

### ASX Announcement

27 September 2017

### Presentation at Metal Bulletin International Aluminium Conference

Attached is a copy of a presentation prepared by Mr Andrew Wood, Group Executive Strategy & Development, Alumina Limited, for the Metal Bulletin International Aluminium Conference held in Bahrain.

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Stephen Foster Company Secretary

27 September 2017

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25–27 September 2017 Gulf Hotel Bahrain Convention & Spa, Bahrain

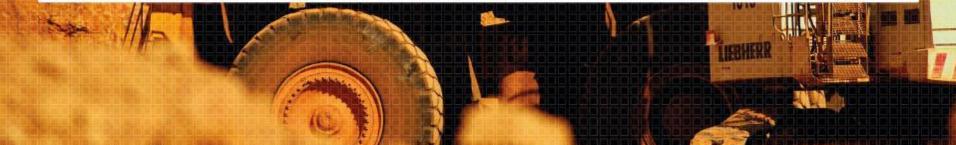


Metal Bulletin Events

## Global supply and demand of bauxite and alumina

27 September 2017

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# AWAC JV: geographically diversified, long-life, tier 1 bauxite mines and alumina refineries



- <u>AWAC 2017 H1</u> production
  - 6.139 million t alumina

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- 33,000 t aluminium
- **21 million t** bauxite (bone dry)
- Ma'aden refinery 2017 H1 output 0.7m t
- Most mining/refining integrated
- AWAC 2017 H1:
  - \$315/t average realised alumina sale price excluding Ma'aden
  - \$202/t cash cost of alumina<sup>(1)</sup>
  - \$10.9/dry t bauxite cash cost for AWAC-run mines

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- \$682m EBITDA
- (1) Defined as direct materials and labour, energy, indirect materials, indirect expenses, excluding depreciation. Movements can relate to usage, unit costs or combination of both, timing of maintenance, seasonal factors, levels of production and the number of production days and refinery mix. Includes the mining business unit at cost. The Ma'aden Saudi joint venture refinery is not included

# Alumina price volatile but has reflected fundamentals of alumina





#### Mar-May 2017

- Oversupply from China, Vietnam, Indonesia, Brazil
- China domestic prices fall due to excess production, Australian notional import parity premium swells from ~\$20/t to ~\$40/t
- China suspends spot imports for nearly 3 months, ample cheaper domestic supply
- Smelter incidents in India and Bahrain reduce demand

Source: Platts, PAX WA FOB, September 2017

#### May-June 2017

- Alumina cuts in Henan, Shanxi for maintenance and environmental audits boost Chinese domestic prices
- Restocking, short covering by China and global traders
- Rally in Australia, China stalls
- China loses interest in imports, but global buyers want tonnes for India, Middle East, Americas

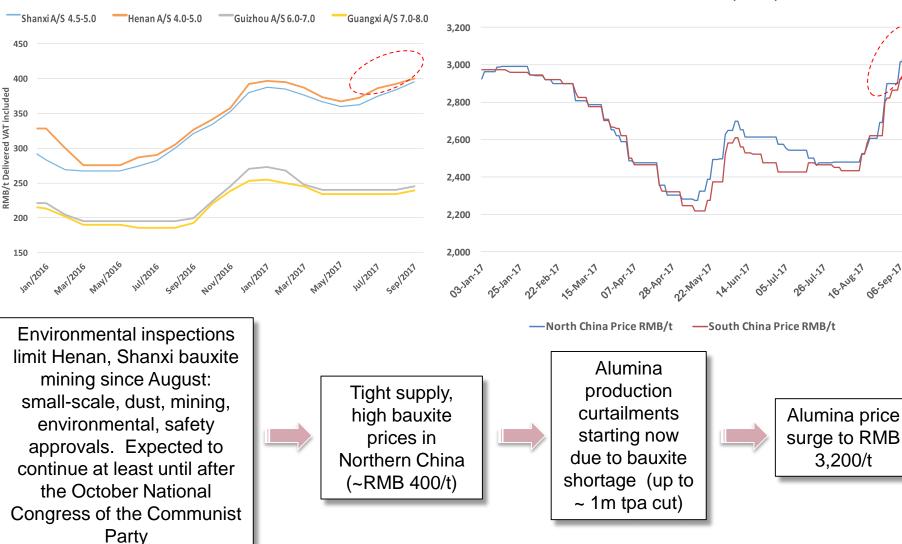
#### July-Sept 2017

- LME, SHFE prices ≈ 3/6 year highs
- Supply tightens; consumers, traders restock
- Chinese bauxite/alumina supply concerns, limited spot offers, imminent refinery cuts for the State policy on Winter curtailments
- Australian alumina price discounted to Shanxi province import-parity terms
- Weaker USD made imports more affordable

## Bauxite shortage in Northern China now contributing to alumina price pressure

China's Domestic Bauxite Prices





China's Alumina Price (RMB/t)

Source: CM Group, September 2017

### Some refineries in Northern China short bauxite – impacting alumina price now



Some refineries in Henan purchasing bauxite from **Guizhou** to solve bauxite shortage

Shortfall mainly due to mining halted by the inspections

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The longer term forecast domestic bauxite quality depletions are yet to bite

At least one refinery in Henan has already imported a bauxite shipment from Australia

Other refineries in Henan and Shanxi are considering importing high-temperature bauxite from overseas

## **Chinese Winter Air Pollution Policy**

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- Provinces affected by "2+26+3" winter heating season cuts produce around 79% of China's alumina and export to other provinces (from November 2017)
- Ministry of Environment Protection recently advised that Winter cuts are based on legal capacity, while Henan will require cuts based on all capacity
- The production cuts are forecast as <u>2.5m t alumina</u> and <u>1.0m t aluminium</u> (1.9m t of alumina) → **net alumina shortage of 0.6m t** in other alumina-importing regions

Million tonnes	Alumina	Primary Al
Affected Capacity p.a.	39.1	13.3
Capacity to be curtailed (30%)	11.7	4.0
Production to be curtailed p.a.	7.2	2.8
Net Curtailment in heating season (assuming 125 days)	2.5	1.0

Separately, Chinese supply-side reforms are expected to continue and reduce overcapacity in aluminium and alumina

Source: CM Group

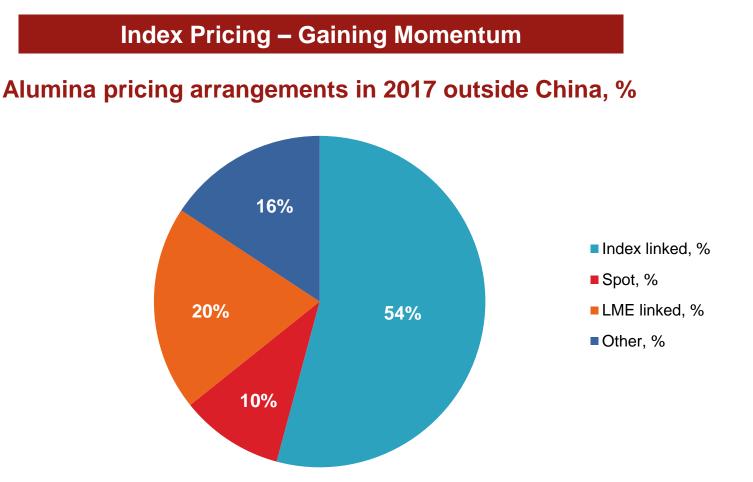
\* Ministry of Environmental Protection, Finance Ministry, National Development and Reform Commission, the National Energy Bureau and regional governments



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# The evolution of alumina pricing to index pricing





- Estimated in 2017, 64% of sales on spot or alumina index
- 2018 forecast: 57% index, 11% spot, 18% LME-linked, 14% other

## **Use of indices in alumina sales contracts**

- Used in short/medium term contracts to price alumina on its own fundamentals:
  - Metal Bulletin/CRU/Platts WA prices (usually previous month's average), CRU ABP

### Move to index pricing:

- AWAC:
  - 85% forecast on spot/index in 2017; 92% forecast in 2018
  - Alcoa now buying alumina from AWAC on index price basis
- Hydro:
  - 65% of Hydro's on index in 2017, forecast 85% index in 2020
- South 32:
  - all long-term contracts index-linked pricing, bar one legacy contract

### Chinese alumina pricing:

Since 2014, alumina index pricing has emerged, several indices used

### Alumina futures trading:

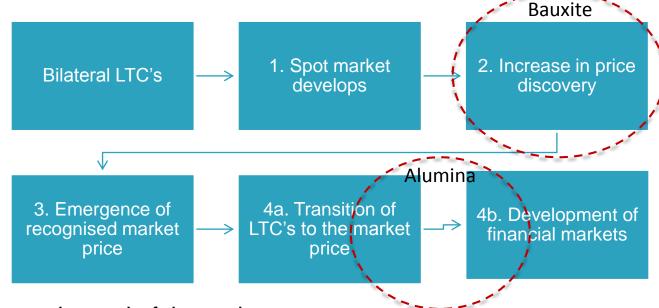
- CME total cleared volume 0.35 million t YTD, 2000 trades in August, current open interest 0.285 million t (as at 13/9/17); forward prices now in contango
- Enables parties to manage alumina price risk help smelters to hedge

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# Common evolution path for long term contracts (LTC's) for commodities



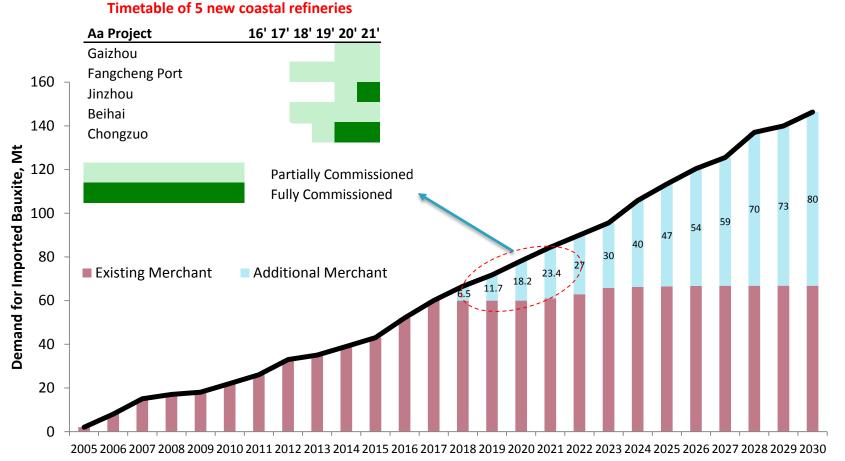
Standard path followed to market pricing (e.g. iron ore)



- Alumina near the end of the path
- Bauxite moving along path with regular price reports:
  - Metal Bulletin bauxite FOB Kamsar Guinea and Trombetas Brazil, 2 key standards
  - CM Group CBIX, CRU BPI-G value-in-use normalised, delivered to China prices
- Potential developments could be:
  - more trades made/noted, detailed/accurate data given to PRA's: price/quality/freight
  - Price Reporting Agencies publicise robust/transparent methodology, normalising different bauxite types/quality

Source: Oliver Wyman methodology, Alumina Limited analysis of positioning of bauxite and alumina

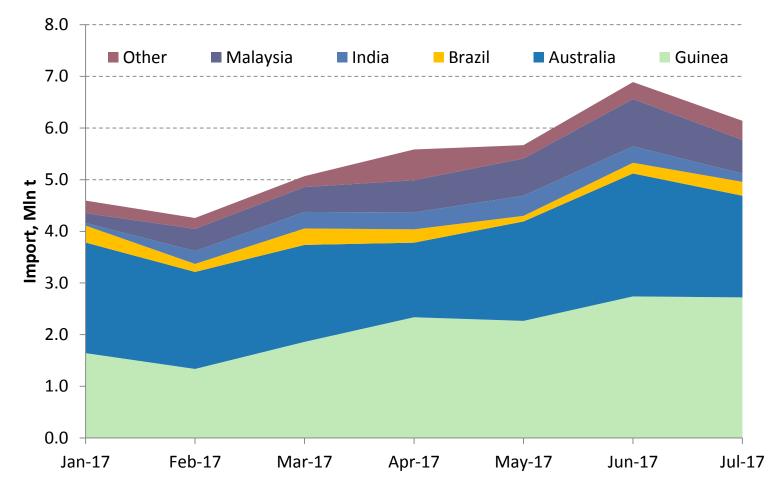
## New coastal bauxite imports ahead of 2020 import curve steepening



- Up to 5 new coastal refineries forecast to start operating from 2018 (reaching 23.4 m t new bauxite imports in 2021)
- 2020 2021 is forecast to be a turning point for China alumina industry as:
  - Alumina demand increases and domestic bauxite quality mines in Henan and Shanxi deplete
  - Bauxite imports forecast to grow to 120 million tpa (by 2026)
  - Refineries likely to relocate largely to coast e.g. Liaoning, Guangxi

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## Guinea and Australia leading bauxite exporters to China (Jan-Jul 2017) – expected to continue



- Guinea has replaced Australia as the largest bauxite exporter to China
- Guinea and Australia contributed 75% of the total Chinese bauxite imports in the first seven months of 2017

Source: Chinese Customs, CM Group, September 2017

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### Atlantic bauxite supply growth (mainly **Guinea) needed for Pacific shortfall**



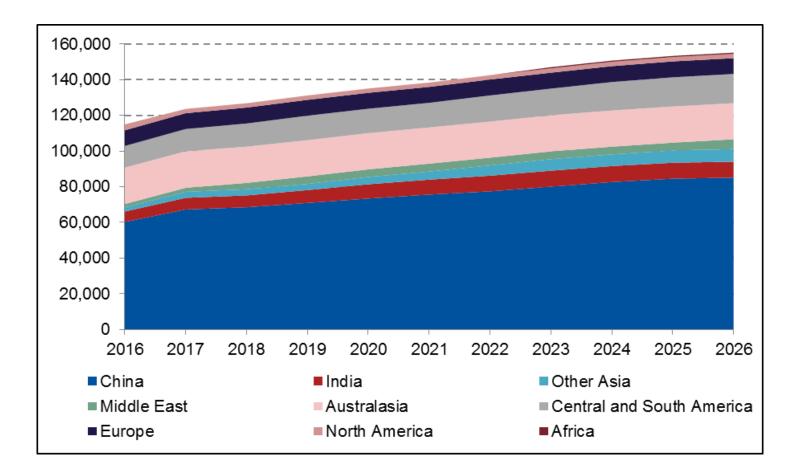
#### Atlantic **Pacific** 120,000 120,000 100,000 100,000 80,000 80,000 60,000 60,000 40,000 40,000 20,000 20,000 0 0 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 Supply Demand

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# Solid alumina demand growth (4% average) forecast over next 5 years



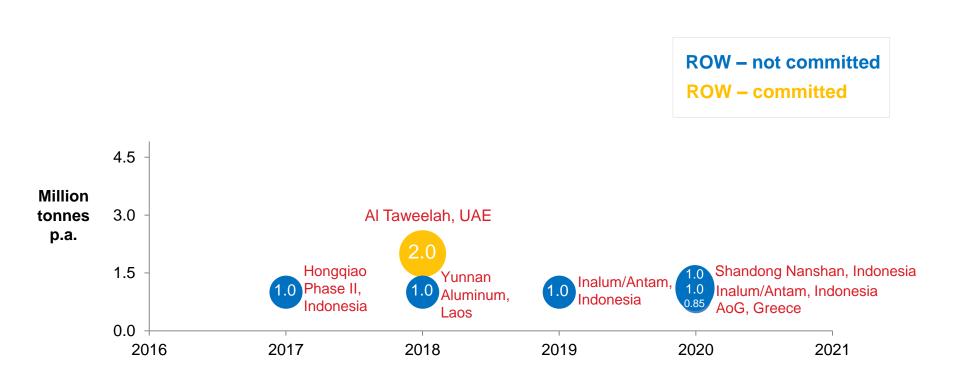
Global alumina demand, '000 tonnes, MGA (Source: CRU, January 2017)



## Upcoming alumina projects outside China – only one under construction

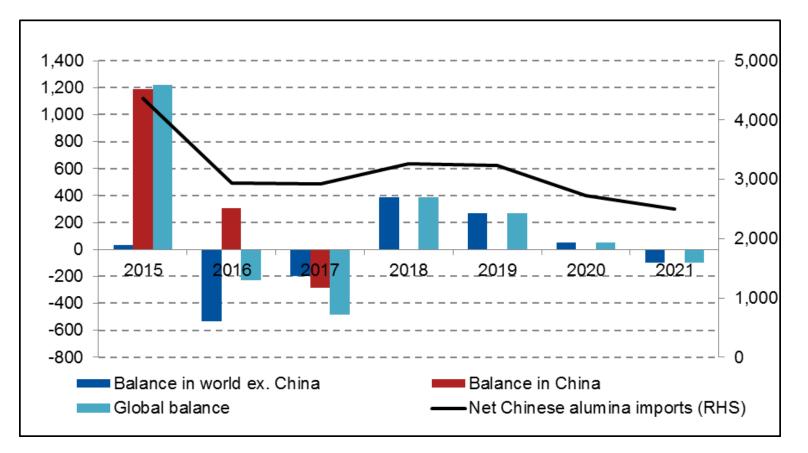


By 2021 AI Taweelah is only likely large refining growth



# Near balanced market forecast over next five years

Global alumina (MGA) market balance (LHS), Net Chinese alumina imports (RHS), '000 tonnes



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## Supply/demand and pricing issues



Alumina prices	<ul> <li>Steep increase in alumina prices recently</li> <li>Market remains tight with relatively few spot sales</li> <li>Price support from Chinese pressures likely to continue this year</li> </ul>
Alumina price indices market share	<ul> <li>Approx. 64% of sales outside China on alumina index/spot basis in 2017 (AWAC 85%), forecast 68% in 2018 (AWAC about 92%)</li> <li>Futures market accelerating and in contango</li> <li>LME-linked sales are now shorter term with more frequent re-pricing</li> <li>Chinese sales increasingly on Chinese alumina indices</li> </ul>
Alumina supply and demand	<ul> <li>5 year global average MGA demand growth forecast at about 4%; modest supply growth outside China; broad market balance</li> <li>Some near term Chinese uncertainty in Winter cuts, supply-side and other environmental reforms</li> </ul>
Chinese bauxite and alumina supply and demand	<ul> <li>Chinese aluminium, alumina demand to continue strong growth</li> <li>Supply-side and environmental policies to reduce overcapacity</li> <li>Alumina growth expected to match demand in longer term, perhaps spreading to more coastal, less urbanised areas</li> <li>Significant long term bauxite shortfall expected to be met by imports from Australia/Asia and Atlantic</li> </ul>