

Aluminium



Australia's aluminium sector



11%
of global primary aluminium exports are **Australian**



\$16 billion
primary aluminium, alumina and bauxite **exported**, 2023



Over 98%
of Australian bauxite is **exported to China**

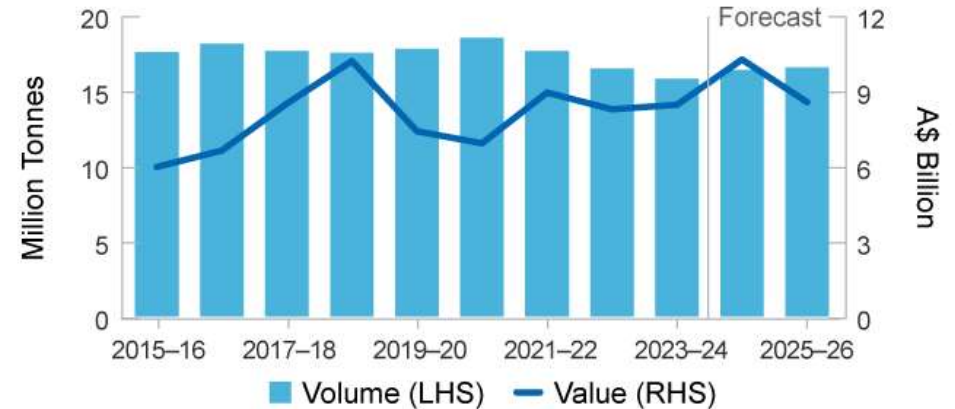
- Deposit
- Operating mine
- <0.01
- 0.02–0.03
- 0.04–0.09
- 0.10–0.20
- 0.21–0.44
- >0.45



Major Australian bauxite deposits, Gt

*High Purity Alumina

Australian alumina exports



Outlook



Australian aluminium sector earnings set to reach **\$19 billion** in 2024–25.



Exports set to reach **\$10 billion** in 2024-25, driven by higher alumina prices



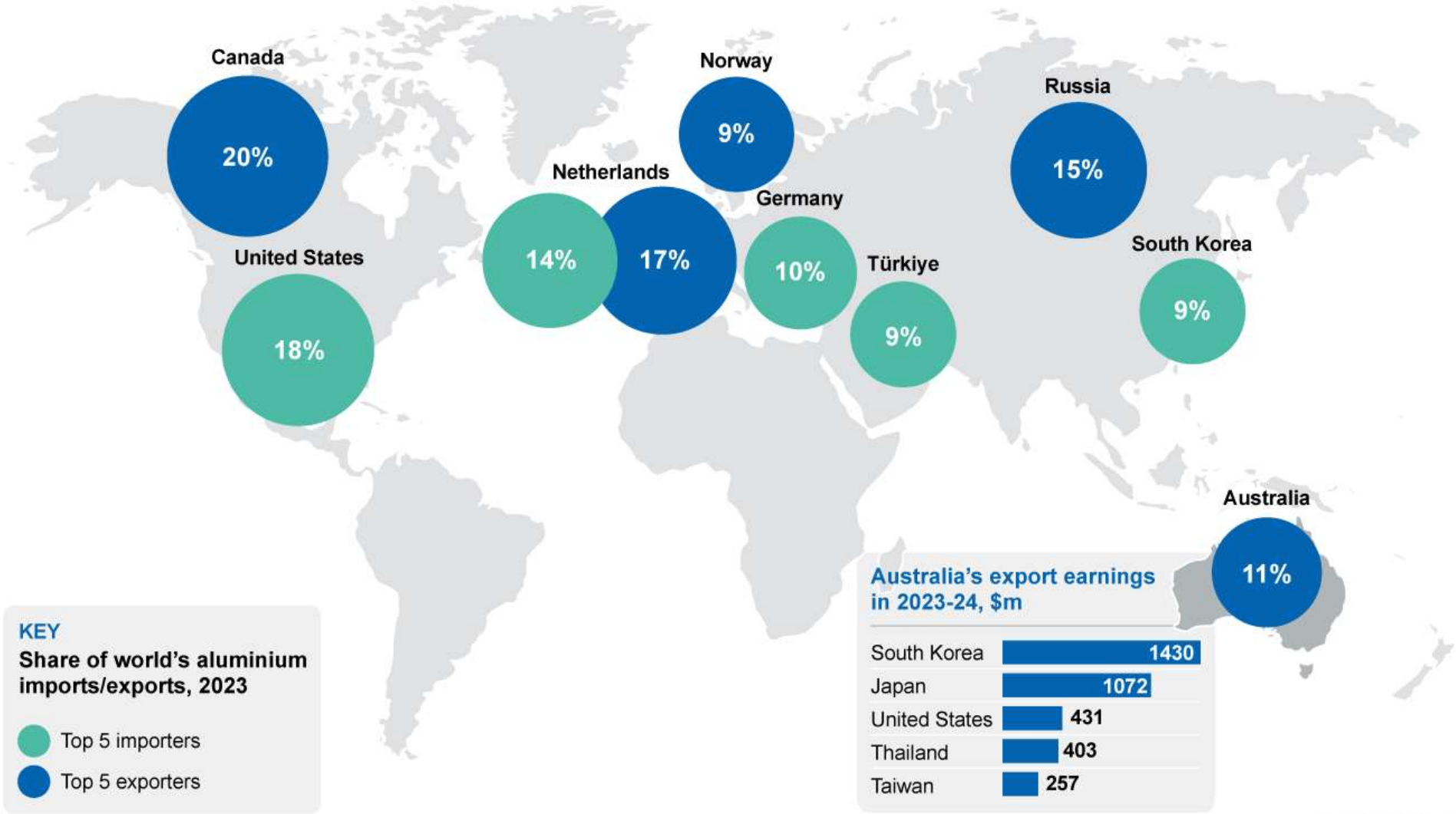
Australian bauxite alone is a **\$2 billion** export industry



Prices set to rise, driven in part by **growing demand** for new energy efficient cars and tech

SOURCE: DISR; OCE

Aluminium TRADE MAP



SOURCE: WBMS; ABS

11.1 Summary

- The London Metal Exchange (LME) primary aluminium spot price has increased by 8.8% so far in 2024. The price is expected to rise further over the outlook period, driven by monetary policy easing and rising global demand from electric vehicles (EV) and energy efficient technologies.
- Stable Australian primary aluminium output (at 1.6 million tonnes a year), lower Australian alumina output (at 19 Mt a year) and higher Australian bauxite output (over 100 million tonnes a year) are expected over the outlook period.
- Higher aluminium prices and production ramp-ups at existing bauxite operations are likely to boost Australia's aluminium, alumina and bauxite (AAB) exports to nearly \$19 billion in 2024–25.

11.2 World consumption

Vehicles boosted global aluminium consumption in the first half of 2024

Higher Chinese primary aluminium consumption boosted global primary aluminium consumption in the first half of 2024. Global primary aluminium consumption is up by 3.1% year-on-year to nearly 35 million tonnes (Mt). Helping demand was strong passenger vehicle sales, with nearly 12 million units sold in China in the first half of 2024, up 6.3% year-on-year.

World secondary aluminium consumption rose by 3.3% year-on-year in the first half of 2024 to nearly 13 Mt, as automotive makers in Asia, Europe, and the US sourced secondary — rather than primary — aluminium to cut input costs. In Asia, secondary aluminium usage in South Korea and Japan rose by 5.9% and 2.3% year-on-year in H1 2024, respectively.

In Europe, subdued activity in the housing and construction sectors — the sectors affected most by high interest rates — cut primary aluminium consumption by 3.1% year-on-year in the first half of 2024. Italy and Greece's primary aluminium demand fell by 2.2% and 4.6% year-on-year to 465,000 and 208,000 tonnes, respectively.

Higher global primary aluminium production boosted demand for alumina

by 3.7% year-on-year to 69 Mt in H1 2024.. Demand in China and India rose by 5.1% and 2.2% year-on-year, respectively, as Chinese and Indian aluminium smelters required more alumina to accommodate increased primary aluminium production.

Higher global alumina production increased global bauxite consumption by 0.8% year-on-year in H1 2024.

Electric vehicles and clean energy technology drive aluminium demand

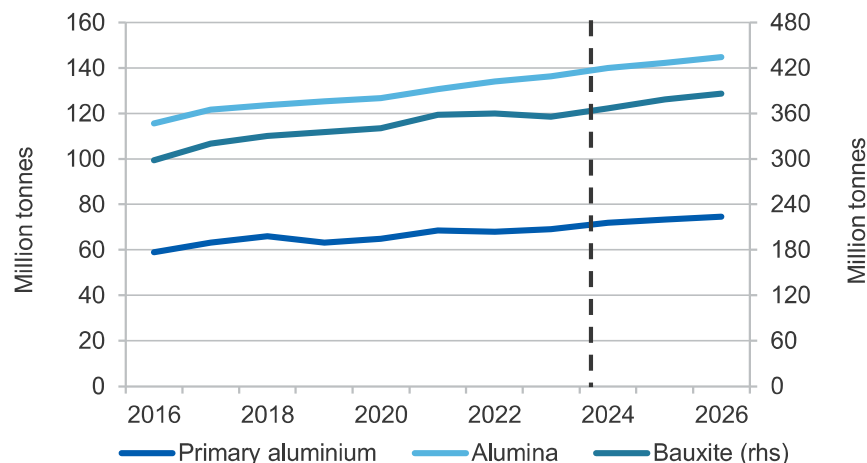
Strong demand from the EV manufacturing and clean energy sectors — where aluminium is used in the making of EV, solar components and wind turbines — is expected to boost global aluminium demand from 72 Mt in 2024 to 75 Mt in 2026 (Figure 11.1).

According to Bloomberg New Energy Finance, China has outspent the rest of the world when it comes to clean energy. It has broken wind and solar installation records in recent years. China's wind and solar capacity has surpassed the target of 1,200 gigawatts almost six years earlier than planned. The rapid growth in wind and solar capacity is likely to continue, and will increase the demand for aluminium.

On 25 July 2024, the Chinese Government announced it will double vehicle scrappage subsidies — first introduced in late April 2024 — to boost domestic vehicle demand. Chinese consumers receive either US\$2,760 to scrap an old and high emitting vehicle and replace it with an EV, or US\$2,070 to replace it with a fuel-efficient internal combustion engine car. The Chinese Government estimated that there will be about 1.1 million new EV sales under the scrappage program. This program will support aluminium demand from the Chinese automotive industry.

In Europe, primary aluminium demand is expected to be higher during the outlook period, driven by increased EV production. China's electric carmakers are expanding into Europe by teaming up with local industry to minimise the impacts of the European Union (EU)'s duties on Chinese EVs — a new tariff of 37.6% on top of an existing 10% import duty. For example: Chinese maker Leapmotor is producing at Jeep and Fiat-maker Stellantis' factories in Poland; Chinese EV producer BYD announced plans in July

Figure 11.1: World primary aluminium, alumina and bauxite consumption



Source: World Bureau of Metal Statistics (2024); Department of Industry, Science and Resources (2024).

2024 to set up its own factory in Hungary, with another factory to be built in Türkiye in the coming years.

Rising primary aluminium prices and the use of low carbon aluminium are expected to boost secondary aluminium consumption. Secondary aluminium is 95% less energy intensive than primary aluminium. World secondary aluminium demand is forecast to rise by 3.3% year-on-year in 2024 to 26 Mt, and then by 4.9% a year over the rest of the outlook period to 2026.

An expected rise in global primary aluminium production is likely to drive higher demand for alumina over the outlook period. In line with world primary aluminium production, world alumina consumption is forecast to grow by 2.7% in 2024, 1.6% in 2025 and 1.8% in 2026.

An expected rise in China and Indonesia' alumina production is likely to increase global bauxite consumption over the outlook period, reaching 386 Mt by 2026 (Figure 11.1).

11.3 World production

Aluminium and alumina output grew in the first half of 2024

An increase in production in China contributed to a 3.6% year-on-year rise in the global primary aluminium output in the first half of 2024. Over this period, China produced 21 Mt of primary aluminium (up 5.1% year-on-year), with producers reacted to rising prices in April/May. Outside of China, Canada's primary aluminium production increased by 3.7% year-on-year to 1.7 Mt in the first half of 2024.

Driven by the increasing demand for recycled aluminium, global secondary aluminium output rose by 0.8% year-on-year to 16 Mt in the first half of 2024. The US accounted for most of this increase, with secondary aluminium production increasing by 4.8% year-on-year.

Higher alumina output in Indonesia (up 14% year-on-year) led to a 1.0% year-on-year rise in global alumina output in H1 2024 to 69 Mt.

Higher bauxite output from Guinea and Australia boosted global bauxite output by 0.5% year-on-year in H1 2024 to nearly 200 Mt.

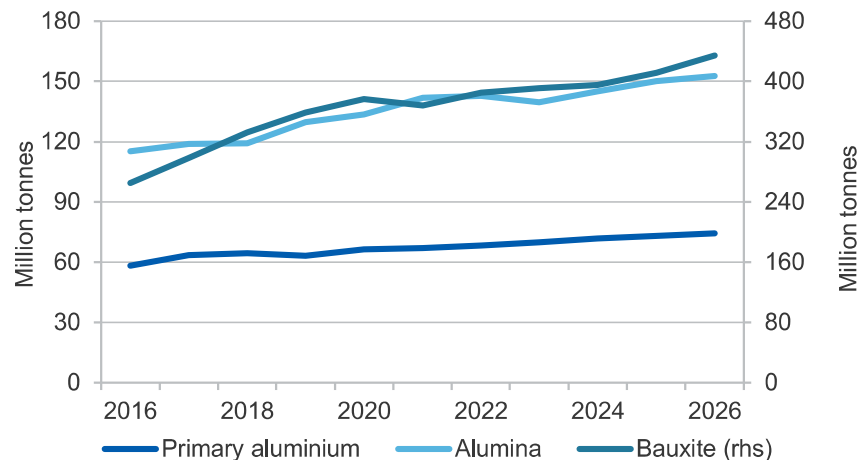
Aluminium, alumina and bauxite output set to rise over the outlook period

China's primary aluminium output is likely to grow at a slower pace in 2024 and beyond. On 3 July 2024, the Chinese National Development and Reform Commission released a plan to cut emissions for the Chinese aluminium industry. In the plan, the Chinese Government will support Chinese aluminium producers to consume more renewable energy, including wind and solar. No new coal-fired generators for aluminium smelting are to be approved. No new aluminium capacity will be allowed in key air pollution control areas and the utilisation rate of renewable energy for aluminium smelters is expected to reach 25% by the end of 2025.

As a result, the global primary aluminium output is forecast to grow by 2.7% year-on-year in 2024 to nearly 72 Mt (Figure 11.2).

After 2024, world primary aluminium production is forecast to rise by 1.7% a year over the outlook period, reaching 74 Mt by 2026 (Figure 11.2).

Figure 11.2: World primary aluminium, alumina and bauxite production



Source: World Bureau of Metal Statistics (2024); Department of Industry, Science and Resources (2024).

The gains will be driven by China, as more output is produced from greenfield aluminium smelters. China’s primary aluminium production is forecast to reach nearly 44 Mt by 2026. This is close to the capacity cap of 45 million tonnes per year introduced — in response to environmental and oversupply concerns — by the Chinese Government in 2017.

Driven by higher output from China, the US and Europe, global secondary aluminium output is forecast to reach 36 Mt in 2026.

Rising output from new/existing refineries in China, Spain and Indonesia is expected to increase global alumina output over the outlook period. China’s alumina production capacity has continued to rise. By the end of June 2024, excluding the capacity that has been idled and shut down, the total built capacity of Chinese alumina reached over 100 Mt. Indonesian output is forecast to rise by 8.7% year-on-year in 2024 to 2.5 Mt, driven by the H2 2024 commencement of the 2 Mt a year Mempawah alumina refinery, a joint venture between the China Aluminium Company and its Indonesian partners, PT Indonesia Asahan Aluminium and PT Antam Tbk.

After 2024, world alumina output is forecast to rise by 2.8% a year over the outlook period, reaching 153 Mt by 2026 (Figure 11.2). The gains are forecast to be driven by Indonesia, with eight new alumina refineries (capacity addition of around 10 Mt) will be built in the coming years.

Higher output from Australia — the world’s second largest bauxite producer — is expected to push global bauxite output up by 1.5% year-on-year in 2024 to 408 Mt (Figure 11.2). After 2024, world bauxite production is forecast to increase by 5.0% a year, reaching 450 Mt by 2026 (Figure 11.2). Australia and Guinea are expected to contribute most to this rise.

Green investment will reduce the sector’s climate impacts

In July 2024, Rio Tinto announced it has installed a carbon free aluminium smelting cells using ELYSIS technology at its Arvida aluminium smelter in Quebec, Canada. The ELYSIS technology is expected to replace traditional smelting, eliminating all direct greenhouse gas emissions and producing oxygen instead. Rio Tinto also signed a 20-year electricity arrangement with an energy supplier to supply renewable electricity for its Tiwai Point aluminium smelter in New Zealand.

Hydro Alunorte alumina refinery in Brazil has commenced using natural gas in alumina production, replacing fuel oil. When the transition from fuel oil to natural gas is completed, the refinery is expected to reduce its carbon emissions by 30% a year (equivalent to 700,000 tonnes of CO₂).

11.4 World trade

Sanctions on Russian aluminium reduced global exports in H1 2024

Lower exports from Russia reduced global primary aluminium exports by 13% year-on-year in the first half of 2024 to 6.3 Mt. On 12 April 2024, the US and UK governments announced new sanctions banning the LME and the Chicago Mercantile Exchange from taking delivery of Russian aluminium produced after 12 April 2024. As a result, Russia’s share of world primary aluminium exports fell from 18% in the first half of 2023 to 6.9% in the first half of 2024.

The stronger than expected rise of primary aluminium output in Europe increased world secondary aluminium exports in the first half of 2024. European aluminium users turned less to secondary aluminium as a substitute for primary aluminium. As a result, more secondary aluminium was available for export, which increased by 1.9% year-on-year in the first half of 2024.

Lower alumina exports from Australia led to a 3.1% reduction in global alumina exports in the first half of 2024. Over this period, Australia — the world's largest alumina exporter — exported 7.6 Mt of alumina, down by 4.5% year-on-year. China exported nearly 1 Mt of alumina in the first half of 2024, up 33% year-on-year.

Higher bauxite exports from Guinea and Australia — the world's two largest bauxite exporters — boosted the global bauxite exports by 1.1% year-on-year to 91 Mt in the first half of 2024.

[China's imports of primary aluminium and bauxite rose in H1 2024](#)

Weak primary aluminium consumption in Europe reduced global primary aluminium imports by 2.6% year-on-year in the first half of 2024. However, over the same period, China's primary aluminium imports increased by 209% year-on-year. Most of the growth in Chinese demand was met by Russia; Russian primary aluminium accounted for 58% of China's total primary aluminium imports in the first half of 2024.

Lower secondary aluminium consumption in Europe, due to sluggish construction activity, reduced global imports of secondary aluminium by 15% year-on-year in the first half of 2024 to 1.6 Mt.

Lower Russian imports reduced global alumina imports by 5.8% year-on-year to 17 Mt in the first half of 2024. Over the same period, Russia imported 1.3 Mt of alumina, down by 41% year-on-year. Russian imports fell as Russian domestic alumina output rose. China imported 1.2 Mt of alumina in the first half of 2024, up 55% year-on-year.

Higher bauxite imports from China and India led to a 7.1% year-on-year rise in global bauxite imports in the first half of 2024. Over this period,

China and India imported nearly 77 Mt and 2.2 Mt of bauxite, up 7.4% and 35% year-on-year, respectively.

On 26 August 2024, the Canadian Government announced a 25% tariff on Canadian imports of Chinese aluminium. The new tariff rate is to commence on 15 October 2024. Canada imported 144,000 tonnes of primary aluminium in 2023, accounting for 0.9% of global primary aluminium imports. Over this period, Chinese primary aluminium accounted for just 2.0% of Canada's total primary aluminium imports.

11.5 Prices

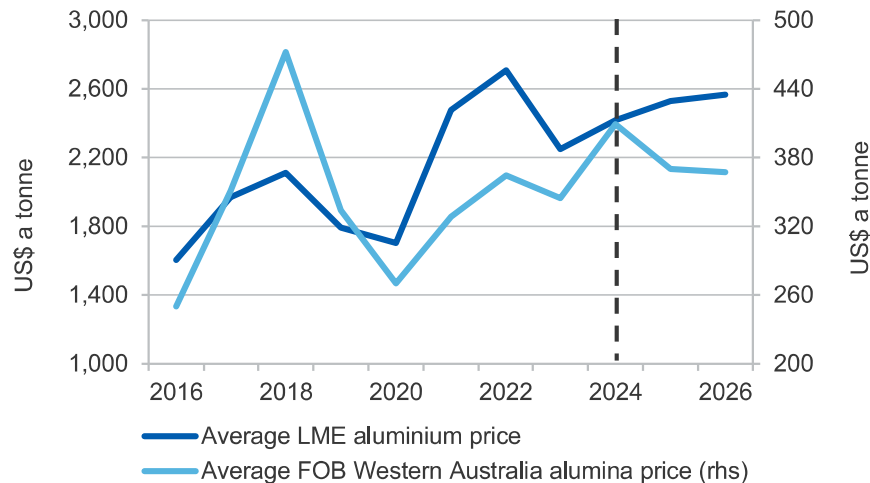
[Aluminium price has retreated from a two-year high in May 2024](#)

The LME primary aluminium spot price has retreated from a two-year high of US\$2,695 a tonne on 29 May, as the LME market adjusts to the move to ban Russian aluminium from LME warehouses after 12 April 2024. The LME spot price has risen by 8.8% so far in 2024, to US\$2,541 a tonne on 25 September 2024 — compared to an average US\$2,172 a tonne in the second half of 2023. The LME aluminium price is forecast to rise by 6.2% year-on-year in 2024 to average around US\$2,390 a tonne (Figure 11.3).

Large amounts of Russian aluminium appear to have been held off-warrant — aluminium stocks that are sitting in the warehouses owned by LME warehouse operators but not currently on warrant (on sale) — in the LME warehouses prior to 13 April 2024. However, since 13 April 2024, holders of Russian aluminium have switched their holdings back on-warrant. As a result, LME aluminium stocks rose from 490,750 tonnes in April 2024 to 809,025 tonnes in September 2024 (Figure 11.4).

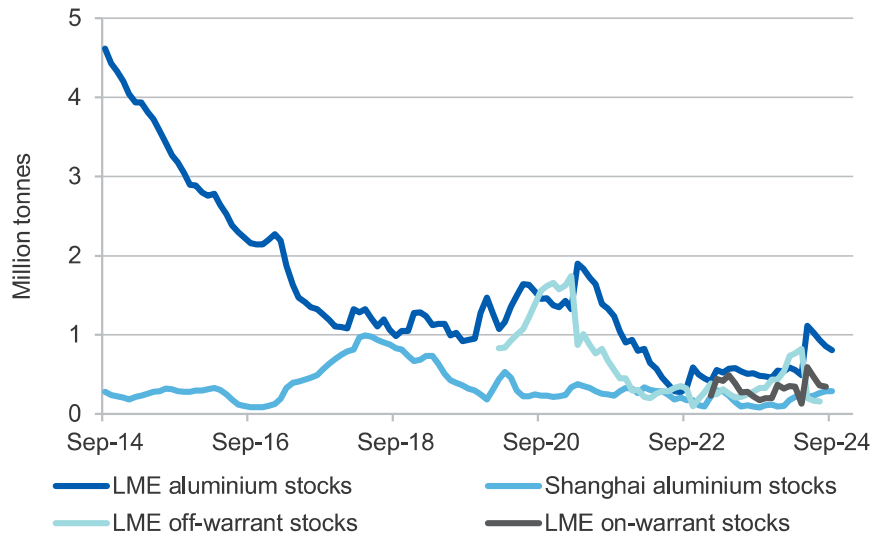
The phasing out of production in Australia's Kwinana alumina refinery and an ongoing shortage of alumina in China have pushed the free on board (FOB) Western Australia alumina price up by 57% so far in 2024 — to US\$545 a tonne on 25 September 2024 compared to an average of US\$335 a tonne in the second half of 2023. The production curtailment at the Kwinana alumina refinery is likely to keep the Western Australia alumina price at historically high levels, averaging around US\$432 a tonne (FOB) in 2024, up 25% year-on-year (Figure 11.3).

Figure 11.3: Primary aluminium and alumina prices



Source: Bloomberg (2024); Department of Industry, Science and Resources (2024)

Figure 11.4: Exchange aluminium stocks



Source: London Metal Exchange (2024); Bloomberg (2024)

Higher aluminium prices expected in the short term

After 2024, the LME aluminium price is forecast to rise, averaging about US\$2,525 and US\$2,565 a tonne in 2025 and 2026, respectively (Figure 11.3). Monetary policy easing and growing global demand for new, energy-efficient cars and technologies will lift aluminium usage and keep stocks relatively low. The FOB Western Australia alumina price is forecast to decrease in 2025 and 2026, due to an expected rise in Chinese production and the supply recovery in Australia.

11.6 Australian exports and production

Higher alumina prices and bauxite exports boosted earnings in 2023–24

Higher alumina prices and bauxite export volumes and values boosted Australia’s AAB exports by 5.0% to nearly \$17 billion in 2023–24 (Figure 11.5). A 5.8% year-on-year rise in the FOB Western Australia alumina price in 2023–24 increased Australian alumina export values by 2.2% year-on-year to \$8.5 billion in 2023–24.

Australia’s bauxite export values increased by 59% year-on-year to over \$2.0 billion in 2023–24, propelled by a 19% year-on-year rise in bauxite export volumes. A ban on bauxite exports by Indonesia — which started on 10 June 2023 — seems to have assisted Australian bauxite exporters.

A 2.9% year-on-year fall in the LME aluminium price in 2023–24 reduced Australian primary aluminium export values by 3.4% in 2023–24 to \$5.1 billion. In 2023–24, Australian primary aluminium export volumes were down by 0.2% year-on-year to 1.44 Mt.

Higher aluminium prices and bauxite exports drive export earnings higher

An expected rise in aluminium prices and bauxite exports in 2025 is likely to boost Australia’s AAB export earnings to nearly \$19 billion in 2024–25, up 13% year-on-year (Figure 11.5). Australia’s AAB exports are forecast to fall by 8.1% in 2025–26 to \$17.4 billion, on the back of a forecast decline in alumina prices (Figure 11.5).

Australia's aluminium and bauxite production rose in 2023–24

Australian primary aluminium output rose by 2.3% year-on-year in 2023–24 to 1.56 Mt, driven by a 9.5% year-on-year rise at Rio Tinto's Boyne Island aluminium smelter in Queensland. Lower production at Rio Tinto's Yarwun and QAL alumina refineries in Queensland — due to a disruption to gas supply — cut Australian alumina output by 1.5% in 2023–24 to 18.7 Mt. Higher bauxite production in Rio Tinto's Weipa bauxite mine in Queensland boosted Australian bauxite production up by 8.2% year-on-year in 2023–24 to 107 Mt.

Higher bauxite output forecast over the outlook period

No expansions or major disruptions are expected at existing aluminium smelters in Australia over the outlook period. Australia's primary aluminium output is forecast to be around 1.6 Mt a year.

Starting in July 2024, the production curtailment at Alcoa's Kwinana alumina refinery in WA is likely to reduce Australian alumina output to under 19 Mt a year in 2024–25 and 2025–26. In January 2024, Alcoa announced its decision to fully curtail its 2.2 Mt a year Kwinana alumina refinery from 1 July amid rising costs, ageing plant and grade challenges.

Australia's bauxite output is forecast to increase by 1.0% year-on-year in 2024–25 to nearly 108 Mt, and will remain at this level in 2025–26. The expansion of Metro Mining's Bauxite Hills mine in Queensland — from 3.5 million tonnes a year to 7 million tonnes a year — and higher production in other bauxite mines, will drive increased output.

In September 2024, Alpha HPA commenced the construction of its Stage Two of the HPA First project. Once completed the expansion will boost the plant's production to 10,430 tonnes of high purity alumina a year.

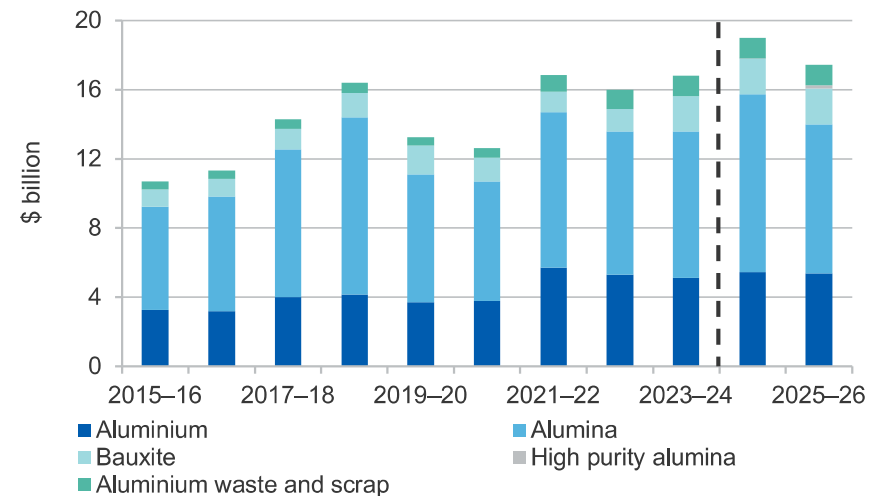
Australia has the potential to make recycled products from scrap

Australia exported nearly \$1.2 billion of aluminium waste and scrap in 2023–24, accounting for around 7% of Australia's total AAB exports. According to the Australian Aluminium Council (AAC), over 95% of

Australia's scrap aluminium is exported for recycling. The major markets for Australian scrap are South Korea, Indonesia, the EU and India.

There are some remelting facilities in Australia, including G James and Weston Aluminium that use scrap aluminium and remelt to make recycled products. Australia's four aluminium smelters (Boyne Island, Bell Bay, Tomago and Portland) have limited capacity for remelt (AAC, *Australian Recycling Market 2021* report).

Figure 11.5: Australian aluminium/alumina/bauxite exports



Source: ABS (2024) *International Trade in Goods and Services*, 5368.0; Department of Industry, Science and Resources (2024).

Revisions to the outlook

The forecast for Australia's AAB export earnings in 2024–25 has been revised up from the June 2024 *Resources and Energy Quarterly* by \$628 million to nearly \$19 billion. The revision reflects an upward revision to the FOB alumina price forecast for 2024 and 2025. The forecast for Australia's AAB export earnings in 2025–26 has been revised down by \$739 million to \$17 billion. The revision reflects a downward revision to the forecast alumina price.

Table 11.1: Aluminium, alumina and bauxite outlook

						Annual percentage change		
World	Unit	2023	2024 ^f	2025 ^f	2026 ^f	2024 ^f	2025 ^f	2026 ^f
Primary aluminium								
Production	kt	69,945	71,807	72,961	74,247	2.7	1.6	1.8
Consumption	kt	69,006	71,906	73,443	74,597	4.2	2.1	1.6
Prices aluminium^c								
- nominal	US\$/t	2,249	2,390	2,525	2,565	6.2	5.7	1.6
- real ^d	US\$/t	2,319	2,390	2,475	2,464	3.0	3.6	-0.5
Prices alumina spot								
- nominal	US\$/t	344	432	370	368	25.4	-14.4	-0.7
- real ^d	US\$/t	355	432	363	353	21.6	-16.0	-2.7
Australia	Unit	2022–23	2023–24	2024–25 ^f	2025–26 ^f	2023–24	2024–25 ^f	2025–26 ^f
Production								
Primary aluminium	kt	1,532	1,567	1,574	1,574	2.3	0.4	0.0
Alumina	kt	18,971	18,690	18,303	18,506	-1.5	-2.1	1.1
Bauxite	Mt	98.5	106.2	107.7	107.7	7.8	1.4	0.0
Consumption								
Primary aluminium	kt	151	181	127	127	19.7	-30.0	0.0
Exports								
Primary aluminium	kt	1,440	1,437	1,495	1,495	-0.2	4.1	0.0
- nominal value	A\$m	5,281	5,100	5,427	5,387	-3.4	6.4	-0.7
- real value ^e	A\$m	5,666	5,250	5,427	5,210	-7.3	3.4	-4.0
Alumina	kt	16,566	15,877	16,473	16,655	-4.2	3.8	1.1
- nominal value	A\$m	8,308	8,486	10,306	8,593	2.2	21.4	-16.6
- real value ^e	A\$m	8,912	8,737	10,306	8,311	-2.0	18.0	-19.4
Bauxite	kt	34,113	40,497	45,231	45,231	18.7	11.7	0.0
- nominal value	A\$m	1,284	2,039	2,066	2,103	58.9	1.3	1.8
- real value ^e	A\$m	1,377	2,099	2,066	2,034	52.5	-1.6	-1.5
Total value								
- nominal value	A\$m	16,005	16,812	18,986	17,439	5.0	12.9	-8.1
- real value ^e	A\$m	17,171	17,308	18,986	16,866	0.8	9.7	-11.2

Notes: Total nominal and real values of Australian exports include primary aluminium, aluminium waste and scrap, alumina, high purity alumina and bauxite. ^c LME cash prices for primary aluminium; ^d In 2024 calendar year US dollars; ^e In 2024–25 financial year Australian dollars; ^f Forecast; ^s Estimate. Sources: ABS (2024) International Trade in Goods and Services, 5368.0; Bloomberg (2024); London Metal Exchange (2024); Department of Industry, Science and Resources (2024); World Bureau of Metals Statistics (2024).