



# Norsk Hydro

SEB Nordic Seminar 2018

Investor Relations

# Agenda



- 1) Hydro – a global, fully integrated company
- 2) Market update
- 3) Q&A

# Fully integrated value chain

World class assets, high-end products and leading market positions

*Focus on cost efficiency and process technology  
Centralized business model*

*Focus on margin management and product innovation  
Decentralized business model*



## Bauxite & Alumina

- Paragominas; capacity 9.9 MT
  - Debottlenecking to 11.0 MT by 2018
  - Possible expansion to 15 MT
- MRN; capacity 18 MT
- Alunorte; world's largest alumina refinery
  - Capacity of 6.3 MT
  - Debottlenecking to 7.0 MT



## Energy

- Long-term power supply secured
- Norway's second largest hydropower producer – ~10 TWh normal renewable energy production



## Primary Metal

- 2.1 million tonnes primary capacity
- 200 k mt technology-driven capacity creep by 2025
- Improving cost position
- Leading in technology



## Metal Markets

- 3.6 million tonnes (primary, remelt, recycling and cold metal)
- Strengthening recycling position
- High share value-add products
- Strong market positions in Europe, Asia and the US



## Rolled Products

- ~1 million tonnes – Europe's largest producer
- Margin business
- Regional business
- Close to customers
- Market leading in litho and foil, strong BiW position in Europe



## Extruded Solutions

- Full owner in October 2017
- 1.4 million tonnes
- No. 1 position in North America and Europe
- Solid foothold in emerging markets

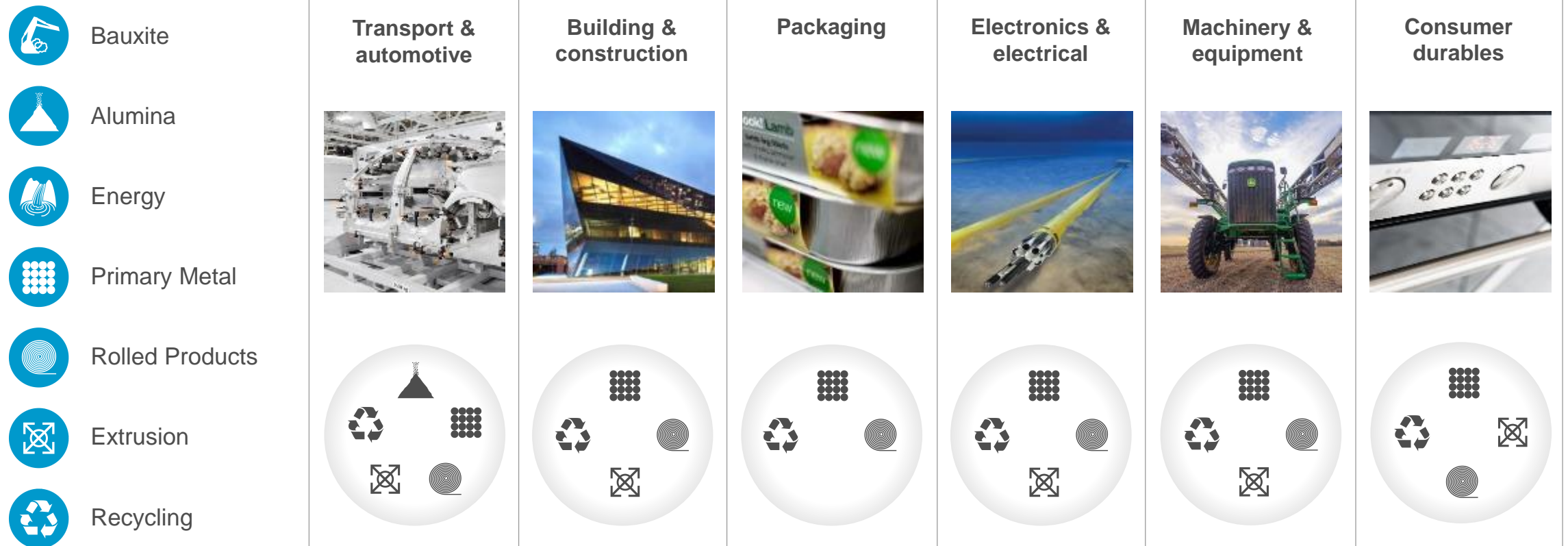
*Raw materials, processing and energy*

*Primary production, marketing and recycling*

*Products and solutions*

# Fully integrated across the aluminium value chain and markets

Broad products and solutions offering from bauxite to end-user products

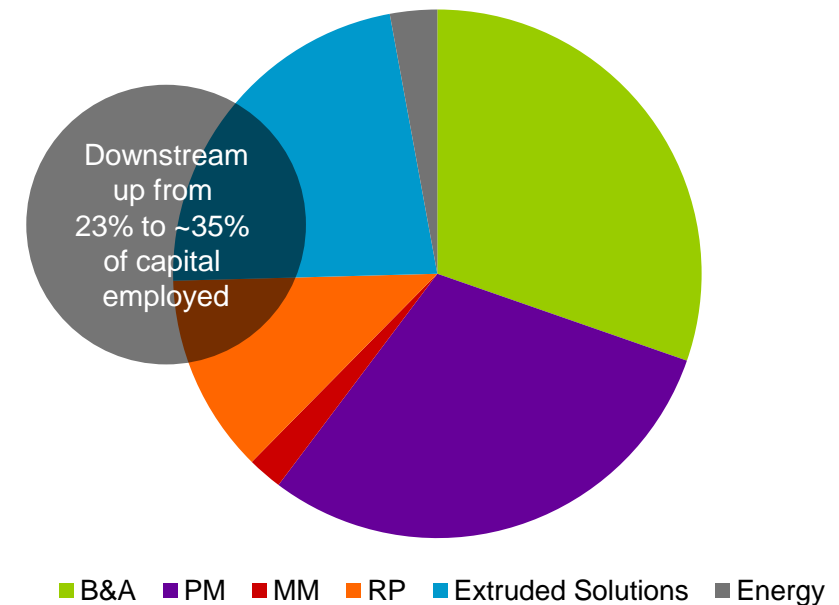


# Sapa acquisition completed October 2

Financed through cash and in the Swedish and Norwegian bond markets

- Hydro with full ownership in the global leader in extruded aluminium solutions
- Hydro now fully integrated across value chain and markets
- Estimated NOK 200 million in annual synergies
- Unique strength in technology, R&D, innovation and product development
- Unmatched product and service offerings, to more than 30 000 customers world wide
- 22 000 new employees

Hydro after transaction:  
Capital employed by end Q3-17  
BNOK ~96

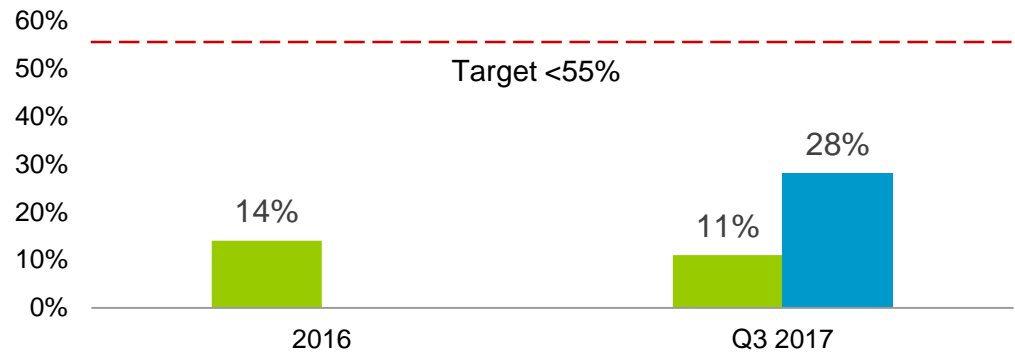


Capital employed pie-charts excludes other & eliminations of negative -7.7 BNOK

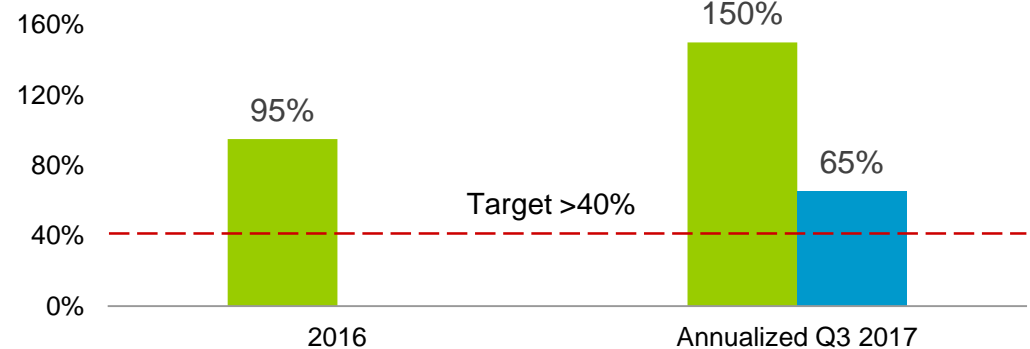
# Maintaining a solid balance sheet and investment-grade credit rating

Funds from operations determine the balance sheet structure

Adjusted net debt / Equity

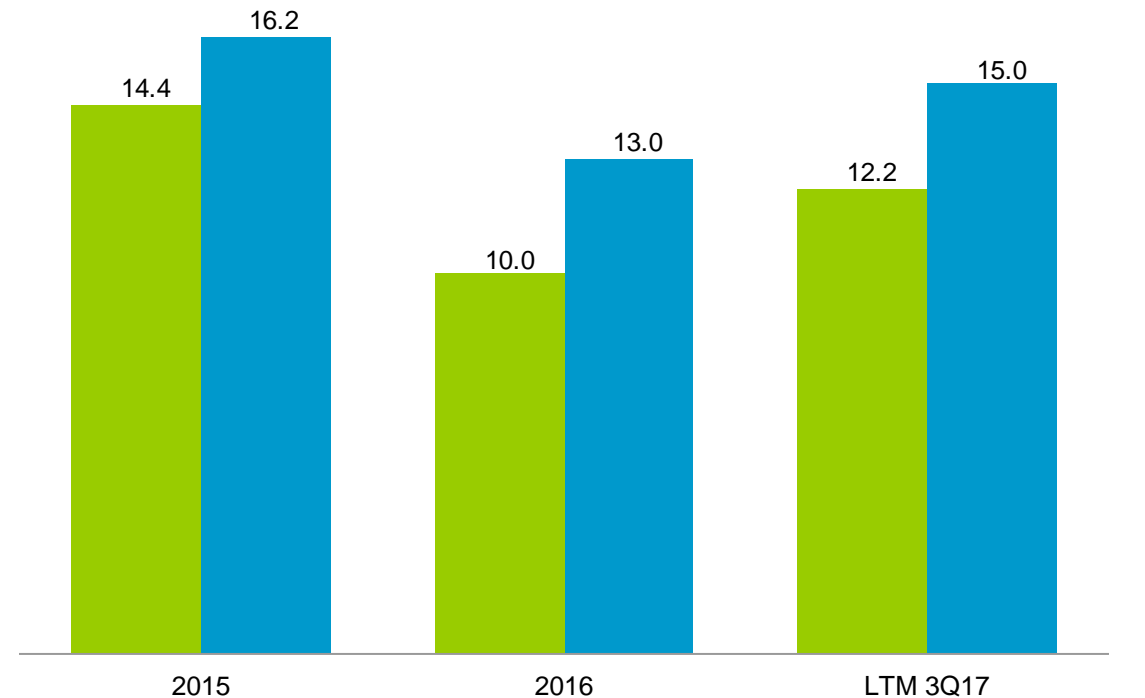


Funds from operations / Adjusted net debt



Cash flow generation strengthened by Sapa-acquisition\*\*

Operating cash flow, in NOK billion



\* Estimate including Sapa

\*\* Cash flow from operations; directly from cash flow statement Hydro/Sapa

# Industry-leading improvement drive

Improvement target lifted to NOK 3.0 billion 2016-2019, NOK 1.7 billion realized by end-2017

*Better*

**BNOK  
3.0<sup>1)</sup>**

## Bauxite & Alumina

### BNOK 1.3 in 2019

- High production at Alunorte and Paragominas, commercial and procurement contributing positively
- Expect to reach BNOK 1.1 already in 2017
- Increasing 2019 ambition from BNOK 1.0 to BNOK 1.3

## Rolled Products

### BNOK 0.7 in 2019

- Operational and ramp-up issues reducing improvement speed
- Behind the 2017 target
- Expect to reach original BNOK 0.9 target with 1-year delay

## Primary Metal

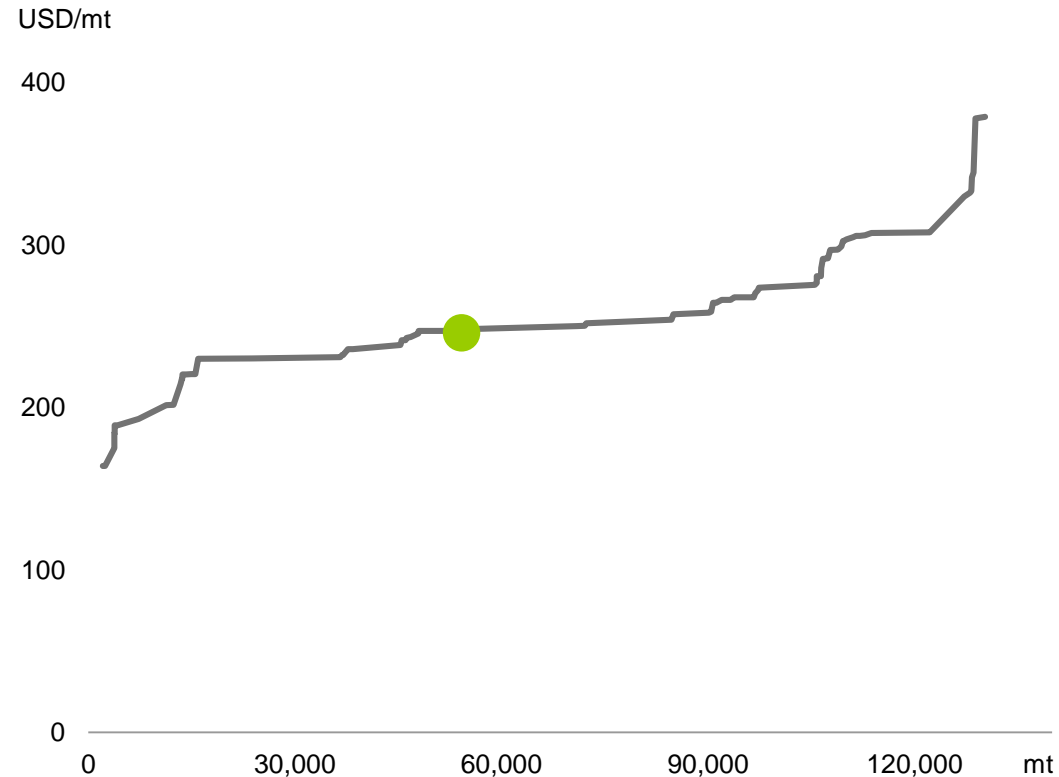
### BNOK 1.0 in 2019

- Improved overall performance, negative impact from Albras performance
- Behind the 2017 target
- On track for 2019 target

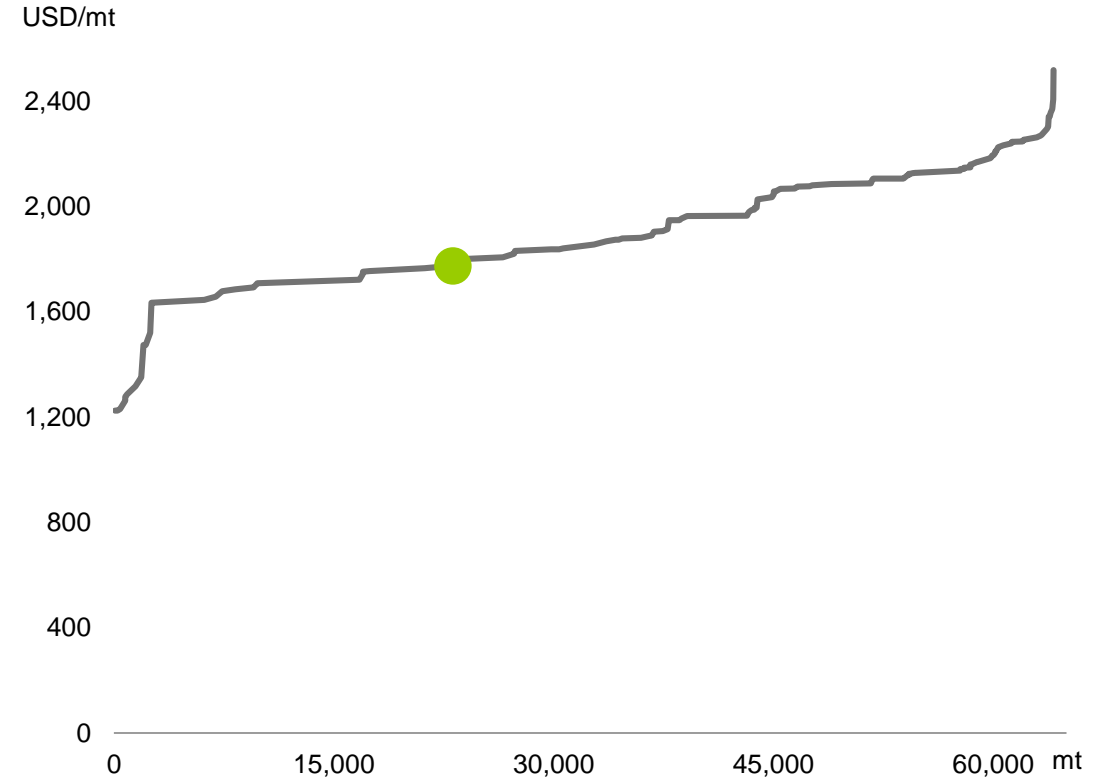
1) Real 2015 terms. Includes some larger investments of NOK 3-3.5 billion NOK in 2015-2019: AL3 and UBC in Rolled Products. Creep projects in Primary Metal. Alunorte debottlenecking in B&A.

# Among the best positioned in the industry upstream

Alumina BOC curve by company (2017)



Smelter BOC curve by company (2017)



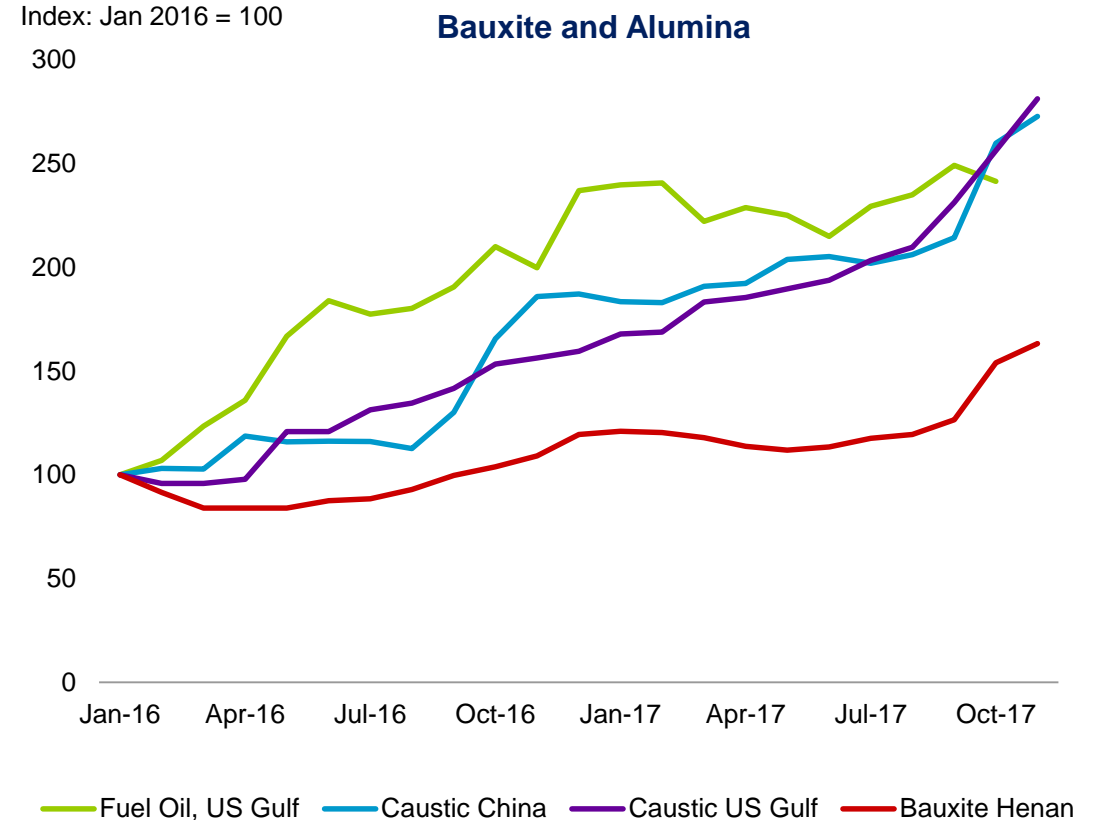
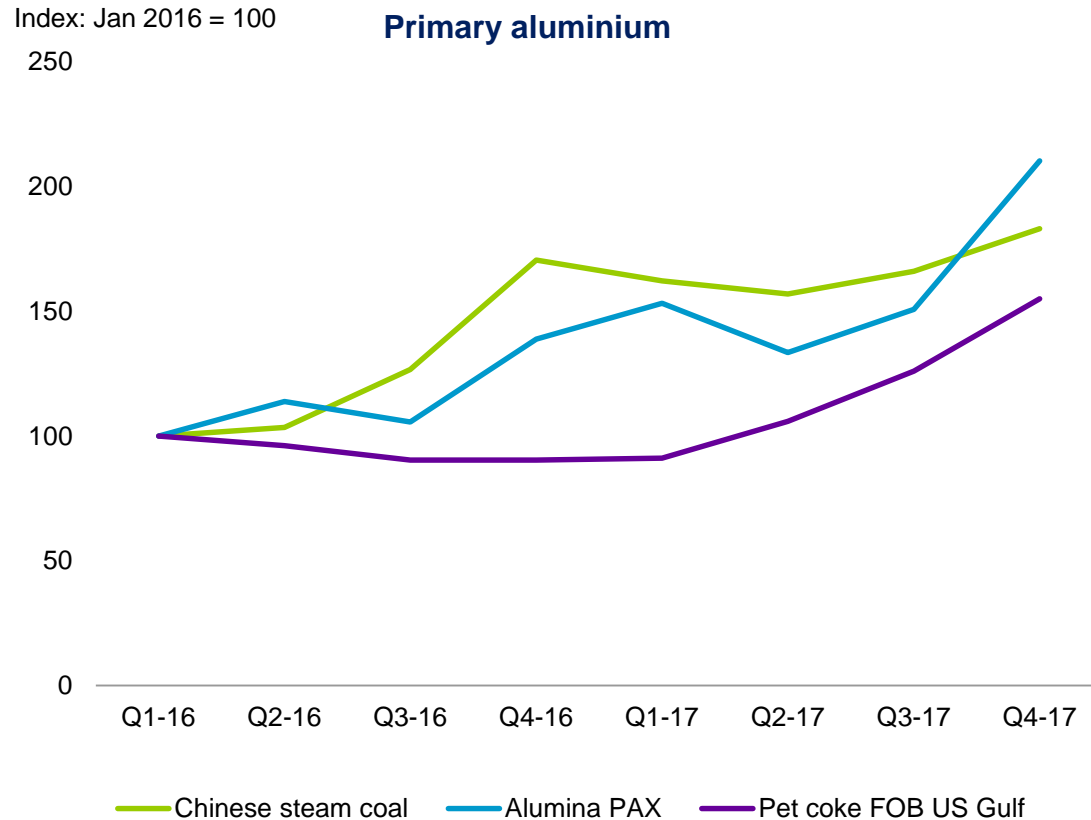
Source: Republished under license from CRU International Ltd

Assumptions: Aluminium cost curve: LME USD 2 100, alumina USD 465, NOK/USD 8.2. Alumina cost curve: caustic soda USD 600, USD/BRL 3.26



# Increasing cost pressure in the aluminium industry

Increasing market prices for all input factors



Source: Reuters Ecowin, PACE, UHS Markit, Platts, ANP, CRU

# Karmøy Technology Pilot: world's most climate and energy-efficient aluminium production

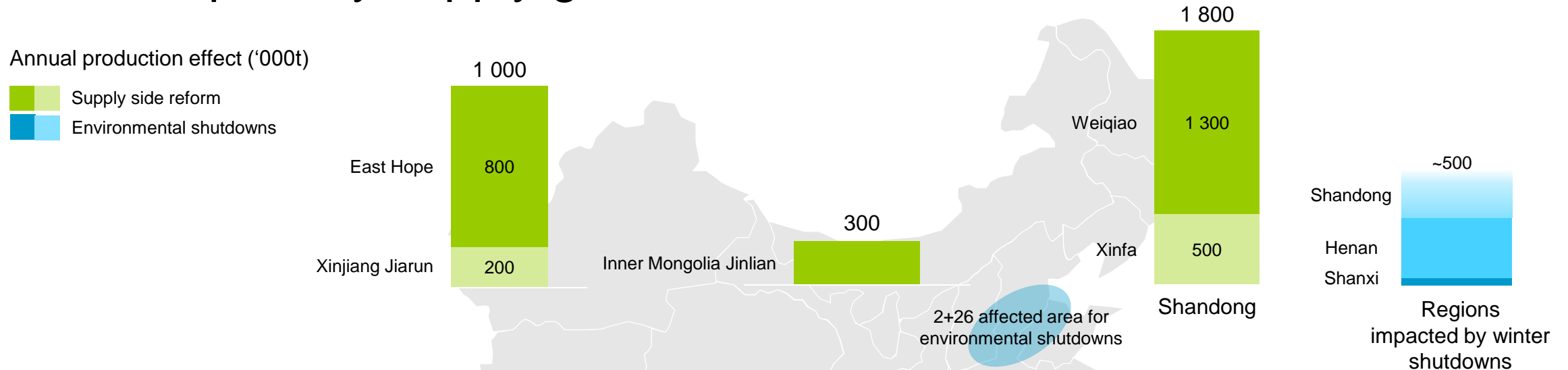


- Annual capacity of 75 000 tons, to be ramped up during 2018
- On time and budget
- Net Hydro capex 2015-Q3 2017 BNOK 2.5
  - Total capex BNOK 3.7
  - Enova support BNOK 1.2
- Net Hydro capex 2015-2018 BNOK 2.7
  - Total capex BNOK 4.3
  - Enova support BNOK 1.6

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# Aluminium market

# Supply-side reform and environmental shutdowns moderating Chinese primary supply growth



## Supply-side reform

- Due to lack of approvals several operational smelters have been forced to shut down production
- Private companies such as Weiqiao, East Hope and Xinfu have been most affected to date
- Planned and potential projects have also been affected by the policy, subduing production growth going forward

## Environmental shutdowns

- Several industries, including steel, cement, coal and aluminium have been ordered to halt production during the winter heating from November 15<sup>th</sup> and March 15<sup>th</sup>
- The winter season shutdowns are also impacting carbon anode and alumina production
- The primary shutdowns in Shandong are related to Xinfu, as Weiqiao is not estimated to further cut its aluminium production during the winter season due to largely overlap with supply-side reform

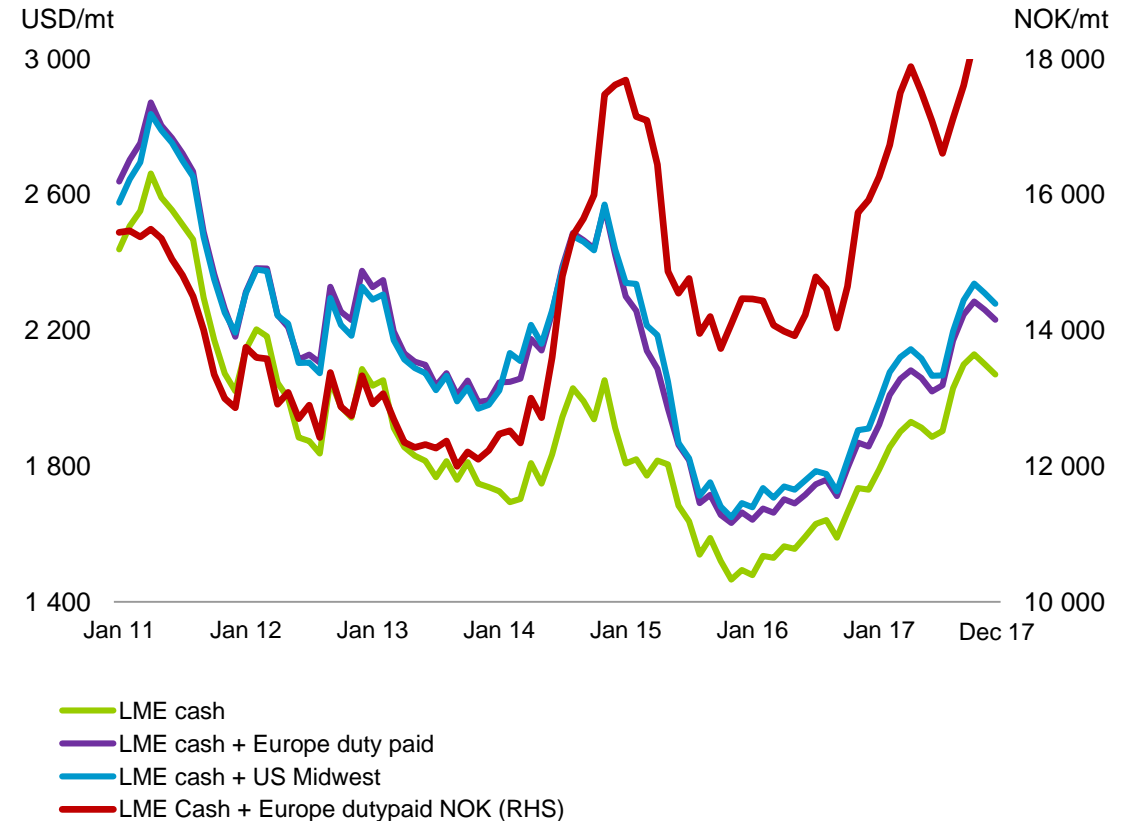
# Increasing average all-in aluminium prices in Q4

Arbitrage between LME and SHFE opened towards the end of Q4

## LME and SHFE aluminium prices



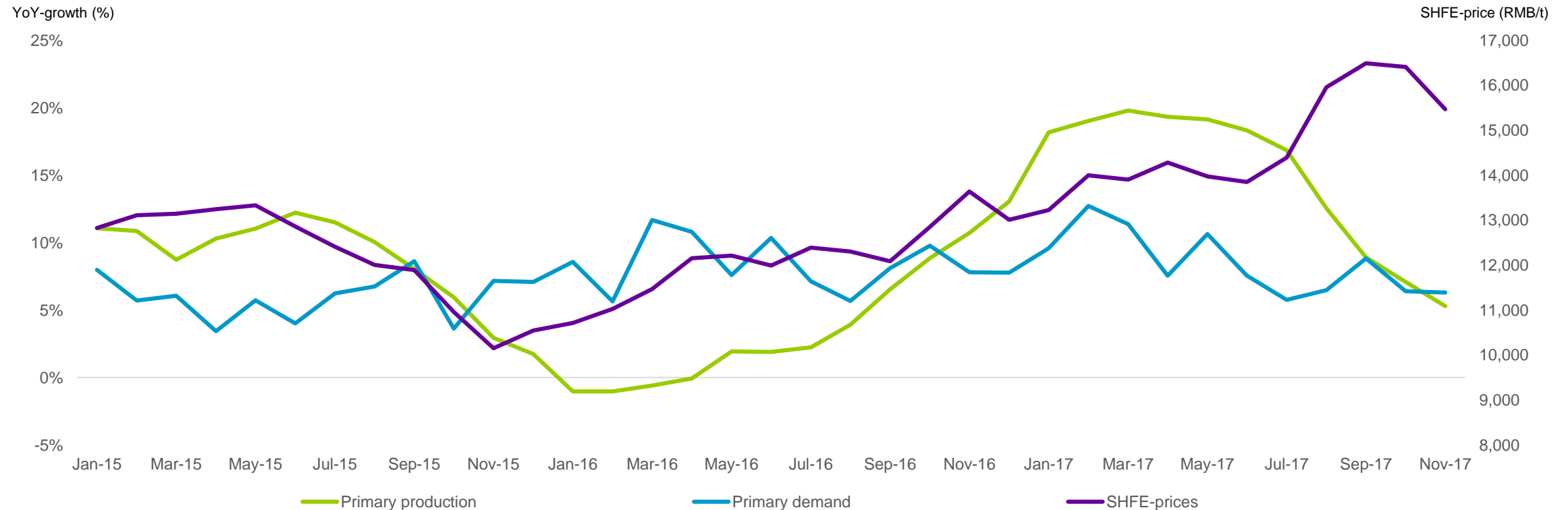
## All-in aluminium prices



Source: Metal Bulletin, Platts, Reuters Ecowin, Hydro analysis  
\* Shanghai Futures Exchange

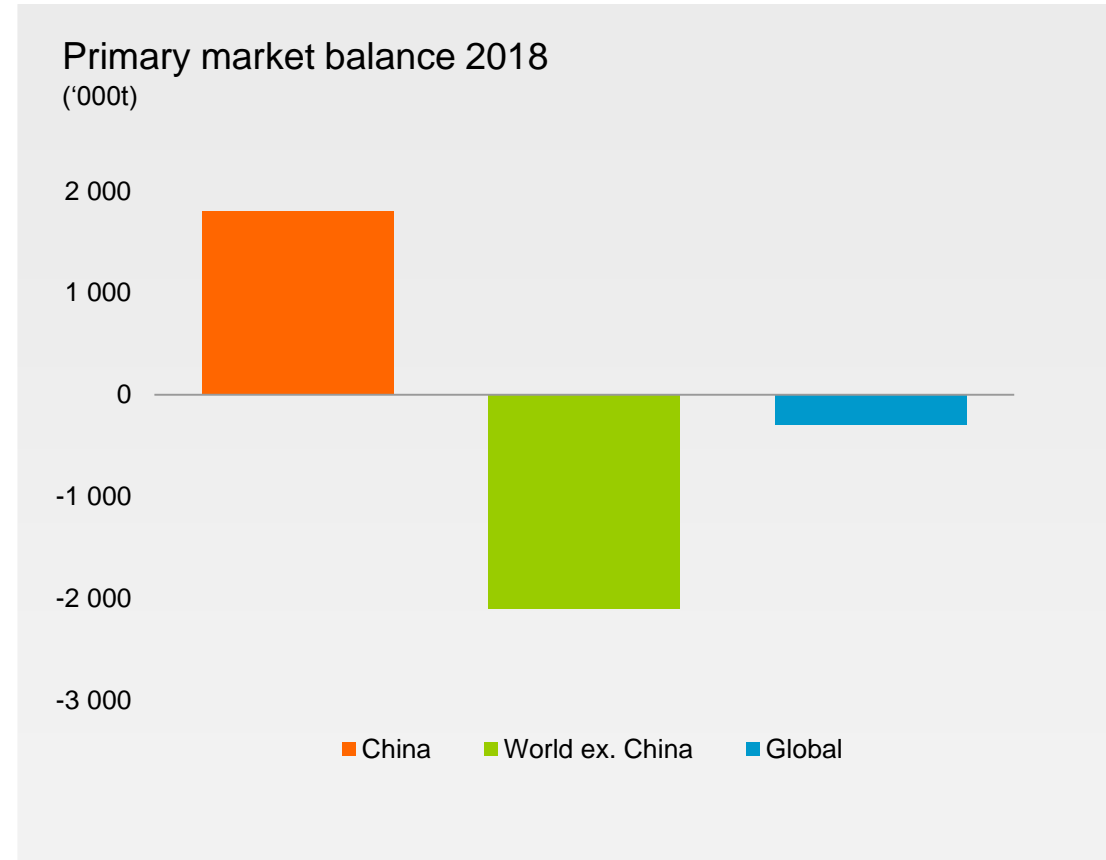
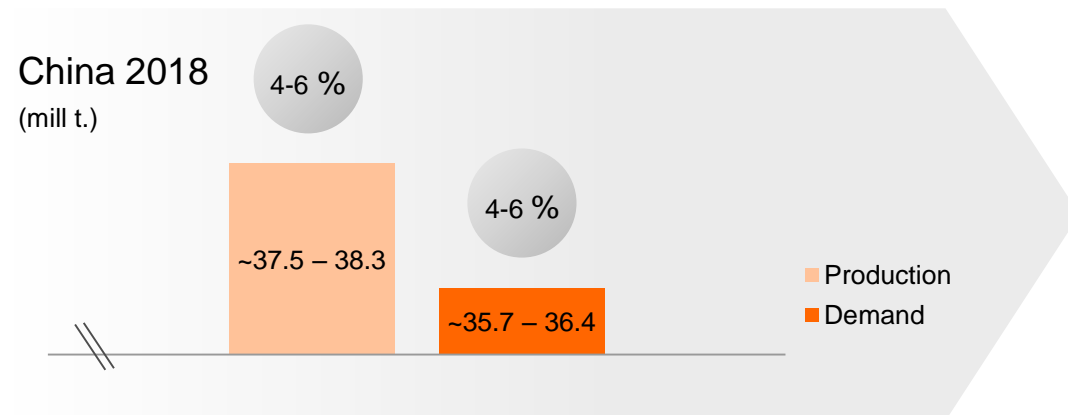
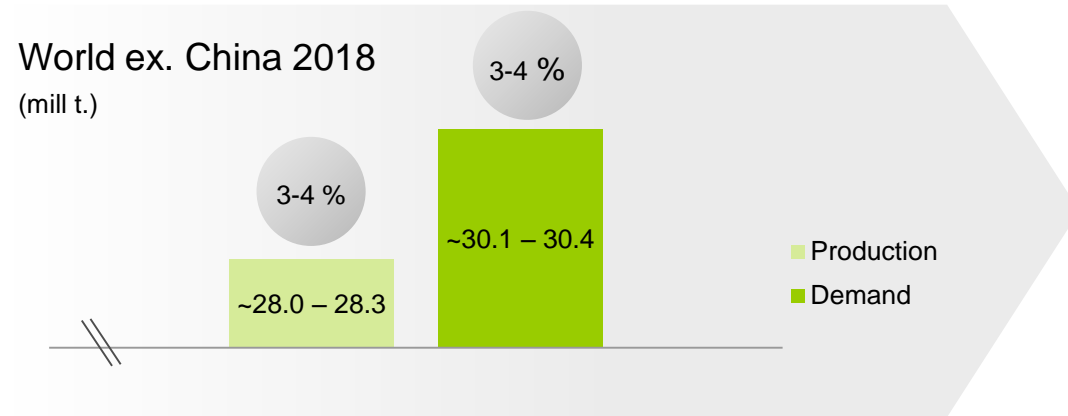
# Chinese market oversupplied in 2017 on the back of restarts and expansions in 2016 and 2017, growth coming down in Q3 and Q4

Chinese production and demand growth



# Primary aluminium market to be largely balanced in 2018

Market balances largely similar compared to 2017

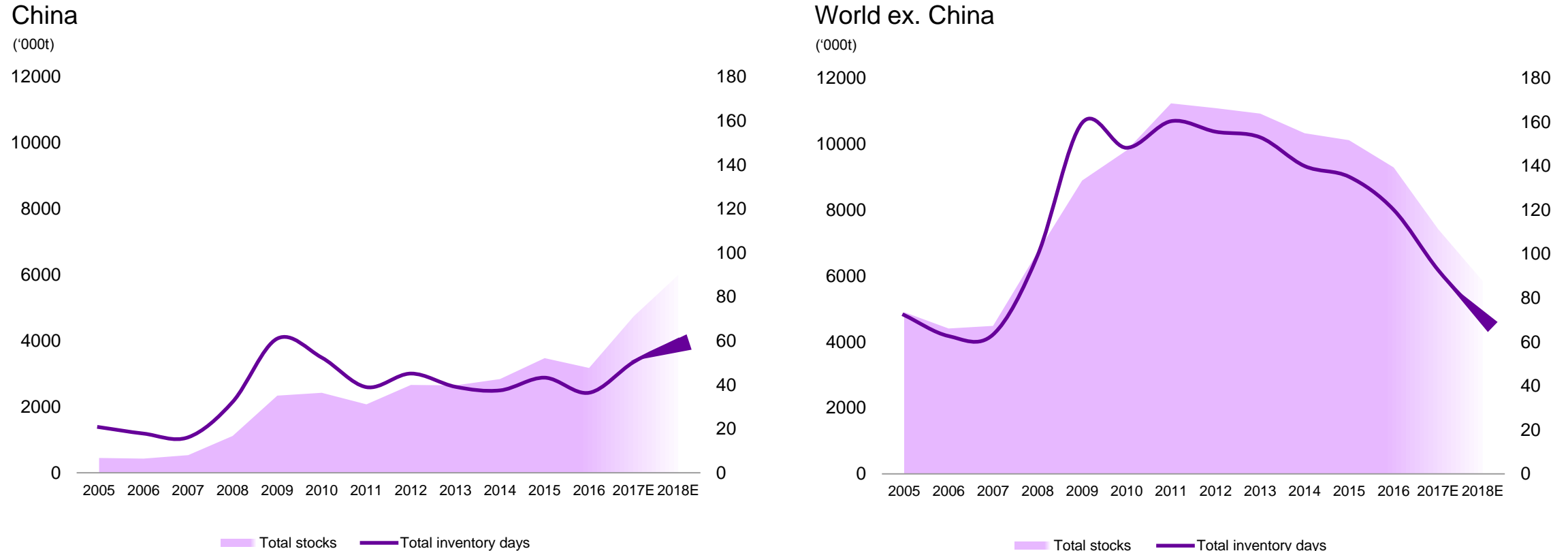


Source: CRU, Hydro analysis

% Growth from 2017 to 2018

# Inventory days approaching historically tight levels in world outside China in 2018

Chinese inventory days expected to increase, but not substantially



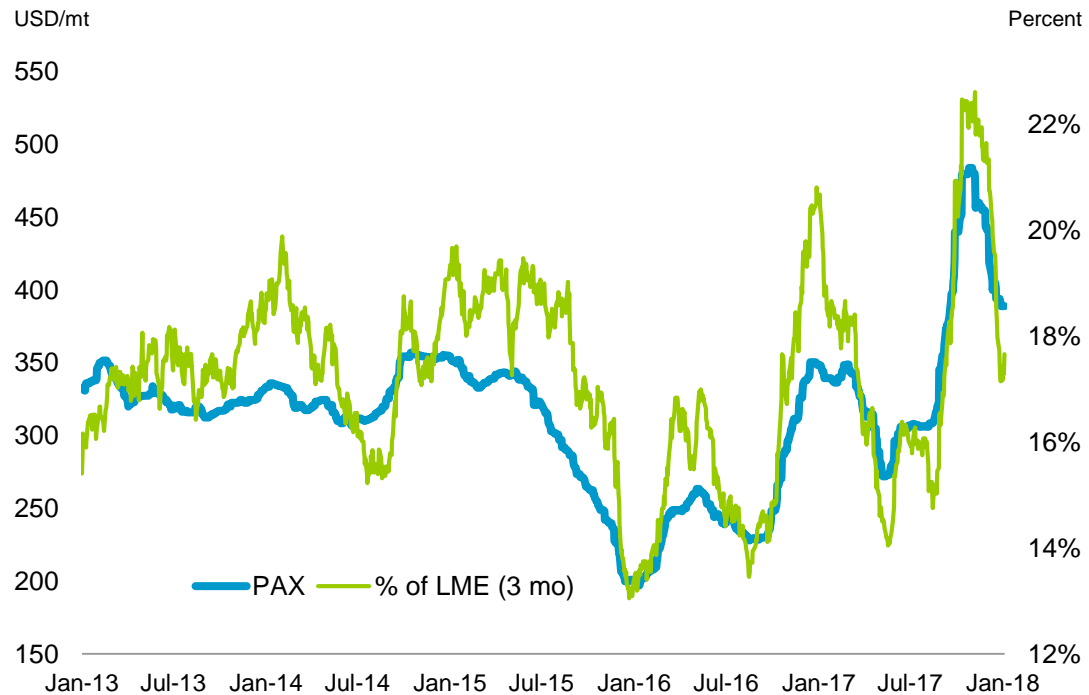
Source: CRU, Hydro analysis



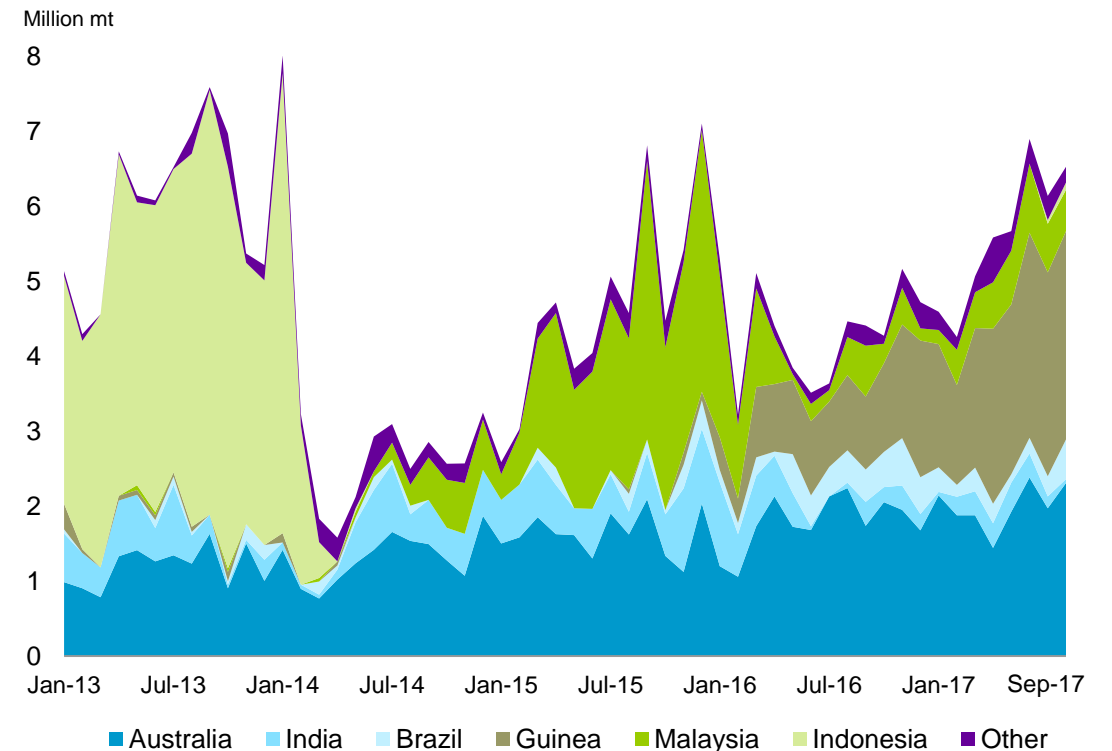
# Alumina prices significantly up in October, decreased in Nov and Dec

Increasing Atlantic bauxite exports to China, primarily from Guinea

### Platts alumina index (PAX)



### Monthly Chinese bauxite imports



Source: Platts, Ecwin, China Customs

# Growth in global semis demand creates opportunities for both primary and recycled material

Solid growth for semis, primary and recycling

CAGR 2017 – 2027



Source: CRU, Hydro Analysis

\* Post-consumer and fabrication scrap

\*\* Unallocated creep estimated at same level as unallocated disruptions

# Q&A

