

# ALUMINA–BAUXITE

## INVESTMENT OPPORTUNITIES

WORLD-CLASS RESOURCE PROVINCE | SECURE INVESTMENT LOCATION  
WORLD-LEADING GEOSCIENTIFIC DATA | GLOBAL MINING SERVICES INDUSTRY

### Western Australia is the second largest producer of bauxite and alumina

Western Australia produced 14 Mt of alumina and 1.8 Mt of bauxite in 2019–20 from two producers – Alcoa and South32 with a sales value of \$6.4 billion. In 2019, alumina and bauxite was exported to the UAE, Bahrain, South Africa, Mozambique, China, India, Iceland, US, Qatar and Argentina.

#### Bauxite mining

Bauxite is a raw product, strip mined from the lateritic profiles of the Darling escarpment. Western Australia produces bauxite from three mining centres:

- Huntly (Alcoa)
- Willowdale (Alcoa)
- Boddington (South32)

#### Refining bauxite into alumina

The bauxite is then processed into alumina via the Bayer process. Four alumina refineries process the bauxite into aluminium oxide  $Al_2O_3$  (alumina):

- Kwinana (Alcoa) – from Huntly mine
- Pinjarra (Alcoa) – from Huntly mine
- Wagerup (Alcoa) – from Willowdale mine
- Worsley\* (South32) – from the Boddington area

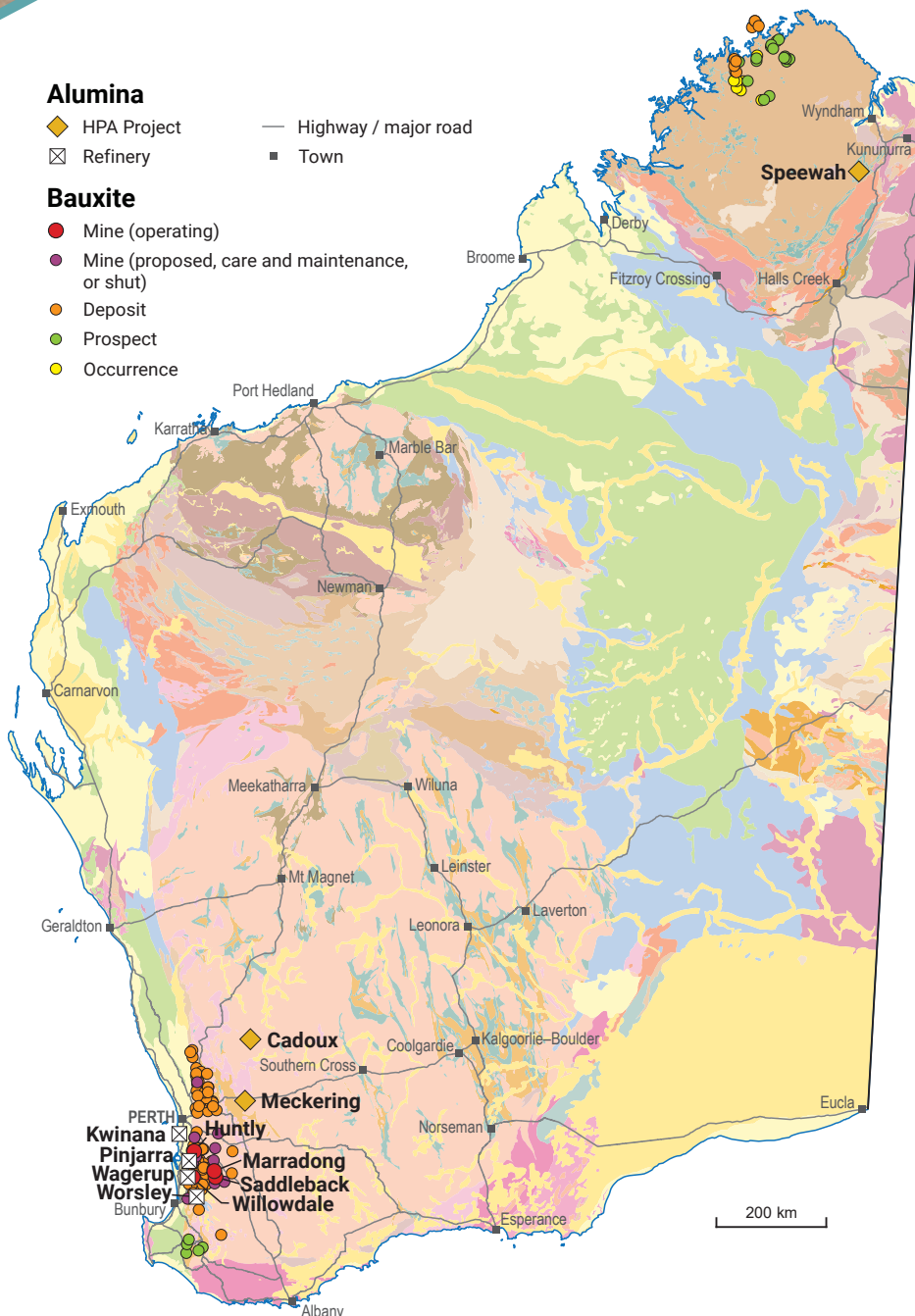
\* Worsley Alumina is owned by:

South32 – 86%  
Japan Alumina Associates Australia – 10%  
Sojitz Alumina – 4%

The State accounts for 69% of Australia's alumina production, and is among the lowest cost producers in the world due to proximity to infrastructure and processing facilities, low reactive silica content, and shallow deposits which are easily accessible.

#### Use of alumina in batteries

High-purity alumina (HPA) is a premium non-metallurgical product, containing 99.99% aluminium and can be used in lithium batteries. There are three projects currently looking at the viability of producing HPA – Cadoux, Meckering and Speewah



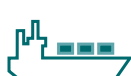
\$6417 m  
Sales value



15 804 011 t  
Tonnes sold



\$6084 m  
Exports



6765  
Full-time employees



2nd  
Production world ranking



1.65%  
Royalty rate



(2019–20 financial year)  
Totals are for alumina and bauxite



Government of Western Australia  
Department of Mines, Industry Regulation and Safety

dmirs.wa.gov.au

Geological Survey of  
Western Australia



## Alumina and bauxite production in 2019–20

Producer	Alumina (t)	Bauxite (t)
Alcoa of Australia	9 577 871	1 788 843
South32	4 437 297	
<b>TOTAL (t)</b>	<b>14 015 168</b>	<b>1 788 843</b>

### Prospectivity

The Darling Ranges in the South West is Western Australia's premier bauxite location. There is also prospectivity for bauxite in the Kimberley Basin but the region remains undeveloped.

However, it is the application of HPA in batteries and LED lighting which has seen several projects in Western Australia assess its viability:

- The Cadoux HPA project (FYI Resources) has had a feasibility study completed, indicating an updated reserve of 3.2 Mt at 24.8%  $\text{Al}_2\text{O}_3$  could support a >25-year mine life. Studies at the Welshpool pilot plant have been completed successfully, with the HPA to be processed at the proposed Kwinana refining facility. Construction of the facility is planned for early 2021
- The Speewah project (King River Resources) is currently assessing the process to recover HPA from magnetite–ilmenite concentrates and waste material
- The Meckering Kaolin project (Altech Chemicals) is set to become a 4.5 ktpa HPA operation over 30 years



Polished slice of aluminium hydroxide, Kalgoorlie, Western Australia  
(Source: Bauxite, JJ Harrison, <https://www.jjharrison.com.au>, CC-BY-SA-4.0)