

Bauxite & Alumina

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Capital Markets Day 2015

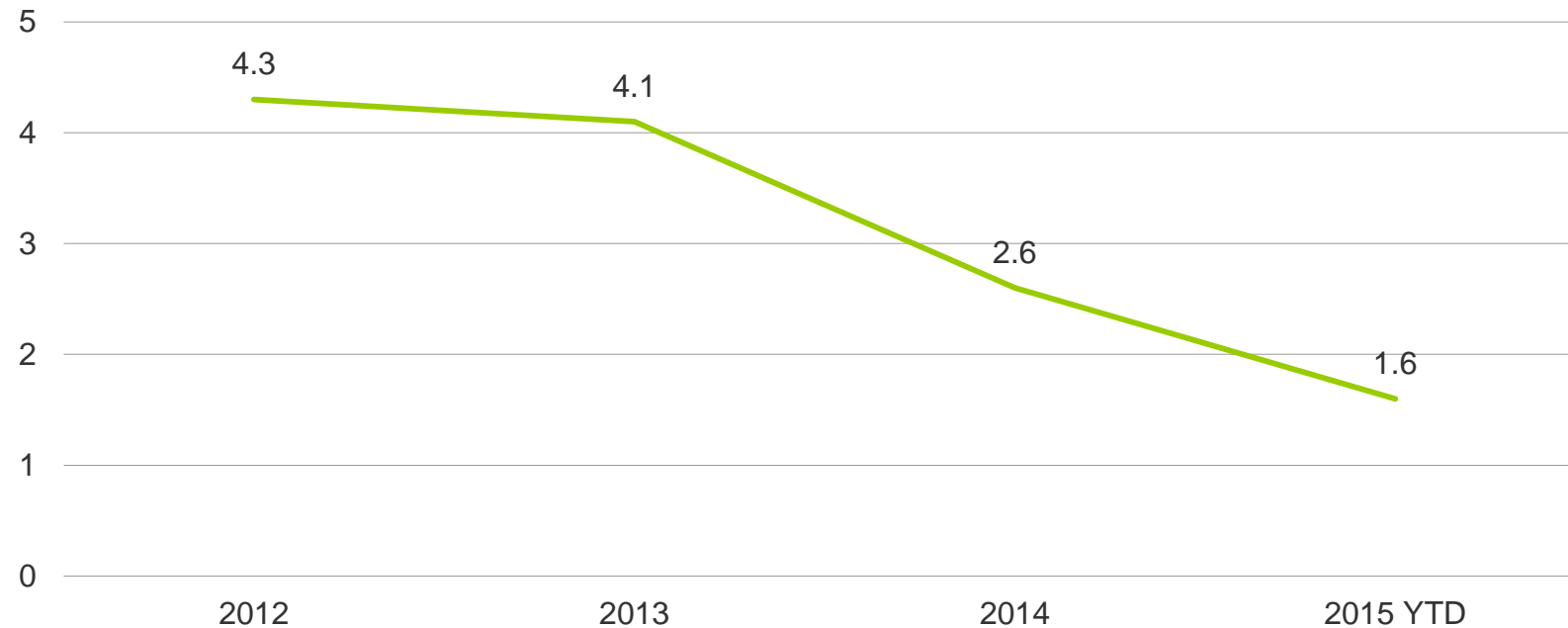


HYDRO

Safety performance improves with operational stability

More than 60% TRI reduction compared to 2012, almost 40% down since 2014

Total recordable injuries (TRI) per million hours worked



Bauxite & Alumina strategic priorities

Aiming for operational and commercial leadership

Better *Bigger* *Greener*

- Strive for an injury free environment
- Continue with operational improvement drive in world class operations
- Price bauxite and alumina on own fundamentals
- Secure and develop bauxite resources for future decades
- Further mature CAP project and Paragominas expansion
- Further improve organizational capabilities and environmental performance
- Deliver on reforestation ambition 1:1 in 2017

Bauxite & Alumina: Lifting performance, securing bauxite supply



Ball mill issue resolved



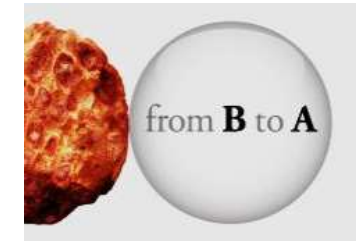
Long-term ICMS tax framework established in Brazil



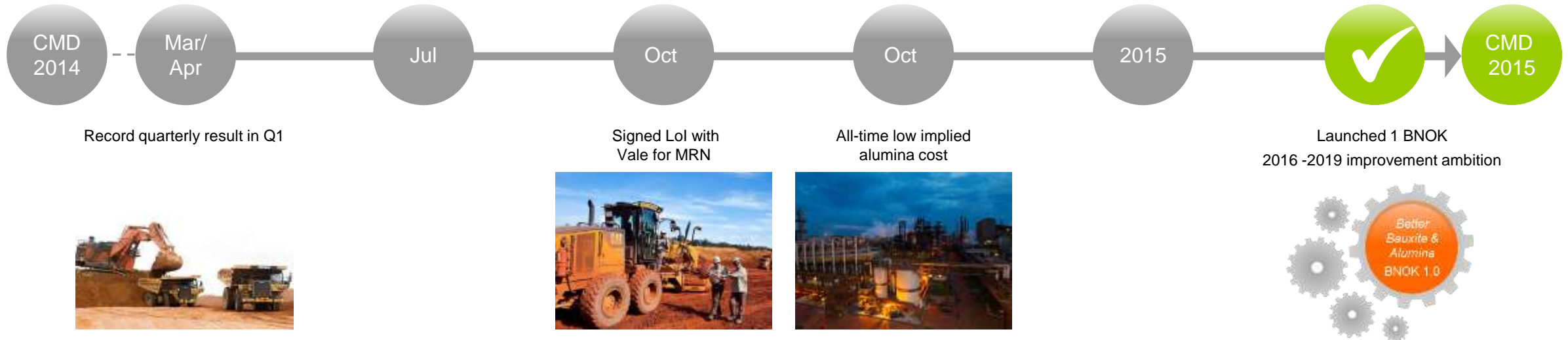
Record bauxite production at Paragominas



Contributing to local communities in Para



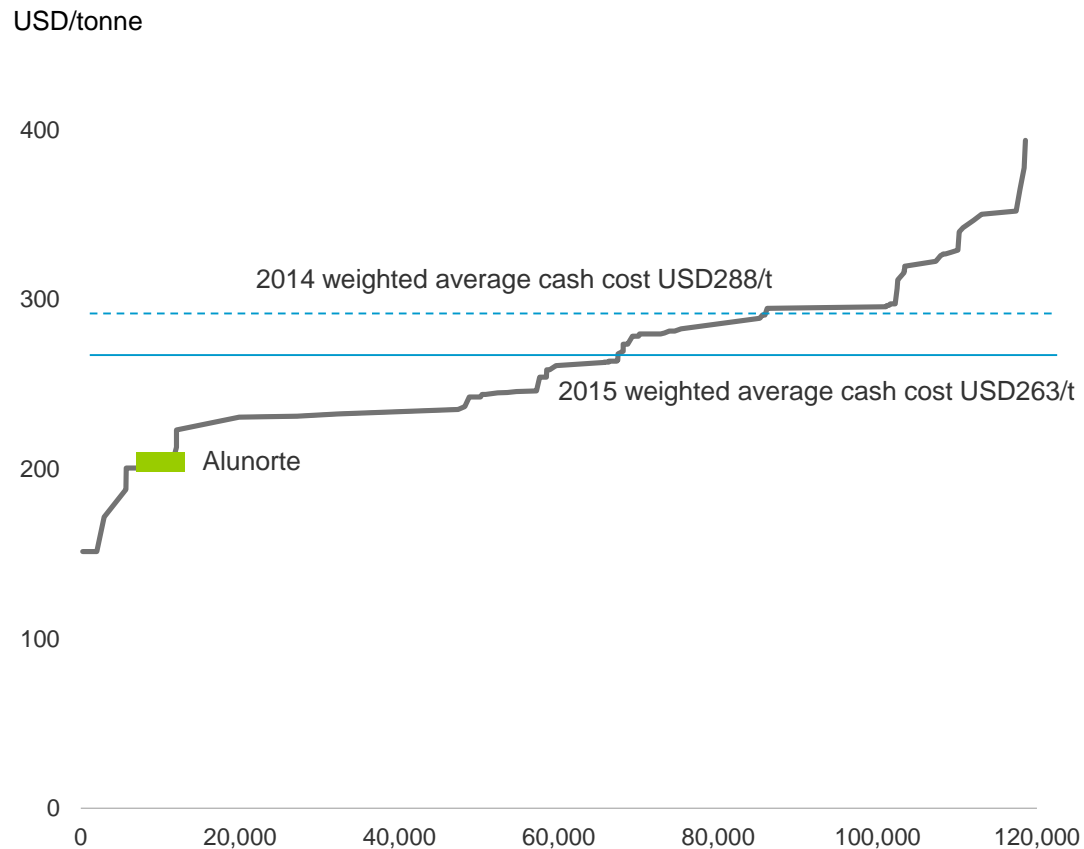
"From B to A" improvement program 1 BNOK completed*



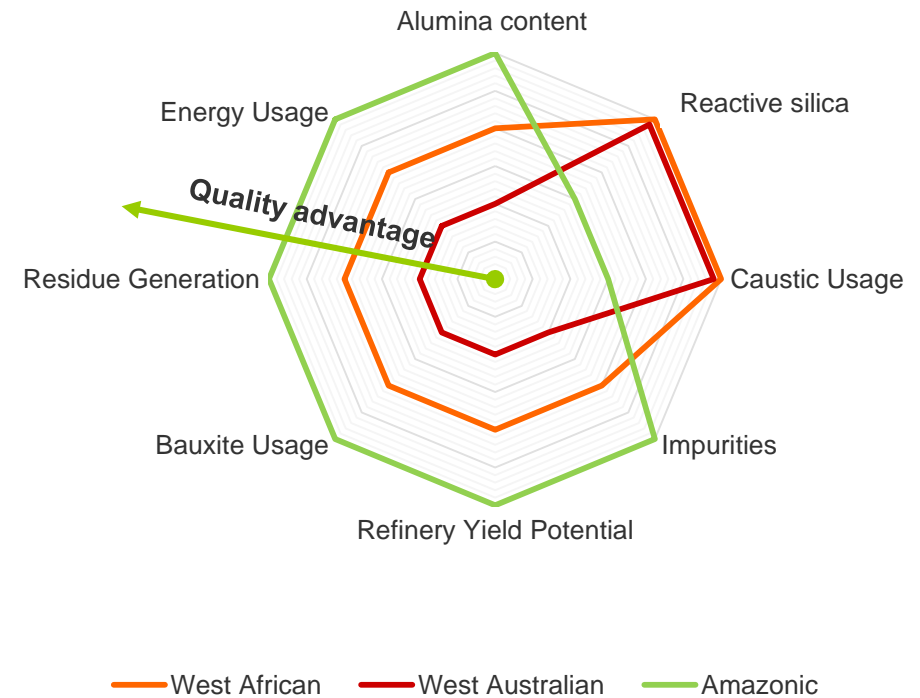
* Based on status Dec-2015

World-class quality assets

First quartile alumina cost position and bauxite quality advantage



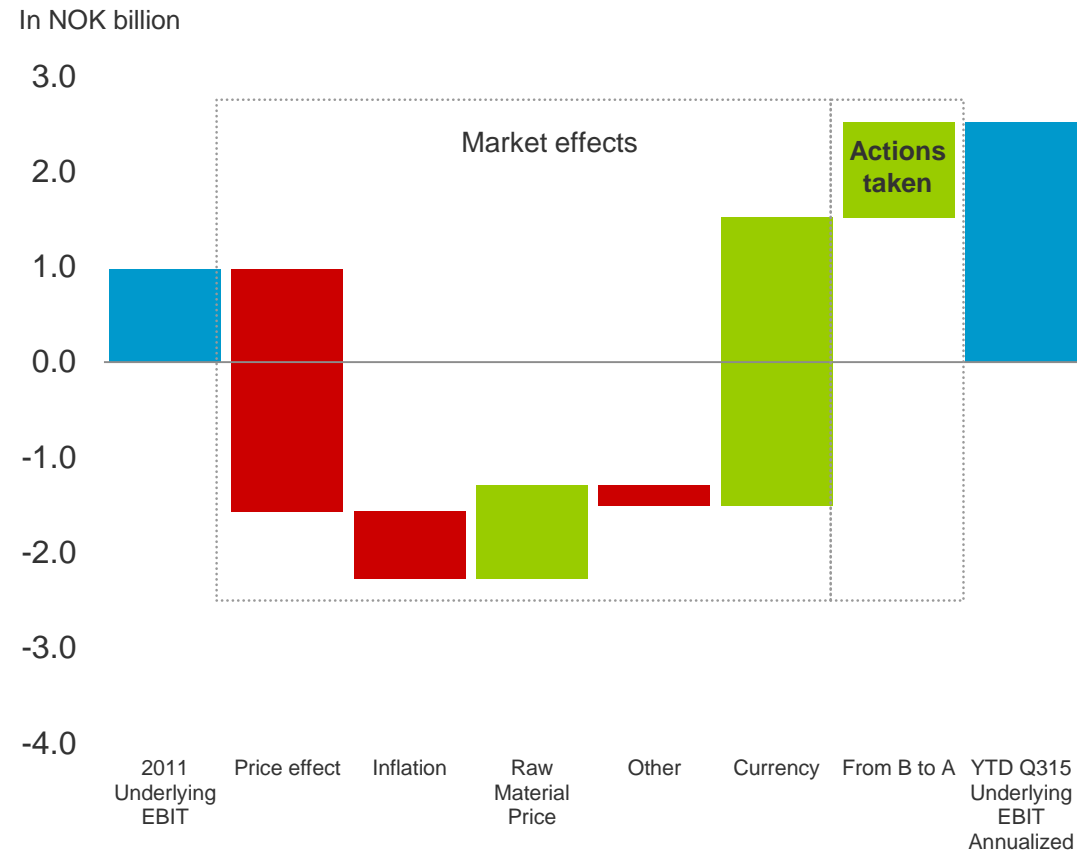
Bauxite quality comparison



Source: CRU

Ambitious “From B to A” improvement program delivered

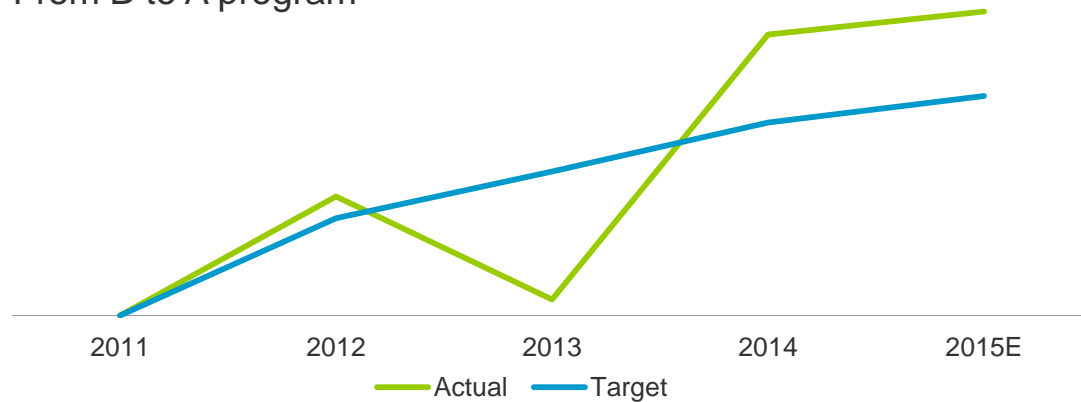
Currency development offsets price effects



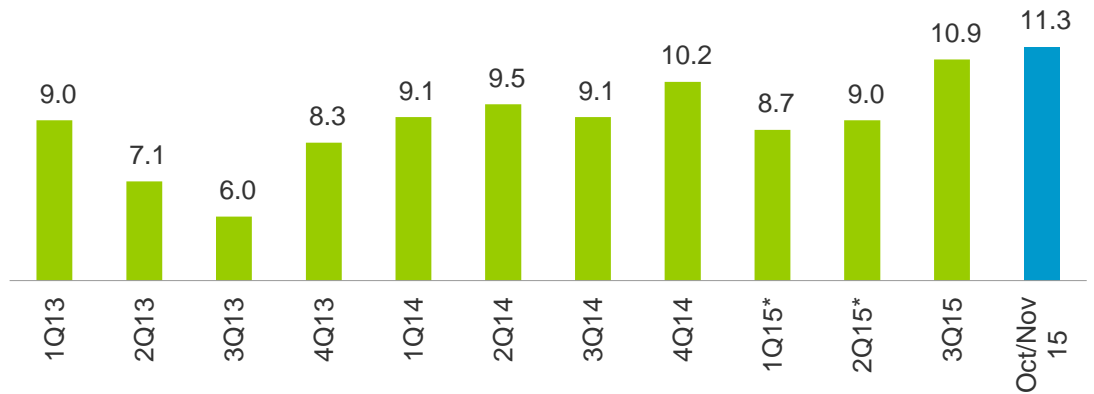
* Based on status Dec-2015

Paragominas delivering beyond planned cost improvements

From B to A program



Production, annualized million tonnes



- Production above nameplate capacity
- Productivity improvements driven by debottlenecking at beneficiation plant and optimization of mining operations
- Fixed cost reduction mainly driven by manning reduction of 25%
- Improved process control and plant stability (BABS¹)
- Short-term issue with ball mill resolved²

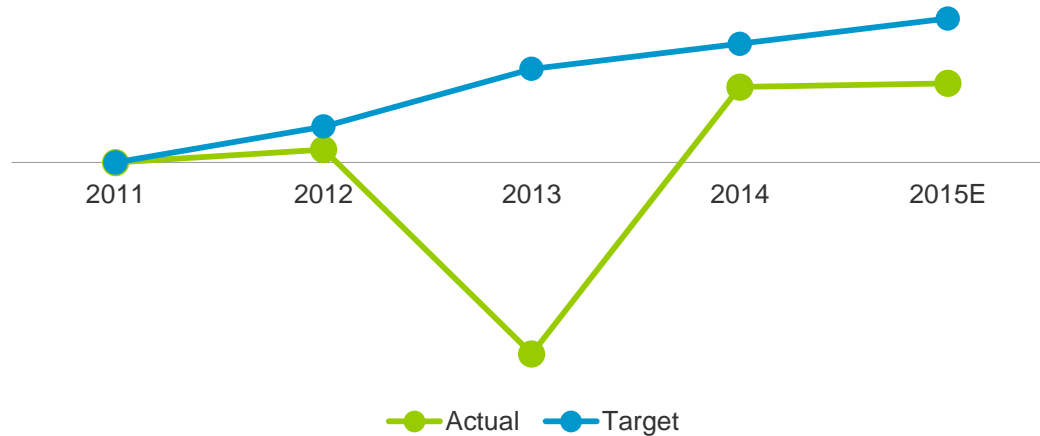
1) Bauxite and alumina business system

2) Extended maintenance period in March / April 2015 resulted in lower bauxite production

Alunorte improvement efforts continue

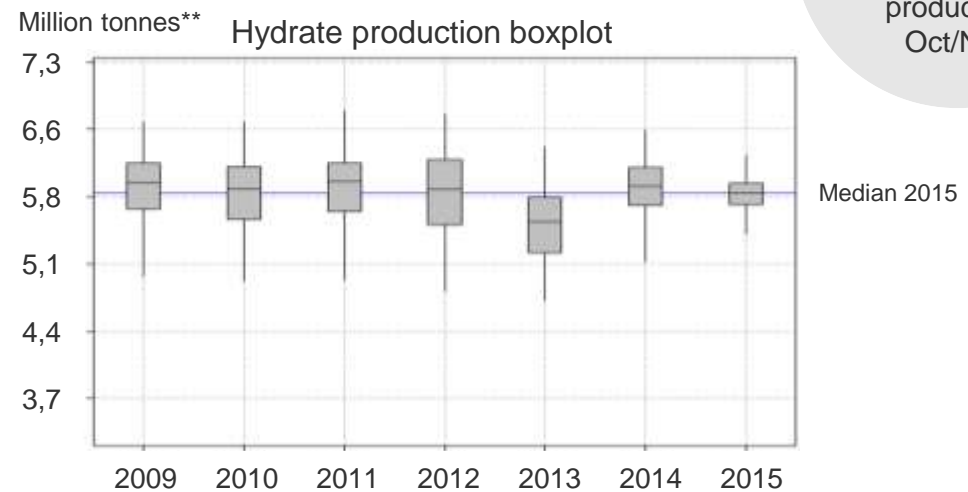
Stabilized operations – first step towards lifting production

From B to A program



- Strong recovery during 2014, stabilizing in 2015
 - Continuing efforts to increase production after stabilizing production environment (BABS* implementation)
 - Increasing raw material efficiency
 - Targeted manning reductions partly moved into 2016

Reducing production rate variability through BABS



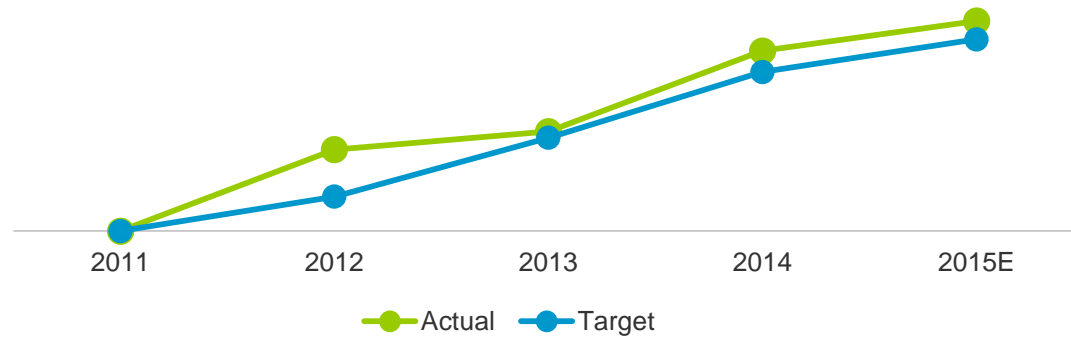
- Increased robustness in power supply – preventing serious power outages
 - Automation of substations and powerhouse

6.2
million tonnes
annualized alumina
production
Oct/Nov

* Bauxite and alumina business system
** Annualized production

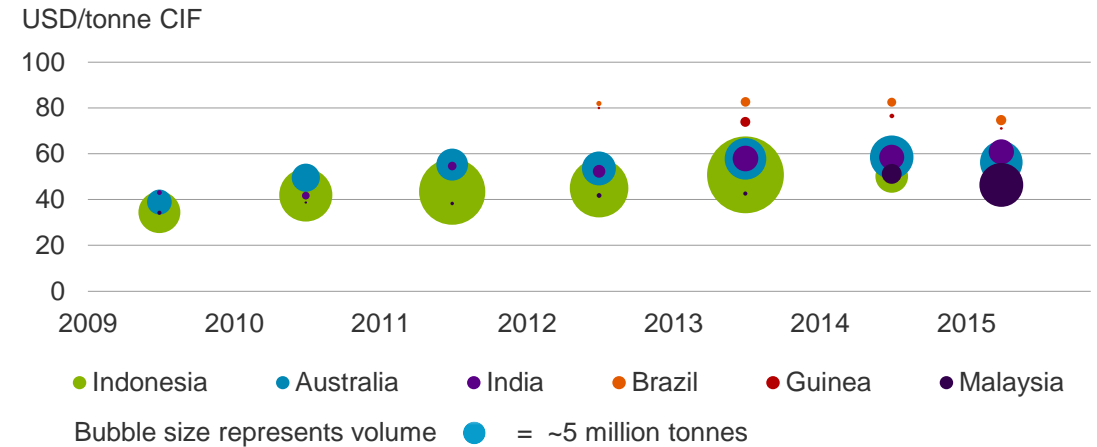
Pricing alumina and bauxite towards own market fundamentals

From B to A program



- Future pricing to reflect fundamentals of bauxite and alumina value chain
 - Underlying price improvement from moving portfolio to PAX-based pricing
 - Alumina price trend - capturing larger part of aluminium value chain profits
 - Increased logistical flexibility and optimized scheduling

China bauxite imports, volume and price by country



- Advantageous bauxite quality enables export to China despite freight disadvantage

Source: China customs

Long-term sustaining projects on track

Investments for the next 10-20 years



Paragominas tailing dam

- Investment into further heightening of tailing dam and new tailings disposal area
- Optimized tailing disposal area for long-term mine operations
- First phase containing infrastructure investments for full lifetime of the tailing dam
- To be completed in second half of 2017
- Investment BRL 600 million – ~10% to be spent by end 2015



Alunorte red mud deposit

- Dry disposal of bauxite residue using press filtration
- Reduces total cost of bauxite residue disposal
- Increased concentration of solids reduces the required storage area and environmental footprint
- Increasing deposit lifetime compared to existing filtration technology
- To be completed in Q3-2016
- Investment BRL 1.0 billion – ~50% to be spent by end 2015

Paragominas – new mining technologies support future improvements



- Debottlenecking to ~11.0 million tonnes/year by 2018
 - Minor capex requirement
- Use of residual bauxite
 - Potential to increase Paragominas lifetime by another 4 to 5 years
 - Improved long-term mine planning and mining accuracy supported by integrated economic modelling

Alunorte – new production technologies and advanced process control to lift production



- Enhanced precipitation process control – improving quality and output
- Differential extraction of alumina from bauxite
 - Potential to achieve a significant reduction in caustic soda usage
 - Allows for economic utilization of residual bauxite
- Debottlenecking up to 6.6 million tonnes/year by 2018
 - Significantly improving utilization and financial performance of existing assets
 - Improved coal boiler performance reducing cost

New improvement ambition launched

Further strengthening the competitiveness of first quartile operations

Alunorte

- Increase production
- Improve energy consumption
- Reduce fixed costs

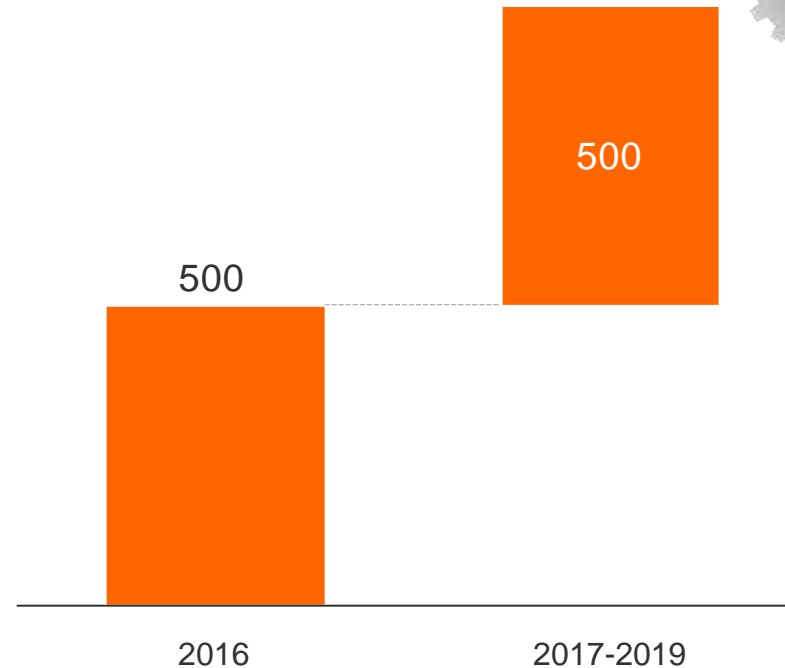
Paragominas

- Support production above nameplate capacity
- Improve product flow and minimize tailings

Commercial

- Increase logistical flexibility and optimize scheduling

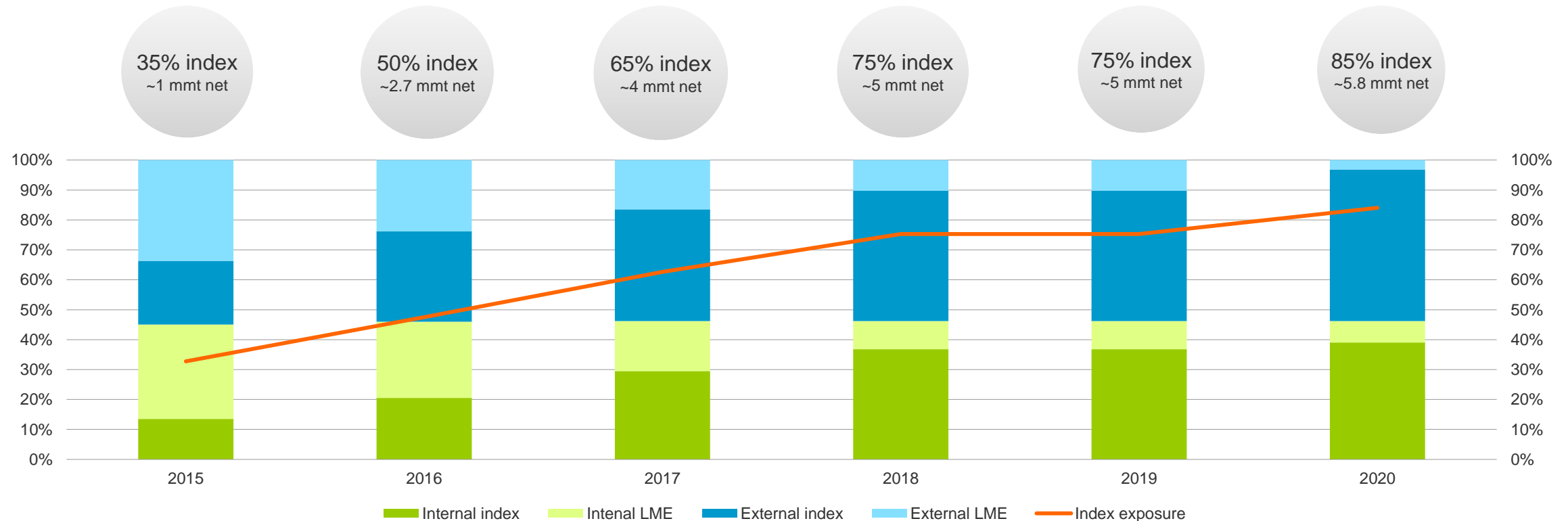
BNOK 1.0 improvements 2016 – 2019



Shift of alumina sales to index-based pricing continues at full speed

B&A gain of ~1.1 BNOK if all volume was sold on index at current prices*

Sales exposure to index and short term pricing**



* LME 1450 USD/mt, Index 230 USD/mt, NOK/USD 8.6

** Rounded figures. Indicating volumes available for index pricing. Includes minority sales priced at % of LME with floor. Based on annual sourced volumes of 2.3 million tonnes (2015 based on 2.7 million tonnes)

Strengthening aluminium cluster in Pará by lifting equity bauxite production

Ensuring optimal long-term development of Hydro Alunorte's second source of high-quality bauxite

Hydro entered Lol with Vale to raise MRN ownership to 45%

- First-quartile cost position, high quality bauxite
- Annual capacity 18 million tonnes
- Largest mine in Brazil, top 3 in the world
- Hydro currently owns 5%
- Hydro has commercial off-take contracts for Vale's 40 %

Alunorte

Capacity: 6.6 million tonnes
92% Hydro ownership

Albras*

Capacity: 460 000 tonnes
51% Hydro ownership

CAP Project

Capacity: 1.9 million tonnes
81% Hydro ownership

Paragominas

Capacity: 11.0 million tonnes
100% financial exposure
Expansion possibility to 15 million tonnes

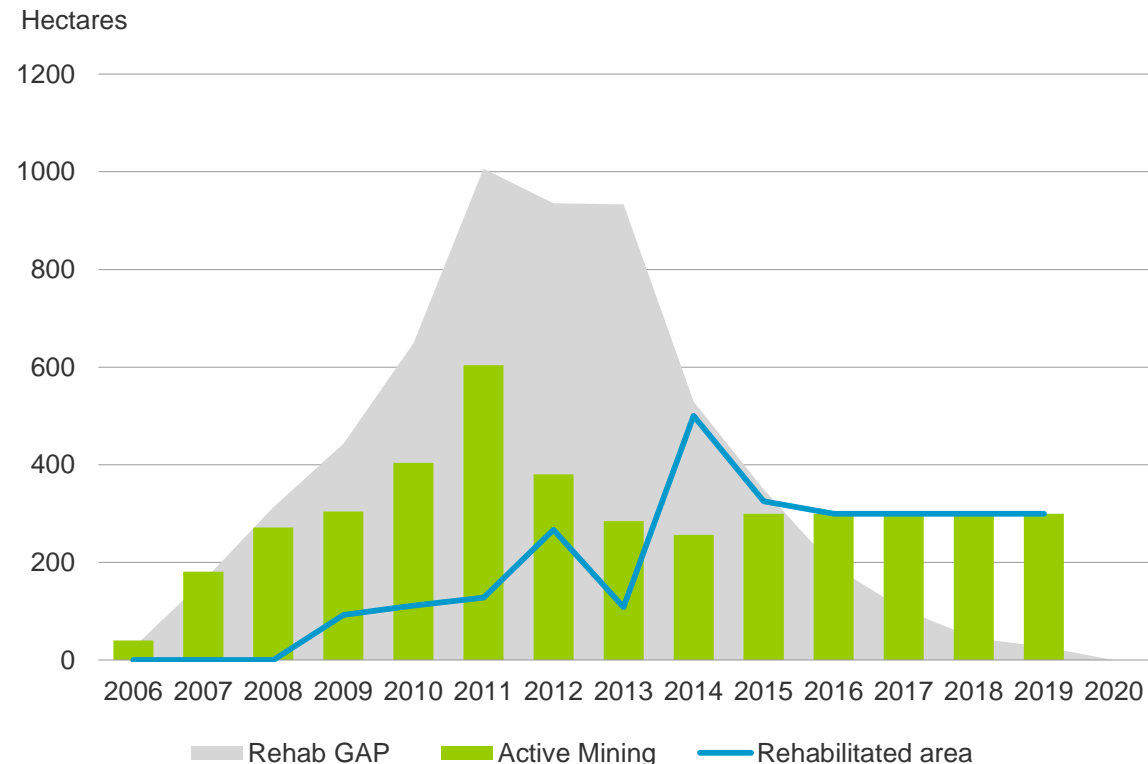
- Bauxite
- Alumina
- Aluminium

* Included in Primary Metals business area

Making progress on ambitious environmental goals

Research partnership on biodiversity creates the basis for state-of-the-art approach to mining rehabilitation

Rehabilitation gap and schedule



- 4 projects: reforestation, big mammals, entomology and fungi
- More than 45 researchers and scholarship students involved
- Initial 5-year program of partnership
 - University of Oslo
 - Federal University of Pará
 - Federal Rural University of Amazônia
 - Goeldi Museum

Bauxite & Alumina mid-term goals

Creating shareholder value through efficient and commercial use of raw materials

Ambitions	Target	Timeframe
• Improve safety performance, strive for injury free environment	TRI <2	2020
• Deliver on new improvement ambition	BNOK 1.0	2019
• Lift alumina production at Alunorte through stabilization and debottlenecking	6.6 million mt	2018
• Lift Paragominas production through debottlenecking	11 million mt	2018
• Shift alumina sales portfolio to index-based pricing	>85 %*	2020
• Deliver on reforestation ambition	1:1	2017

Better Bigger Greener

* Based on annual sourced volumes of 2.3 million tonnes