

Aluminium

Major Australian bauxite deposits (Gt)



Key consumer markets for primary aluminium, 2020



Aluminium



Bauxite is refined to recover alumina and smelted to make aluminium

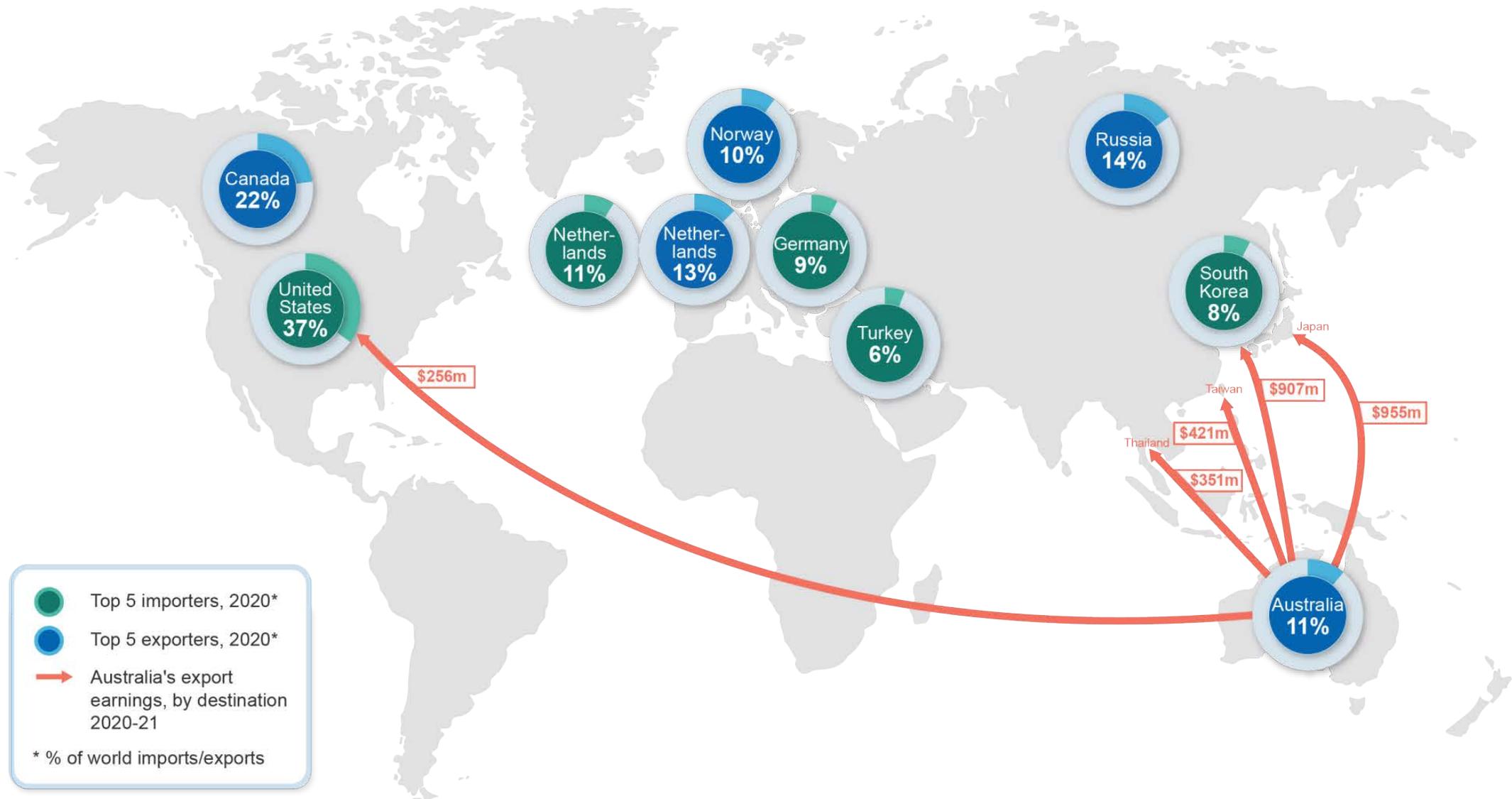
2-3 tonnes of bauxite is required to produce one tonne of alumina

China is the world's largest producer & consumer of primary aluminium

Each electric vehicle contains 0.25 tonne of aluminium

Australia's aluminium





11.1 Summary

- Energy shortages, emission curbs and political instability in Guinea have constrained primary aluminium production and recently pushed the London Metal Exchange (LME) aluminium spot price to a 13-year high. World demand is expected to remain strong, with the primary aluminium price forecast to rise to an average US\$2,680 a tonne in 2023.
- A restart of idled capacity at the Portland Aluminium smelter in Victoria in the September quarter 2022 is expected to boost Australian primary aluminium output to above 1.6 million tonnes a year. Annual Australian alumina output is expected to be broadly steady over the outlook period, remaining at 21 million tonnes (see [Australia section](#)).
- The total value of Australian exports of aluminium, alumina and bauxite is forecast to increase by 31% in 2021–22 to nearly \$16 billion, before falling to nearly \$15 billion by the end of the outlook period.

11.2 Consumption

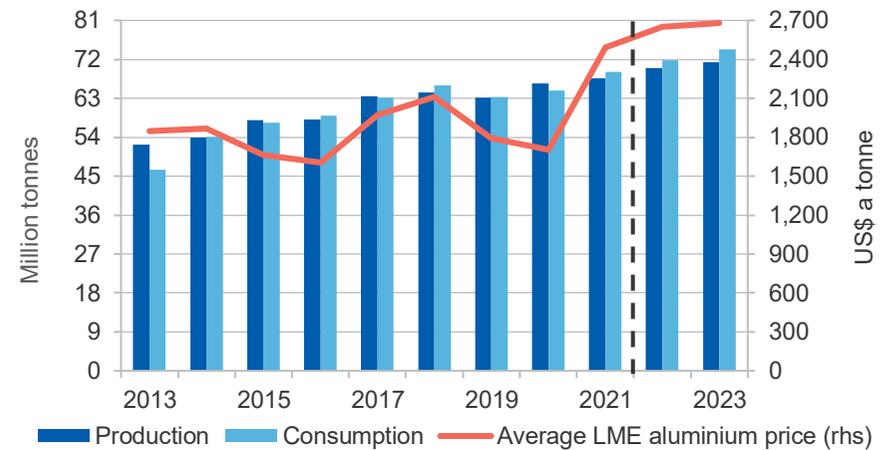
Strong aluminium, alumina and bauxite usage in the past year

World primary aluminium consumption grew by 3.5% year-on-year to nearly 17 million tonnes in the September quarter 2021, propelled by increased consumption in the US (up 12% year-on-year), Japan (up 45% year-on-year) and Germany (up 51% year-on-year). The growth in primary aluminium consumption partly reflects an increased aluminium use in new energy efficient car models.

Offsetting the rise in consumption from the US, Germany and Japan is a 3.8% year-on-year fall of primary consumption in China — the world's largest primary aluminium consuming country — in the September quarter 2021. High primary aluminium prices, power restrictions and stricter environmental regulation have softened aluminium demand in China.

Energy shortages and higher aluminium prices also affected primary aluminium demand in India: in the September quarter 2021, primary aluminium consumption fell by 7.8% year-on-year to 365,000 tonnes.

Figure 11.1: World aluminium production, consumption and prices



Source: World Bureau of Metal Statistics (2021); Department of Industry, Science, Energy and Resources (2021)

World primary aluminium consumption is estimated to increase by 6.6% to 69 million tonnes in 2021, propelled by a 7.0% rise in aluminium usage in China (Figure 11.1). China's primary aluminium imports grew by 14% year-on-year in the first three quarters, to around 2.3 million tonnes. The growth in imports is due to a power supply shortage that led to curbs on energy-intensive aluminium production in China. China's primary aluminium imports are expected to have risen further in the December quarter, as the demand for primary aluminium outpaces supply in China.

Global demand for the lightweight metal used in cars, food packaging and a range of other items is expected to exceed global production, as COVID-19 containment measures ease across many parts of the world. One risk to primary aluminium demand is an expected fall in global automotive production and sales due to supply chain issues. On 20 August 2021, Toyota announced a reduction in car production by 40% in September 2021, due to a shortage of microchips. According to IHS Markit, the global shortage of semiconductors is likely to have cut global auto production by over 7.0 million units in 2021. This supply disruption is expected to persist until the second-half of 2022.

The global automotive industry is also facing a critical shortage of magnesium — an essential raw material for the production of aluminium alloys used in gearboxes, steering columns, fuel tank covers and seat frames. Stockpiles are running low, and there is no substitute for magnesium in the production of aluminium sheets. In Europe, the supply of magnesium is expected to be exhausted by the end of November 2021. In Canada, some metal producers were told in October 2021 that magnesium supply had already dried up.

World alumina usage increased by 1.7% year-on-year to 33 million tonnes in the September quarter 2021, driven by 1.5% growth in aluminium production over the same period.

World alumina demand is expected to increase by 1.7% to nearly 132 million tonnes in 2021 (Figure 11.2). An expected 3.7% rise in global primary aluminium production in 2021 is likely to lift global alumina demand. China is expected to contribute strongly to the growth in global alumina demand, with an estimated 2.0 million tonnes of new primary aluminium capacity added in 2021.

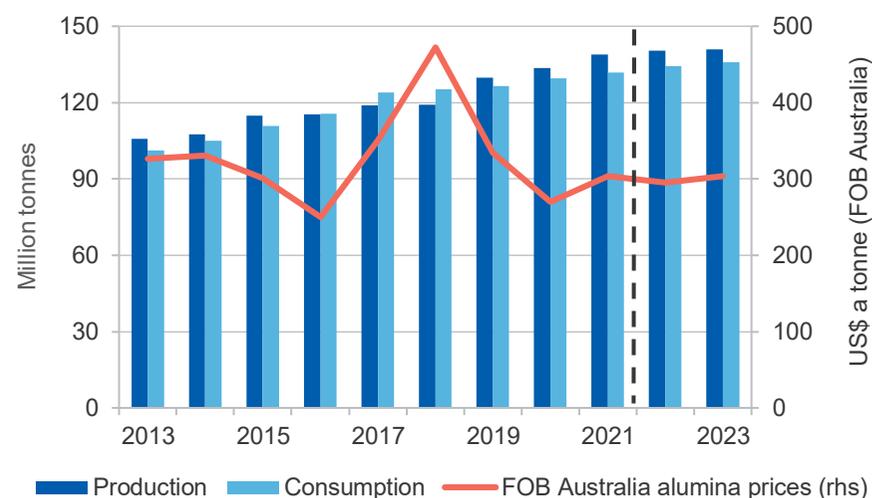
World bauxite usage increased by 6.4% year-on-year to 81 million tonnes in the September quarter 2021, propelled by increased global alumina production (up 1.4% year-on-year in the September quarter 2021) (see *Section 11.4 production*).

World bauxite consumption is estimated to grow by 5.0% to 323 million tonnes in 2021. The gains are expected to be driven by higher alumina output from existing refinery capacity in China and Brazil.

Global recovery to lift aluminium/alumina/bauxite demand in 2022/2023

World primary aluminium demand is forecast to rise at an average annual rate of 3.7% in 2022 and 2023, reaching 74 million tonnes by 2023 (Figure 11.1). The global economic recovery is expected to support demand for cars, houses and electrical equipment, all of which utilise aluminium. An expected increase in the use of renewable energy equipment — such as wind and solar power generators — will also boost primary aluminium demand over the outlook period.

Figure 11.2: World alumina production, consumption and prices



Source: World Bureau of Metal Statistics (2021); Department of Industry, Science, Energy and Resources (2021)

China's primary aluminium consumption is expected to continue to grow over the next two years, reaching 45 million tonnes in 2023. The Chinese Government's ambitious initiatives for promoting electric vehicle production are expected to bolster the demand for aluminium.

On 6 November 2021, the US House of Representatives passed a US\$1.5 trillion infrastructure package, which should provide further upside to primary aluminium demand during the outlook period and beyond.

World alumina consumption is forecast to rise at an average annual rate of 1.5% in 2022 and 2023, reaching 136 million tonnes in 2023 (Figure 11.2). The rise in alumina demand is expected to be driven by a 2.8% rise in primary aluminium production in 2022 and 2023.

World bauxite consumption is forecast to grow at an average annual rate of 3.6% in 2022 and 2023, reaching 346 million tonnes in 2023. This is expected to be driven by the ramp up of new alumina capacity in China and India.

11.4 Production

Aluminium/alumina/bauxite output rose in the September quarter 2021

Global primary aluminium production increased by 1.5% year-on-year to nearly 17 million tonnes in the September quarter 2021, propelled by higher output in China — the world's largest aluminium producer. China produced 9.7 million tonnes of primary aluminium over the September quarter 2021, up by 2.3% year-on-year, as primary aluminium producers responded to the highest primary aluminium price in thirteen years. Primary aluminium output at Aluminium Corporation of China — the world's third largest primary aluminium producing company — increased by 5.8% year-on-year to 2.9 million tonnes in the first three quarters of 2021.

The aluminium smelters in China's Henan province that suffered due to floods in July 2021 have yet to resume the idled capacities. It is unlikely that the idled capacities can be restored before the end of 2021. More restrictions on production may also be imposed over the coming winter, which would reduce primary aluminium output in China. Around 3.0 million tonnes of China's primary aluminium capacity have been cut since the start of 2021.

Offsetting this reduction, around 2.0 million tonnes of new primary aluminium capacity will be added to Chinese production in 2021.

Recent power shortages have prompted the Chinese authorities to take a new approach to coal supply to ensure enough energy supply is available to industrial provinces. The number of provinces with significant power shortages was reduced from 18 in mid-October 2021 to 2 in early November 2021. As a result, China's total primary aluminium production in 2021 is estimated to be 38 million tonnes (up 3.7% from 2020).

Energy shortages and higher energy costs are affecting the operations of aluminium smelters across the world. In India, the curtailment of coal supply to local aluminium smelters is likely to cause considerable impacts to the aluminium industry which employs over one million people. In Spain,

the future of Alcoa's San Ciprián aluminium smelter is uncertain, as the company weighs up a possible production cut or business sale.

Primary aluminium output in Norway is expected to rise by 23% in 2021, to 1.6 million tonnes, driven by the production ramp up at Hydro's Husnes aluminium smelter.

Primary aluminium production in the United Arab Emirates is expected to increase by 2.0% in 2021, to 2.3 million tonnes, as Emirates Global Aluminium brought online 26 new reduction cells at potline 1 of its Al-Taweelah aluminium smelter in the first-half of 2021. These new reduction cells have added an extra 30,000 tonnes annual capacity. Another 66 new reduction cells have been operational since early November 2021, adding a further 48,000 tonnes of annual capacity.

In the US, primary aluminium production is estimated to decline by 11% in 2021, to 911,000 tonnes, due to supply chain bottlenecks.

Over the same period, primary aluminium production in Iran rose by 23% year-on-year to 125,000 tonnes, driven by the ramp up of production at the 1.0 million tonnes per year SALCO aluminium smelter. Primary aluminium production in Canada grew by 1.3% year-on-year, to 795,000 tonnes. The growth is driven by the ramp up of production at the Alouette aluminium smelter (600,000 tonnes a year).

On balance, world primary aluminium production is estimated to increase by 1.8% to nearly 68 million tonnes in 2021 (Figure 11.1), due to energy shortages and high energy prices.

World alumina supply increased by 1.7% year-on-year in the September quarter 2021, to 104 million tonnes, driven by a 1.3% year-on-year rise in China's alumina output. Chinese alumina refiners raised output to accommodate higher aluminium production. Alumina production at Aluminium Corporation of China increased by 13% year-on-year to over 12 million tonnes in the first three quarters of 2021.

Outside of China, around 2.0 million tonnes of alumina refinery capacity was idled in the September quarter 2021. In Brazil, structural damage to a ship unloader in July 2021 reduced the 1.2 million tonnes a year Alumar

alumina refinery's capacity by one third. Also in Brazil, a fire incident in late August 2021 reduced the 1.4 million tonnes a year Jamalco alumina refinery's capacity by 60%.

Production in Australia — the second largest alumina producer after China — fell by 3.3% year-on-year in the September quarter 2021, to 5.0 million tonnes.

World alumina supply is estimated to rise by 3.9% to nearly 139 million tonnes in 2021, driven by higher output in China and India. In China, Aluminium Corporation of China's 2.0 million tonnes per year Huasheng Alumina Refinery started producing in September 2020, and ramped up output in 2021.

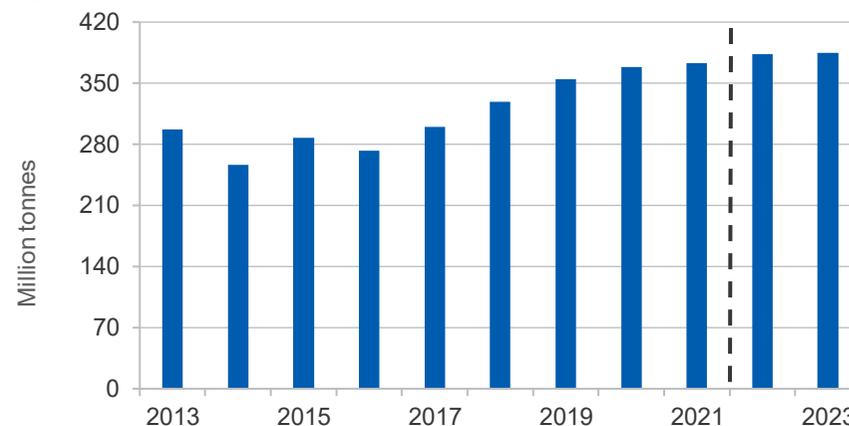
Risks to the forecasts include a continuation of energy curtailment policy from local authorities in China. Alumina production cuts have increased in line with primary aluminium. Guangxi province officials reportedly asked local alumina refineries to cut production by 50% in mid-August, which may increase to 70% cuts by the end of 2021. With an annual refining capacity of 10 million tonnes a year, this curtailment is likely to remove over 1.0 million tonnes of China's alumina output in the December quarter 2021.

World bauxite supply increased by 3.6% year-on-year to 92 million tonnes in the September quarter 2021, propelled by higher output in Guinea — the world's second largest bauxite producing country. Bauxite output in Guinea increased by 5.6% year-on-year as the ramp up of production continued. Chalco's Boffa bauxite mine has ramped up its production from 7.0 million tonnes in 2020 to an estimated 9.0 million tonnes in 2021.

Output in Australia — the world's largest bauxite producing country — fell by 2.2% year-on-year to nearly 26 million tonnes in the September quarter 2021 (see *Section 11.4 Australia's exports and production*).

Despite recording year-on-year growth in the September quarter 2021, Guinea's bauxite production fell by 9.4% quarter-on-quarter to under 20 million tonnes in the September quarter 2021. The results reflect political instability, which has the potential to persist.

Figure 11.3: World bauxite production



Source: Department of Industry, Science, Energy and Resources (2021)

In 2021, world bauxite supply is estimated to rise by 1.4% to 374 million tonnes, driven by higher production in Australia (up 0.6% to 104 million tonnes) and Brazil (up 8.3% to 32 million tonnes) (Figure 11.3).

Aluminium, alumina and bauxite output set to rise over the outlook period

World primary aluminium output is forecast to rise at an average annual rate of 2.7% in 2022 and 2023, to hit 71 million tonnes by 2023 (Figure 11.1). The gains are likely to be driven by additions to Chinese capacity.

China's primary aluminium output is forecast to reach 41 million tonnes by 2023. This is edging closer to the capacity cap of 45 million tonnes of primary aluminium per year — a policy introduced by the Chinese Government in 2017, in response to environmental and oversupply concerns. The Chinese Government's Five Year Plan (2021–25), calls for China's production and capacity of both primary aluminium and alumina to peak by 2025. The closer China edges to its primary aluminium capacity cap, the greater the opportunity for other primary aluminium producing nations — such as Russia, Canada and Saudi Arabia — to fill the output gap. Central and provincial authorities in China are expected to continue implementing strict environmental regulations — restricting energy consumption and emissions — from 2022 and onwards.

Notwithstanding the power crisis in China, an increasing number of Chinese aluminium smelters have considered investment overseas where power and labour costs are more stable and lower. Huafeng Group and Qingshan Industry have invested in the Huaqing aluminium project in Indonesia, which is expected to start operation in 2022.

On 2 November 2021, the Central Committee of the Communist Party of China and the State Council released the opinions on deepening pollution prevention and control. The opinions outline that a clean and low-carbon energy economy is to be strongly promoted, with outdated and excess production capacity to be eliminated. No extra aluminium and alumina capacity will be approved in key regions.

World alumina supply is forecast to rise at an average annual rate of 0.7% in 2022 and 2023, reaching 140 million tonnes in 2023 (Figure 11.2). This growth will be driven by India and other small alumina refining nations.

In India, Vedanta's 2.0 million tonnes per year Lanjigarh expansion project is expected to be completed in early 2023. Once completed, it will bring the refinery capacity to 5.0 million tonnes a year. Hindalco's 1.5 million tonnes a year Utkal Alumina Refinery expansion project is expected to complete in 2022. The refinery's capacity is expected to increase from 1.5 to 2.0 million tonnes a year. In Indonesia, China Hongqiao and joint-venture partners' 2.0 million tonnes a year Well Harvest alumina refinery expansion project is expected to come online in 2022.

World bauxite output is forecast to grow at an average annual rate of 1.6% in 2022 and 2023, reaching 386 million tonnes by 2023 (Figure 11.3). The gains are expected to be driven by newly added capacity in Guinea, where production is rising rapidly. Guinea's bauxite output is forecast to grow at an average 4.0% a year in 2022 and 2023. The Compagnie des Bauxites de Guinée mine in Guinea, which expanded from 13 to 18 million tonnes a year in 2019, is due to expand further to 28 million tonnes by 2022. Emirates Global Aluminium is ramping up output at its 12 million tonnes a year bauxite mine in Guinea.

11.3 Prices

A strong year for primary aluminium price

The LME spot price for primary aluminium is expected to start the new year on a positive note, as energy consumption restrictions and strict environmental regulation in China continue to limit supply. On the consumption side, global demand for everything from beer cans to packaging has rebounded from the lows of the COVID-19 pandemic in 2020. On the cost side, political instability in Guinea — the world's second largest bauxite producer and the world's largest bauxite exporter — is pushing up the cost of bauxite.

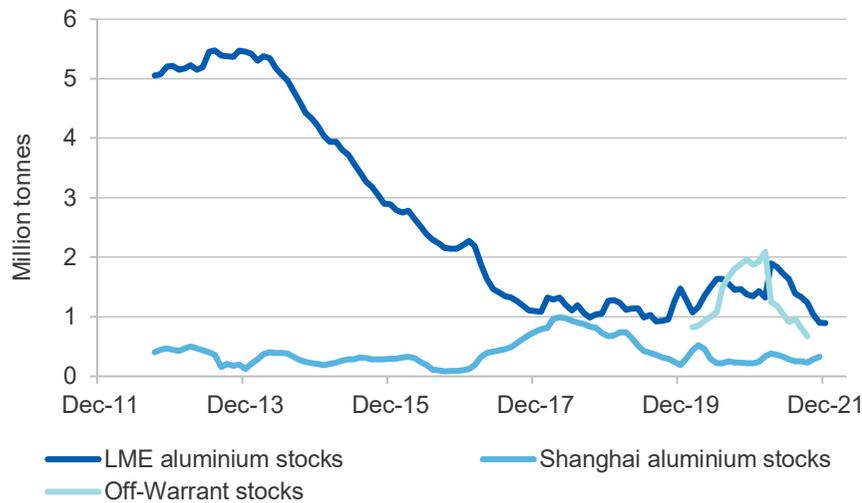
Global energy supply constraints and rising input costs have led to a decline in global primary aluminium inventories. LME stocks reached a 4-year high in April 2021, at 1.8 million tonnes. SHFE stocks rose in the March quarter 2021, but fell from April to September. LME off-warrant stocks rose in the year after the data was first released in early 2020, but have fallen since March 2021 (Figure 11.4). The LME aluminium spot price reached a 13-year high of US\$3,180 a tonne on 18 October 2021.

In an attempt to boost primary aluminium supply and limit the rise of aluminium prices, the Chinese Government held three auctions in July and September 2021, releasing 210,000 tonnes from state reserves. It is estimated that about 900,000 tonnes of primary aluminium are still held. The sale of state primary aluminium reserves seems to have had a very minimal impact on the market, accounting for only 0.3% of China's primary aluminium demand. At the end of October 2021, the Chinese Government also stepped up policies to boost coal output to lower energy shortages and thus prices.

These initiatives have lowered the LME primary aluminium price by almost 20% below its 13-year high of US\$3,180 a tonne on 18 October 2021.

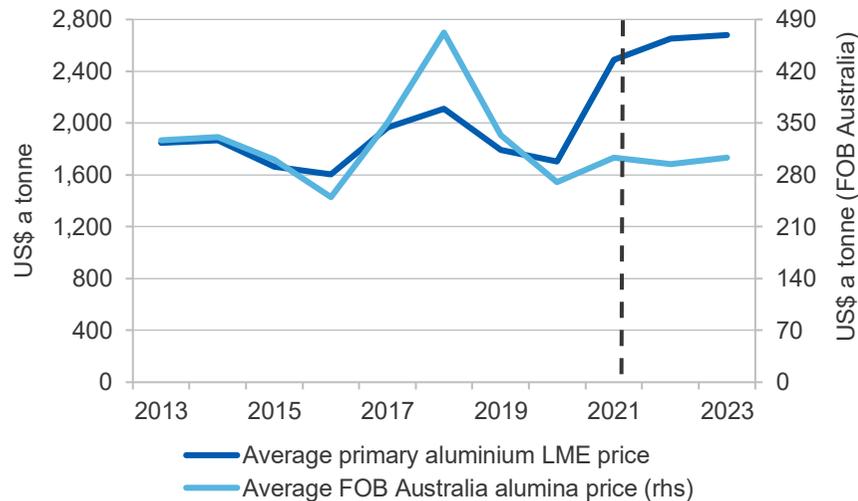
It is expected that the tax on primary aluminium exports will not be extended after 31 December 2021, as it increases export prices and puts Rusal — the world's second largest aluminium supplier — in a less competitive position globally.

Figure 11.4: Exchange aluminium stocks



Source: London Metal Exchange (2021); World Bureau of Metals Statistics (2021)

Figure 11.5: World primary aluminium and alumina prices



Source: LME (2021) spot prices; Bloomberg (2021); Department of Industry, Science, Energy and Resources (2021)

The LME primary aluminium spot price is likely to average around US\$2,490 a tonne in 2021, up 46% from 2020 (Figure 11.5). In line with the rise in primary aluminium price, the free on board (FOB) Australian alumina price is expected to finish the year on a positive note, driven by supply disruptions in several parts of the world (see *Section 11.4 production*). Alumina demand is expected to remain strong, as world primary aluminium production is estimated to increase by 1.8% in 2021 to nearly 68 million tonnes. As a result, the FOB Australian alumina price in 2021 is up by 20% to average US\$325 a tonne.

Aluminium and alumina prices expected to rise in 2022 and 2023

The LME aluminium spot price is forecast to increase by 6.4% to average US\$2,650 a tonne in 2022, and to rise by a further 1.1% to average US\$2,680 a tonne in 2023 (Figure 11.5). Increasing input costs and rising primary aluminium consumption in China and in the global transport (aviation and car manufacturing) industry generally are expected to be significant drivers of increased aluminium prices.

One risk to the price assessment is the Chinese Government's discounted electricity prices for Chinese aluminium smelters, which are expected to come to an end on 1 January 2022. The Xinjiang Uygur Autonomous Region — China's second largest primary aluminium producing region — released a draft notice on 15 October 2021 that prevents primary aluminium smelters in the region from receiving preferential electricity prices from 1 January 2022. In October 2021, the Inner Mongolia Autonomous Region, Qinghai and Gansu provinces also announced plans to phase out preferential electricity prices to primary aluminium smelters. On 19 September 2021, Yunnan province cancelled its preferential electricity scheme with aluminium smelters in the province.

The FOB Australian alumina price is forecast to rise at an average annual rate of 4.6% in 2022 and 2023, to US\$355 a tonne by 2023 (Figure 11.5). A forecast 2.7% average annual rise in world aluminium production in 2022 and 2023 is expected to provide support to alumina prices.

11.4 Australia's exports and production

Higher aluminium prices drove exports in the September quarter 2021

Australia's aluminium, alumina and bauxite exports increased by 25% year-on-year to \$3.6 billion in the September quarter 2021, driven by higher primary aluminium prices. A 55% year-on-year rise in the LME aluminium price in the September quarter 2021 and stronger demand for primary aluminium boosted Australian primary aluminium export volumes and values by 24% (to 385,000 tonnes) and 81% (to nearly \$1.4 billion) year-on-year in the September quarter 2021.

Primary aluminium exports to Japan increased by 242% year-on-year to \$403 million in the September quarter 2021, as more energy efficient car models require higher aluminium content. In a similar trend, Australian primary aluminium exports to Thailand and Taiwan rose by 421% and 134% year-on-year in the September quarter 2021.

Australian alumina export volumes and values rose by 1.2% (to 4.6 million tonnes) and 9.2% (to \$1.8 billion) year-on-year in the September quarter 2021.

Australian bauxite exports increased by 18% quarter-on-quarter to \$373 million in the September quarter, but were 10% lower year-on-year. Australia's share of China's total bauxite imports rose by 2.5% quarter-on-quarter to nearly 33%, as Australian product filled in for declining output in Guinea (see the September 2021 edition of the *Resources and Energy Quarterly*).

Exports to rise over the outlook period

An expected gain in aluminium and alumina prices over the outlook period is likely to provide additional earnings for Australian aluminium smelters. Australia's aluminium, alumina and bauxite exports are forecast to increase by 31% to nearly \$16 billion in 2021–22, before falling by 5.8% to nearly \$15 billion in 2022–23, as primary aluminium prices retreat from a 13-year high.

An agreement reached at the G20 Summit in Italy in October 2021 between the European Union (EU) and the US has paused a trade dispute

on steel and aluminium tariffs imposed in 2018. While maintaining tariffs of 25% on steel and 10% on aluminium, the agreement allows limited quantities of European steel and aluminium products to be imported tariff free by the US for two years. The US and Japan are also seeking to make a deal on the same issue with the EU.

The agreement is unlikely to have any direct impacts on Australian exports of primary aluminium to the US, as no Australian primary aluminium was exported to the US in 2020–21. However, it is likely to have indirect impacts on Australian bauxite exports to China. China is Australia's largest bauxite export market with exports of \$1.3 billion in 2020–21.

The Indonesian Government has indicated that its bauxite export ban — planned to commence in 2023 — is likely to come forward to 2022. The move is likely to provide Australian bauxite exporters with greater opportunity to fill the gap in the Chinese bauxite market, with Indonesia being China's third largest bauxite import source.

Lower aluminium, alumina and bauxite output in the September quarter

Australia's aluminium output decreased by 2.8% year-on-year to 390,000 tonnes in the September quarter 2021, due to a 2.3% year-on-year decline (to 125,000 tonnes) at Rio Tinto's Boyne Island aluminium smelter in Queensland, and a 11% fall (to 66,000 tonnes) at Alcoa's Portland Aluminium smelter in Victoria.

Australia's alumina output decreased by 3.3% year-on-year to just under 5.0 million tonnes in the September quarter 2021. The fall is due to a 3.3% decline at Rio Tinto's joint-venture Queensland Alumina Limited in Queensland.

Australia's bauxite production decreased by 2.2% year-on-year to just under 26 million tonnes in the September quarter 2021, due to a 2.5% year-on-year fall at Rio Tinto's Amrun bauxite operation in Queensland.

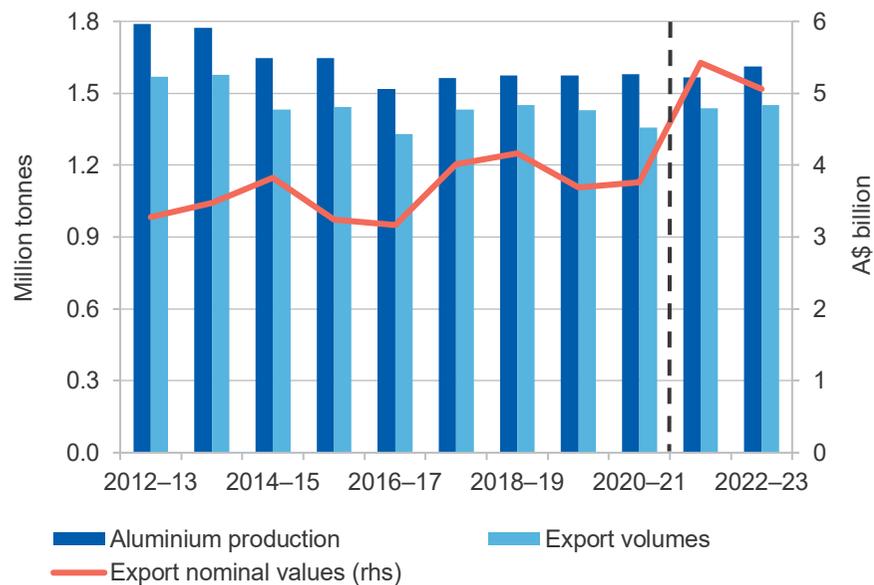
Higher aluminium/bauxite, and flat alumina output over the outlook period

On 7 November 2021, Alcoa Corporation announced a restart of 35,000 tonnes a year idled capacity at its Portland Aluminium smelter in

Victoria. The reactivated capacity is expected to come online in the September quarter 2022, and will bring the smelter's capacity up to 186,000 tonnes a year. The energy to operate the idled capacity is expected to be supplied under a new four-year agreement with the AGL. It will supplement the earlier announced five-year energy agreements with AGL, Alinta Energy and Origin Energy that commenced on 1 August 2021.

As a result, Australia's aluminium output is forecast to be above 1.6 million tonnes a year from 2022–23 and beyond (Figure 11.6).

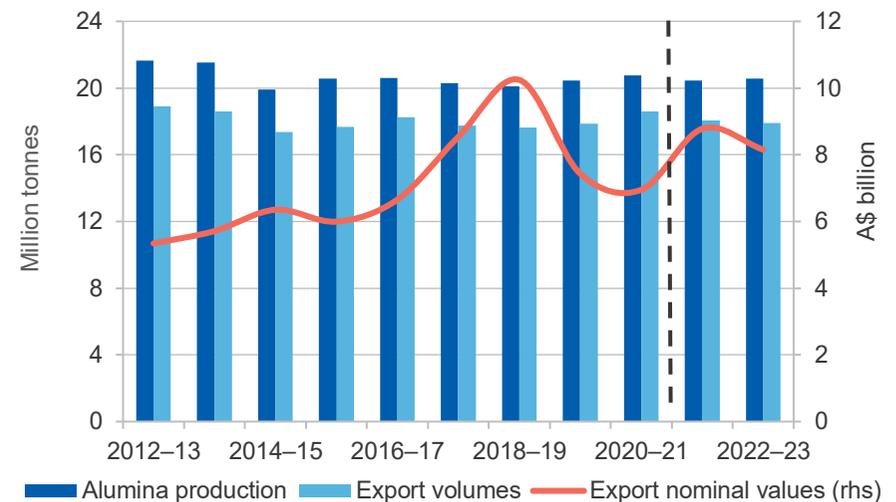
Figure 11.6: Australia's aluminium exports and production



Source: ABS (2021) International Trade in Goods and Services, 5368.0; Department of Industry, Science, Energy and Resources (2021)

No expansions or major disruptions are expected at existing alumina operations in Australia over the outlook period. Australia's alumina output is expected to remain at about 21 million tonnes a year over the next two years (Figure 11.7).

Figure 11.7: Australia's alumina exports and production



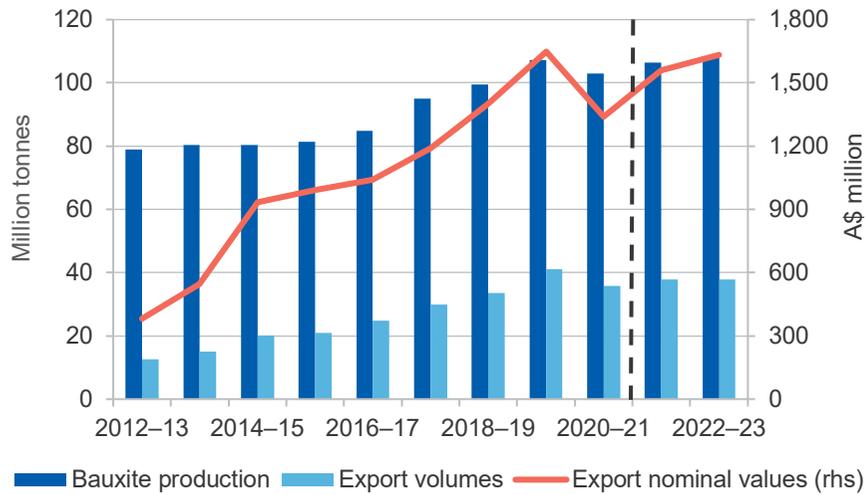
Source: ABS (2021) International Trade in Goods and Services, 5368.0; Department of Industry, Science, Energy and Resources (2021)

Australia's bauxite output is forecast to rise at an average annual rate of 2.5% in 2021–22 and 2022–23, reaching 108 million tonnes in 2022–23 (Figure 11.8). Metro Mining's Bauxite Hills mine in Queensland is expected to reach full production capacity of 6.0 million tonnes a year by the December quarter 2021.

In October 2021, Rio Tinto announced the company will spend around \$10 billion over the next 9 years to cut its carbon emissions. Part of the announced spending is for shifting its Australian aluminium smelters, alumina refineries and bauxite operations onto a largely renewable power source by 2030. The company plans to invest in wind and solar, including up to 5GW for its Boyne Island aluminium smelter in Queensland and Tomago aluminium smelter in NSW.

Queensland Alumina Refinery has ordered five medium-voltage variable speed drives from Siemens. These orders will bring in a cutting edge technology to help the refinery reduce energy usage and emissions.

Figure 11.8: Australia's bauxite exports and production



Source: ABS (2021) International Trade in Goods and Services, 5368.0; Department of Industry, Science, Energy and Resources (2021)

Revisions to the outlook

Forecasts for Australia's aluminium, alumina and bauxite export earnings have been revised up from the September 2021 *Resources and Energy Quarterly* — by \$2.3 billion to nearly \$16 billion in 2021–22, and by \$1.3 billion to nearly \$15 billion in 2022–23.

The revision reflects a larger-than-expected rise in aluminium and alumina prices, and export earnings in the September quarter 2021.

Table 11.1: Aluminium, alumina and bauxite outlook

World	Unit	2020	2021 ^s	2022 ^f	2023 ^f	Annual percentage change		
						2021 ^s	2022 ^f	2023 ^f
Primary aluminium								
Production	kt	66,367	67,547	70,027	71,316	1.8	3.7	1.8
Consumption	kt	64,785	69,084	71,774	74,338	6.6	3.9	3.6
Prices aluminium^c								
- nominal	US\$/t	1,702	2,490	2,650	2,680	46.4	6.4	1.1
- real ^d	US\$/t	1,764	2,490	2,561	2,523	41.2	2.8	-1.5
Prices alumina spot								
- nominal	US\$/t	270	325	345	355	20.2	6.2	3.0
- real ^d	US\$/t	280	325	333	335	15.9	2.7	0.3
Australia	Unit	2019–20	2020–21	2021–22 ^f	2022–23 ^f	2020–21	2021–22 ^f	2022–23 ^f
Production								
Primary aluminium	kt	1,574	1,579	1,566	1,613	0.3	-0.9	3.0
Alumina	kt	20,451	20,772	20,459	20,561	1.6	-1.5	0.5
Bauxite	Mt	107.2	103.0	106.4	108.1	-4.0	3.3	1.6
Consumption								
Primary aluminium	kt	199	284	179	209	42.6	-36.8	16.7
Exports								
Primary aluminium	kt	1,430	1,357	1,438	1,452	-5.1	5.9	1.0
- nominal value	A\$m	3,692	3,763	5,424	5,062	1.9	44.1	-6.7
- real value ^e	A\$m	3,843	3,854	5,424	4,955	0.3	40.7	-8.6
Alumina	kt	17,876	18,600	18,065	17,888	4.0	-2.9	-1.0
- nominal value	A\$m	7,431	6,948	8,779	8,153	-6.5	26.3	-7.1
- real value ^e	A\$m	7,735	7,117	8,779	7,981	-8.0	23.4	-9.1
Bauxite	kt	41,026	35,782	37,839	37,829	-12.8	5.7	0.0
- nominal value	A\$m	1,648	1,339	1,560	1,634	-18.7	16.5	4.8
- real value ^e	A\$m	1,715	1,372	1,560	1,599	-20.0	13.7	2.5
Total value								
- nominal value	A\$m	12,771	12,050	15,763	14,849	-5.6	30.8	-5.8
- real value ^e	A\$m	13,293	12,342	15,763	14,536	-7.2	27.7	-7.8

Notes: **c** LME cash prices for primary aluminium; **d** In 2021 calendar year US dollars; **e** In 2021–22 financial year Australian dollars; **f** Forecast; **s** Estimate

Source: ABS (2021) International Trade in Goods and Services, 5464.0; AME Group (2021); LME (2021); Department of Industry, Science, Energy and Resources (2021); International Aluminium Institute (2021); World Bureau of Metal Statistics (2021).