

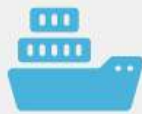
Aluminium, Alumina and Bauxite



Australia's aluminium sector



10%
of global primary aluminium exports are **Australian**



\$17 billion
primary aluminium, alumina and bauxite **exported**, 2023–24



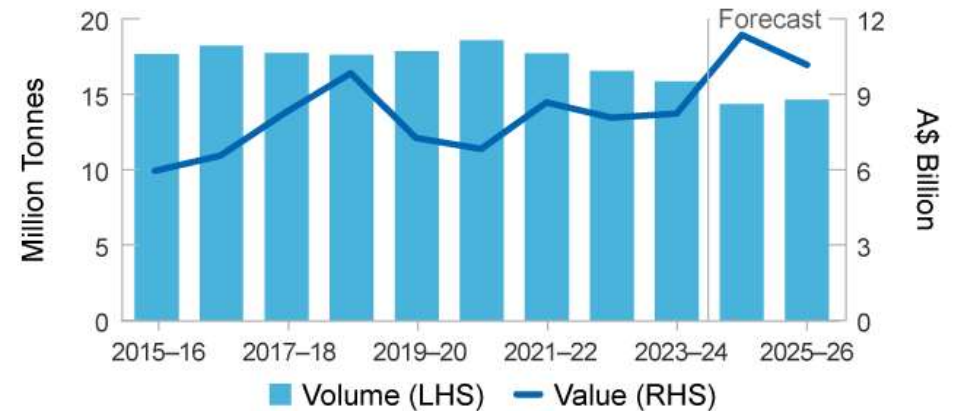
Over 98%
of Australian bauxite is **exported to China**

- 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

Australian alumina exports



Outlook



Australian aluminium sector earnings set to reach a **record of \$20 billion** in 2024-25



Australia's bauxite output set to **increase over the outlook period**



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

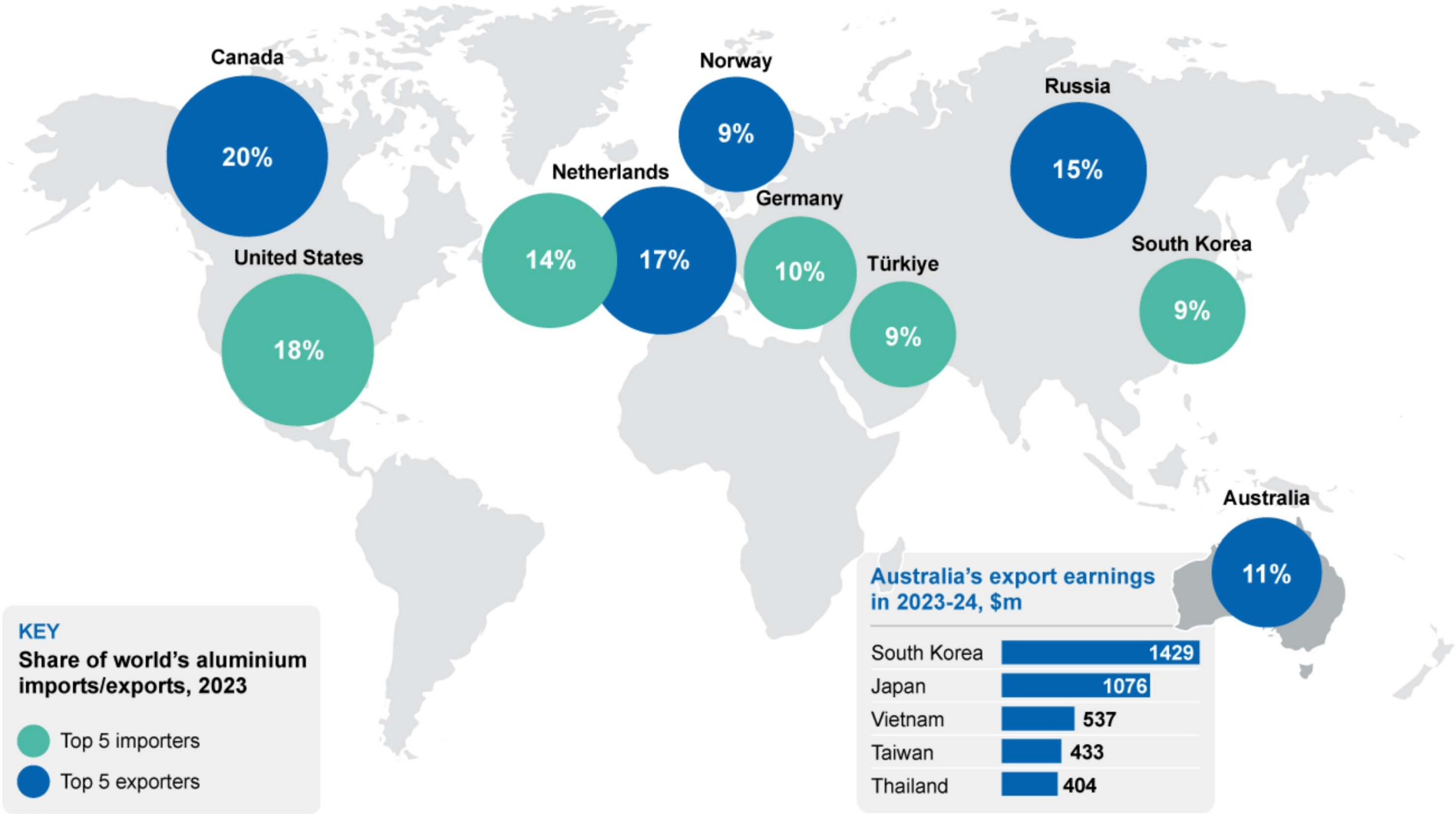


Alumina prices expected to **remain elevated** on the back of reduced supply

*High Purity Alumina

SOURCE: DISR; OCE

Aluminium TRADE MAP



SOURCE: WBMS; ABS

10.1 Summary

- The free on board (FOB) Australian alumina price reached record highs in the December quarter 2024, on the back of reduced supply of alumina and bauxite from Australia and Guinea. The alumina price is expected to remain elevated over the outlook period and is likely to push the London Metal Exchange (LME) primary aluminium spot price above US\$2,500 a tonne in 2025 and 2026.
- Over the outlook period, Australian primary aluminium output is expected to be stable at 1.6 million tonnes (Mt) a year. Australian alumina output may fall to under 18 Mt a year, due to the production curtailment at Kwinana refinery. Australian bauxite output should rise to over 100 Mt a year, driven by mine expansion in Queensland.
- High Australian alumina prices and bauxite export volumes are forecast to drive Australia's total aluminium, alumina and bauxite (AAB) export earnings to a new record high of \$20 billion in 2024–25.

10.2 World demand

Vehicles boosted global aluminium demand in Q3 2024

Strong demand for electric vehicles (EV) helped boost global primary aluminium demand in the September quarter 2024. Global primary aluminium demand rose by 5.6% year-on-year to nearly 19 Mt, with nearly 2.8 million EVs sold in the world in July and August 2024 — up 15% year-on-year. Over this period, China sold nearly 2 million EVs, accounting for 72% of global EV sales.

A drive by automotive makers in Asia, Europe and the US to cut input costs — by using recycled aluminium rather than primary aluminium — boosted secondary aluminium demand by 3.6% in the September quarter 2024 to 6.4 Mt.

Higher global primary aluminium production boosted demand for alumina by 1.7% year-on-year to 35 Mt in the September quarter 2024. Demand in China and India rose by 3.3% and 2.6% year-on-year, respectively, as Chinese and Indian aluminium smelters required more alumina to accommodate increased primary aluminium production.

Lower alumina production in Australia reduced global bauxite demand by 0.5% year-on-year in the September quarter 2024 to 89 Mt.

China and Indonesia drive aluminium demand over the outlook period

Strong demand from the EV manufacturing and low emission technology sectors — where aluminium is used in the making of EV, solar panel components and wind turbines — is expected to boost global aluminium demand from 72 Mt in 2024 to 75 Mt in 2026 (Figure 10.1).

Recent rapid growth in wind and solar capacity in China and Indonesia is likely to continue and will increase the demand for aluminium. In Indonesia, solar panel manufacturing capacity has continued to rise rapidly with the help of foreign investment. Indonesia's solar making capacity is expected to grow from 8 gigawatts (GW) in 2023 to 30 GW in 2024.

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 RMB20,000 to scrap an old and high emitting vehicle and replace it with an EV, or RMB15,000 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 help to meet aluminium demand from the Chinese automotive industry domestically.

Rising primary aluminium prices and the use of low-carbon aluminium are expected to boost recycled aluminium demand over the outlook period. According to International Aluminium Institute, recycled aluminium is 95% less energy intensive than primary aluminium.

India is part way through an anticipated four-year (2024 to 2027) boom in wind and solar projects, driven by increased financial support from the government. The Indian Government is pushing for cleaner energy to support economic development and draw in investment.

As a result, world recycled aluminium demand is estimated to rise by 3.6% in 2024 to 26 Mt, then by 5% a year over 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 demand is forecast to grow by 2.7% in 2024, 1.5% in 2025 and 1.7% in 2026.

An expected rise in Chinese, Indian and Indonesian alumina production is likely to increase global bauxite demand over the outlook period, reaching 371 Mt by 2026 (Figure 10.1).

10.3 World supply

Global AAB output grew to accommodate rising demand in Q3 2024

An increase in supply in China contributed to a 1.7% year-on-year rise in the global primary aluminium output in the September quarter 2024. Over this period, China produced nearly 11 Mt of primary aluminium (up 3.3% year-on-year), with producers reacting to escalated demand from the renewable power industry. This increased demand from the renewable energy sector offset the weakness in the demand for aluminium from the residential construction sector.

Driven by the increased demand for recycled aluminium, global recycled aluminium output rose by 1.7% year-on-year to nearly 8 Mt in the September quarter 2024. Italy and the US accounted for most of this increase, with recycled aluminium output increasing by 38% and 5.1% year-on-year, respectively.

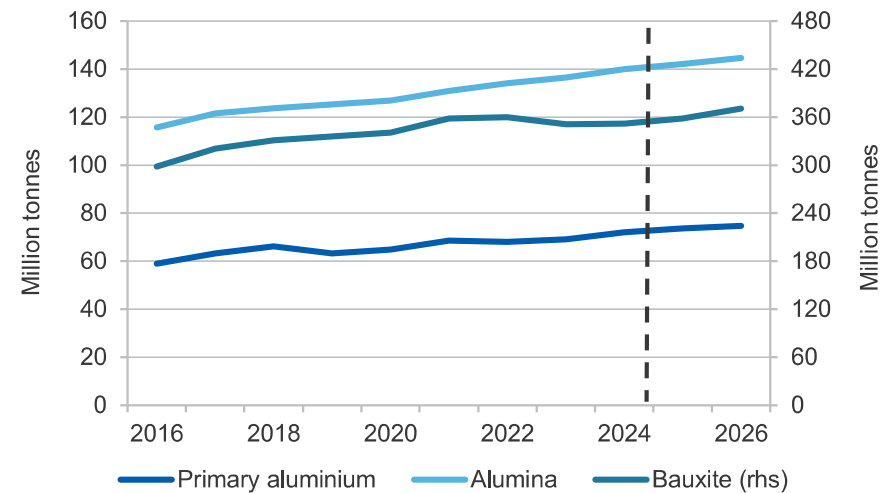
Lower alumina output in Australia — the world's second largest alumina producer — led to a 0.5% fall in global alumina output in the September quarter 2024, to 35 Mt. Over this period, alumina production in China and India increased by 3.9% and 3.0% year-on-year, respectively.

Higher bauxite output from Guinea and Australia boosted global bauxite output by 1.5% year-on-year in the September quarter 2024 to 100 Mt.

High prices to drive global AAB output over the outlook period

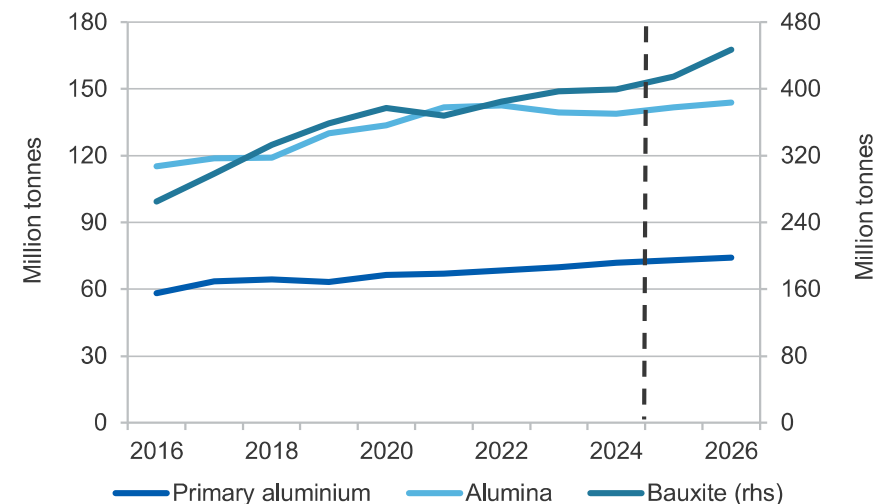
High primary aluminium prices are expected to encourage global primary aluminium supply growth over the outlook period. It is forecast that global

Figure 10.1: World primary aluminium, alumina and bauxite demand



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

Figure 10.2: World primary aluminium/alumina/bauxite supply



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

primary aluminium supply will increase from under 72 Mt in 2024 to 74 Mt in 2026 (Figure 10.2).

China and India will contribute most to this rise. In China, primary aluminium output is forecast to rise from 43 Mt in 2024 to nearly 44 Mt in 2026. Primary aluminium supply in India is forecast to increase from 4.3 Mt in 2024 to 4.7 Mt in 2026.

Driven by higher output from China, the US and Europe, global recycled aluminium output is forecast to reach 35 Mt in 2026.

Propelled by higher alumina prices and profit margins, production ramp-ups in China and Brazil are expected to drive up global alumina output over the outlook period, reaching 144 Mt by 2026 (Figure 10.2). In China, alumina output is forecast to rise from 82 Mt in 2024 to nearly 84 Mt in 2026. Alumina production in Brazil is forecast to increase from 10 Mt in 2024 to 11 Mt in 2026.

Higher output from Guinea and Australia — the world’s two largest bauxite producers — is expected to push global bauxite output up by 5.8% a year over the outlook period, to 447 Mt in 2026 (Figure 10.2).

Favourable policy and technology improvements to increase supply of recycled aluminium

China will permit the importation of recycled aluminium and copper that meet specified standards from 15 November 2024. This policy shift is a part of China’s effort to promote a circular economy and reduce its environmental footprint.

In October 2024, Constellium SE, a Paris-based aluminium recycling company, announced a new aluminium recycling technology *Laser-Induced Breakdown Spectroscopy* (LIBS) which enables the recovery of high-quality aluminium alloys from pre-consumer aluminium scrap. This technology marks a significant step in reducing carbon emissions in the automotive supply chain by increasing the industrial applications of recycled aluminium.

10.4 Prices

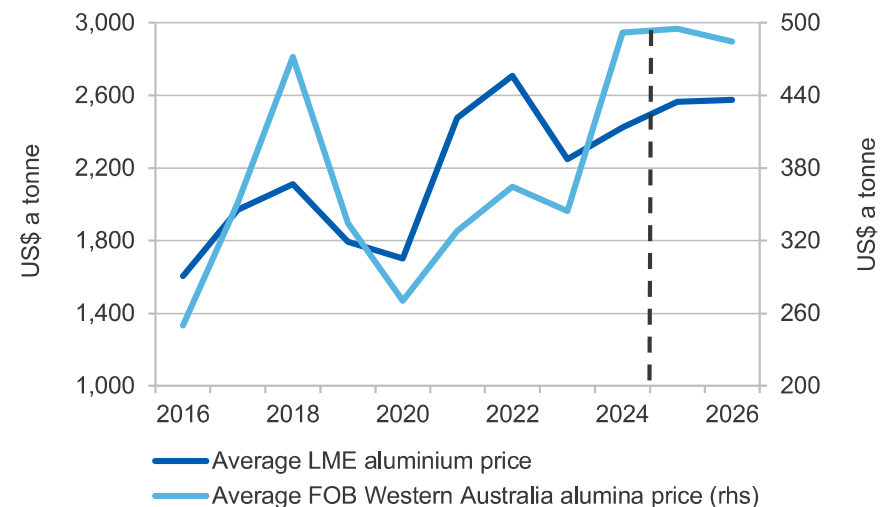
Supply issues drive alumina and aluminium prices up in 2024

The Guinean Government blocked bauxite exports from Emirates Global Aluminium in October 2024. This decision together with the production curtailment at Alcoa’s Kwinana alumina refinery in WA drove the FOB WA alumina price to record highs in the December quarter 2024. The price reached an all-time high of US\$810 a tonne on 4 December 2024.

The high alumina price and China’s economic policy measures have helped push the LME primary aluminium spot price to a five-month high of US\$2,656 a tonne on 7 October 2024. As a result, the LME aluminium price is expected to rise by 7.7% year-on-year in 2024 to average US\$2,424 a tonne (Figure 10.3). The FOB WA alumina price is forecast to increase by 43% year-on-year in 2024 to average US\$492 a tonne (Figure 10.3).

LME stock declines from 852,150 tonnes in August 2024 to 679,600 in

Figure 10.3: Primary aluminium and alumina prices



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

December 2024 reflect a rise in global primary aluminium demand. Shanghai Future Exchange aluminium stocks fell from 289,920 tonnes in August 2024 to 224,376 tonnes in December 2024 (Figure 10.4).

Aluminium and alumina prices remain elevated over the outlook period

Easing monetary policy and growing global demand for new, energy-efficient cars and technologies are expected to lift aluminium usage over the outlook period. After 2024, the LME aluminium price is forecast to remain elevated, averaging about US\$2,565 and US\$2,575 a tonne in 2025 and 2026, respectively (Figure 10.3). Rising demand and low supply will keep the FOB WA alumina price relatively high over the outlook period. The price is forecast to be US\$495 a tonne in 2025 and US\$485 a tonne in 2026 (Figure 10.3).

10.5 Australian exports and production

Higher prices and bauxite export volumes lifted Q3 2024 export earnings

Higher alumina and aluminium prices, and increased bauxite export volumes and values, boosted Australia's AAB export earnings by 22% year-on-year in the September quarter 2024 to \$4.9 billion.

A 47% year-on-year rise in the FOB WA alumina price in the September quarter 2024 increased Australian alumina export values by 19% year-on-year to \$2.5 billion in the September quarter 2024.

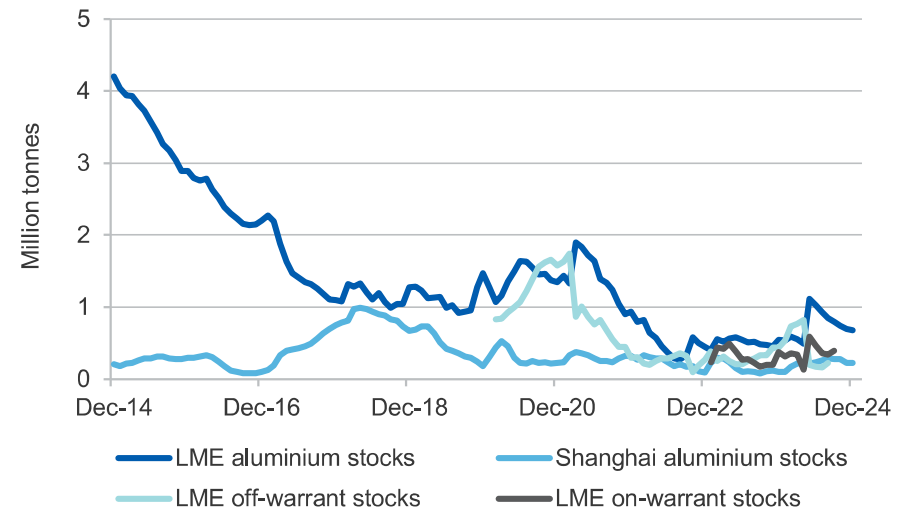
A ban on bauxite exports by Indonesia — which started on 10 June 2023 — boosted Australian bauxite export earnings by 56% year-on-year in the September quarter 2024 to \$0.7 billion, an all-time high.

An 11% year-on-year rise in the LME aluminium price in the September quarter 2024 increased Australian primary aluminium export values by 17% in the September quarter 2024 to nearly \$1.4 billion.

Higher prices and bauxite exports drive export earnings higher

Elevated alumina and aluminium prices, and high bauxite export volumes in 2025, are likely to boost Australia's AAB export earnings to \$20 billion in

Figure 10.4: Exchange aluminium stocks



Sources: Bloomberg (2024); LME (2024).

2024–25, up 22% year-on-year (Figure 10.5). Australia's bauxite export earnings are expected to reach \$2.2 billion a year in 2024–25.

Australia's AAB exports are forecast to fall by 7.9% in 2025–26 to \$19 billion, on the back of a forecast rise in the Australian dollar (Figure 10.5).

In November 2024, Metro Mining signed multi-cargo offtake agreements with several Chinese companies for bauxite shipments from its Bauxite Hills mine in Queensland in 2025 and 2026.

In November 2024, Rio Tinto lifted the force majeure on alumina exports from its Gladstone operations. Rio Tinto's force majeure on third party contracts for alumina exports from its alumina refineries in Queensland, due to a gas shortage, commenced in mid-May 2024.

Increased bauxite output to accommodate rising demand from China

A small rise (up 0.5% year-on-year) in Tomago's aluminium output drove a minor increase in Australia's primary aluminium output (up 0.6% year-on-year) in the September quarter 2024.

The production curtailment at the Kwinana alumina refinery in WA reduced Australia’s alumina output by 7.4% year-on-year in the September quarter 2024. In January 2024, Alcoa announced its decision to fully curtail its 2.2 Mt a year Kwinana refinery commenced the June quarter of 2024 amid rising costs, ageing plant and grade challenges.

A strong performance from Rio Tinto’s Weipa bauxite mine in Queensland boosted Australia’s bauxite output up by 2.5% year-on-year in the September quarter 2024 to 26 Mt. Chinese demand for Australian bauxite has been strong.

Australia’s bauxite output set to increase 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.

The production curtailment at Alcoa’s Kwinana alumina refinery in WA is likely to reduce Australian alumina output to under 18 Mt a year over the outlook period.

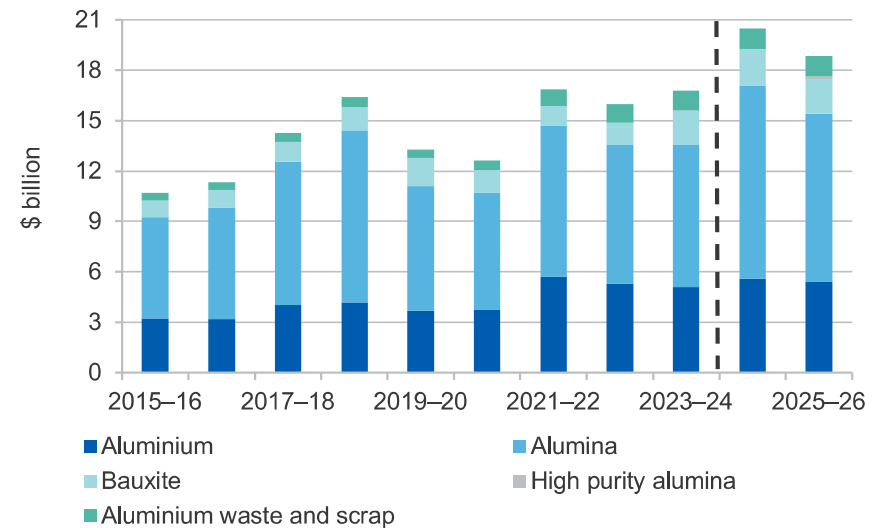
South32’s Worsley alumina refinery in WA is waiting on final approvals for their Boddington mine expansion, which is required to sustain the refinery’s alumina production.

The expansion of Metro Mining’s Bauxite Hills mine in Queensland and improved performance from other bauxite mines are forecast to increase Australian bauxite output by 1.6% a year over the outlook period, reaching 103 Mt in 2025–26.

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

Impact Minerals and Playa One have continued work on their Lake Hope HPA project, targeting a final investment decision in 2025 or 2026.

Figure 10.5: Australian aluminium/alumina/bauxite exports



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

In September 2024, Alcoa’s Portland aluminium smelter in Victoria reached a new energy supply agreement with the AGL. Under this new agreement, AGL will supply Portland an additional 287 megawatts (MW) of electricity — on top of AGL’s existing 300 MW supply agreement — until 30 June 2025. This will help sustain output from the Portland smelter.

Revisions to the outlook

The forecast for Australia’s AAB export earnings in 2024–25 and 2025–26 has been revised up from the September 2024 REQ by \$1.5 billion and \$1.4 billion to \$20 billion and \$19 billion, respectively. The revision reflects an upward revision to the FOB alumina price forecast over the outlook period.

Table 10.1: Aluminium, alumina and bauxite outlook

World	Unit	2023	2024 ^s	2025 ^f	2026 ^f	Annual percentage change		
						2024 ^s	2025 ^f	2026 ^f
Primary aluminium								
Production	kt	69,945	71,848	72,898	74,171	2.7	1.5	1.7
Consumption	kt	69,006	71,992	73,529	74,682	4.3	2.1	1.6
Prices aluminium^c								
- nominal	US\$/t	2,249	2,424	2,565	2,575	7.7	5.8	0.4
- real ^d	US\$/t	2,316	2,424	2,517	2,478	4.7	3.9	-1.6
Prices alumina spot								
- nominal	US\$/t	344	492	495	485	42.8	0.7	-2.1
- real ^d	US\$/t	355	492	486	466	38.7	-1.2	-4.0
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	1,577	1,574	2.3	0.6	-0.2
Alumina	kt	18,971	18,255	16,395	16,280	-3.8	-10.2	-0.7
Bauxite	Mt	96.2	100.2	100.8	103.4	4.2	0.5	2.6
Consumption								
Primary aluminium	kt	151	186	137	127	22.9	-26.5	-7.2
Exports								
Primary aluminium	kt	1,440	1,432	1,489	1,495	-0.6	4.0	0.4
- nominal value	A\$m	5,281	5,092	5,592	5,377	-3.6	9.8	-3.8
- real value ^e	A\$m	5,648	5,225	5,592	5,203	-7.5	7.0	-7.0
Alumina	kt	16,566	15,877	14,344	14,652	-4.2	-9.7	2.2
- nominal value	A\$m	8,308	8,486	11,489	10,048	2.2	35.4	-12.5
- real value ^e	A\$m	8,884	8,709	11,489	9,722	-2.0	31.9	-15.4
Bauxite	kt	34,113	40,497	43,587	43,416	18.7	7.6	-0.4
- nominal value	A\$m	1,284	2,039	2,156	2,021	58.9	5.7	-6.3
- real value ^e	A\$m	1,373	2,093	2,156	1,955	52.5	3.0	-9.3
Total value								
- nominal value	A\$m	16,005	16,801	20,470	18,844	5.0	21.8	-7.9
- real value ^e	A\$m	17,116	17,242	20,470	18,234	0.7	18.7	-10.9

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); Bloomberg (2024); Department of Industry, Science and Resources (2024); LME (2024); World Bureau of Metals Statistics (2024).