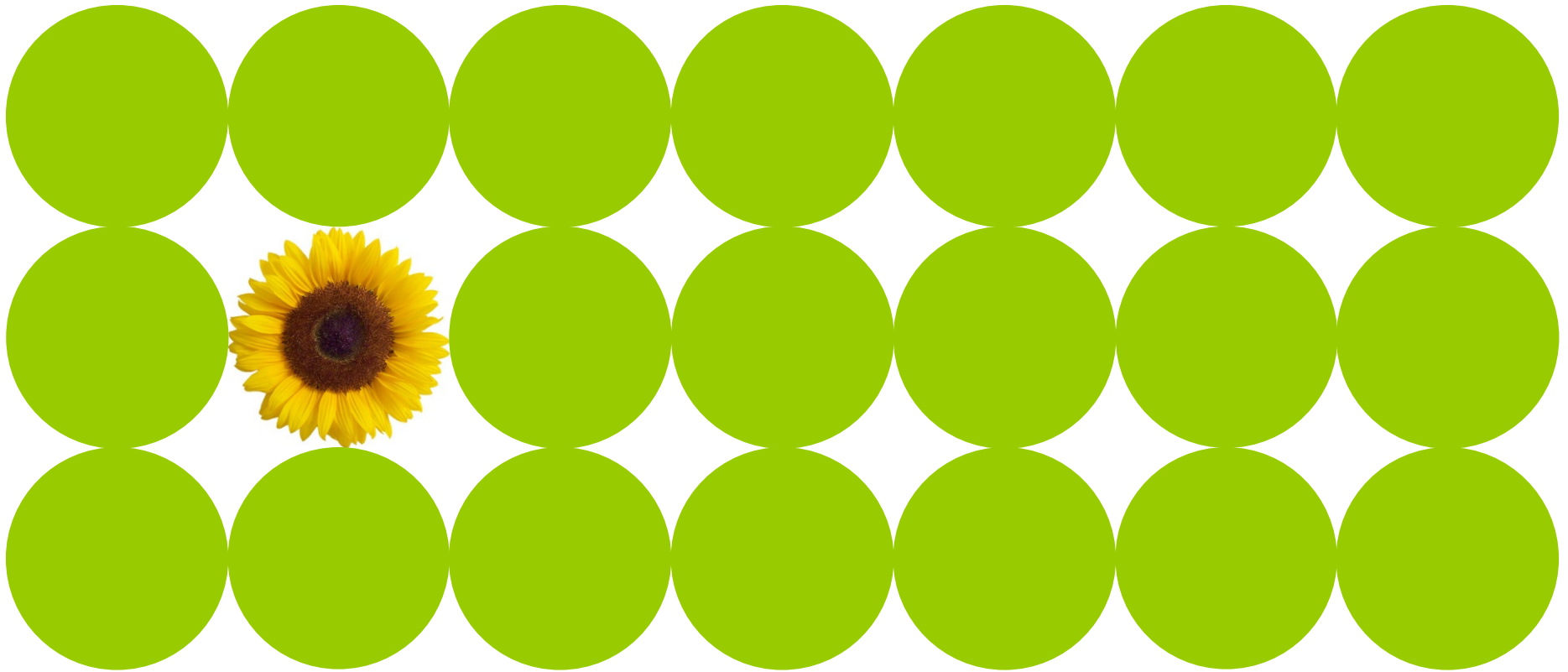


Bauxite & Alumina - Industry analysis and commercial strategy



Simon Storesund, Head of Bauxite & Alumina Commercial

June 14, 2012

Agenda

- Industry structure
- Bauxite and alumina industry analysis
- Short term alumina outlook
- B&A commercial strategy

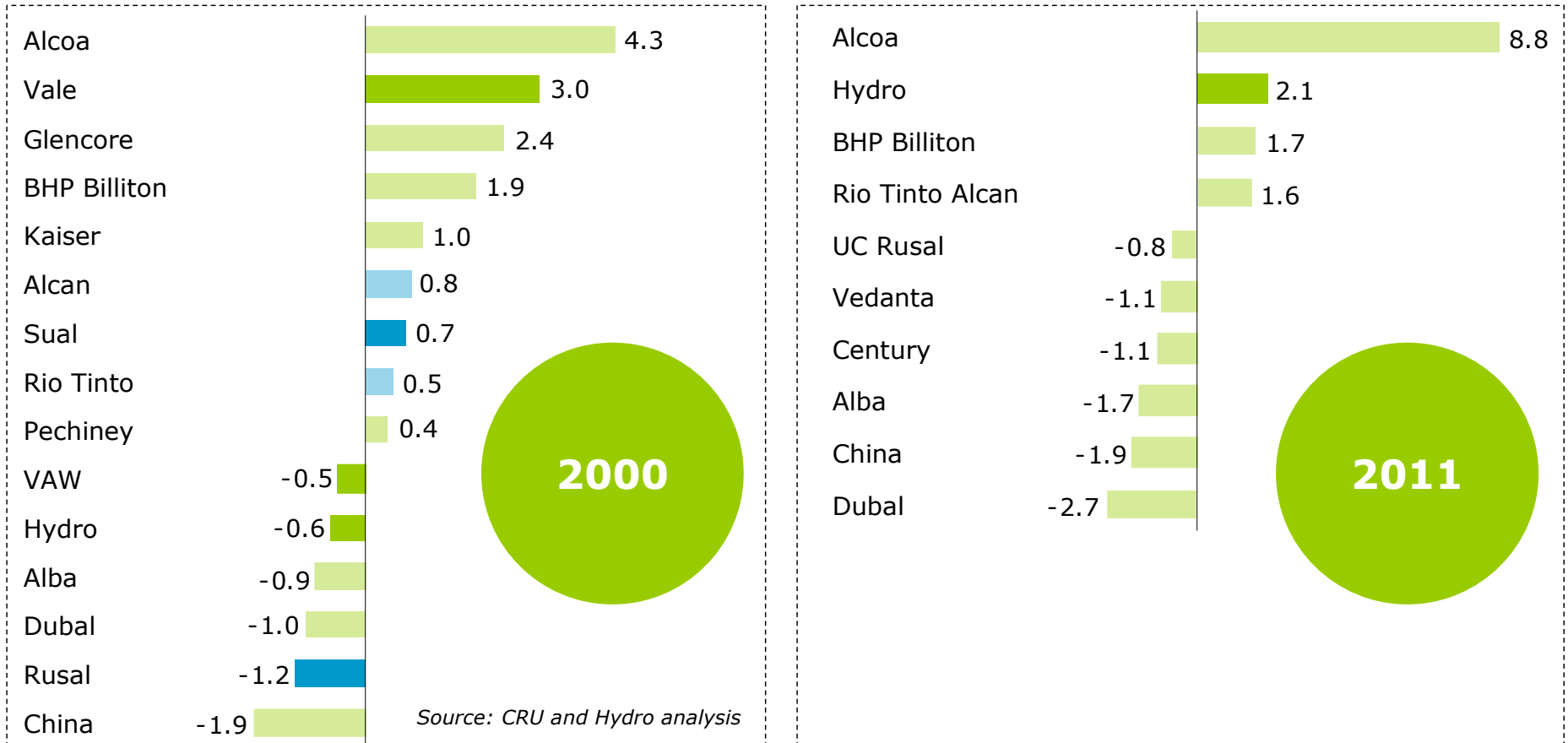


1

Industry structure

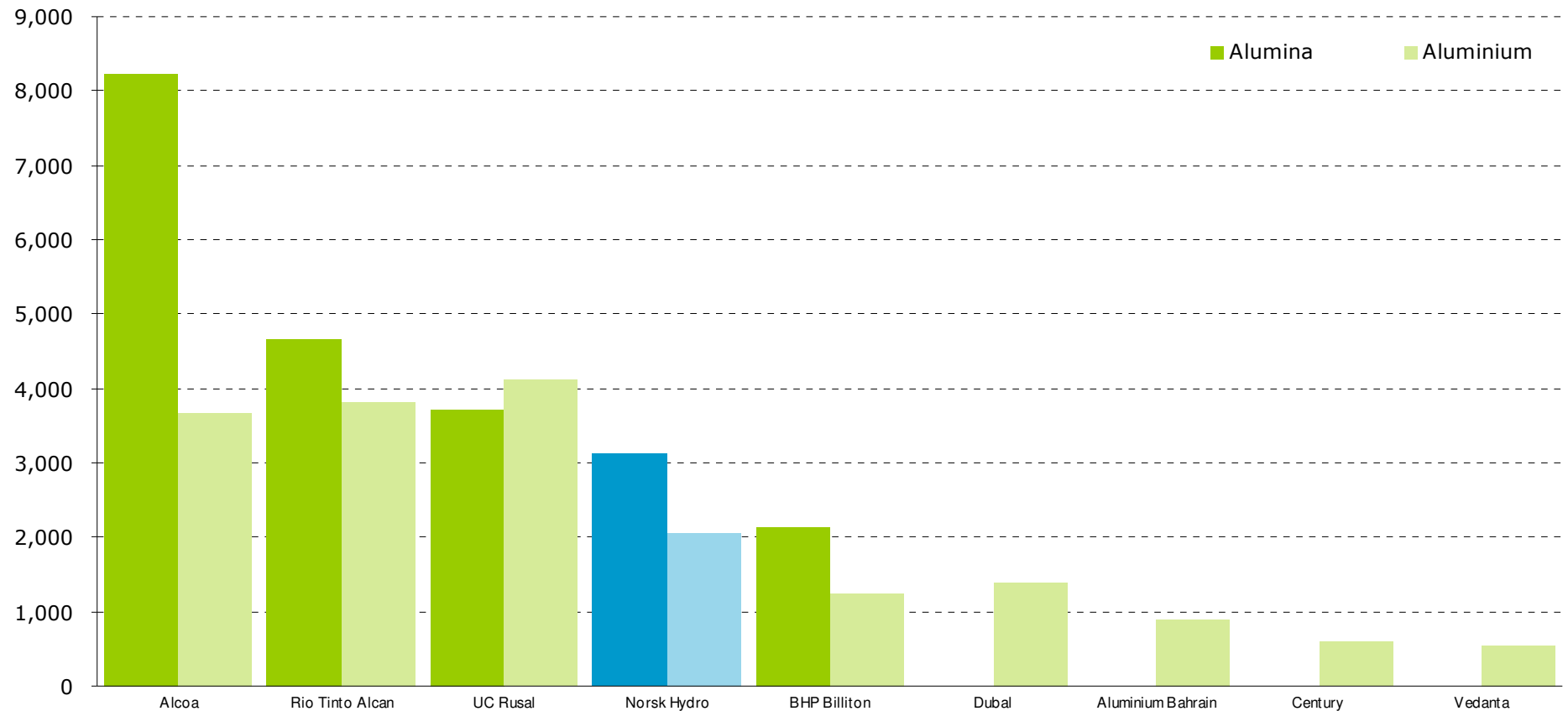
Alumina market is consolidating

Net long alumina position, million tonnes



Global industry structure

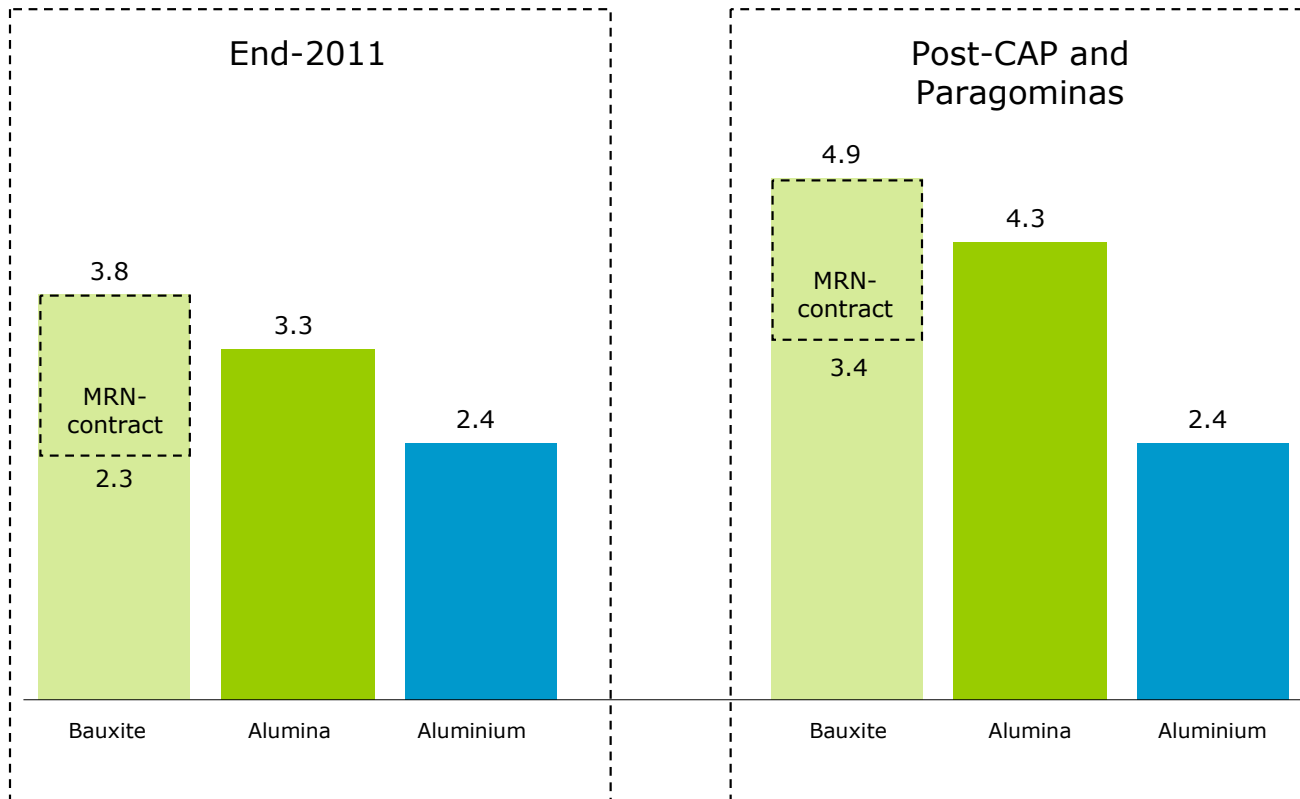
Production in 2011 in aluminium equivalents excl. China, thousand mt



Source: CRU, Hydro

Raw material is key to our aluminium future

Aluminium equivalent consolidated capacity, million tonnes

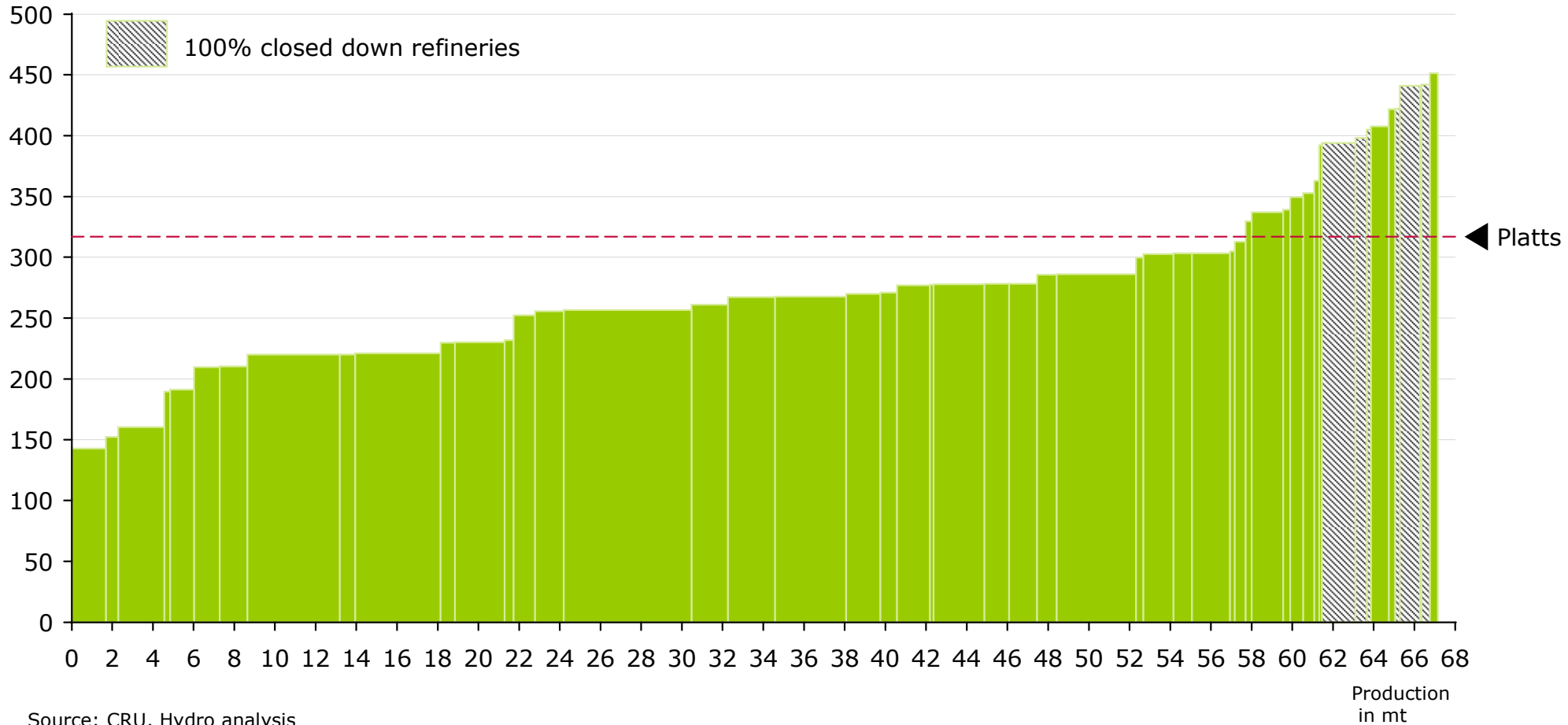


- Long position in bauxite and alumina creates flexibility
- Strategically attractive assets
- New business opportunities
- Resource constrained world

Includes idled capacity. "Post-CAP" includes Paragominas at 15 million tonnes and CAP first phase.

ROW cash cost curve – several refineries cash negative

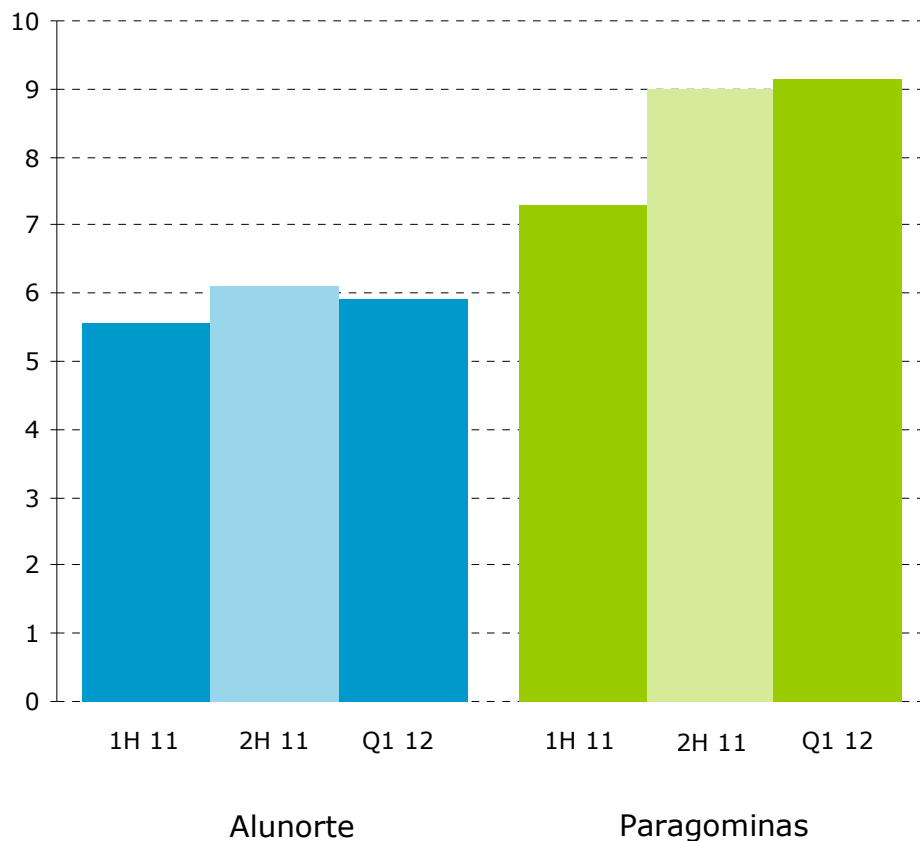
ROW ex China business operating cost curve, in USD/t



Source: CRU, Hydro analysis

Stabilizing bauxite and alumina performance

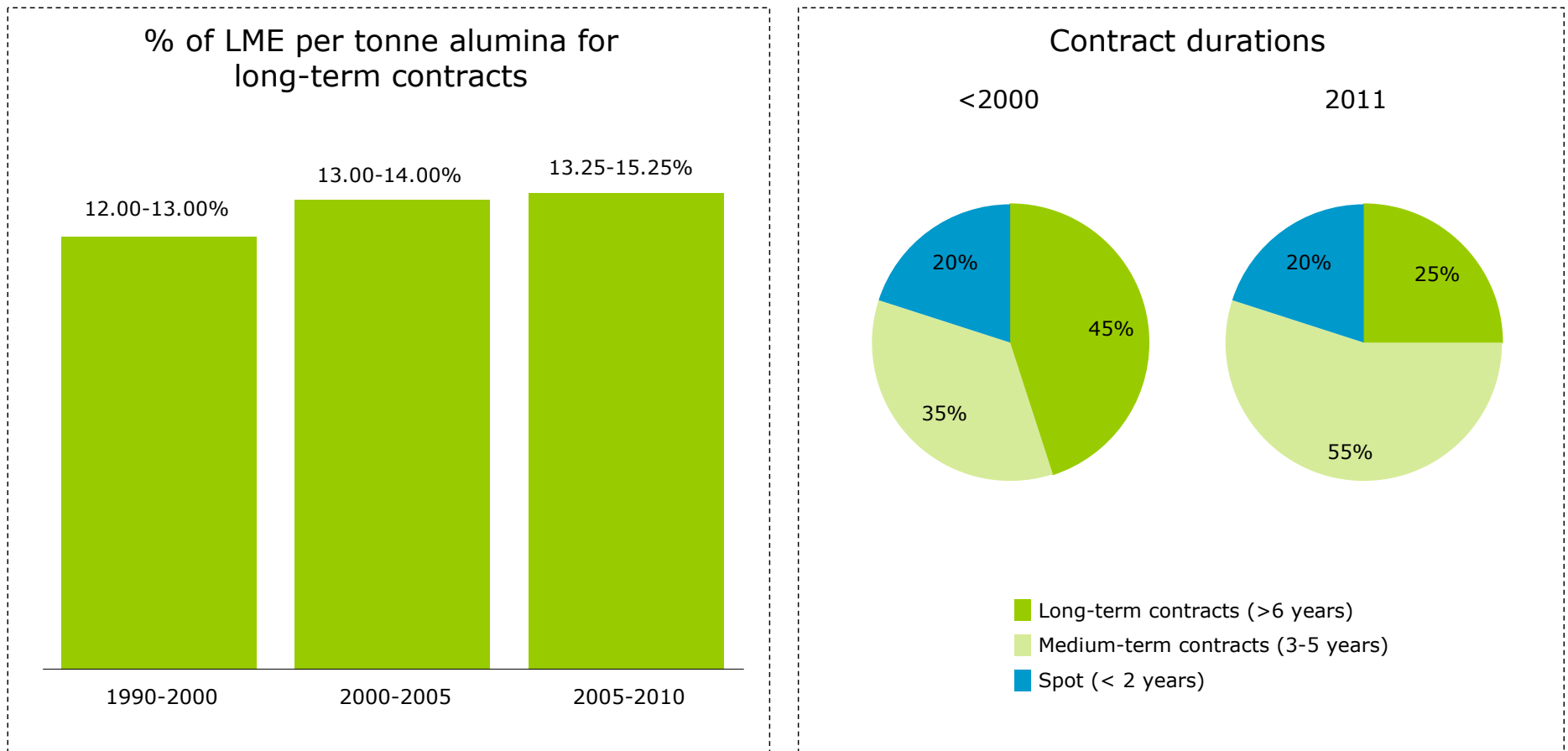
Annualized production million mt



- Paragominas Q1 2012 bauxite production up 26% from 1H 2011
- Alunorte Q1 2012 alumina production up 6% from 1H 2011
- Stabilizing production at higher level
 - Paragominas above 9 mtpy
 - Alunorte above 6 mtpy

* Pro-forma

Shift towards shorter contract durations and index pricing



Source: Hydro estimates

2

Bauxite and alumina industry analysis – focus on China

Healthy growth in aluminium demand

Global trends

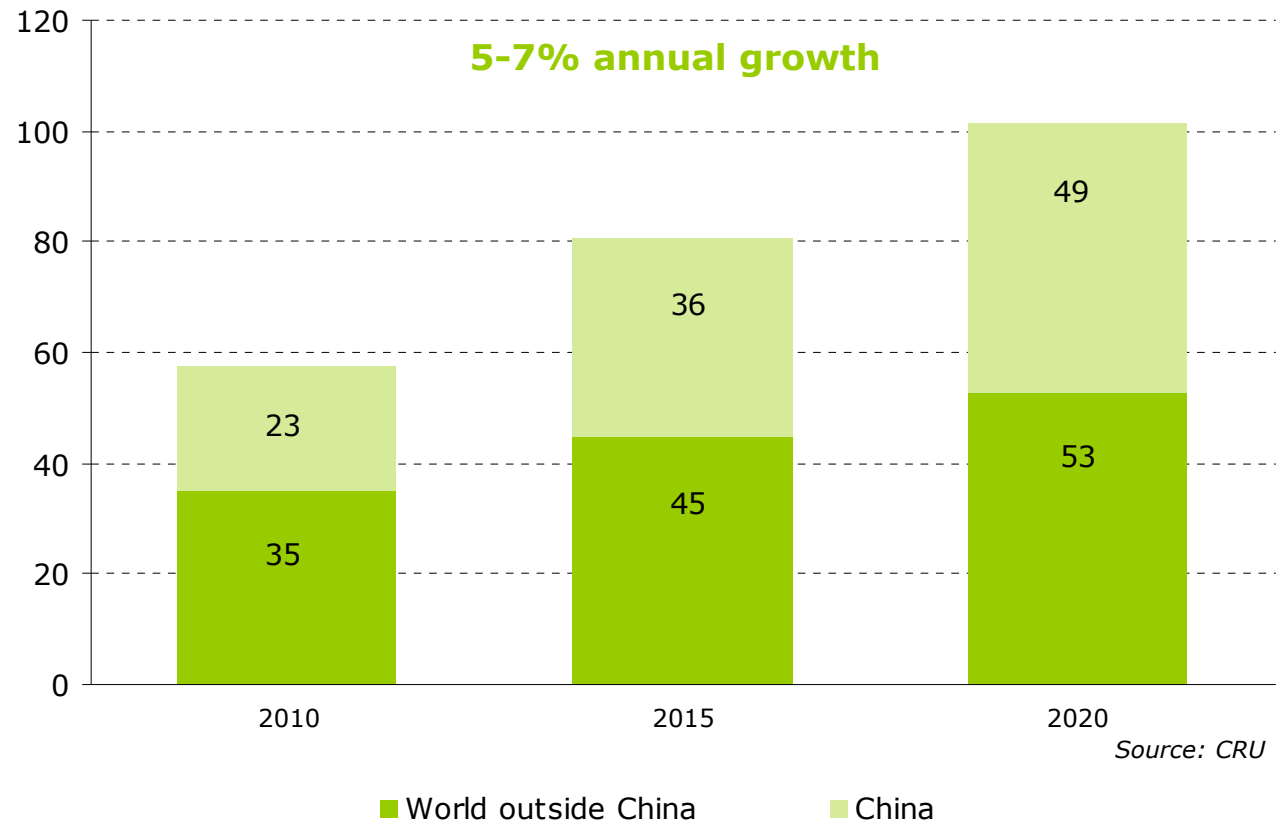


Capabilities



Demand for semis

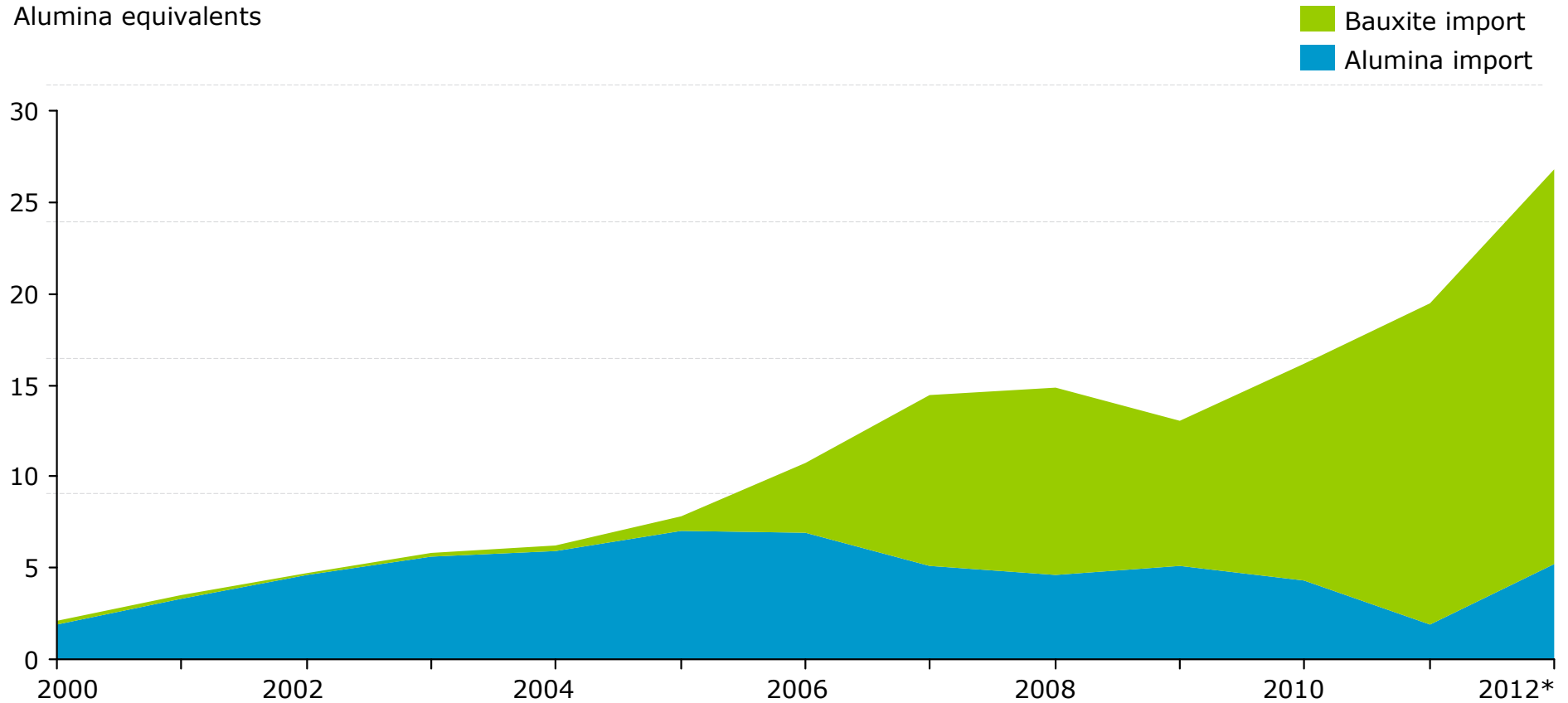
Million mt



China's import of bauxite and alumina

2000 – 2012

Million tonnes
Alumina equivalents

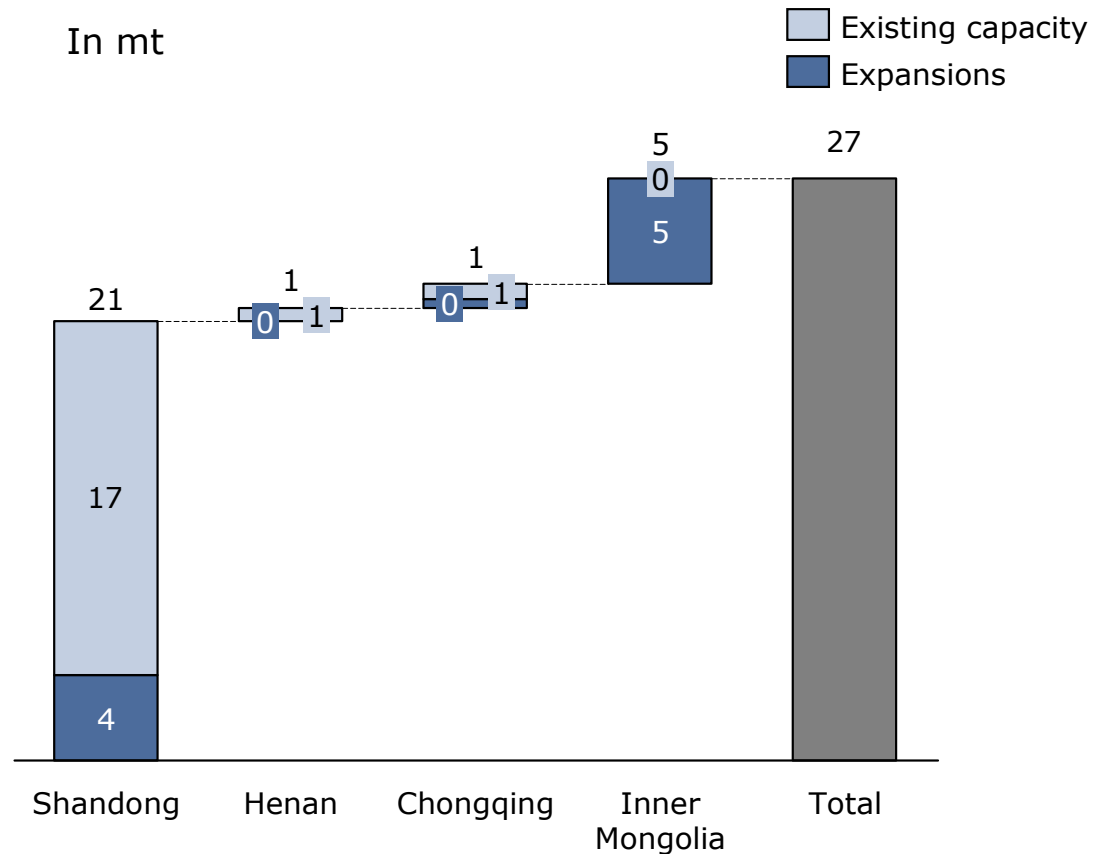
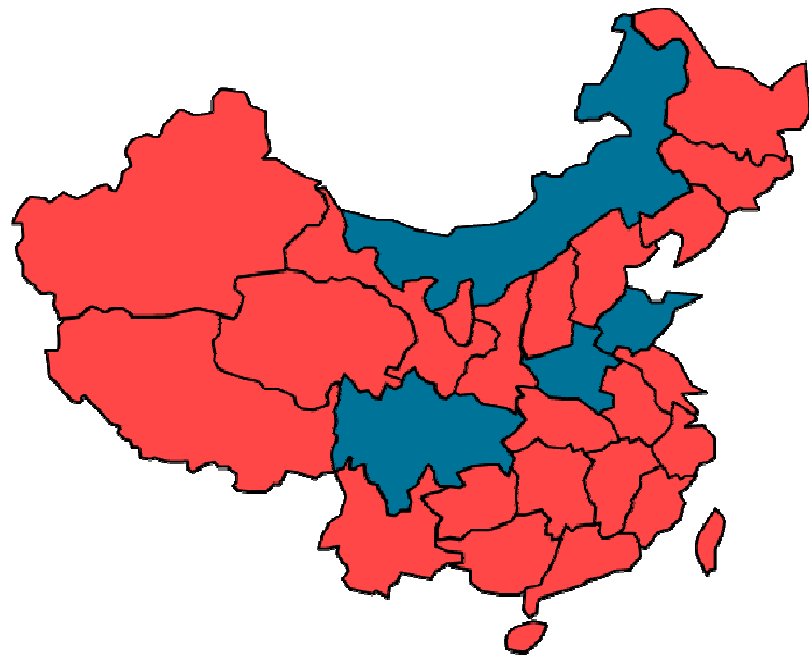


Source: Hydro analysis, Antaika

*YTD 2012 annualized

Around 1/3 of Chinese alumina capacity is based on imported bauxite

Alumina capacity based on imported bauxite



- Refineries constructed to import of bauxite is not able to use Chinese bauxite due to quality issues, and can therefore not replace imported bauxite with local bauxite

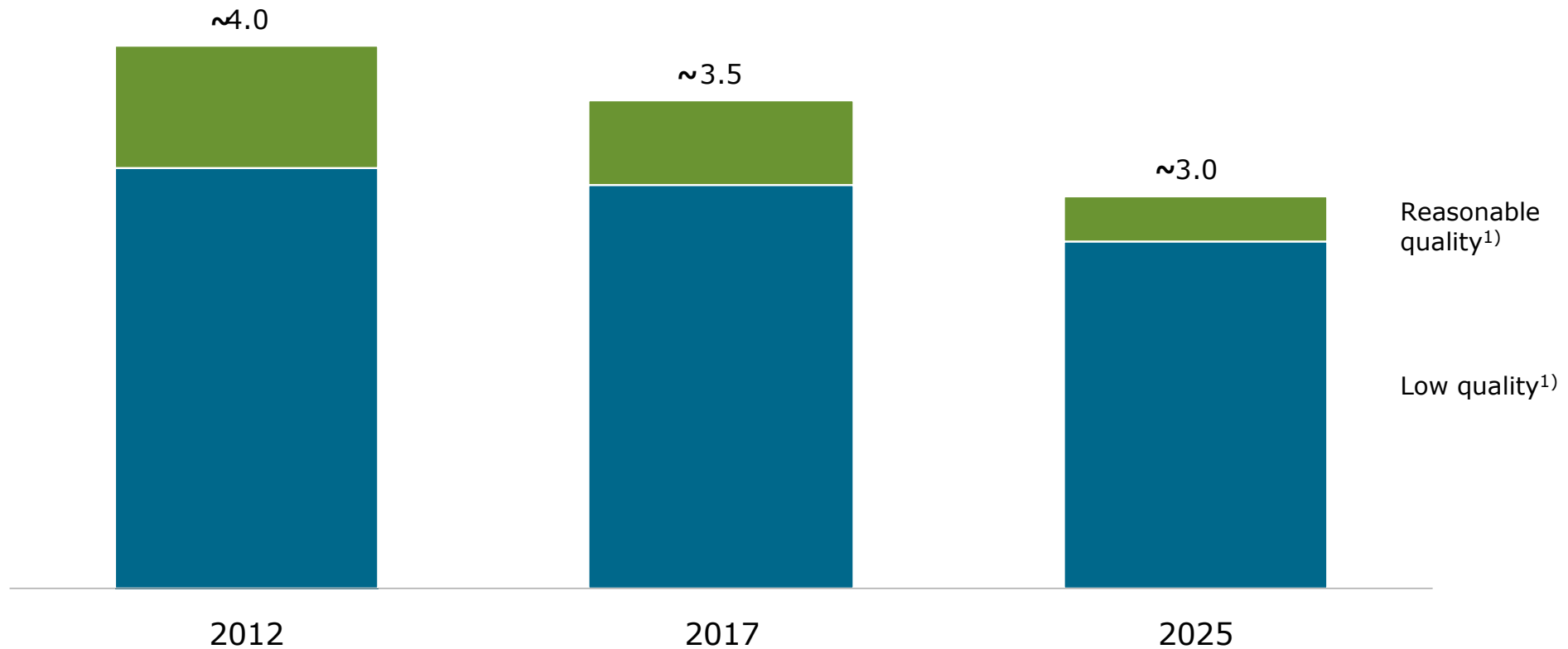
Source: C&M

Domestic bauxite production limited by low quality and depletion of reserves

Chinese bauxite reserves

Figures in billion mt

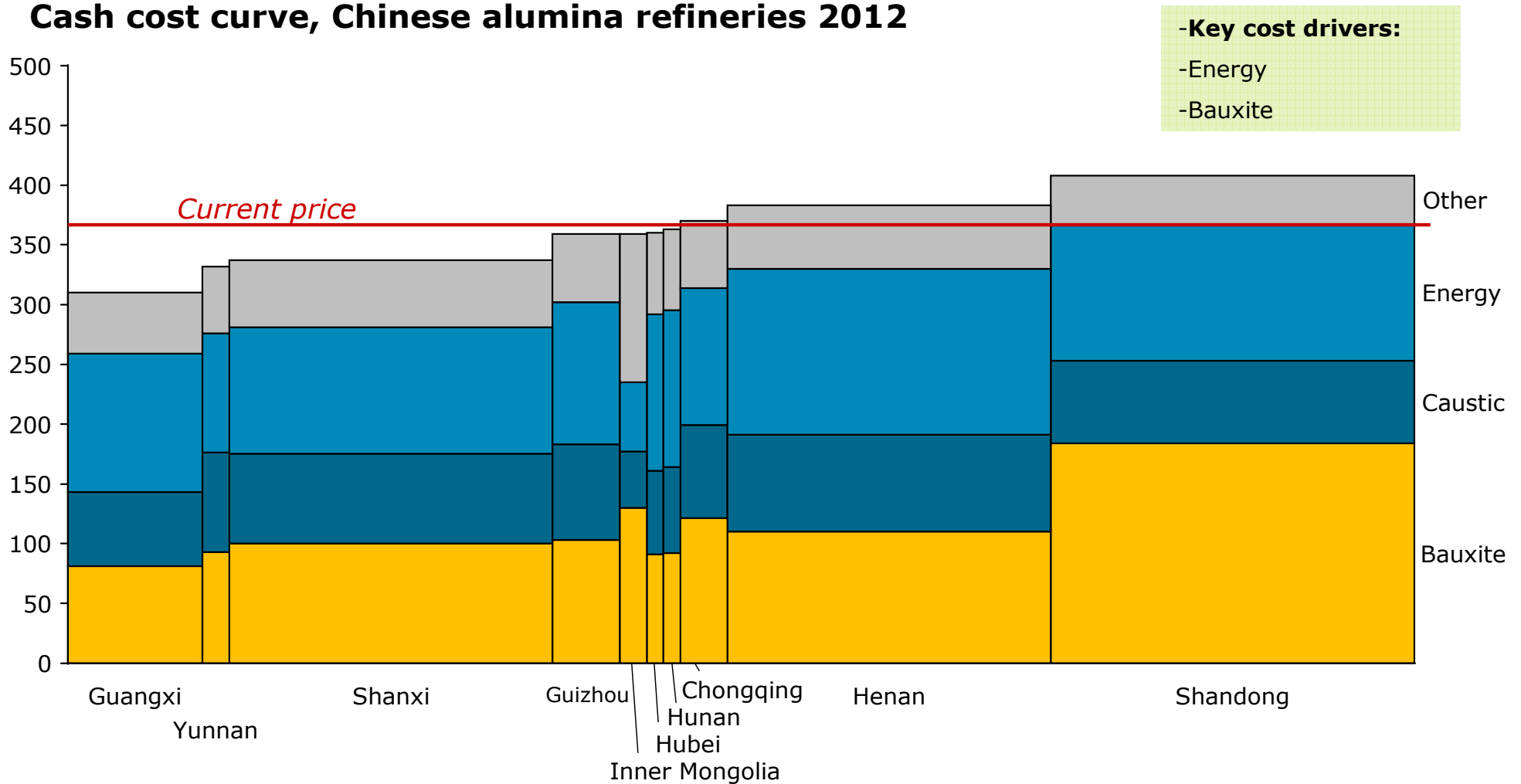
- Increasing cost of mining
- Majority of the reserves controlled by 4 companies



1) Estimate based on C&M depletion distribution on Hydro domestic production estimates

30-40% of Chinese refineries estimated to be cash negative - and costs will increase

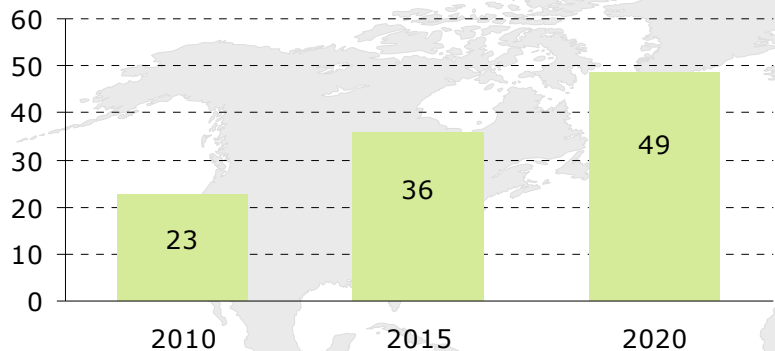
Cash cost curve, Chinese alumina refineries 2012



Source: C&M

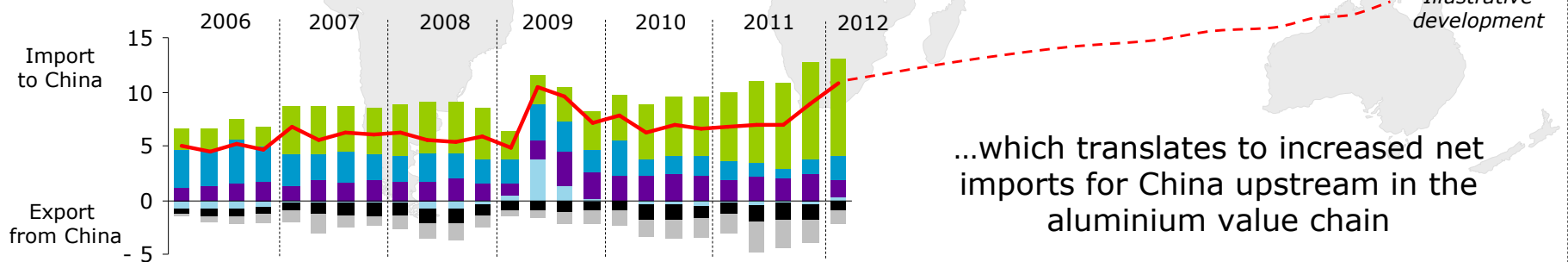
Increased Chinese dependency on import

Demand for semis, China, million mt



China's demand for semis expected to increase substantially going forward...

Annualized aluminium equivalents*, million mt



Source: CRU/Antaika/Hydro

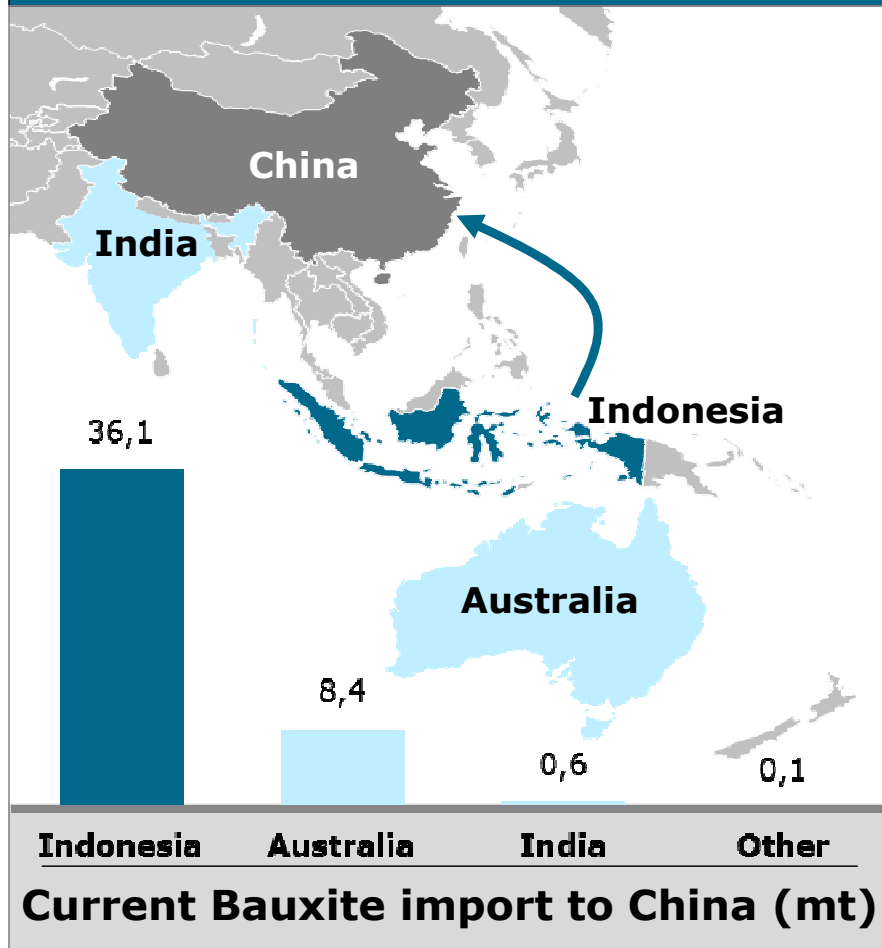
Alumina Bauxite Scrap Primary aluminium Fabricated Semis

* Bauxite/alumina to aluminium conversion factor: 5.4/1.925

Indonesia - major bauxite supplier to China

Exports restricted short term, not sustainable long term

Indonesia largest supplier of gibbsite bauxite to China by far..

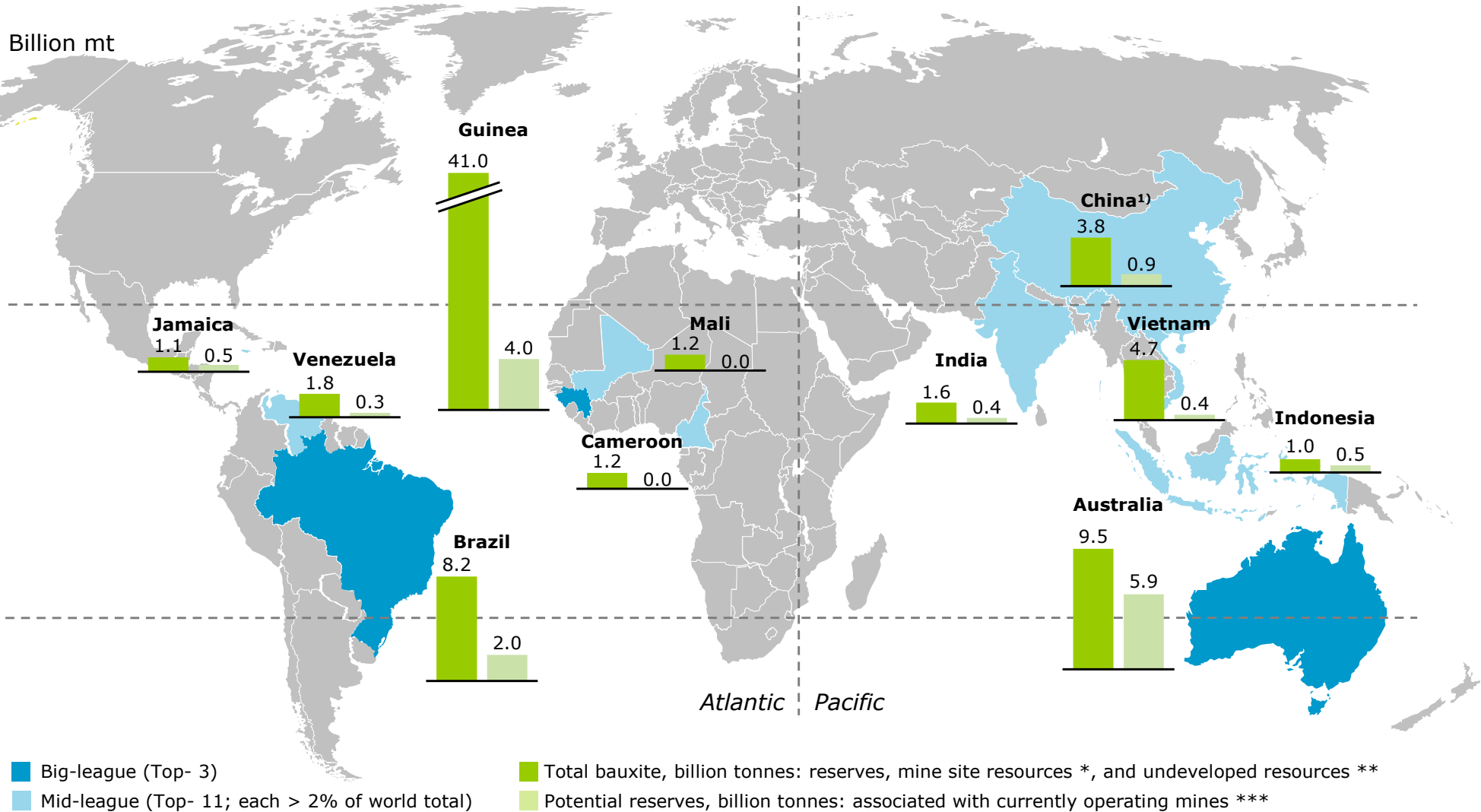


..but future production is expected to decrease significantly

- **Short term:** Government will restrict export
 - Licenses to be given to certain companies
 - Announced increased export tax to 20% in 2012 and 50% by 2013/2014
 - Announced ban of export from 2014, uncertainties regarding implementation
- **Long term:** Production will decrease due to: (independent of policies)
 - Scattered resources depleting over time
 - Inefficient mining practices
 - Competition from more profitable palm oil production

Which alternatives exist for China going forward?

Concentrated global bauxite reserves - options for China highly uncertain



1) Official reported resources in China (Not CM estimates)

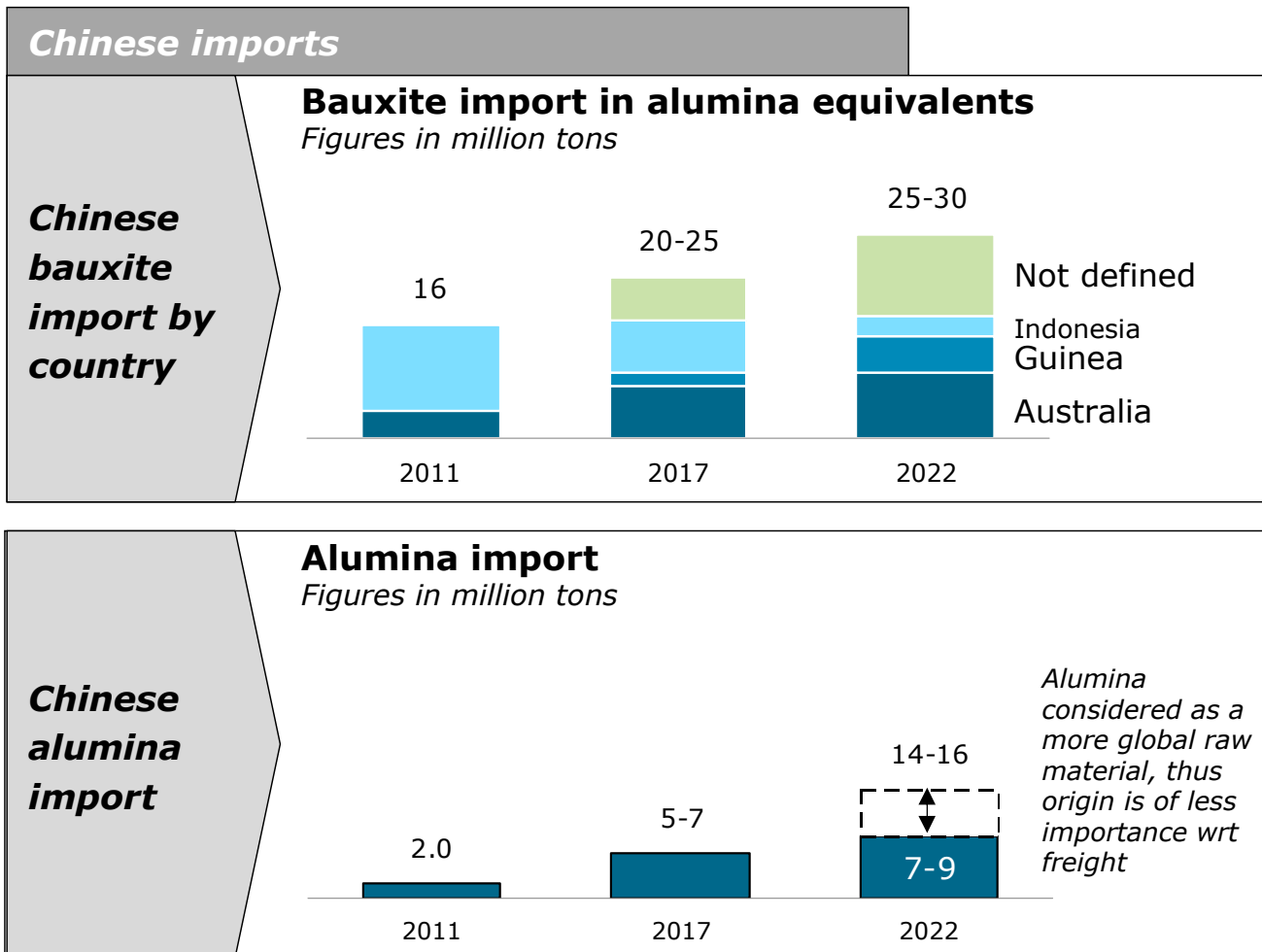
*) Mine site resources are known bauxite resources that do not currently qualify as reserves for various reasons

**) Undeveloped resources might or might not become feasible for new mines (quality, size, access, etc)

***) Potential reserves = current reserves (economically extractible) + 70% of mine site resources. Undeveloped resources are excluded.

Source: Roskill and Hydro analysis

Australia major source of bauxite to China - Guinea potentially becoming more important



- Pacific will still be major source of bauxite to China
- Guinea possibly becoming increasingly important for global B&A industry
- Uncertainties: Price development will determine substitution effect between bauxite and alumina
 - If prices are attractive vs bauxite import prices the alumina import could reach 14-16 million mt and substitute some of the bauxite import

Source: CM/Hydro internal

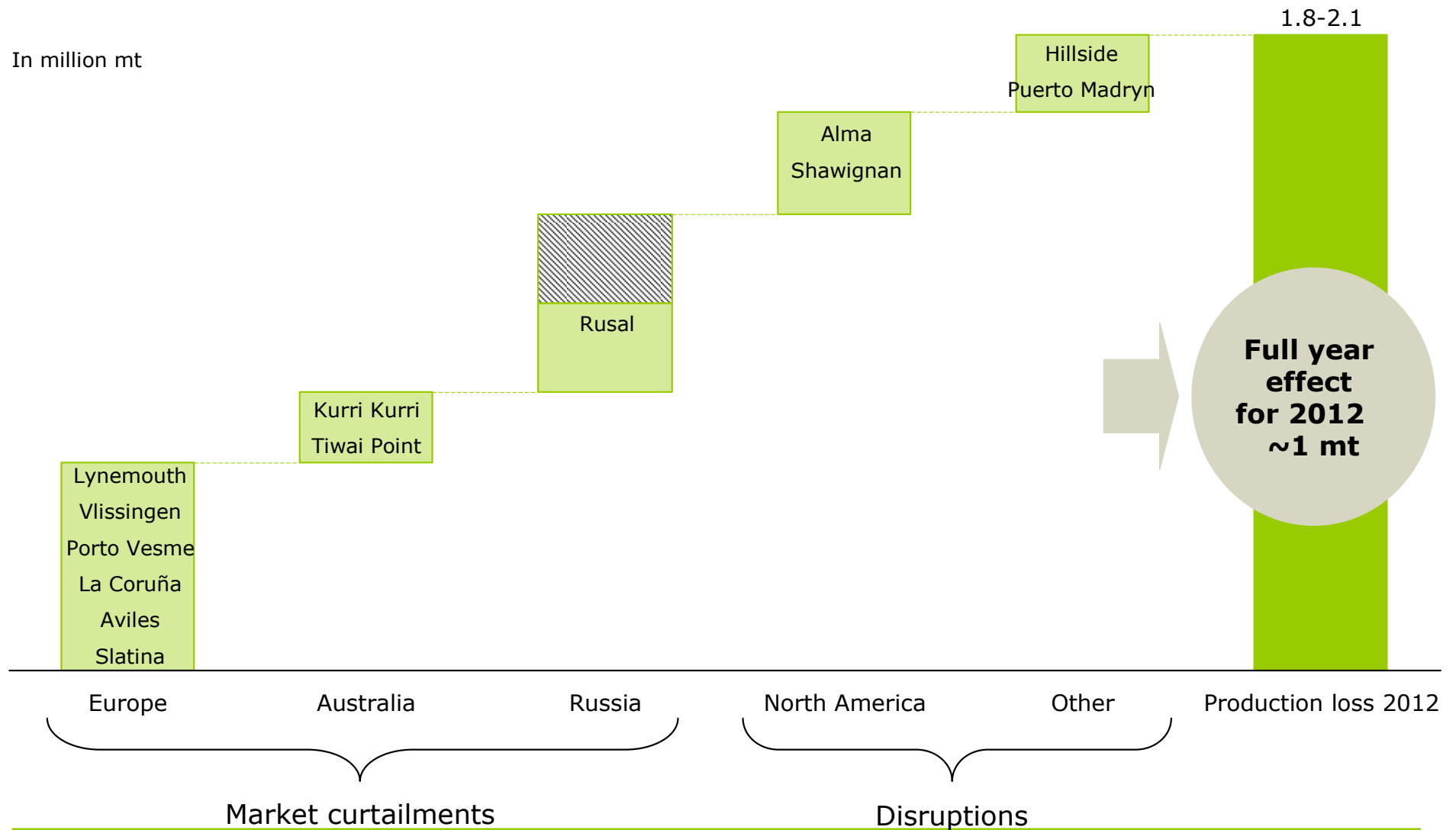
Summary bauxite and alumina market long-term

- Scarcity of domestic economical bauxite resources in China
- Indonesia expected to reduce export significantly - outcome highly uncertain
- Limited short-term alternatives for Chinese bauxite imports
- Guinea a possible long term solution for covering the Chinese bauxite shortage (in form of bauxite and/or alumina)
- Increased barriers to enter into integrated bauxite/alumina projects globally
- Upwards pressure on bauxite and alumina prices globally

3

Short-term alumina market supply and demand outlook

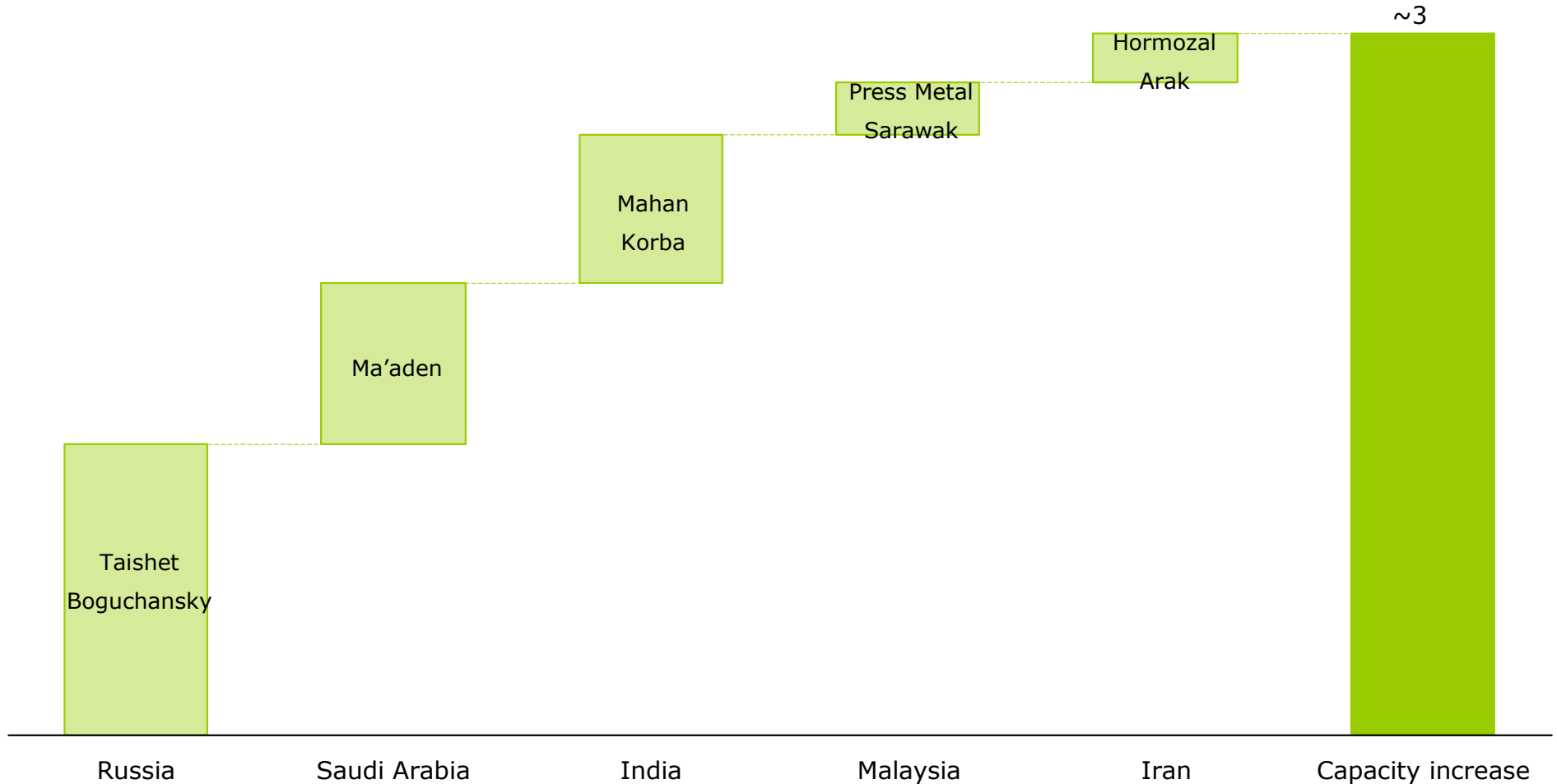
Announced smelter closures and disruptions



Source: CRU, Hydro analysis

Major projects can add ~ 3 million mt of primary aluminium capacity in the next years

In million mt

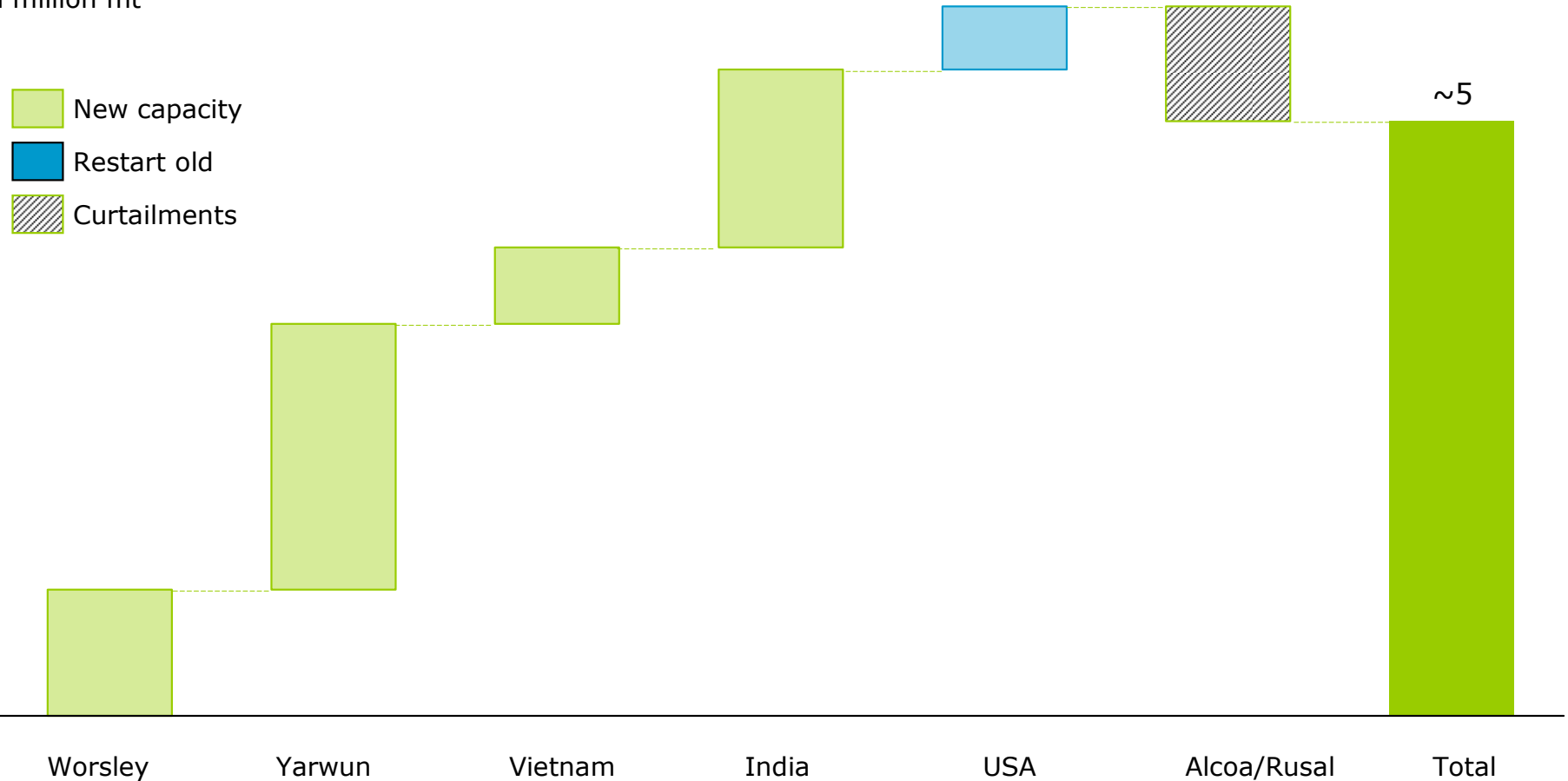


Source: CRU, Hydro Analysis

Changes in alumina supply 2012/2013

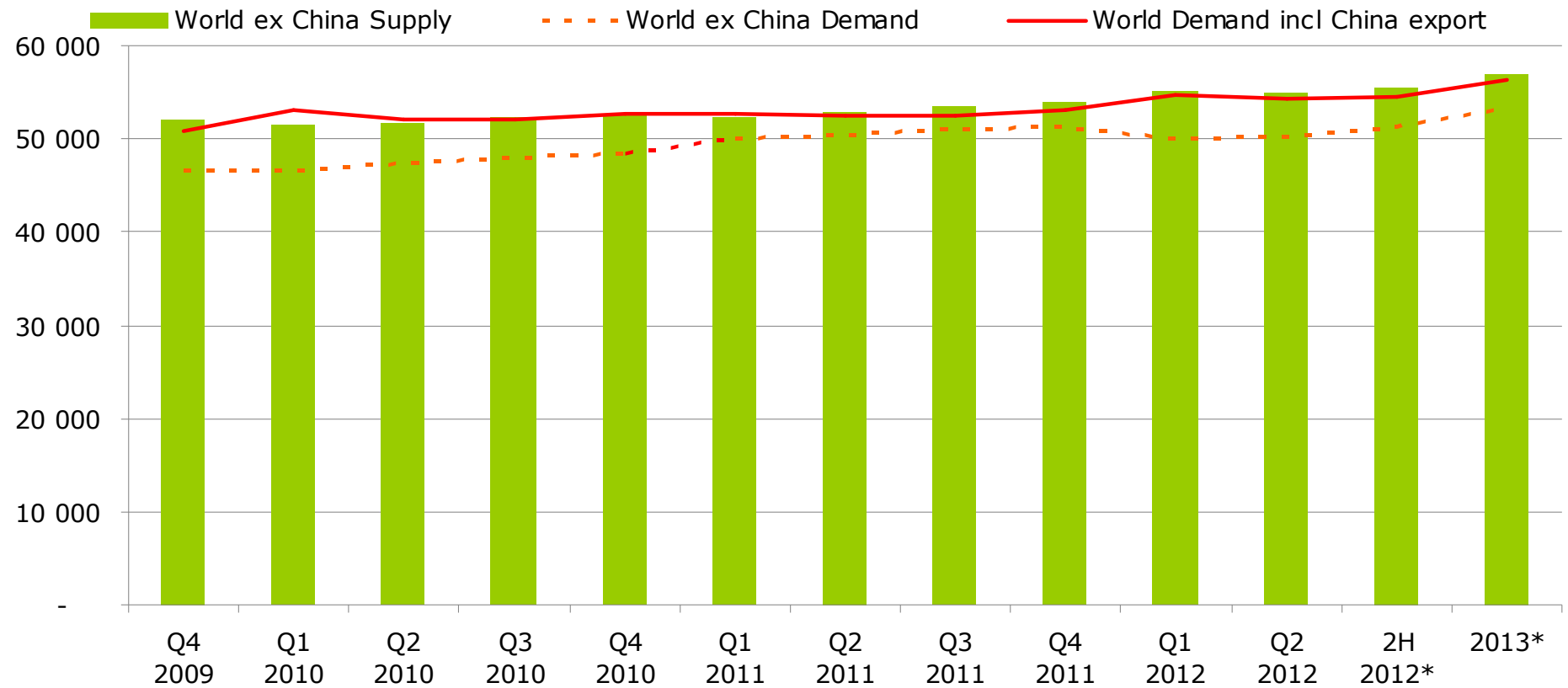
ROW outside China

In million mt



Alumina - supply/demand excl. China

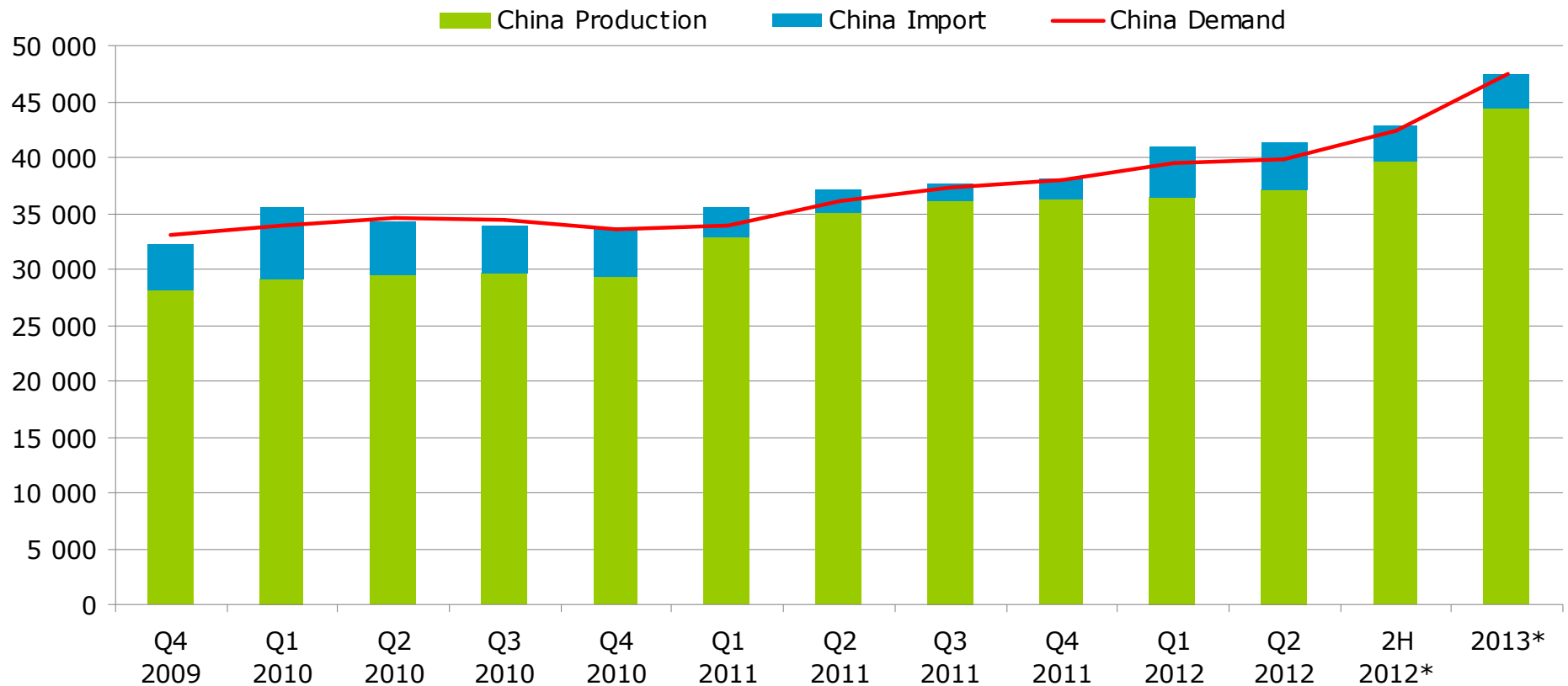
Global ex China (annualized), in thousand mt



*forecast
Source: CRU

Alumina - supply/demand China

China (annualized), in thousand mt

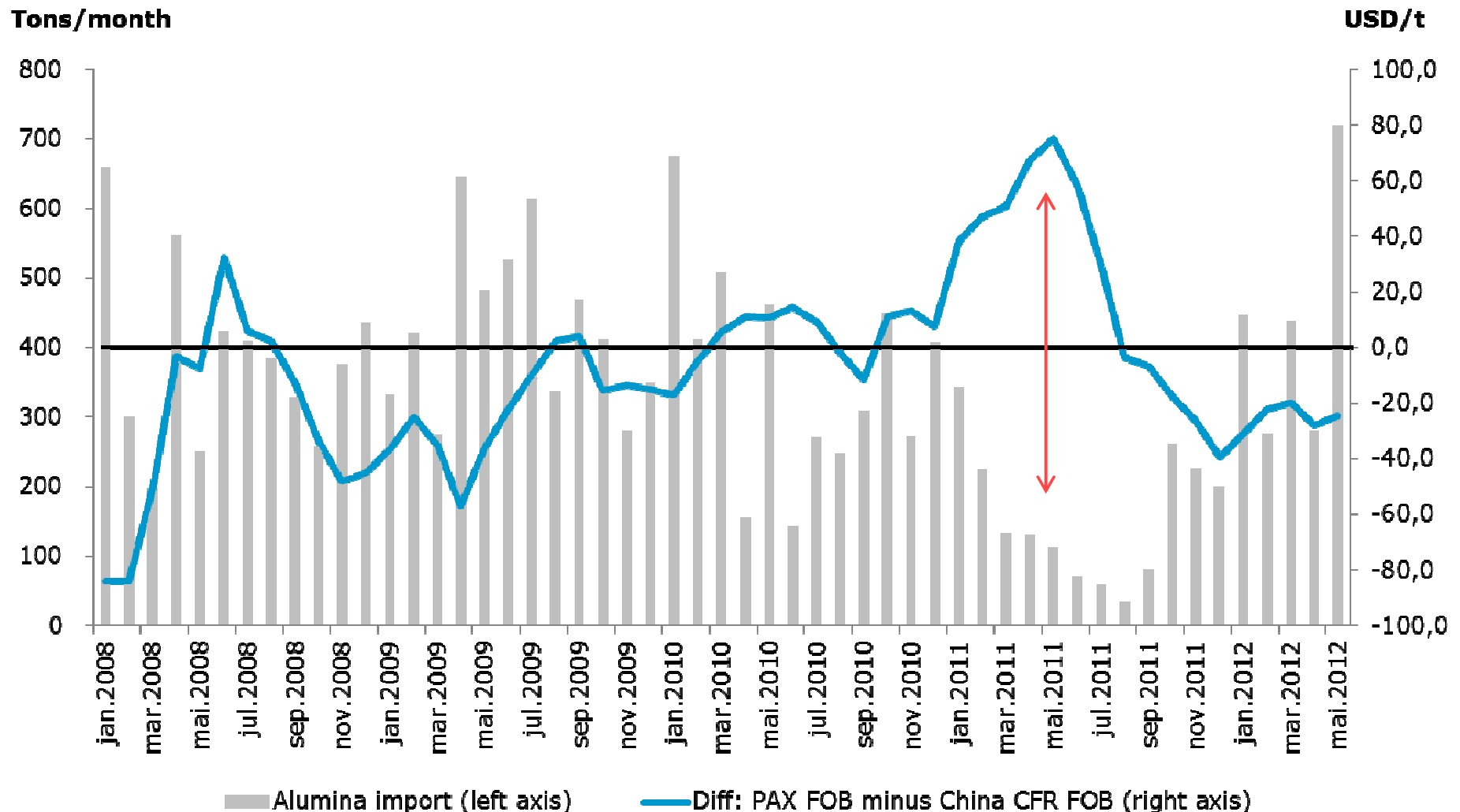


*forecast

Source: CRU

Chinese alumina import vary with prices

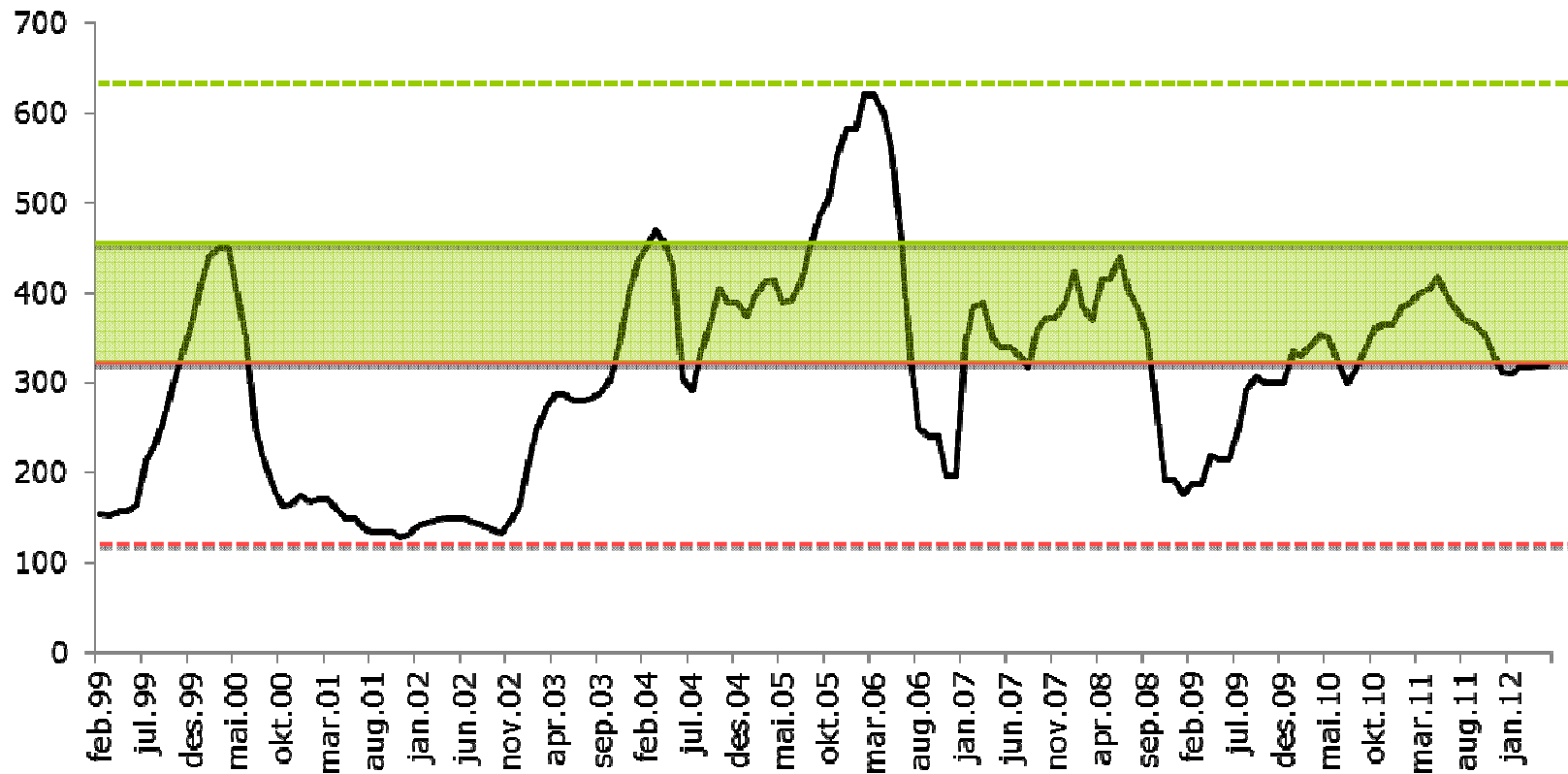
Will Chinese alumina refineries be competitive compared to AUS import?



China: A stabilizing factor in the alumina market

Picture might change due to potential shortage of bauxite

Historical alumina prices, 1999 - YTD
CRU spot prices - in \$/t



Source: CRU, Hydro

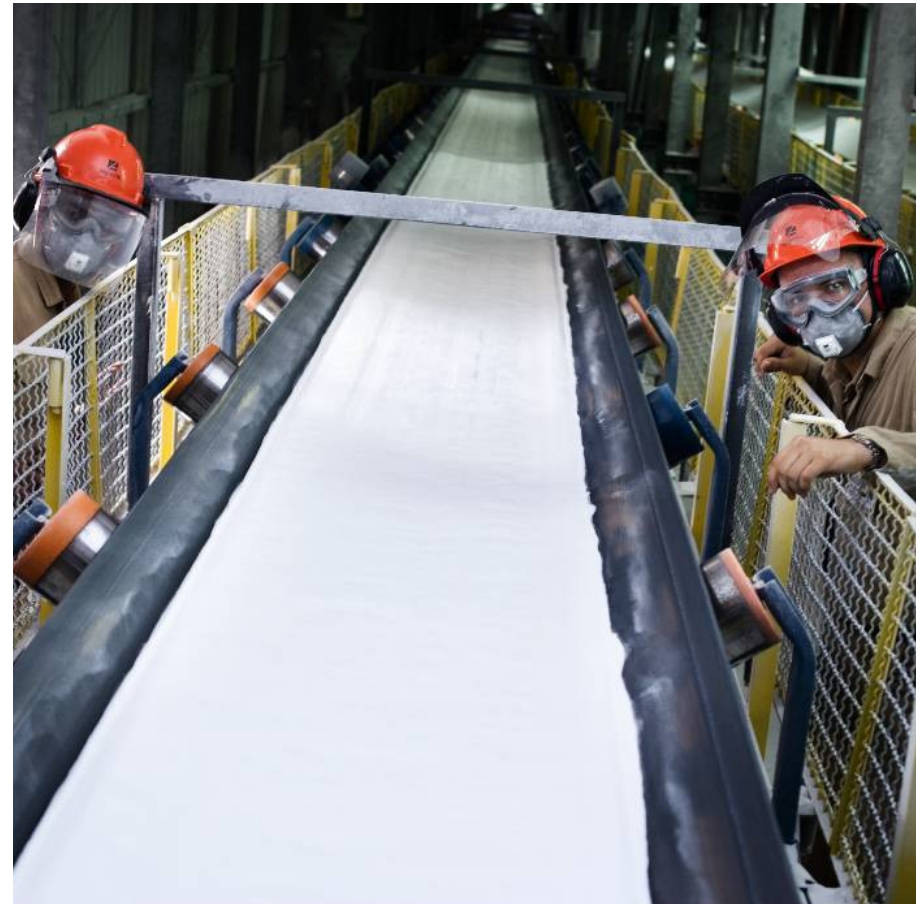
Key factors - short term alumina market

- Growth outlook:
 - **Europe**
 - US
 - **China**
 - ROW
- Smelter & refinery curtailments
- Indonesia development
- Export to China



CAP-project postponed

- Uncertain short- and medium term supply/demand balance and uncertain development in the world economy
- Long-term alumina market view unchanged
- Highly attractive, low risk project



4

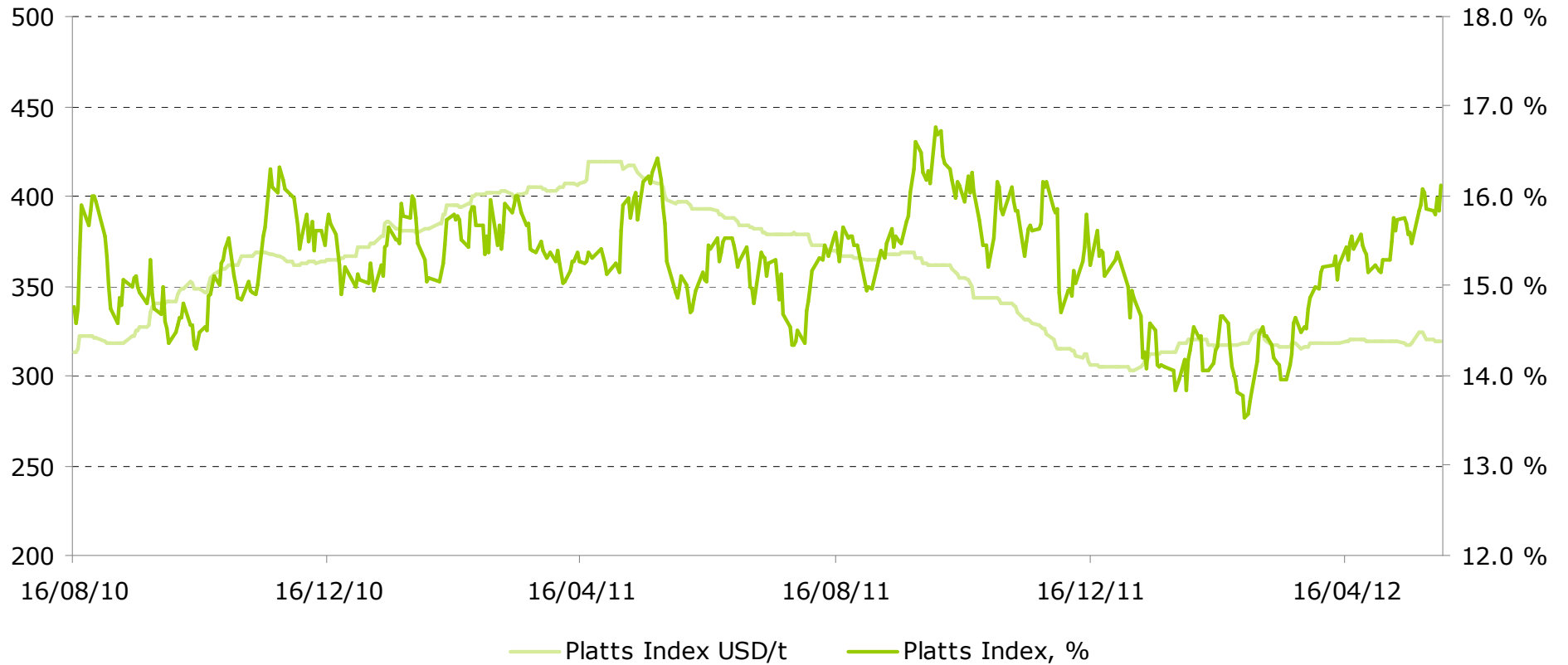
B&A Commercial Strategy

Alumina index price

Platts index in USD

USD per mt

**Index pricing proven successful
in a period of weak markets!**



Hydro's commercial strategy - alumina



- Move towards index pricing (PAX)
 - Provide spot market liquidity and report trades
 - New contracts to be based on index pricing
 - Gives right incentives for the industry
- Focus on contracts with short to medium-term duration
- Focus on selling to end-users
- Establish a premium for Alunorte quality
- Hydro's existing combined sales portfolio
 - Average alumina price ~14% of LME
 - Similar percentage expected for 2012-2015
 - Minor volumes available for sale before 2016
 - Majority of sales contracts expire in 2016-2018

Hydro's commercial strategy - bauxite



- Delink from LME-formula
- Move towards index price link (PAX)
 - Link to bauxite and alumina fundamentals
- Majority sold on short and medium term contracts
- Increased investment cost requires higher prices



Summary

Key take-aways

- China to become increasingly dependent on imports
 - Initially bauxite, but could switch to alumina or metal
- Indonesia a key factor in the years to come
- Increased barriers for bauxite and alumina projects
 - Political risk and scarcity of available resources

www.hydro.com