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Bauxite has been a priority sector for the upstream aluminium value chain players for some time now. The supply certainty of the ore plays a crucial role in controlling the logistics cost of the sector which in turn helps in optimising the overall cost of production of aluminium. With China’s appetite for bauxite growing bigger combined with supply-side concerns arising from Indonesia, and now from Malaysia, it was expected that the sector would herald in a new phase of higher profitability. But, the global downturn which struck the alumina and aluminium industry this year did not spare bauxite sector totally, and it ended up faring only a little better.

As of January 2016, the worldwide bauxite reserves stood at 27.5 billion tonnes (Bnt). Global bauxite production was estimated at 279.7 million tonnes (Mt) in 2015, down 0.3% YoY, attributed to production declines in Brazil and China. Indonesia’s bauxite production too dropped significantly from 55.7Mt in 2013 to only 500kt in 2014, owing to the ban on exports of raw ores imposed at the beginning of 2014. Leveraging the supply gaps, many countries came to the fore with their bauxite supplies which resulted in a change in the global bauxite mining landscape.

Following are the Top Five Bauxite Producing Countries in the World:

1. Guinea: With an estimated bauxite ore reserve of 7.4 Bnt, mostly concentrated in the western and central part of the country, Guinea stands as the number one bauxite producing country of the world. The country accounts for 26.9% of the global total reserve of the ore. Guinea is predicted to pass Australia to become China’s main source of bauxite in 2016. Shipments from Guinea to China will reach as much as 13 million metric tons this year, up from just 300,000 tons in 2015. A leading Chinese consortium - Weiqiao Group started a $200 million project for importing bauxite ore from a new mine in Guinea in October 2016, side-lining its traditional suppliers Australia, India and Indonesia. The group’s mine has reserves of 100Mt of 42% to 45% aluminium content. The SMP-WAP consortium will initially start with five million tonnes of bauxite exports from Guinea this year, and increase it to 30Mt in two years.

2. Australia: The mineral resource rich island country holds the second largest bauxite reserve at 6.2Bnt, with the highest grade reserves concentrated in Queensland and the Northern Territory. Weipa and Gove mines, for example, have ore grades of 49-53% aluminium oxide.
During January to July period of the current financial year, Australia shipped a total volume of 13.25 Mt of bauxite in comparison to 11.7 Mt recorded in the corresponding period of previous financial year, an increase of 11.6%. In 2016, Australia's total bauxite exports is estimated to reach 23.25 Mt, up 12.71% from 2015.

Work is progressing in full swing at Rio Tinto’s giant Amrun bauxite project near Weipa with $160 million worth of contracts already won by construction firm Civmec. Australian Bauxite Limited is selling bauxite into fertiliser and cement markets at prices higher than the currently over-supplied metallurgical bauxite market. ABX’s maiden shipment of 5,557 tonnes occurred on 28 April, 2016, and a second sale of 5,000 tonnes was announced on 31 May. Metro Mining, in a recent bidding war against a controversial Chinese bidder, gained control of a planned bauxite mine on Cape York. The takeover will make Metro one of the largest independent miners in the Weipa bauxite area, with Gulf’s Skardon River Project adjoining its own Bauxite Hills tenement.

3. Brazil: The South-American nation ranked third with 2.6Bnt of bauxite reserves. The Paragominas bauxite mine, located in the east of the state of Pará in Northern Brazil, is one of the richest sources of bauxite in the world. Fully owned by Brazil's Vale (CVRD), the mine currently boasts an annual capacity of 5.4 Mt of bauxite a year.

4. China: Bauxite production in China is expected to remain sluggish over the next few years given the weak price scenario and declining reserves of quality ore. According to the latest BMI Research data, China is estimated to account for only 23.3% of the global bauxite production. This will however, boost imports and investments in overseas mining projects.

5. India: India’s bauxite ore production has remained reasonably in line with its aluminium output and is estimated to rise this year buoyed by increasing domestic demand. As per UNFC system, resources of bauxite in India are placed at about 3,480Mt which is about 5% of the world total. These resources include 593Mt reserves and 2,887Mt remaining resources. A number of projects have been lined up which include development of the Pottangi bauxite mines for Nalco. Analysts say bauxite production in India should grow at 17.7% though 2020, with an estimated 8.2% contribution to the global output, this year alone.

However, investors remain sceptical about the country’s tightening environmental restrictions and rising socio-political issues which may come in the way of attaining the production targets set for the coming five years period.

The year 2016 has essentially been a year of transformation for the global bauxite industry. While Indonesia has been seen as still striving for value-added investment, Malaysia started off well as the new temporary Indonesia but soon succumbed to the ill effects of unregulated mining that resulted in growing environmental pressure and an extended mining moratorium. Bauxite production from the country, since then, has declined steadily only to be covered up by countries like Guinea, Australia, Brazil, China, and India.

### Bauxite Reserves

<table>
<thead>
<tr>
<th>Country</th>
<th>2014</th>
<th>2015*</th>
<th>Reserves7</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td></td>
<td></td>
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<tr>
<td>Australia</td>
<td>78,600</td>
<td>80,000</td>
<td>6,200,000</td>
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<tr>
<td>Brazil</td>
<td>34,300</td>
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<tr>
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<tr>
<td>Other countries</td>
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<td>World total (rounded)</td>
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Date Source: The United States Geological Survey
The year 2016 has been a year of transition for the global bauxite industry. While the sector fared slightly better than the alumina and aluminium industries—both of which faced severe pricing woes since 2016 beginning, numerous changes in the rankings, rather fluctuations, were noted as far as production of bauxite and exports to the international market was concerned.

Malaysia, for example, though started the year on a positive note soon faced a setback as the government went on to impose ban on Pahang’s unregulated bauxite mining that was allegedly causing widespread environmental destruction in the region. Then there was Guinea putting up a strong competition against Australia to become China’s top bauxite supplier. Brazil zoomed in to the international market with its reasonably high bauxite supply. India too maintained its dominance with its moderate yet high-quality bauxite exports and an impressive project line-up.

Malaysia exported 24.31 million tonnes of bauxite worth US$1.11 billion in 2015; Australia sold 20.29 million tonnes of aluminium ore worth US$1.12 billion; Brazil exported 9.1 million tonnes bauxite worth US$0.44 billion; and China shipped 0.67 million tonnes bauxite worth US$0.24 billion to the international markets during the last financial year.
In 2016, Malaysia’s contribution to the world bauxite market shrunk because of the mining ban that started in January. Nevertheless, the country managed to ship 20.1 million tonnes of bauxite worth US$0.54 billion, a major percentage being directed to China. Guinea’s bauxite exports edged higher to an estimated 19.1 million tonnes worth US$0.7 billion in 2016.

Bauxite exports from Australia also took a leap to total at 23.2 million tonnes worth US$0.73 billion in 2016. Brazil’s bauxite export is estimated to go up by 5.5 per cent while China’s total export of the ore is estimated to shrink by 3.3 per cent year-over-year in 2016.

Value-wise, Guinea remained the highest bauxite exporting country in the world in 2016, followed by Brazil and then Australia. A strong project line-up in Australia, Guinea and India is expected to further boost the production of the aluminium in the next financial year.

**Estimated Bauxite Export by China/Malaysia/Brazil/Australia/Guinea in US Dollar Value**

Alcoa Corporation, the world’s largest bauxite miner, today announced that Alcoa World Alumina and Chemicals (AWAC) has secured its first major third-party contract to supply approximately 400,000 bone dry metric tons (bdmt) of bauxite from its Huntly mine in Western Australia (WA), furthering Alcoa’s strategy to grow its third-party bauxite business.

“This Western Australian contract comes just months after our first trial bauxite shipment from WA to China in mid-2016, which successfully introduced our WA product to the global market,” said Garret Dixon, President of Alcoa Bauxite, who is based in Perth.

The WA State Government has also granted approval for Alcoa to export up to 2.5 million metric tons per annum of bauxite for five years to third-party customers.

"Bauxite exports have the potential to generate greater value from our WA mineral lease, creating additional revenue streams for Alcoa and the State of Western Australia, while maintaining supply to our three WA refineries," Mr Dixon said.

The WA contract is one of three bauxite agreements recently signed worth a total of $US126 million to deliver approximately 2.2 million bdmt of bauxite to customers in China in 2017. In addition to the WA contract, Alcoa will supply bauxite from its two mines in Brazil—Juruti and Mineração Rio do Norte, where Alcoa and AWAC hold an 18.2 percent equity investment. The two supply agreements for Brazil bauxite replace 2016 contract volume.

The contracts increase the total value of Alcoa’s 2016 and 2017 third-party bauxite supply agreements to nearly $US600 million.
The AWAC group of companies is owned 60 percent by Alcoa Corporation and 40 percent by Alumina Limited of Australia.

On November 1, Alcoa Corporation announced it had completed the separation from its parent company Alcoa Inc. (now named Arconic Inc.) and began operating as an independent, publicly-traded company.

Hydro acquires 100% stake of Paragominas in Brazil

Hydro announced through a press release on 15 December 2016 that the company has completed the acquisition of Vale’s remaining shares in Mineração Paragominas S.A. (MPSA). Hydro expects the acquisition will have a positive impact for Bauxite & Alumina segment of about USD 45 million on its result in the fourth quarter of 2016, of which USD 30 million will be excluded from underlying earnings.

The transaction is the second and final step in the arrangements agreed in 2011 regarding the complete takeover of the majority of Vale’s aluminium assets in Brazil. The acquisition makes Hydro the 100% stakeholder of MPSA’s shares. Originally Hydro owned 67.9% of Mineração Paragominas and Vale owned the remaining 32.1%.

Hydro’s net payment, after making all adjustments resulting from the completion of outstanding contractual arrangements with Vale, was USD 113 million.

Hydro Paragominas in the state of Pará, one of Brazil’s northernmost states, started operation in March 2007 and today it mines about 15.2 million metric tons of ore producing about 10 million tons of bauxite annually. The bauxite mined at Paragominas is transported to its Alunorte refinery and shipped to aluminium producers in Brazil and other parts of the world.
Bauxite mining ban extends by three more months in Malaysia

Datuk Seri Dr Wan Junaidi Tuanku Jaafar, the natural resources and environment minister has announced on Thursday December 22 that bauxite mining ban is extended by another three months effective from 31 December at a press conference.

In January, Malaysia levied first of its three months ban on bauxite mining activities which further extended by three month. The moratorium on bauxite mining, slated to end on December 31 yet again is extended by government.

Bauxite mining operation was suspended on 15 January 2016 in order to clean up environmental damages caused by mining activities in the region after getting public complains for turning waters red. The decision to extend mining ban came after the minister had conducted an aerial inspection of bauxite mining sites like Felda Bukit Kuantan and Kuantan Port on December 21 and found heaps of bauxite in a number of mining sites.

Malaysia, one of the world’s top bauxite producers exported 24.3 million tons of bauxite in 2015 to meet growing demand from China in the past two years especially after Indonesia banned ore export in 2014.
2016 has been a reasonably good year for alumina. The commodity, unlike other components in the entire cyclical asset basket, witnessed a sustained demand push all through, thanks to a global deficit market and prices kept rising supported by supply concerns arising mainly out of China. There were mergers and acquisitions, investments and divestures, closures and starting of new ventures as is common in almost every sector across industries. Now, that we gear up to begin a new year it’s time we take a look back at the events and phenomena that made headlines in the alumina industry in the last one year:

**Market Ups & Downs:**

1. According to the latest report provided by Altech Chemicals, the global market for high purity alumina (HPA) is forecast to reach 86,831 tons by 2024 from the current estimate of 25,315 tons, registering a growth of 343%.

2. Nearly 5.5 million tonnes of new and closed-down aluminium capacities in China are awaiting operation (re)-starts in the Q4 of the current fiscal and early next year. In comparison to that, new alumina capacity addition is estimated at only 6 million tonnes in the end of 2016 and 2017 beginning. Hence, there is going to be a clear deficit in alumina supply in the market which will buoy prices over the short term.

3. The General Court of the European Union issued judgments in joined cases upholding a decision of the European Commission ordering the repayment of tax exemptions granted by France, Ireland, and Italy for alumina production.

4. Nabaltec AG, the leading German supplier of functional grade aluminium oxide and aluminium hydroxide for numerous innovative applications, announced expansion of its operations in Asia in the first quarter of 2016 with the formation of a wholly-owned subsidiary based in Tokyo, Japan.

5. To survive the volatile commodity market, Hindalco Industries devised plans to sell its alumina plant and mines in Brazil. The sale deal is expected to be in the range of $90 million to $100 million.

6. India’s alumina producers sought anti-dumping duty exemption on caustic soda, a critical raw material and cost component of alumina production.

7. Nalco turned the world’s cheapest alumina producer. The company’s alumina production cost fell to $190 a tonne compared to the global benchmark of $220-230 per tonne. Nalco is aiming at further value-addition for its alumina produced in-house.

8. Hydro reported record alumina production at its Alunorte refinery in Q3 of the current fiscal.

9. CME Group announced first trades of Alumina FOB Australia (Platts) Futures.

Amendments Made and Restorations Done:

• Alcoa Inc. and Alumina Limited agreed to make significant amendments to their AWAC joint venture before the former split into two different business entities: Upstream Alcoa and downstream Arconic in November 2016.

• RUSAL’s BoD approved agreement on restoration of Friguia Alumina Refinery

• Vedanta revived second stream operations at its Lanjigarh alumina refinery

Mergers and Acquisitions:

There were not too many consolidations taking place in global alumina industry in 2016. The European Commission approved French minerals company Imerys’s proposal to acquire alumina producer Alteo ARC and Alufin GmbH Tabularoxid. The takeover is subject to certain conditions.

Divestures and Closures:

1. Sherwin Alumina Co. announced plans to close its Gregory plant after its bottom line plummeted weighed on by a troubling combination of low demand and an oversupply from China. Its projected net operating losses were $42.1 million. Sherwin Alumina filed Chapter 11 bankruptcy in January.

2. Noranda obtained court approval to sell alumina refinery in Gramercy, Louisiana to DADA Holdings LLC.

3. Henan alumina refinery downed shutters amid danger of potential red mud landslide.

4. RUSAL completed the sale of Alpart alumina refinery in Jamaica.

5. Ma’aden subsidiary kick-started commercial production at its alumina refinery.

6. PT Shaanxi Youser Indonesia announced plans to build alumina refinery in C Kalimantan through a Chinese investor at a total cost of Rp16 trillion.

7. Production activities continued to progress steadily through 2016 at Orbite HPA plant.

8. RUSAL invested US$2 million in Boksitogorsk alumina refinery modernization.

9. UC RUSAL invested US$2 million in Boksitogorsk alumina refinery modernization.

10. Shandong Nanshan Aluminum started construction of its alumina project in Indonesia in October.

11. PT ANTAM together with PT Indonesia Asahan Alumunium formed cooperation with PT PELINDO II in the port development in Sungai Kunyit, Mempawah, West Kalimantan. The port development is linked to Smelter Grade Alumina Refinery project in Mempawah.

R&D Highlights:

1. Orbite received Canadian fly ash patent and allowance for Russian red mud patent

2. Australian Renewable Energy Agency (ARENA) came forward to support a project led by the University of Adelaide and Alcoa that aimed using solar energy for alumina refining
3. **Rusal** announced the first time production of scandium oxide from red mud in its smelter in the Ural Mountains at a concentration rate that exceeds 99%.

4. Iranian and German scientists developed high-purity alumina nanoparticles using a green laboratorial method.

5. A team of materials science researchers from the Worcester Polytechnic Institute (WPI) started out to develop the first commercially viable process for recovering valuable metals from red mud, a hazardous generated in alumina refineries.

**Altech Chemicals Ltd: World of HPA**

According to global analysts, 2017 will see market balance for alumina getting restored as a host of new projects is already in the offing. But with the application area widening beyond aluminium extraction (use of alumina in biocompatible materials such as dental implants and joint applications is on the rise due to its bioinertness, hardness and high abrasion resistance) demand will remain buoyant supporting high prices though 2017 until 2022.

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**The UAE’s total alumina imports is estimated to decline 12.4% YOY in 2016**

The United Arab Emirates has grown over the years from essentially an oil-based economy to the world's fourth largest aluminium producing country, thanks to Emirates Global Aluminium’s (EGA) contribution as major aluminium manufacturer of the region. The industrial champion with two operating sites in Abu Dhabi and Dubai currently produces 2.4 Mtpa of primary aluminium, contributing two to three per cent of the UAE’s non-oil gross domestic product (GDP). As far as raw material sourcing for aluminium smelting is concerned, at present, the UAE is entirely reliant on third party imports for its alumina needs. It imports close to five million tonnes of alumina every year.

However, the country's first alumina refinery adjacent to EGA's operations in Al Taweelah is coming up shortly. Construction at the site is progressing at a steady pace. On completion, it is expected to reduce the UAE's dependence on imported alumina to a significant extent.

The UAE imported 1.59 million tonnes of alumina worth US$0.49 billion in 2014. In 2015, the volume of total alumina imports increased 11.32 per cent to reach 1.77 million tonnes. The imports were valued at US$0.52 billion, up 6.12 per cent from 2014. In 2016, the total alumina imports in the UAE is estimated to go down at 1.55 million tonnes valued at US$0.47 billion, marking a volume-wise decrease of 12.4 per cent and value-wise decrease of 10.03 per cent year-over-year.
The UAE is estimated to have imported a total volume of 1,080,502.8 tonnes alumina from Brazil, 47,289.7 tonnes alumina from China, 380,024.3 tonnes alumina from India, 389,749.9 tonnes alumina from Jamaica, and 657.2 tonnes of alumina from the USA in 2016.

EGA recently announced that its US$3 billion Al Taweelah alumina refinery has reached a significant construction milestone. The Calciners section of the project is 60 per cent complete, and the overall completion of the project is currently at 37 per cent. Construction on the project is expected to be complete by the first quarter of 2018, and the refinery will be capable of producing two million tonnes per year of alumina. On completion, Al Taweelah Alumina will cater to more than 80 per cent of EGA's alumina requirements and will also contribute to the UAE's economic diversification by expediting the development of the upcoming aluminium cluster in Kizad.
The dynamics of the global alumina industry has undergone a sea-change over the last five years. Driven by a humongous demand for aluminium in China, followed by other growth areas such as the Middle East and India, bauxite production and alumina refining capacity has increased immensely across the major alumina producing regions of the world.

According to CRU’s Bauxite and Alumina Long Term Market Outlook (2016 edition), the Global alumina capacity is forecast to grow by 29.6% over the next ten years, reaching 179.6 million tonnes by 2024. Capacity expansion of metallurgical grade alumina, primarily in China, is projected to be the main driver for this growth. China’s net alumina investment requirement is expected to peak in 2025 at 10 million tpy, while the world ex. China is forecast to require 15 million tpy of net new alumina capacity over the period till 2040.

Following are the Top Ten Alumina Companies in the World:

(Please note the listing is based on the latest production results as sourced from reliable industry sources).

1. Chalco (China) - Aluminum Corporation of China Limited is China’s largest alumina producer in the world. Aluminum Corp of China (CHALCO), the country’s biggest producer of alumina and primary aluminium, posted profits of 330 million yuan ($49.4 million) during the first half of the year, the highest level in almost five years, attributed mostly to the reduction in the CoP of alumina and aluminium.

2. Xinya (China) – Shandong Xinya Aluminium Group is another key player in the China alumina industry, currently leveraging on the robust demand for the mineral in the domestic market. According to a recent industry report, China’s alumina output in 2016 is expected to reach 61 million mt, up 5.2% from realized output of around 58 million mt in 2015. The forecast figure was also up 17.3% from the 52 million mt produced in 2014 and up 30% from 47 million mt in 2013, Antaike figures showed.

3. Hongqiao (China) - China Hongqiao Group, the world’s largest aluminium producer by capacity, formally commenced its 1 million tonne per annum alumina production line in Indonesia’s Borneo on Saturday, in a bid to boost the production capacity cooperation between China and Indonesia.

The production line is part of the 2 million-tonne-a-year smelting plant with a total investment of 1 to 1.5 billion U.S. dollars which is operated by PT Well Harvest Winning Alumina Refinery, a joint venture which Hongqiao holds a 56 percent stake. The alumina produced at Hongqiao’s Indonesia facility will be mainly used to supply the raw material needs of Indonesian local smelters while the remaining will be exported to China, the Middle East and other regions.
4. Rusal (Russia) - UC Rusal, a leading global aluminum producer, reported a total production volume of 1,865 thousand tonnes of alumina during the quarter ended September 30, 2016. Russian operations represented 36% of the total output, totaling 665 thousand tonnes. 9M16 alumina output totaled 5,589 thousand tons (+1.7% YoY). The production increase largely came from the Russian operations performance where output increased 3.9% YoY, amid higher utilization rates.

The company has recently completed the sale of Alumina Partners of Jamaica (Alpart) to the Chinese state industrial group, Jiuquan Iron & Steel Co. Ltd. (JISCO) for $299 million in cash. Before the suspension of operations at Alpart between 2009 and 2015, annual production capacity of the complex was 1.65 million metric tons (mt) of smelter-grade alumina.

5. Rio Tinto Alcan - Rio Tinto Alcan owns Yarwun alumina refinery and Queensland Alumina Ltd (QAL) in Queensland, Australia. While Yarwun represents Rio Tinto’s first 100% owned and operated alumina refinery, QAL is jointly held by Rio along with Rusal. QAL has an annual capacity of 3,950,000 tonnes of alumina.

Yarwun improved its production by 44,000 tonne during the quarter ended September 30, compared to the same period last year, taking it to 747,000 ton of alumina. This takes its year to date production to 2,355,000 ton, an increase from 2,087,000 for nine months in 2015. Yarwun exports its alumina to customers in Australia and overseas, including the Middle East.

6. Alcoa (U.S) - Alcoa was the top alumina producer last year, with a strong first-quarter cost position on the global cost curve. Notably, Alcoa’s Alumina segment reported lower revenue in 3Q16 compared to 2Q16. The segment’s 3Q16 revenue was negatively impacted by lower alumina prices. The Alumina segment reported a third-party realized price of $287 per metric ton in 3Q16, compared to $304 per metric ton in 2Q16. According to Market Realist analysis, higher alumina prices should boost the newly formed upstream company Alcoa’s near-term performance.

7. Norsk Hydro (Norway) – Based in Norway Hydro is a vertically integrated aluminium company having alumina refining operations in Norway. In FY2015, the combined underlying EBIT of the Bauxite & Alumina division stood at NOK 2,421 million against a total revenue of NOK 87,694 million. As per the latest company update, Norsk Hydro reported record-high alumina production in the third quarter of 2016.

Annualized production volume at Hydro Alunorte reached a record 6.5 million mt per year, exceeding name-plate capacity of 6.3 million mt per year. Hydro Paragominas also increased the production after lower production last quarter due to ball mill maintenance.

8. South 32 (Australia) – The globally diversified metals and mining company South32 holds an 86 per cent interest in Worsley Alumina—one of the leading alumina refiners of Australia. As of 2016 latest available data, the company produced 5.3 million metric tonnes of alumina.
According to the International Aluminium Institute, Australia produced 20.7 million tonnes of alumina in 2014 and 20.3 million tonnes in the year 2015. For the year 2016, Australia produced 15.6 million tonnes of alumina till date.

9. AWAC (Australia) - Alcoa World Alumina and Chemicals - also known as AWAC - is a global alumina business formed as a joint venture between Alumina Limited (40% owned) and Alcoa Inc, (60% owned). With an international network of alumina refineries in the United States, Brazil, Suriname, Spain and Australia, AWAC is a recognized industry market leader with approximately 10% of world alumina production. Around 90% of its refined alumina goes to feed smelters producing aluminium for the transport, aerospace, building, construction and packaging industries.

In a recent financial disclosure, the ASX-listed Alumina (AWC) said AWAC production came in at 3.2 million tonnes in the second quarter of 2016, in line with the first quarter figures.

10. Jinjiang Group (China) - Hangzhou Jinjiang Group owns a number of alumina production lines and produces smelter-grade sandy alumina. The Group has recently set up a joint venture company with Aluminum Corporation of China, or Chalco, named Huajin Aluminum, to build an alumina plant in Baiyun District of southwest China's Guizhou province, at a total cost of around Yuan 3.8 billion ($608 million). The Qingzhen Alumina Project, comprising the 800,000 mt/year alumina plant, will take 12 months to complete.
Chinese domestic alumina prices nudges higher, with the north index up 0.6%

CBIX eased US$0.4/dmt to US$50.3/dmt for the week on the back of lower Value in Use (VIU) priced Solomon Islands material countering higher priced imports from Brazil and Australia. News from Malaysia reports exports from Kuantan now moving to help clear stocks, but sentiment on ground suggests the mining ban will continue until at least the March 2017 election. Malaysian prices edged higher, with unwashed ore selling for US$27.5/dmt FOB and washed also higher at US$40-41/dmt FOB.

Chinese domestic alumina prices nudged slightly higher, with the north index up 0.6% (RMB18/t or US$2.6/t) to RMB2,994/t and the south up 0.2% (RMB5/t or US$0.7/t) to RMB2,980/t (US$431/t).

Alumina market tightness persists, driven by new smelter start-ups and ramp-ups of idled capacity, stocking prior to the Spring Festival, transportation bottlenecks and environmental inspections. A further factor likely to influence alumina prices in the short-term are negotiations for annual contracts, which typically take place in China during December and January, incentivising refiners to lock in current prices.

Furthermore, a series of meetings held last week in Beijing and Shandong (arranged by leading industry participants) discussed the current state of the market, especially the falling primary Al price, which has shed over RMB2,000/t since late November (Changjiang 23rd Nov = RMB14,990/t, 16th Dec = RMB12,970/t). Concern is growing that some new primary and alumina capacity startups (and planned restarts) could well be uneconomic if the primary Al price continues its downward trend.

Freight rates fell, on the back of lower timecharter rates. This was despite higher bunker (fuel) prices. Capesize rates on the Guinea-Shandong route fell 11.7% (US$1.59/wmt) to US$12.03/wmt and panamax rates on the North Australia to Shandong route fell 3.4% (US$0.21/wmt) to US$6.14/wmt.
Alumina prices, buoyed by the China factor, climbed significantly to touch US$351 per tonne in 2016—the highest in the last two years. The price escalation which started in January 2016, after a few months' initial volatility, picked up momentum from August onward. Since then, the commodity price has been rising exponentially.

China is viewed as the prime factor responsible for this buoyancy though no fundamental alumina shortfall has been reported in the country unlike in late-2014. In fact, the uptick in price caused Chinese alumina output to surge in October and November such that alumina supply in the domestic market was in surplus by almost 150kt in November.

Currently, a regional tightness is being observed in China with transport constraints obstructing delivery of alumina from Shanxi refineries in particular. Plus, demand for alumina has been on the higher side as wary smelters are rushing to stock up the raw material ahead of winter when transport issues might worsen. This tightness in alumina supply has allowed the refiners to pass on the increasing cost from higher coal prices.

Analysts expect smelter destocking in China this January and February will allow alumina price rise to ease. According to the commodities forecast, the alumina price will moderate to an average of US$310 per tonne in first quarter of FY2017.
PRIMARY ALUMINIUM

NTPC, NALCO form joint venture for aluminium plant, INR 36,000 crore

State-run generation utility NTPC and aluminium giant National Aluminium Co. Ltd (NALCO) entered into an agreement to jointly set up a 2.4 giga watt (GW) power plant and one million tonne aluminium production facility in Odisha’s Dhenkanal district, Gajmara. The total investment estimated at INR 36,000 crore, the companies said in a statement. The proposed power plant comprises of three units of 800 MW each.

Nalco chairman and MD Tapan Kumar Chand said construction of the power plants and the aluminium production unit to complete in four years.

Power Minister Piyush Goyal informed that the generated power will be taken by the NALCO as a joint venture (JV) partner for the Brownfield expansion of its 5 lakh tonne Aluminium smelter at Angul and the Greenfield project of a 6 lakh tonne smelter at Kamakhya Nagar in Odisha. He explained in a situation of India being Coal surplus and power prices coming down, NTPC would be able to provide uninterrupted power supply to NALCO’s plants through this JV project.

Goyal further stated: “We have brought back Aluminium smelter plant to the people of Odisha, which was going to be established outside the country due to lack of cheap power in the country a couple of years back. This would not only give a boost employment generation in the region but also give a fillip to economy of the country as a whole.”

The joint venture strives to keep the cost of power generation to a minimum so as to benefit aluminium production, NTPC chairman and managing director Gurdeep Singh said.

According to Oil minister Dharmendra Pradhan, the power plant at Dhenkanal and the increased Aluminium production at Angul and Kamakhya Nagar would fuel industrial growth in a sustainable manner and transform the face of the region in near future.

NFC to transfer modern aluminium production technology to Iran

A source from NFC, China’s Nonferrous Metal Industry’s Foreign Engineering and Construction Company (NFC), has reported to media that company plans to transfer its latest technologies for the production of aluminium ingot to Iran.

According to a statement given by deputy head of NFC Qin Junman to an Iran Daily News, based on China’s recent progress in the mining sector, the company plans to transfer its latest technology on aluminium smelters to Iran. In view of Junman, Iranian smelters can reduce energy consumption to its lowest by using this latest ingot melting technology.

He further commented that NFC would cooperate with Iranian companies on extraction of gold, copper, lead and zinc in the near future.

The official source from NFC also pointed out that the company will further provide help in the construction of water desalination plants in central Iran covering Kerman Province.
Australia’s 300,000-tonnes-per-year Portland aluminium smelter is operating at below a third of its capacity after power to the plant was temporarily knocked out three weeks ago, operator Alcoa Corp said on Wednesday.

The smelter was hit when a power interconnector between the states of Victoria and South Australia went down, cutting power to both of the plant’s potlines, and raising questions about its long-term future.

“The smelter has been operating at less than 30 percent capacity since a fault on the Victorian transmission network on Dec. 1 caused a more than five-hour power outage at the plant,” Alcoa said in a statement.

It said Alcoa Chief Executive Roy Harvey met with Australia’s industry minister Greg Hunt in New York this week, and expressed appreciation for the extensive assistance offered to restart the smelter’s lost production.

Alcoa said in May it would continue to implement cost saving measures at the Portland smelter, but its future would be decided by an ability to remain internationally competitive.

A recent rise in electricity prices had added to pressure on the smelter, which has also been battling a years-long glut in the global aluminium market.

Australia has been looking at the possibility of deploying funds from its Clean Energy Finance Corp to help build a new gas-fired power station to supply the smelter, or using wind turbines to supply the works.

Harvey said Alcoa was "committed to continue working" with Australia’s federal and state governments.

A shutdown of the smelter would not affect Alcoa’s Australian refineries that supply the alumina that is processed at the smelter, according to the company.
Vedanta to pare down aluminium making cost

Metals and mining giant Vedanta is planning to revisit its cost structure keeping it optimally below $1,400 per tonne in the wake of lower costs of alumina and coal. The aluminium producer said its estimated aluminium-making cost for the September quarter stood at $1,473 per tonne, while its overall cost of production declined to $1,462 per tonne. The shrinkage in aluminium-making cost was attributed by Vedanta to the lowering of FY 2016-17.

Vedanta is also going to be benefited from using cheaper electricity from its own sources. The state-owned power regulator Odisha Electricity Regulatory Commission gave the aluminium producer permission to draw up to 1,800 Mw of power from its 2,400 Mw power station at Burhamunda, located strategically close to its smelting facility, without having to pay cross subsidy charges.

The diversified metal and mining conglomerate is said to be looking at a disciplined ramp-up of aluminium smelters at Jharsuguda and the Bharat Aluminium Company unit at Korba (Chhattisgarh). The production figure aimed at for the revamped smelter stands at an estimated 1.1 million tonnes in 2016, against 1.05 million tonnes in the first half of FY 2016-17.

The revamp plans at both the aluminium smelters were impacted by power outages in the last quarter. Of the 168 pots affected at Jharsuguda, 26 have already been restarted while repair is being carried on with the rest. At Korba’s Balco unit, 167 pots were impacted and they are scheduled to be brought back to operations in the January-March quarter of the current financial.

To back its cost optimisation strategy through aluminium expansion, Vedanta is also eyeing a ramp-up of its aluminium refining facility at Lanjigarh. The second stream operations of the refinery have already been resumed this year with a

Top five primary aluminium producers in GCC region

After China, another region that is growing substantially in primary aluminium production is the GCC (Gulf Corporation Council) or the Gulf countries. The volume of aluminium production in the Gulf region stood at 5.2 million tonnes in 2015, accounting for around 10 per cent of total global output of 58 million tonnes. This is due to the major expansion of existing smelters and commissioning of new projects that primary aluminium production is increasing at a faster rate in the GCC countries. After oil and natural gas, now aluminium is one of the key economic drivers for the Gulf region. Gulf countries are constantly working towards making a shift towards non-oil sector especially the aluminium industry which gets the benefit of cheap energy and abundance of manpower and high technology.

Five major aluminium smelters contribute to produces about 5.2 million tons of primary aluminium in the GCC region. Forty per cent of the total aluminium production is utilised by the domestic downstream aluminium industries and about 60 per cent is exported to different parts of the world.

The top five smelters in GCC are:

1. Emirates Global Aluminium (EGA) which is a collaboration of (Dubai - Dubai Aluminium and Emal - Emirates Aluminium, United Arab Emirates
2. Alba - Aluminium Bahrain, Bahrain
3. Qatalum - Qatar Aluminium, Qatar
4. Sohar aluminium, Oman
5. Maa’den Aluminium, Saudi Arabia

1. Emirates Global Aluminium or EGA: Dubai – Dubai Aluminium and Emal - Emirates Aluminium, United Arab Emirates

 Emirates Global Aluminium (EGA) in UAE is the top primary aluminium producer in GCC and it is also among the five largest aluminium producers in the world. EGA’s consists of Dubai Aluminium (“DUBAL”) and Emirates Aluminium (“EMAL”) – whose combined production is 2.4 million tpy.

DUBAL’s Jebel Ali operation comprises a 1 million tpa smelter, a 2,350 MW power station and other facilities. Commissioned in 1979, DUBAL celebrated its 35th anniversarey in 2014. EMAL’s Al Taweelah operation comprises a 1.3 million tpa smelter, a 3,100 MW power station and other facilities – is the world’s largest single-
EGA’s primary product range includes Standard, sow and T-ingots, foundry ingots and also liquid metal with nominal 99.70 per cent aluminium content. To support the initiative to encourage downstream aluminium industries in the Khalifa Industrial Zone Abu Dhabi (“KIZAD”) EMAL has developed a Liquid Metal Transfer facility to transfer liquid aluminium to customers efficiently and safely.

2. **Alba - Aluminium Bahrain, Bahrain**

Bahrain is a small island country which has changed the economy over the years by slowly shifting to aluminium. Aluminium Bahrain (ALBA) is one of the largest aluminium smelters in the world known for its technological strength and high quality aluminium and solely account for the aluminium production in Bahrain. Alba began operations in 1971 with annual capacity of just 120,000 mtpa as the first aluminium smelter in the Middle East, and the first non-oil industry established in Bahrain.

According to their annual report for FY 2015, Alba’s production topped 960,643 metric tonnes (mt), up by 3.1% YoY, while total sales volume rose by 2.2% YoY to reach 951,944 mt. The company reported total sales of BD 766.7 million (US$2.039 billion) in 2015. For the period from January to September 2016, the Company sales volume stretched to 717,569 mt, up from 699,362 (mt) in the same period of 2015 while production volume increased by 3,722 mt to reach 720,750 mt YTD.

The product range of Alba includes Standard Ingots, T-ingots, rolling slabs, foundry alloy ingots, extrusion billets etc. for supplying to domestic and international downstream sector. Alba also produces high purity aluminium with 99.7 per cent aluminium content. The metal, at these purity levels or higher, is supplied in liquid form to downstream industries in Bahrain whose premises are located close to the smelter.

3. **Maa’den Aluminium, Saudi Arabia**

Saudi Arabia houses Ma’aden Aluminium (MA), a joint venture between the Saudi Arabian Mining Company (Ma’aden) and Alcoa that started operations...
MA's facilities include a bauxite mine, an alumina refinery, aluminium smelter, can sheet rolling mill and an automotive mill.

The company’s Al Ba’itha mine, the first bauxite mine in the Middle East, will produce over 4 million metric tonnes of bauxite annually. The bauxite ore will be refined in the GCC’s first alumina refinery to produce 1.8 million mtpy of alumina, much of which will be processed in the smelter to produce the current capacity of 740,000 mtpy of primary aluminium.

4. Sohar aluminium, Oman

Sohar Aluminium was formed in September 2004 to undertake a landmark Greenfield aluminium smelter project in the Sultanate of Oman and is jointly owned by Oman Oil Company, Abu Dhabi National Energy Company PJSC - TAQA and Rio Tinto Alcan. By implementing decades of industry insight in its design, specification and construction Sohar Aluminium has been created to ensure efficiency, environmental protection and the utmost safety of its workforce. The smelter has an annual production capacity of 375,000 tonnes of high quality Aluminium.

Sohar Aluminium’s primary smelter produces metal in three forms:

1. Ingots - 23.7kg
2. Sows - 700kg
3. Hot Metal - available to local downstream partners to reduce energy consumption in subsequent processing.

5. Qatalum - Qatar Aluminium, Qatar

Qatalum is a JV between Qatar Petroleum and Hydro Aluminium of Norway and produces about 640,000 tons of high-quality primary aluminium products per annum. Qatalum’s complex facilities include a carbon plant, port and storage facilities, as well as a captive power plant.

Qatalum’s state-of-the-art cast house products are value-added extrusion ingots and foundry alloys that meet the stringent quality standards of its global customer base. Used in a variety of industries including the automotive, construction, engineering and in the manufacturing of consumer goods, by the end of its journey, Qatalum's aluminium reaches the entire global community.
DOWNSTREAM PRODUCTS

Throwback 2016: Developments that moulded the downstream aluminium sector

The year 2016 is marked by a continued slowdown in primary aluminium sector in the west and a distinct shift towards value added applications in aluminium. Aluminium producers around the world fought out to find ways and means to survive the slump in the commodity market. Cost cutting, energy efficiency and value added applications became the priorities for aluminium makers. Despite the bearish metal market, aluminium demand situation remained buoyant, especially because of the growing automotive and aerospace market. Downstream sector was characterised by a number of significant expansion, divestment and merger. Controversy, allegations and investigations created ripples in the aluminium downstream market in the east and west. Let us look back and analyse how these various developments moulded the downstream sector in 2016.

Downstream expansion, mergers and spin off

1. Lightweight metals leader Alcoa has unveiled the name, logo and tagline of its future Value-Add company “Arconic. Innovation, Engineered” in March 2016. The “Arconic” brand represents the future Value-Add company’s iconic heritage and continued commitment to industry-shaping innovation. Over the year, the company completed all the formalities related to the spin off and by November 1 the company completed the merger and Alcoa Corporation (the upstream business) spun off from its parent company Alcoa Inc- now named and listed as Arconic Inc (ARNC).

2. In March 2016, Constellium N.V. signed an MoU JV with its Japanese partner UACJ Corporation (UACJ) to expand their existing joint venture to produce automotive Body-in-White (BiW) sheet in the U.S. Both the firms planned to be a leading player in the North American BiW market, combining strengths in technology, know-how and customer relationships. Constellium N.V. also announced in July about opening a new manufacturing facility in Mexico to produce aluminium automotive structural components.

3. In March, China Zhongwang Holdings Limited, the world’s leading processed aluminium product developer and manufacturer, announced details of the proposed spin-off of the Group’s industrial aluminium extrusion business. With the completion, the company expected to concentrate more on the fast growing deep processing business and the flat rolling business in 2016. China’s top aluminium extrusion producer pinned hopes on the automotive sector for pulling up demand for aluminium extrusions, reported sources close to the company.

4. Aluminum Corporation of China (Chalco) also decided to focus on aluminium applications in transportation and construction sectors. The company signed cooperation agreement with several automakers over R&D in automotive aluminium alloy new materials.

5. For Novelis, Inc, a world leader in rolled aluminium products, automotive sheet business has been the biggest growth driver. In May, the company commissioned its third finishing line in Oswego, lake Ontario, in upstate New York to cater to the rising demand for aluminium in the auto industry. The plant would produce high-strength aluminium alloy for Ford's new F-Series super duty line of trucks. Novelis strategic partnership with the likes of Jaguar Land Rover and Audi drove business for the firm in 2016.

6. Hindalco managed to stay ahead in competition due to its significant strides in converting the primary metal into value-added products. The fourth quarter of 2015-16 saw a 28 per cent rise in Hindalco’s production of flat rolled products and extrusions. The $6-billion acquisition of Atlanta-based Novelis in 2006 catapulted Hindalco as the global leader in high-end aluminium flat products. Much credit goes to Novelis for making Hindalco profitable with its automotive shipments.

7. Aleris entered into a new multi-year contract with Airbus to supply a range of aluminium products such as plate and sheet for use in the making of all Airbus aircrafts in July 2016. The contract,
to be effective from 2017 onward, also includes the supply of high-end wing skin material by Aleris.

8. In the same month, AMAG, another leading Austrian premium supplier of high-quality aluminium cast and flat rolled products for aerospace, automotive, construction and packaging industries, announced the signing of a multiyear supply contract with Airbus to supply aluminium plate, sheet and coil for all Airbus aircraft programs.

9. In May, Japan’s Kobe Steel announced their plan to sell aluminium extrusions for the automotive sector in the U.S. through a company called Kobelco Aluminium Products & Extrusions Inc. in Kentucky.

10. Nalco started developing an Aluminium Park in Angul, in collaboration with IDCO to support downstream and upstream industries and the company is encouraging the development of the ancillary sector for increasing downstream applications.

11. The facility at the aluminium company Hydro’s plant in Grevenbroich, Germany, started operation in December 2016 to produce first coils for customers at automotive line 3 (AL 3) in the plant.

12. Vedanta owned Bharat Aluminium Company Limited (Balco) resumed sheet rolling operations at its Korba facility in Chhattisgarh, India in July. This marks the metal major’s comeback in the rolling aluminium products business that was held up about a year ago.

**Chinese Syndrome: Gradual entry into downstream aluminium and export glut**

After creating a monopoly in the market for primary aluminium, China ventured into the high value added segment for the metal throughout 2016. Major aluminium producers invested in aluminium value added applications and ventured into the western market. Chinese export of semi-finished and finished products to U.S. and Europe shot up in 2016. While the Chinese smelters continue to produce more and more aluminium, the country also expanded the rolling mills capacities to produce higher-end products. This has created serious concern among the aluminium producers in Europe and the U.S as cheaper and sleeker aluminium semis from China flooded those markets.

The most surprising and unexpected step so far was when Chinese aluminium entrepreneur Liu Zhongtian of China Zhongwang announced the acquisition of Aleris Corp. U.S. for $2.3 billion in September 2016. The deal gives the owner of Asia’s largest producer of extruded aluminium a smooth access to American and European technology, as well as the market which is dominated by high profile buyers Boeing Co. and automakers such as Audi.

China Zhongwang established technical cooperation with many Chinese automakers to jointly develop all-aluminium coaches. The company has also been producing all-aluminium auto bodyframe extrusions for BYD Auto, China’s top new energy vehicle manufacturer. In August, the company announced its Tianjin facility succeeded in rolling 7055 aerospace aluminium plates in different specifications. The company has been eyeing the North American automotive and aerospace market and the acquisition of Aleris was the final step in the strategy. China Zhongwang boasts an annual capacity of more than 1 million tonnes of extrusion products.

2. Shandong Hongqiao New Materials Co., fully-owned subsidiary of China Hongqiao Group, acquired a local aluminium processor Loften Environmental Technology Co. to expand its aluminium product businesses.

3. China’s production of semi-finished aluminium products like profiles and plates was 8.04 million tonnes in the first two months of 2016, up 12.7 per cent from a year earlier. The total aluminium semis export of the country grew 40.29 per cent year-over-year to reach 106.025 million tonnes (mt) in August 2016. During January-August period, the same surged 12.6 per cent YoY to total at 795.826mt. This includes aluminium bar, rod, and profile.

China aims to expand aluminium demand by 18 per cent in the next three years and boost high-end application in transportation and construction industry. Being one of the top exporters of aluminium, China has been facing a number of allegations regarding unethical export to U.S. and Europe. China Nonferrous Industry Association said that the country planned to increase consumption by 6 million tons. In June 2016, China’s State Council issued certain guidelines for the industry including putting limitation on new capacity, encouraging mergers and acquisitions, offering tax breaks and building stockpiles. The council’s policy is designed put restrictions on random export and to help the industrycope with a slowdown in demand growth.

**Charges and investigations**

1. In March, the U.S.
Department of Commerce started investigation on an allegation by the U.S. Aluminum Extruders Council that a Chinese aluminium extruder evaded U.S. import duties. The DOC confirmed that 5050 alloyed aluminium extrusions are not specifically targeted by its orders. However, it initiated an anti-circumvention investigation in order to determine if there is any circumvention of AD/CVD duties in the imports of 5050 alloyed extrusions. Aluminium Association and all the major aluminium producers in the U.S. stood in support of this case.

2. In November, the U.S. Department of Commerce preliminarily determined that Zhongwang used heat-treated 5050 alloy aluminum extrusions to avoid duties. In its determination, Commerce concluded that this alloy grade was never intended to be used in extrusion applications and that Zhongwang had engaged in this activity solely to avoid duties. The Department will issue its final circumvention determination no later than January 9, 2017.

Innovations and Developments

1. Novelis was awarded the prestigious European Aluminium Award at the ALUMINIUM 2016 Trade Fair. The award was bestowed upon Novelis for its work in automotive aluminium innovation on the REALCAR (REcycled ALuminium CAR) project in collaboration with Jaguar Land Rover. The REALCAR program by Jaguar Land Rover, is a multi-stakeholder initiative established to create a closed-loop vehicle production model that recycles automobiles at the end of their lifecycles. Novelis AdvanzTM s5754 RC was first introduced in the Jaguar XE series in February 2016 and is now featured in all new and legacy Jaguar Land Rover models.

2. Emirates Global Aluminium’s (EGA) Al Taweelah smelter is all set to start delivering molten aluminium to Ducab Aluminium Company in Khalifa Industrial Zone Abu Dhabi (Kizad) via a dedicated hot metal channel. This is a part of EGA’s project that was initiated as a means of cutting cost and in order to develop a competitive aluminium value added segment in UAE.

3. In July, Lightweight metals leader Alcoa opened its state-of-the-art, 3D printing metal powder production facility at the Alcoa Technology Center, to produce proprietary titanium, nickel and aluminum powders optimized for 3D printed aerospace parts. 3D printing is going to bring up revolutionary changes in the aluminium processing procedure replacing the conventional casting technology.

4. Lightweight metals leader Alcoa has been awarded a five-year contract from the U.S. Army worth up to $50 million for R&D projects focused on developing innovative, lightweighting solutions for ground combat vehicles.

5. Constellium was awarded a contract with TARDEC, the US Army Tank Automotive Research Development and Engineering Center for aluminium armored vehicle solutions.

6. In India, the Jawaharlal Nehru Aluminium Development and Design Centre (JNARDDC) is working towards development of aviation grade alloys for the Indian Air Force (maintenance command) as a part of the indigenization process and the ‘Make in India’ initiative of the government. It will also be setting up an aluminium extrusion plant in the centre.

The industry demand outlook for the aerospace and automotive industry is very positive. In 2017, most of the downstream product manufacturers are expecting a double-digit value added revenue growth. In order to capitalize on these growth opportunities, aluminium manufacturers in the West as well as the East would continue to invest to improve efficiency and overall throughput.
New owners have major investment plans for Lochabar plant in Scottish Highlands

On a further update on Lochabar aluminium smelter acquisition, Liberty House and SIMEC, the new owners of the smelter, are set to invest 120 million pounds ($149.76 million) in the project to make aluminium wheels for the car industry.

"Liberty aims to protect the existing 170 jobs in Lochaber and progressively expand metal manufacturing and downstream engineering there," the companies said on Monday. Both the companies plan to create 2,000 direct and supply-chain jobs in the heart of the Scottish Highlands and bring about 1 billion pound revenues to the local economy over the next decade.

Liberty and Simec - both members of the GFG Alliance now own the hydro power plants at Fort William and KInlochleven and more than 100,000 acres of land. The Scottish government is guarantees the power purchases of the aluminium smelter. This is expected to reinforce the link between the hydro power station and the smelter.

First Minister Ms Sturgeon said the proposals reinforced the link between the smelter and the hydro station at Fort William. Commenting on the new project, Sanjeev Gupta, executive chairman of Liberty House Group and of the GFG Alliance strategic board, said, "We hope this day will come to be recognised as the start of a bright new future for Highland industry. It puts Lochaber right at the heart of our vision for sustainable and integrated local production that can revitalise British manufacturing."

Jay Hambro, Chief Investment Officer of the GFG Alliance, and Chief Executive of Simec, Energy & Mining Divisions said, "Today Lochaber provides the power required to produce 47,000 tonnes of aluminium. We have already identified investment programmes to significantly increase power generation from the existing assets and are studying how to create further capacity locally."

Germany imports about 200 thousand tons of aluminium foil every year

According to the Product Complexity Index (PCI), aluminium foil is the 275th most traded product and the 281st most complex product. Due to its versatility and multiple uses, aluminium foil turns out to become one of the most consumed aluminium products across the world. Since, aluminium foils are mostly used in packaging applications, developed economies are the top consumers of foil. The top importers of aluminium foils are Germany ($1.09B), the United States ($1.02B), France ($560M), the United Kingdom ($527M) and Italy ($481M).

Aluminium Foil Association, increasing competition from aluminium foil producers outside Europe continues to put pressure on sales from European suppliers. We are analysing the last three years export data for Germany to understand the trading trends of this most popular aluminium product.

Germany imported 1,91,497 tonnes of aluminium foils in 2014, which dropped 0.1 per cent to total at 1, 82,376 tonnes in 2015. In 2016, the volume is estimated to increase to total at 2, 02,579 tonnes. The trend shows increasing consumption of aluminium foil in Germany while indicating the shift towards import.

Cost from import of aluminium foil in Germany has however dropped year-over-year. The Cost from import was USD 1 billion and USD 884 million respectively for the years 2014 and 2015. In 2016, the cost of import is estimated to be about USD 899 million. The drop can be attributed to an oversupply of cheaper aluminium products in the international markets.

The top aluminium foil exporters to Germany are Italy, Russia, Switzerland and China. The data shows a decline in import from Russia and a rise in import from China. Italy and Switzerland constantly remain the top aluminium exporters to Germany.
JW Aluminum joins the Aluminum Association

The Aluminum Association announced today the addition of a new member company – JW Aluminum. The company joins as a producer member – a firm that makes or fabricates aluminum products.

“We are pleased to welcome JW Aluminum as our newest member,” said Heidi Brock, President & CEO of the Aluminum Association. “As a leading producer of specialty, flat-rolled aluminum products, JW is a key addition to the Association as we work to chart a sustainable course for the entire domestic aluminum value chain.”

With four aluminum mills throughout the country, JW Aluminum produces a wide range of top-quality flat rolled aluminum products, including building and distributor sheet, fin stock, cable wrap, aerospace foil and flexible packaging products.

JW joins the Association at a time of continued domestic demand growth for aluminum. According to the recently released Aluminum Statistical Review, demand for aluminum totaled 25.7 billion pounds through the end of 2015 – its highest level since 2007. At the same time, persistent global aluminum overcapacity is hurting many segments of the industry. Primary aluminum production in the United States has declined to its lowest level since the 1950s and imports of ingot and mill products have reached their highest level since 2005.
Federal government to invest $2.48-million for Dajcor Aluminum in Chatham

Dajcor Aluminum Ltd., a leading Canadian supplier of extruded, fabricated/machined and anodized aluminium components, received multi-million dollar federal investment on Monday at the Dajcor facility.

The government announced the company will receive $2.48 million in FedDev Ontario funding in order to increase production and employment opportunities.

Peter Fragiskatos, MP for London North Centre toured Dajcor Aluminum with company's president Mike Kilby on Monday.

Fragiskatos commented: "I was blown away. They're doing everything under one roof – it's one of the reasons they were recognized certainly by the Chatham-Kent chamber of commerce but especially with the Government of Canada."

The company provides aluminium components for many sectors including automotive, light rail transit, and construction. Through the upgrades, the company will be able to manufacture more complex and high-quality aluminium components.

According to Fragiskatos, the investment FedDev Ontario does not only support support Dajcor, but also the manufacturing industry as a whole.

He further stated "It signifies the fact that innovation matters. Manufacturing is still vital, we have 1.7-million Canadians employed in the manufacturing sector."

He added "Manufacturing looks different, it's about innovation and innovation is about taking existing knowledge and applying it differently."

Dajcor Aluminum has recently awarded provincial funding. The collected funds will be devoted to different areas.
Aluminium staircase weaves up steep hillside in Quebec

The MAADI Group, Inc. designed and fabricated an aluminium staircase to descend a steep hillside in the Parc de la Rivière Beaulieu in Quebec City, Canada. From street level, the staircase’s welded aluminium structure with timber deck descends 15 m (50 ft.) in a gradual zig-zag through the trees. The city specified aluminium for its durability and relative lack of maintenance beyond annual inspections.

Working from conceptual drawings in the City of Quebec’s call for proposals, MAADI Group created a design based on CSA S157 standards for aluminium structures. Once the design was engineer-approved, the company fabricated all the parts according to quality standards and welding norms. Within 90 days of design approval, MAADI sent the disassembled insulators, guardrail installation hardware, pile head bearings, railings, staircases, belvedere, and smaller footbridges to Quebec City. The finished staircase incorporates 6061-T6 and 3003-H14 mill-finish aluminium extruded sections combined with 3 mm and 6 mm plate and expanded mesh for the balustrade.

The staircase was a challenge to construct due to the steep, tree covered terrain and the specification that the trees not be harmed in any way. “With a crane that we installed on the street above, we lowered the parts down the hillside,” said Chantal Cadoret, project manager at Maxi-Paysage, Inc., the landscape contractor responsible for the whole project. Speaking of MAADI Group, Cadoret said, “Everything went well and we were very satisfied with their work, the finished product, and their follow-up. If we have another project with structures like these, we will certainly call on their services.”

This aluminium staircase was featured in the fourth edition of “Aluminium: Flexible and Light” by Michael Stacey. Published by the International Aluminium Institute (IAI), the book displays and discusses various illustrations and examples of the modern use of aluminium in architecture and the built environment.

TransLink to add 28 new SkyTrains with aluminium body by 2019

South Coast British Columbia Transportation Authority (TransLink) signed a $C 93m ($US 69.5m) contract with Bombardier for 28 Mark III light metro cars for Vancouver’s SkyTrain—an automated light metro network with aluminium body, on December 16.

The first few aluminium trains are expected to enter service by early 2019 and will be added to TransLink’s existing fleet of 314 rapid transit trains, which will allow for more frequent service along the Expo and Millennium Lines.

The purchase is part of TransLink’s recently-passed $2 billion Phase One transit plan, with the Canadian federal government paying for half the cost, the province of British Columbia providing 33 per cent and TransLink and municipalities kicking in the rest.

In December 2012, TransLink ordered seven Mark III trains to expand the fleet in readiness for the opening of the Evergreen Extension. The train features aluminium bodies based on Bombardier’s Innovia 300 platform and are equipped with full-width gangways having accommodation capacity of up to 134 passengers.
ranscends' new portable hard drive StoreJet 25C3 comes with an aluminium alloy housing

Leading electronics device brand Transcend has launched the StoreJet 25C3 portable drive. The extra-slim and light device featuring a premium aluminium alloy casing has a USB 3.0 interface for blazing-fast transfer rates and perfectly blends technology with style. Housed inside an aluminium alloy casing, the portable hard drive weighs in just at 136 gram, making it ideal for business use and frequent travels.

The StoreJet 25C3, despite its extra-slim dimensions, boasts reasonably high capacity of up to 2 terabytes—a feature which allows users to store a large volume of their data and backups in a single location without having to worry about accessibility from multiple locations.

The portable hard drive with its suave aluminium casing reflects contemporary users’ changing taste for clean designs and qualifies as the perfect accessory for their equally stylish tech devices. The matte silvery grey finish of the casing and its chamfered metallic edges demonstrate an understated luxury. In addition to smart looks, the StoreJet 25C3 is high on functionality and speed as it comes equipped with a USB 3.0 interface. The sleek aluminium-cased portable hard drive has transfer speeds of up to 5Gbps.

Transcend has also come up with a Value-Added Transcend Elite Software with Optimized Data Management facility. Transcend Elite is a proprietary application available for both Mac OS X and Windows and can be downloaded free of cost from Transcend’s website. The useful features of the software include: backup and restore, data encryption, and Dropbox/Google Drive data synchronization.

ALE introduces new all-aluminium lightweight crane series

ALE that offers variety of cranes to suit projects, both large and small, has launched its latest innovation in the series of the Lightweight Service Crane. The company has designed this crane concerning space availability where lifting on projects causes difficulty due to lack of space.

This crane is one of the first small cranes of lightweight series with lifting structures for offshore and construction operation. It is made of an all-aluminium body which can lift 6 tonnes to a 12 metre radius.

According to Richard Verhoeff, sales manager of ALE, it can be assembled by hand as it is designed out of modular parts. Each part of it can be accessed in an elevator. The ring and winches carry 90 kg weight while other components have a weight of 25 kgs, fit for carrying with hands.

ALE’s launch event at Breda office in the Netherlands is attended by more than 50 customers. Harrie Smetsers, ALE research and development manager has given a presentation explaining the specifications and features of the crane.

Commenting on the launch, he said “R&D first conceived the idea back in 2015 after we saw a gap in the market for a lightweight and versatile offshore handling system that can also be used for our onshore clients and on other ALE projects. We wanted to offer standardized lifting solutions that could work on different, complex offshore assets, as well as our existing solutions.”
Jaguar’s aluminium rich XF India edition brings style back to the executive sedan

Jaguar, one of Britain’s most prestigious exports and a star in the luxury car market is characterised by an artistic flavour, dynamism, flair and a futuristic touch.

Jaguar has more or less maintained its original values for over half a century and they are distinctly visible in the second-generation XF. With the new XF, Jaguar took a wise decision not to change the traditional executive sedan structure radically, despite adding subtle novelty values. So, the changes do remain minimal. A more homogenous, brand-oriented design philosophy still works for Jaguar and one can easily trace the XF’s origin to Jaguar’s grand tourers of yesteryear.

The XF has, since its birth in 2008, has a a very special place in the brand’s portfolio. With the form designed by Ian Callum (of Aston Martin DB7 and DB9 fame), there was zero chance of things going wrong. Callum’s skill has created a brand of aesthetics unknown to the premium mid-size sedan space, swatting away any clinical elements which are common a car in this category. Jag kept things traditionally rear-wheel-driven without compromising on driving experience. The predator-like and feline form is sure to prey upon competitors securing the most of the market share.

People may wonder whether the car can retain the impish charm that’s come to define Jaguar over the decades. Safely, the car engine makes 240bhp, with 340Nm of torque, sufficient for its class, since none of its rivals make this much power in standard petrol form.

The use of aluminium helps maintain the car’s sporty credentials. The car happens to be 190kg lighter than the previous-generation XF. JLR’s smart use of recyclable Novelis aluminium makes the car a sustainable choice. The low weight is remarkable because the new XF is also visibly larger than the previous one. The current mid-size luxury sedans are shrinking in size but the XF has quite a large and imposing form. The size is tamed by its lithe musculature frame, a cherry red paint job and a new 360-degree camera feature that allows the driver to monitor the car’s placement through a top-down view displayed on the touchscreen on its dashboard.

The XF’s ride remains sufficiently plush and supple. The car costs more than most of its rivals. And yet, although more understated than before, the Jaguar quality continues to simmer under the XF’s skin when one pulls into a driveway.
China's oversupply of aluminium led to a global glut with prices plummeting to their lowest in 2016. There have been several incidents of affected primary producers from all over the globe coming forward and voicing their concern against the rising shipment volumes of aluminium in every form from China to the overseas market. Notwithstanding the objections and allegations, China kept offshoring its aluminium as output in the country kept rising barring a few capacity cuts. The silver lining, however, amid all these market doldrums was a steady demand for aluminium which came from the ever expanding end user sectors. The demand was initially buoyant for both primary as well as recycled aluminium, reported European Aluminium at the 2016 Aluminium trade fair in Düsseldorf, Germany, but in a recent report, World Bureau of Metal Statistics (WBMS) stated that the global aluminium demand reduced by 238,000 tonnes during January to September this year to total 43.48 million tonnes, as compared with the corresponding period last year. The decline is reflected in China's reduced volume of aluminium scrap export in 2016.

China exported 14,485.7 tonnes of scrap aluminium in 2014, which surged 21 per cent to total 17,532.7 tonnes in 2015. In 2016, the country is estimated to export a total volume of 16,501.8 tonnes scrap aluminium, down 5.87 per cent from the previous year.

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**Estimated Alu Scrap Export by China in Tonnes**

- **Tonnes 2016**
- **Tonnes 2015**
- **Tonnes 2014**

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**Estimated Alu Scrap Export by China in US Dollar Value**

- **US Dollar Value 2016**
- **US Dollar Value 2015**
- **US Dollar Value 2014**

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Value-wise, the total revenue generated from aluminium scrap export from China totalled US$21.59 million in 2014. The value increased almost 60 per cent to total at US$34.46 million in 2015. In 2016, the total export value of aluminium scrap in China is estimated to reach US$45 million, up 30.5 per cent from the previous year due to a strong US dollar.

According to the recent data, aluminium recycling sector is continuing to flourish globally. As more and more industry players start focusing on their aluminium recycling operations the demand for aluminium scrap will keep rising over the long term.

Recap 2016: Aluminium Recycling Highlights

1. **UK is on track to meet or exceed annual recycling targets for aluminium packaging.** In 2015, over 75,000 tonnes of aluminium packaging was collected for recycling in the UK. Over 60% of that was recycled in the UK and the rest was exported.

2. **Q3 CIWM Packaging data** shows aluminium recycling in the UK totalled 21,724 tonnes in 2016, reaching 82% of the target. According to a report published by Alupro in April, national recycling rate for all aluminium packaging now stands at 55% (previously 48%) and the estimated recycling rate for aluminium drinks cans has reached 69% (from 60%).

3. **The European Aluminium Foil Association (EAFA) revealed the recycling rate of aluminium closures in Europe has increased to more than 50%** owing to enhanced collection and newly initiated recycling schemes. The Asia-Pacific region is anticipated to generate US$ 212,118 million by 2022 and is estimated to grow at a **CAGR of 5.2%** during the forecast period.

4. According to figures released by the “Aluminium Closures – Turn 360°” campaign by the European Aluminium Foil Association, the average recycling rate for aluminium closures in Europe increased to more than 50%.

5. **Expansion to boost aluminium aerosol can recycling in Germany.**

6. According to the Institute of Scrap Recycling Industries Inc. (ISRI), over 70% of aluminium scrap generated in the U.S was consumed domestically in 2015, and the rest was exported.

The **Aluminium Packaging Recycling Organisation (Alupro)** urged DEFRA to increase the future recycling targets and make them more ‘front end loaded.’ This was to ensure the producer responsibility system remains attractive to reprocessors and exporters. Alupro’s advice was aimed at creating a strategic roadmap towards achieving 2020 and 2025 recycling targets.

As 2016 nears its end let’s take a look at the aluminium recycling highlights of the year:

**I. Who met the recycling targets & who missed the bus?**

China exported 5274.78 tonnes of aluminium scrap to Hong Kong, 237.43 tonnes to India, 60.01 tonnes to the Middle East (UAE, Saudi Arabia, and Qatar combined), 49.91 tonnes to Canada, and 32.13 tonnes to Brazil.
II. Achievements & Awards:

1. The world recycling giant Novelis bagged the prestigious European award for its closed loop car production project - the REALCAR (Recycled Aluminium CAR) at ALUMINIUM 2016 in Düsseldorf, Germany.

Jaguar and Land Rover recovered over 45,000 tonnes of press-shop aluminium scrap through REALCAR programme it launched in 2008 and in 2015. As a partner in the project, Novelis came up with a new aluminium alloy - RC5754 alloy with up to 75% recycled aluminium content.

2. Volvo saved 300 tonnes of aluminium through its remanufacturing activities in 2015. The company is working towards boosting the amount of recycled materials (non-metallic as well as metallic parts made of steel or aluminium) in its cars and reducing the quantity of virgin materials.

3. Ford is recycling as much as 20 million pounds of aluminium stamping scrap per month using the closed-loop system at Dearborn Truck Plant which builds F-150. The figure is the equivalent to more than 30,000 F-150 bodies in the largest configuration.

4. Pepsi came the first brand to feature the marque of 'Every Can Counts' initiative along with the call-to-action "please recycle" on its cans.

III. Projects Initiated & Partnerships Forged:

1. Premium coffee brand Nespresso partnered with Australia Post in aluminium coffee capsule recycling programme.

2. Constellium partnered with Nespresso to recycle used aluminium capsules in Switzerland as a part of the initiative Second Life.

3. German company Remondis' Respraña division opened an aerosol can recycling system at its industrial recycling centre in Bramsche, Germany.

4. Matalco, a sister company to the recycling firm Triple M Metals opened a new secondary aluminium plant in Lordstown, Ohio.

5. Scrap metal processing company Upstate Shredding – Weitsman Recycling of Owego, New York, was recognized by Platts for their scrap recycling pursuits.

6. Hydro commissioned a EUR 45 million new facility at its Neuss plant in Germany with the aim to recycle up to 50,000 tonnes of used aluminium beverage cans per year.

7. Gravita India made an entry into aluminium recycling at its new recycling plant at Phagi, Jaipur with an initial capacity of 6000 MTPA of aluminium alloy production. The company will be manufacturing aluminium automobile alloy by recycling aluminium scrap.

8. Gulf Aluminium Rolling Mills Company's (Garmco) started construction work at its $55 million aluminium remelt plant near its main production facilities in Bahrain.

IV. Important Announcements Made:

1. India's Ministry for Road Transport & Highways announced that a new vehicle scrappage policy will be implemented whereby old cars will be scrapped and scrap aluminium, steel, and copper recovered will be supplied to OEM manufacturers at cheaper rates. The policy will be implemented in a phased manner.

2. JLR is planning to start using 75% recycled aluminium for making Jaguar and Land Rover vehicles from 2020 onward.

3. India's Environment Ministry released new rules for waste disposal and metal recycling marking a step ahead to building a more structured aluminium recycling system in the country.

4. Vedanta is contemplating revival of the Madras Aluminium Company (Malco) in India. The firm says they are considering the possibility of reopening the plant and utilizing the facility for making recycled aluminium.

5. South Africa's aluminium products manufacturer Hulamin announced plans to invest ZAR 300 million (US$ 25.4 million) for an aluminium recycling plant in the country.

6. Novelis announced a new commitment to convert its entire beverage can body sheet production to its evercan™ sheet, the world's first certified high-recycled content aluminium for beverage cans, by the end of 2017.

According to a recent report, global metal recycling market size will grow from USD 277.12 billion in 2015 to reach USD 406.16 billion by 2020, at a projected CAGR of 7.95%. The metal recycling market will be essentially driven by strict laws pertaining to waste management.
Recap 2016: Aluminium Recycling Highlights

Sustainability in aluminium industry gained paramount importance in 2016. While in Malaysia, we saw the government coming down heavily on unregulated bauxite mining that caused irreparable damage to the water bodies in Pahang, environmental tightening in China forced China Hongqiao, the world’s largest aluminium smelter to cease production at its plant.

Aluminium recycling, which unarguably is the most sustainable step in aluminium value chain, also gained momentum globally this year. Many brands came forward to encourage aluminium recycling among consumers and many countries too upped their scrap aluminium recycling pursuits in an effort to meet sustainability targets set by the United Nations Framework Convention on Climate Change (UNFCC).

As 2016 nears its end let’s take a look at the aluminium recycling highlights of the year:

I. Who met the recycling targets & who missed the bus?

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New can stock scrap receipts in U.S. flat during November 2016

According to Aluminum Association report, U.S. received a total of 53.3 million pounds of new can stock (class) scraps during November 2016. The records a slight increase from over 53.1 million pounds in November 2015. Month wise, class scrap receipts in November saw a minor rise over a total of 53.1 million pounds in October 2016. Class scrap receipts from January to October 2016 totalled 631.5 million pounds, which recorded a slight increase over the 2015 YTD total of 627.1 million pounds.

Aluminium scrap forms about 56% of the total aluminium import by India

Aluminium scrap recycling and recovery have become an integral part of the aluminium industry in every country in order to yield reasonably high-purity molten metal at a much lower cost and using fifty per cent less energy than primary aluminium. Indian recyclers import considerable amount of aluminium scrap in order to make remelt aluminium and supply to the domestic downstream sector, mostly utensil makers, die casters and extruders. However, India displays lack of structure for aluminium scrap handling and secondary metal recovery. India’s metal recycling rate is just about 25%. There are hardly any laws governing the scrap sector except for the e-waste which came into existence in 2011.

In the year 2014, India imported 8,40,540 tons of aluminium scrap. The value of import was USD 1.5 billion for the same amount. In the year 2015, the amount increased to 8,82,881 tons and the value of import stood at USD 1.4 billion. In the year 2016, India is estimated to import 9,21,888 tons of aluminium scrap and the value of export is estimated to stand at USD 1.3 billion. The top aluminium scrap exporters to India are Saudi Arabia and United Arab Emirates which two countries together contribute about 25% of scrap import. They are followed by Netherlands and Australia.
The unorganized recycling aluminium sector is characterized by the presence of a large number of SMEs clustered mostly in the southern states of India. According to Satish Pai, MD, Hindalco, about 1.5 million tonnes of aluminium is getting imported into India, about 8,50,000 tons of that is scrap. Out of total aluminium import for consumption in India, 56% is met from aluminium scrap and 44% through unwrought and processed aluminium.

India is yet to emerge in a big way as an aluminium recycling country. In India, there is a protectionist environment in place on the import of metal scrap. For aluminium scrap, India imposes a basic customs duty of 5% and countervailing duty (CVD) of 12% and special countervailing duty of 4% depending on the quality and type of scrap imports. Indian producers are demanding more duties on the import of aluminium and aluminium products.

Finally, an organized scrap recycling industry will help increase aluminium capacity in the country at a lesser cost and energy and enhance overall safety standards that is presently lacking in the unregulated sector.
Rolled aluminium and recycling giant Novelis has bagged the prestigious European award for its closed loop car production project - the REALCAR (REcycled ALuminium CAR) at ALUMINIUM 2016, in Düsseldorf, Germany. The project with Jaguar and Land Rover won the award in the automotive and transportation category.

JLR launched the closed loop programme in 2008 and in 2015 it recovered over 45,000 tonnes of press-shop aluminium scrap. As a partner in the project, Novelis also came up with a new aluminium alloy with up to 75% recycled aluminium content. The alloy retains the strength, formability, and durability required for automotive engineering. It was first used in the Jaguar XE vehicles, and is now used in all legacy models going out of the JLR stable.

President of Novelis Europe, Emilio Braghi said that it was a proud moment for the company to be acknowledged for its endeavours in the areas of aluminium recycling and alloy innovation.

“This prize is a testament to the skills and talent of our people, who are constantly working to develop new alloys, innovative applications and revolutionary designs that leverage the unique properties of rolled aluminium,” said Braghi. “It also honours the close partnerships we build with our customers to ensure the next generation of vehicles is built to maximize the attributes of aluminium.”

JLR’s REALCAR program is a multi-stakeholder initiative established to create a closed-loop vehicle production model that recycles automobiles at the end of their lifecycles. The RC5754 aluminium alloy, uniquely developed by Novelis to serve the