3
– real ^d	A\$m	4,125	4,093	3,524	2,948	-0.8	-13.9	-16.3

Notes: **b** In 2019 US dollars; **c** Quantities refer to gross weight of all ores and concentrates; **d** In 2019–20 Australian dollars; **f** Forecasts

Source: ABS (2019) International Trade in Goods and Services, Australia, Cat. No. 5368.0; Company reports; Department of Industry, Innovation and Science; International Lead Zinc Study Group (2019); LME (2019); World Bureau of Metal Statistics (2019)