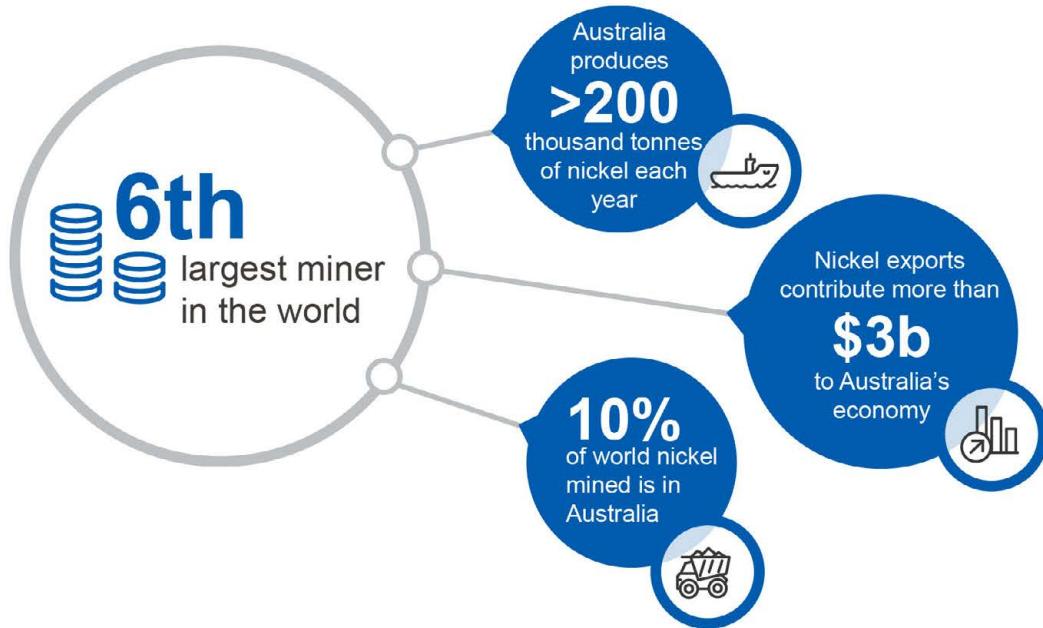


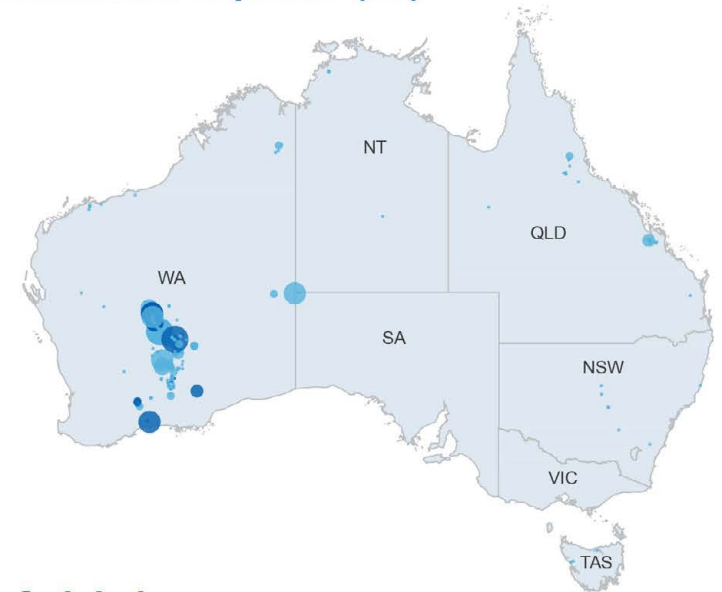
Nickel

Resources and Energy Quarterly September 2019



Major Australian nickel deposits (Mt)

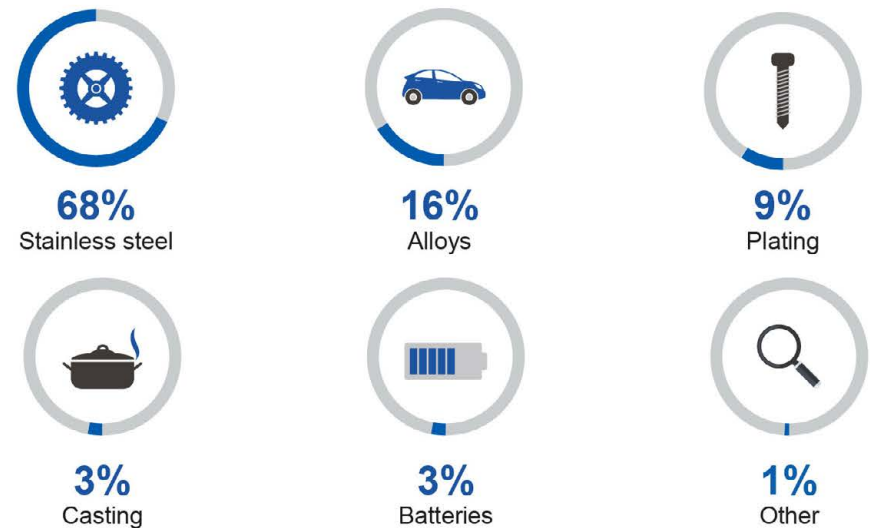
- <0.05
- 0.06–0.21
- 0.22–0.58
- 0.59–0.83
- 0.84–1.69
- >1.70
- Deposit
- Operating mine



Key nickel consumer markets (tonnes)



Global uses of nickel



13.1 Summary

- Nickel prices have shown recent resilience, rising in the September quarter with healthy consumption growth and concerns around world production. In 2019, nickel prices are forecast to average US\$13,800 a tonne, increasing to US\$16,500 a tonne in 2021.
- There are a number of development projects underway that are expected to support Australia’s mine production reaching 207,000 tonnes in 2020–21. Refined production is expected to increase to 141,000 tonnes in 2020–21, as BHP’s Kwinana refinery expansion comes online.
- Australia’s total nickel export earnings are forecast to increase from \$3.6 billion in 2018–19 to \$5.6 billion in 2020–21. Expanding production and, to a lesser extent, higher prices are expected to facilitate this growth.

13.2 Prices

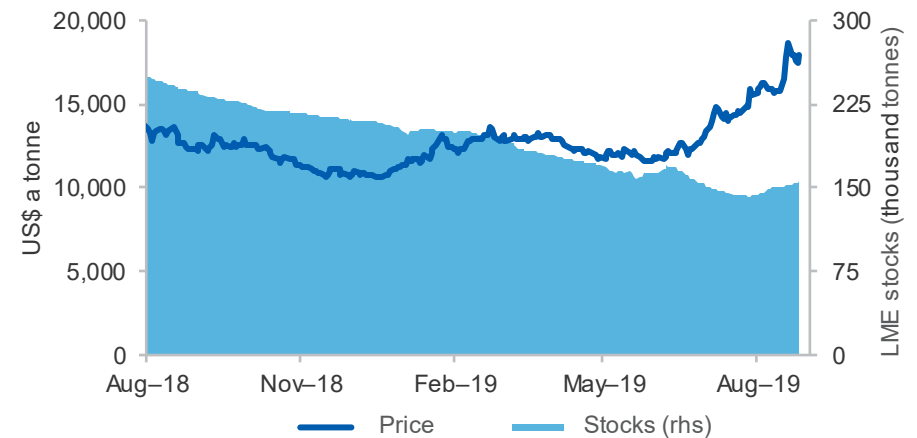
Nickel prices show strength, diverging from other base metals

Nickel prices have strengthened considerably in the September quarter, supported by healthy consumption, unexpected production outages and Indonesia’s announcement of an export ban to be introduced in 2022. The nickel price averaged US\$14,927 a tonne in the September quarter, 11 per cent higher than the same period in 2018 (Figure 13.1). London Metal Exchange (LME) stock levels have continued to draw down, reaching the lowest level in six years. The nickel market is expected to be under-supplied in 2019, which will be the fifth year of market deficit.

Strong consumption growth expected to support prices

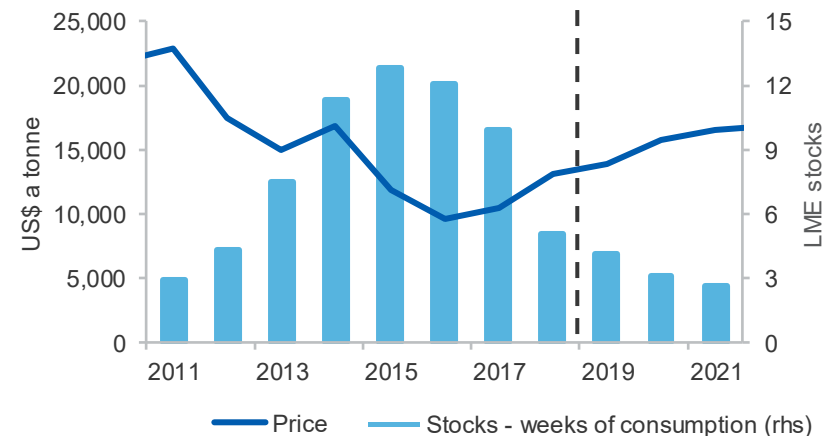
Over the outlook period, nickel prices are forecast to grow as world consumption growth outpaces production growth. Prices are forecast to average just over US\$13,800 a tonne in 2019, before rising to reach US\$16,500 a tonne in 2021 (Figure 13.2). This price outlook is largely dependent on China’s stainless steel consumption growth and the ongoing influence of the US-China trade tensions. The impact that Indonesia’s export ban will have on market dynamics, and therefore prices, is also a risk to the outlook.

Figure 13.1: Recent nickel price and stocks



Source: Bloomberg (2019) London Metal Exchange

Figure 13.2: Nickel LME spot price and inventories



Source: Bloomberg (2019) London Metal Exchange; International Nickel Study Group (2019); Department of Industry, Innovation and Science (2019)

13.2 World consumption

Strong outlook for nickel consumption in existing and emerging markets

Nickel consumption has remained steady despite some deterioration in world economic conditions. In the first half of the year world refined nickel consumption grew by 4.6 per cent year-on-year (Figure 13.3). China accounts for just over half of world consumption, and boosted world consumption further with a 9.4 per cent year-on-year increase in the first half of the year. Consistent growth in stainless steel demand has supported this growth.

Consumption is forecast to grow at an average 3.3 per cent a year over the outlook period, from 2.3 million tonnes in 2018 to 2.6 million tonnes in 2021. This is expected to be driven primarily by strong usage in China, where consumption is forecast to grow around 2 per cent a year.

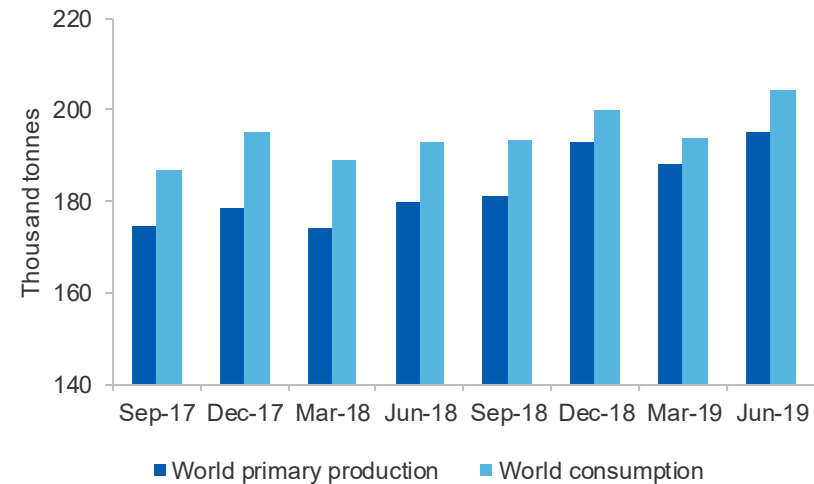
Engineering and manufacturing activity in other markets, including Japan, Indonesia and the US are also expected to support consumption growth.

Nickel used in batteries is a small but growing market, currently accounting for about 3 per cent of nickel consumption. As the nickel intensity of battery manufacturing increases to improve battery storage capacity, demand for nickel sulphate is expected to grow. However, electric vehicle manufacturing is influenced by purchasing incentives, climate policy and world economic conditions, thus making it difficult for the market to anticipate how quickly consumption markets will grow.

13.3 World production

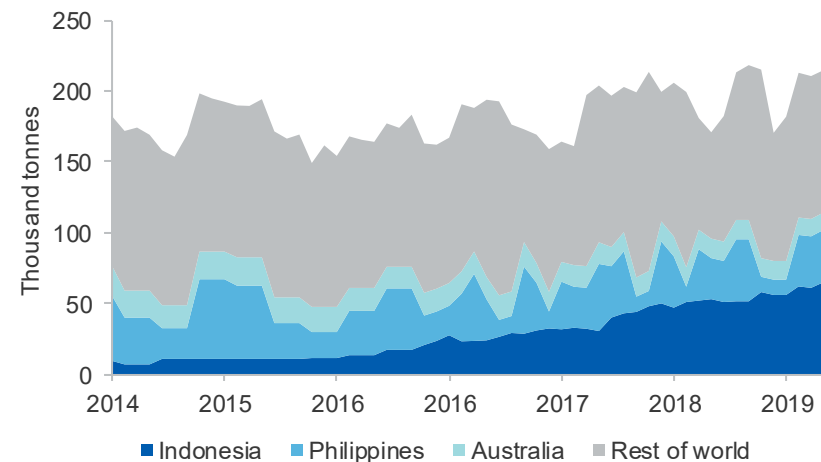
In the first half of the year mined nickel production grew by 9.1 per cent year-on-year, supported by higher production in the Philippines (Figure 13.4). Over the outlook period, world mine production is forecast to grow from 2.4 million tonnes in 2018 to 2.8 million tonnes in 2021, increasing at an average rate of 5.5 per cent a year. World refined production is forecast to grow from 2.2 million tonnes in 2018 to 2.6 million tonnes in 2021, rising at an average rate of 6.1 per cent a year. Three new mine projects in China are expected to bring 130,000 tonnes of capacity online by 2021 and 93,000 tonnes of new capacity is expected in Indonesia.

Figure 13.3: World balance of refined nickel



Source: International Nickel Study Group (2019)

Figure 13.4: World mined nickel production, monthly



Source: International Nickel Study Group (2019), Department of Industry, Innovation and Science (2019)

Indonesia's export ban to reduce world production

In late August, the Indonesian Government announced that nickel ore exports will be banned from January 2020. This announcement had an immediate impact on nickel prices and is expected to change market fundamentals over the outlook period. The ban is intended to promote development in Indonesia's domestic refining capacity and was previously expected to be introduced in 2022. In the past, bans of this nature have been introduced for bauxite and forestry exports, and previously in nickel in 2014, which was later relaxed in 2017 (Figure 13.5).

Indonesia is the largest nickel producer in the world, accounting for 26 per cent of world production in 2018. Indonesia exported around 120,000 tonnes of nickel in the first half of 2019; a complete stop to exports could remove around 10 per cent of nickel ore from the world market. Lower production volumes are likely to increase the world market deficit, supporting stronger nickel prices. It is expected exports will lift in the second half of 2019 in anticipation of the ban, however prices are expected to remain at elevated levels in 2019.

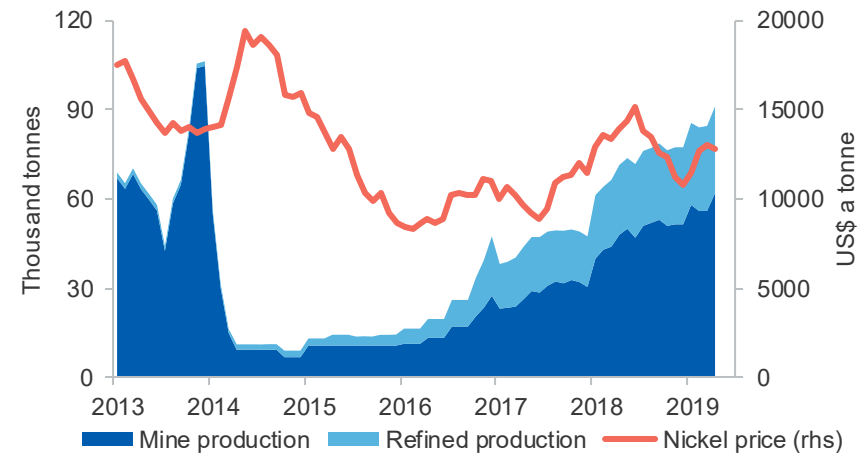
There are a number of uncertainties around how the ban will be implemented and what the impact will be on world markets. In the past, export bans have subsequently had concessional arrangements made or been delayed, even at the eleventh hour. This ban is due to be enacted very soon – giving industry little time to adjust. Current world market conditions are different compared to 2014, during Indonesia's previous nickel export ban, when destocking and new production from the Philippines addressed some of the supply gap. World stocks are currently at significantly low levels and alternative production sources are limited.

13.4 Australia

Australia's production grows with new capacity

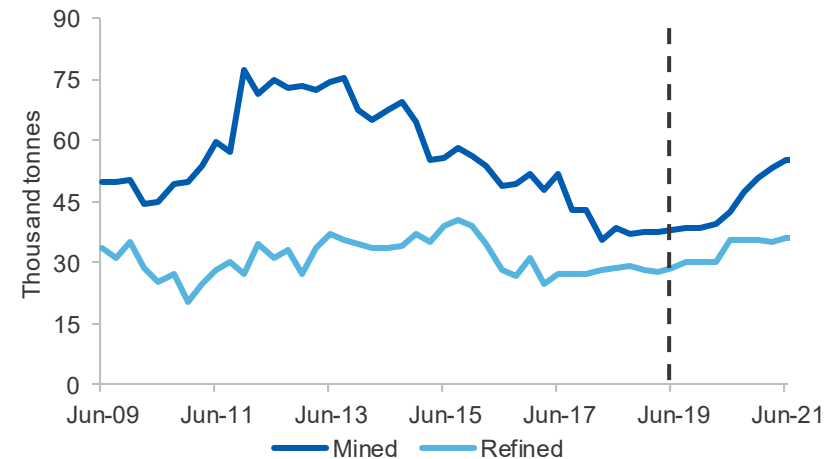
In the September quarter, Australia's mined nickel production grew by 14 per cent year-on-year, supported by the ramp-up in production at Panoramic Resources' Savannah mine in Western Australia.

Figure 13.5: Indonesia's nickel production and world prices



Source: International Nickel Study Group (2019), Bloomberg (2019) London Metal Exchange (2019)

Figure 13.6: Australia's quarterly nickel production



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

Australia's mine production is forecast to reach 207,000 tonnes in 2020–21, up from 150,000 tonnes in 2018–19 (Figure 13.6). Higher nickel prices and potential growth in consumption markets is supporting investment activity in Australian projects. New mine projects include BHP's Yakabindie operation (expected online in late 2020), as well as the potential restart of Posidon Nickel's Black Swan mine, both in Western Australia.

Australia's refinery production is forecast to grow at 9.1 per cent a year to reach 141,000 tonnes in 2020–21, up from 114,000 tonnes in 2018–19. De-bottlenecking projects, as well as capacity expansions are expected to support this growth. BHP plans to add nickel sulphate capacity to the Kwinana refinery in Western Australia, with the first stage of 100,000 tonnes annual capacity potentially coming online in 2020.

Higher export earnings to be supported by growing production

Growing production volumes and increasing prices are expected to support higher export earnings over the outlook period. Australia's nickel exports are forecast to grow at an average annual rate of 8.7 per cent a year, from \$3.6 billion in 2018–19 to \$5.6 billion in 2020–21 (Figure 13.7).

This growth is primarily supported by higher expected prices, however export volumes are also expected to increase steadily over the outlook. Export volumes are forecast to increase from 223,000 tonnes in 2018–19 to 280,000 tonnes in 2020–21.

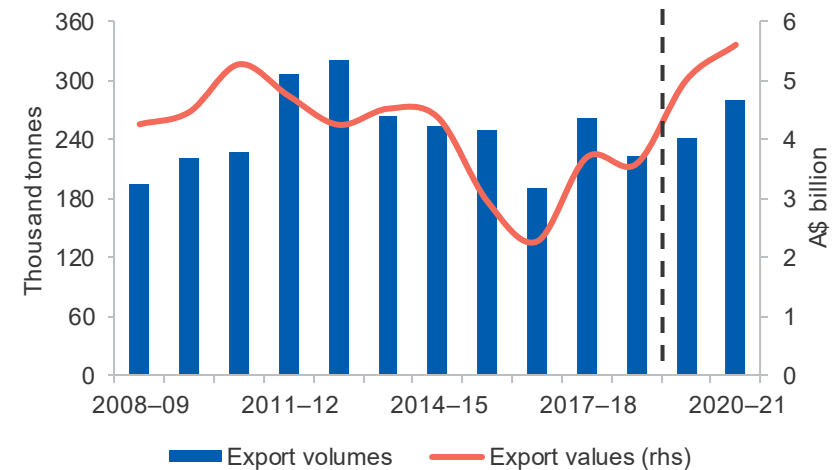
Exploration activity continues on motivation of battery manufacturing

Australia's nickel and cobalt exploration was \$203 million in 2018–19, broadly consistent with 2017–18 (Figure 13.8). Exploration activity has remained at recent elevated levels after picking up in late 2017, supported by expectations of market growth in battery manufacturing.

Revisions to the outlook

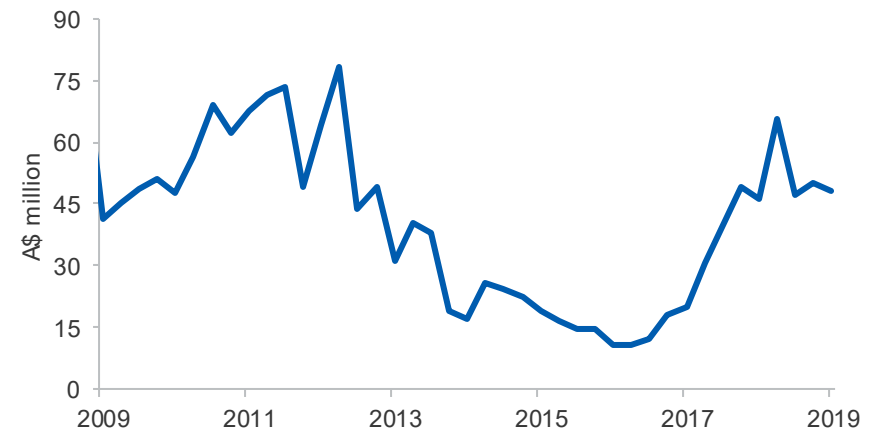
Forecasts for Australia's nickel export earnings have been revised up since the June 2019 *Resources and Energy Quarterly* due to the higher price forecast. Australia's export earnings have been revised up by \$385 million and \$657 million for 2019–20 and 2020–21, respectively.

Figure 13.7: Australia's nickel export volumes and values



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

Figure 13.8: Quarterly nickel and cobalt exploration expenditure



Source: ABS (2019) Mineral and Petroleum Exploration 8412.0

Table 13.1: Nickel outlook

World	Unit	2018	2019 ^f	2020 ^f	2021 ^f	Annual percentage change		
						2019 ^f	2020 ^f	2021 ^f
Production								
– mine	kt	2,350	2,574	2,702	2,755	9.5	5.0	2.0
– refined	kt	2,182	2,357	2,555	2,605	8.0	8.4	2.0
Consumption	kt	2,327	2,420	2,493	2,568	4.0	3.0	3.0
Stocks	kt	225	161	199	186	-28.2	23.4	-6.6
– weeks of consumption		5.0	3.5	4.2	3.8	-31.0	19.8	-9.3
Price LME								
– nominal	US\$/t	13,133	13,816	15,795	16,501	5.2	14.3	4.5
	Usc/lb	596	627	716	748	5.2	14.3	4.5
– real ^b	US\$/t	13,420	13,816	15,440	15,784	3.0	11.8	2.2
	Usc/lb	609	627	700	716	3.0	11.8	2.2
Australia	Unit	2017–18	2018–19	2019–20 ^f	2020–21 ^f	2018–19	2019–20 ^f	2020–21 ^f
Production								
– mine ^c	kt	160	150	159	207	-6.3	5.9	30.4
– refined	kt	111	114	126	141	2.1	10.8	12.3
– intermediate		27	13	16	16	-53.2	28.0	0.0
Export volume ^d	kt	262	223	243	280	-15.0	8.9	15.4
– nominal value	A\$m	3,701	3,588	5,006	5,607	-3.1	39.5	12.0
– real value ^e	A\$m	3,853	3,674	5,006	5,472	-4.6	36.3	9.3

Notes: **b** In 2019 calendar year US dollars; **c** Nickel content of domestic mine production; **d** Includes metal content of ores and concentrates, intermediate products and nickel metal; **e** In 2019–20 financial year Australian dollars; **f** Forecast

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