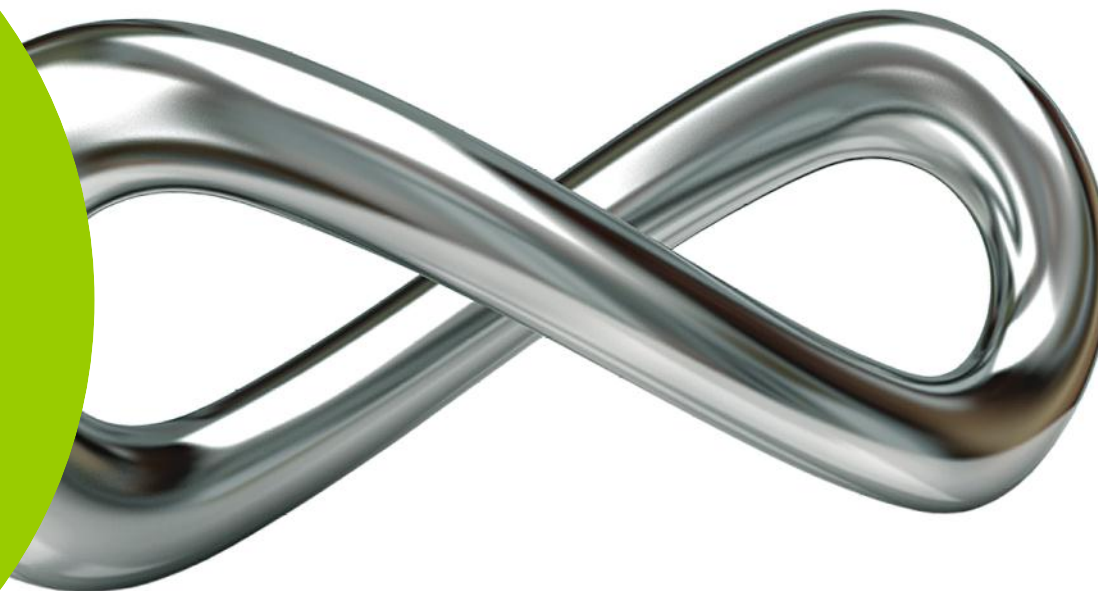




# Capital Markets Day

November 27, 2014



*Better **Bigger** Greener*

# Table of contents

Hydro	4
Financial update	41
Market outlook	72
Rolled Products	111
Primary Metal	130
Bauxite & Alumina	150

# Cautionary note in relation to certain forward-looking statements

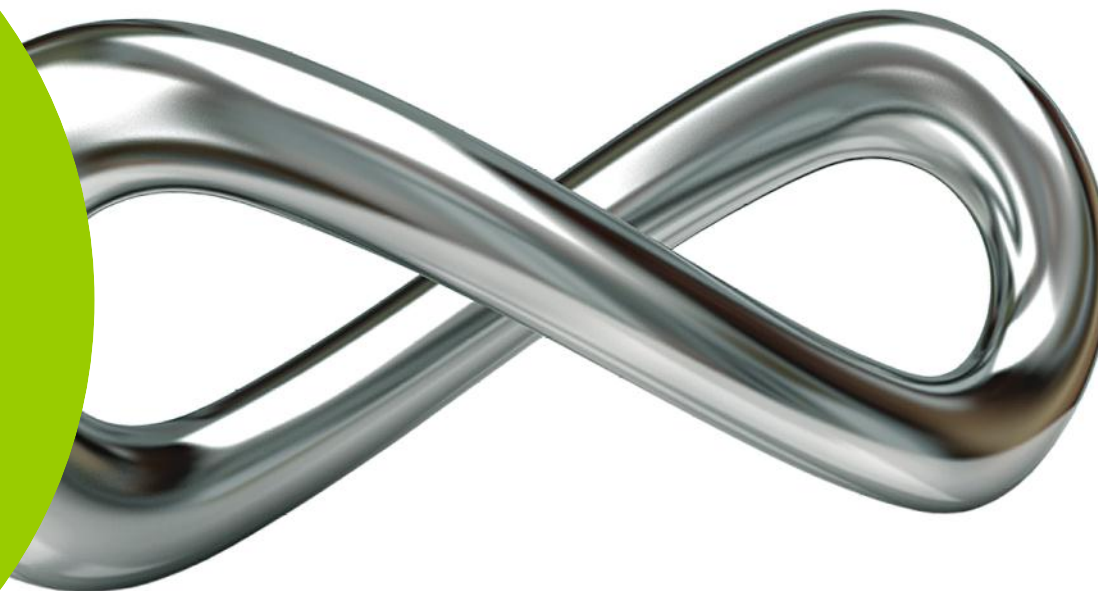
Certain statements included within this announcement contain forward-looking information, including, without limitation, those relating to (a) forecasts, projections and estimates, (b) statements of management's plans, objectives and strategies for Hydro, such as planned expansions, investments or other projects, (c) targeted production volumes and costs, capacities or rates, start-up costs, cost reductions and profit objectives, (d) various expectations about future developments in Hydro's markets, particularly prices, supply and demand and competition, (e) results of operations, (f) margins, (g) growth rates, (h) risk management, as well as (i) statements preceded by "expected", "scheduled", "targeted", "planned", "proposed", "intended" or similar statements.

Although we believe that the expectations reflected in such forward-looking statements are reasonable, these forward-looking statements are based on a number of assumptions and forecasts that, by their nature, involve risk and uncertainty. Various factors could cause our actual results to differ materially from those projected in a forward-looking statement or affect the extent to which a particular projection is realized. Factors that could cause these differences include, but are not limited to: our continued ability to reposition and restructure our upstream and downstream aluminium business; changes in availability and cost of energy and raw materials; global supply and demand for aluminium and aluminium products; world economic growth, including rates of inflation and industrial production; changes in the relative value of currencies and the value of commodity contracts; trends in Hydro's key markets and competition; and legislative, regulatory and political factors.

No assurance can be given that such expectations will prove to have been correct. Hydro disclaims any obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

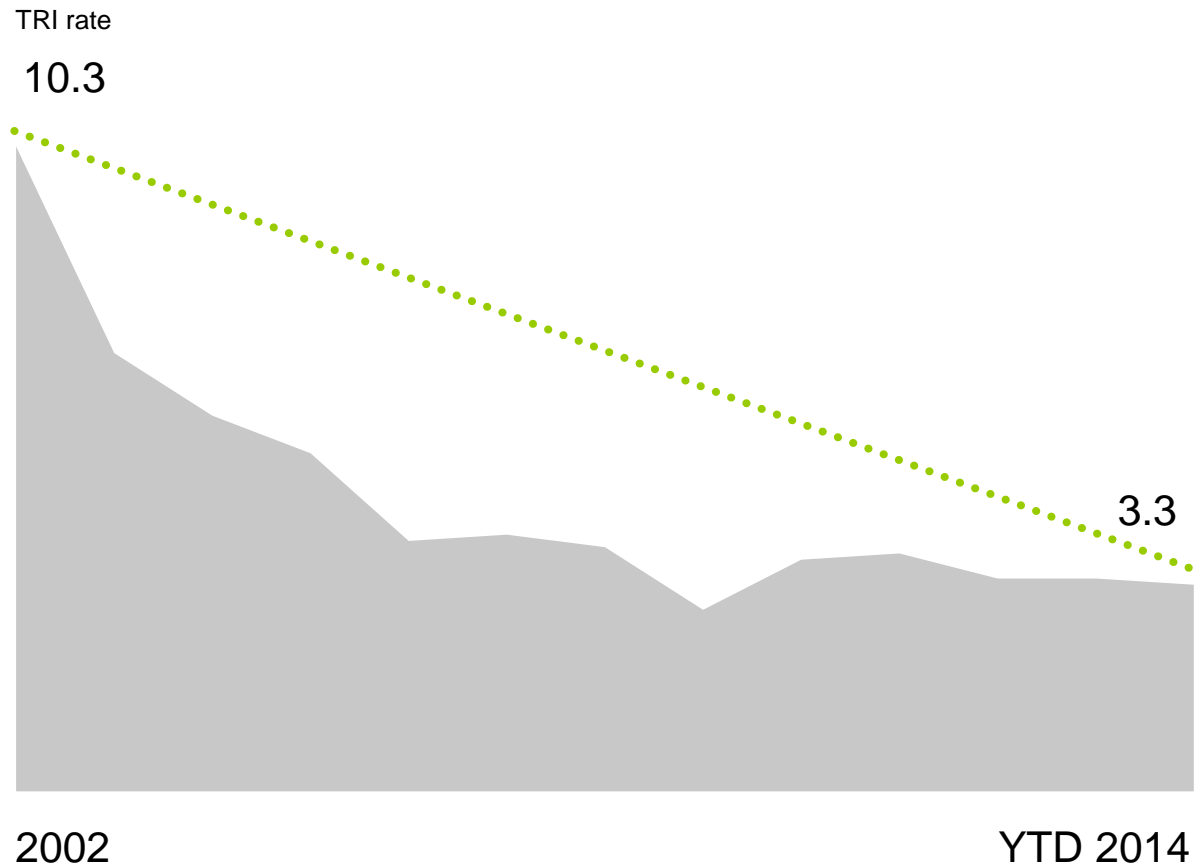
Lifting performance,  
creating value  
in tight markets

Svein Richard Brandtzæg  
Capital Markets Day 2014



*Better Bigger Greener*

# HSE, CSR and compliance – integral parts of our business

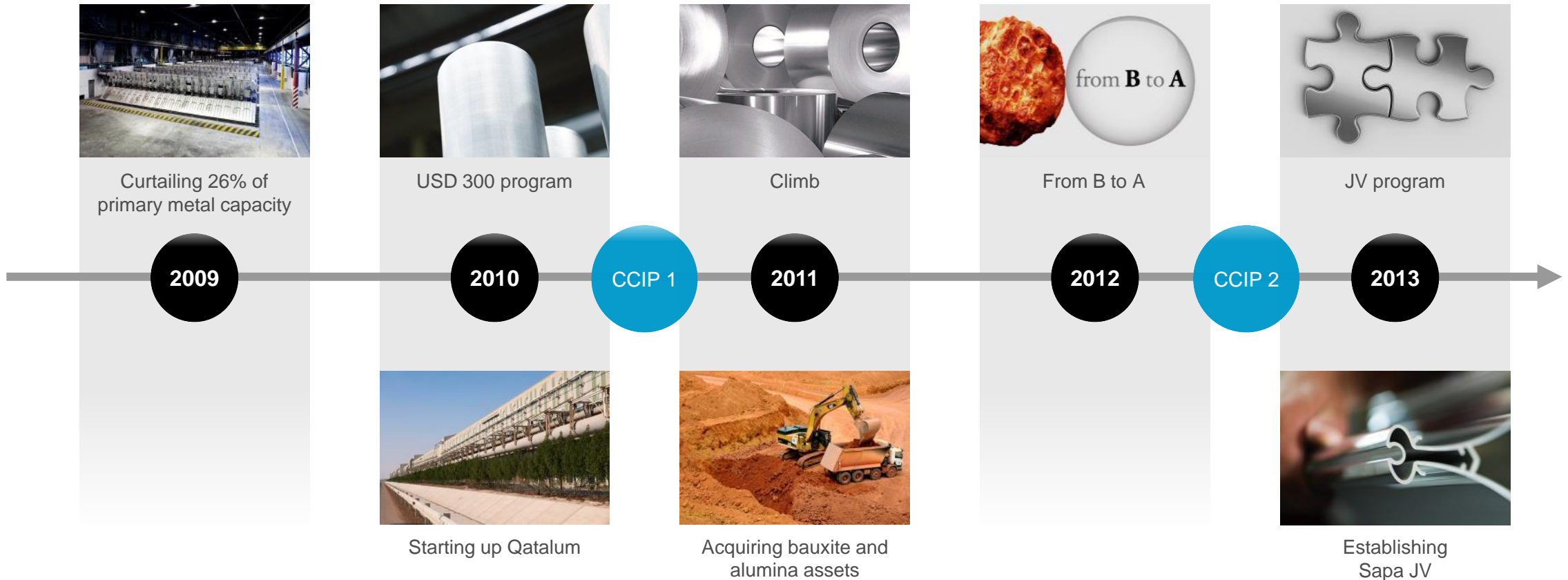


Safety performance at industry benchmark

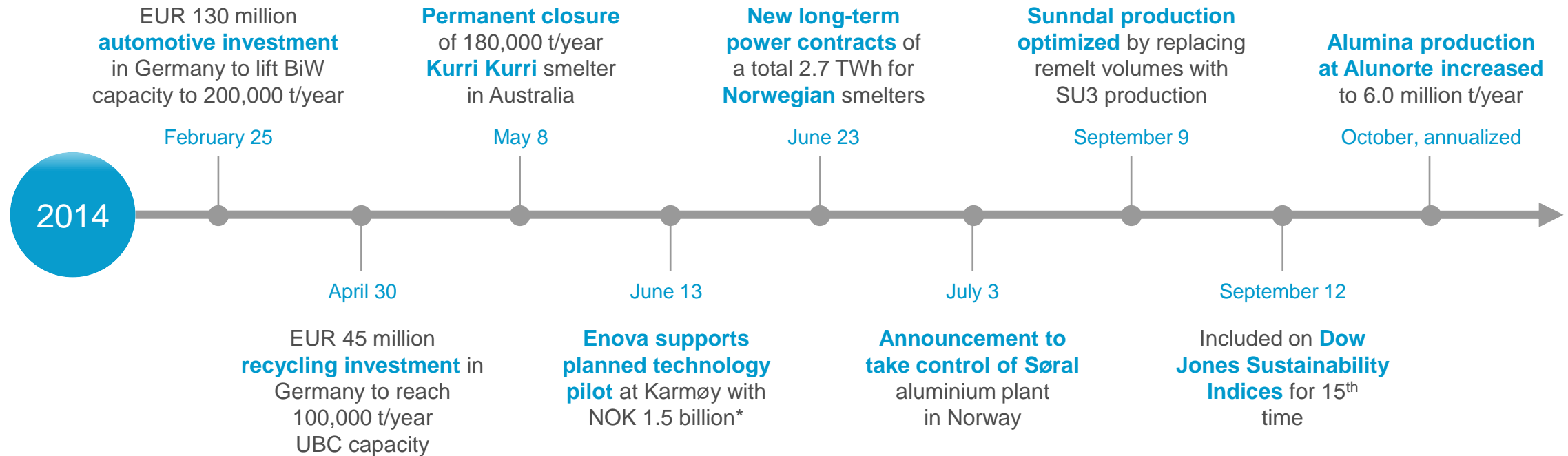
YTD 2014 Performance 3.3\*

\* By end-October 2014

# Our agenda for value creation



# Hydro continues on set direction during 2014



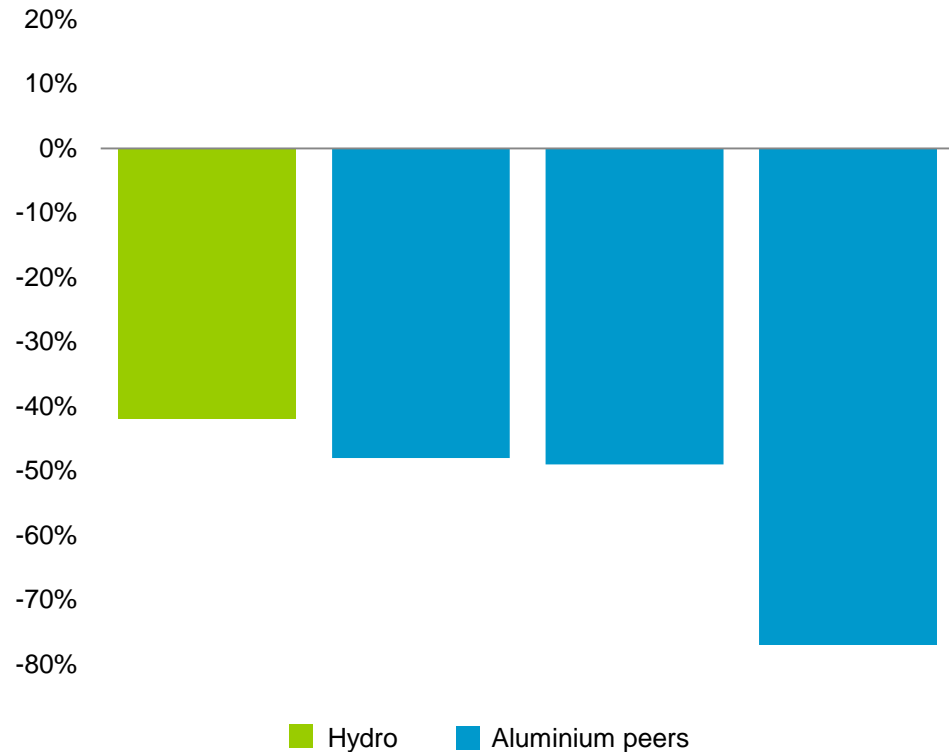
BiW = Body-in-White

\* Pending ESA approval. Building of the technology pilot is pending several factors, including sufficient strength in regional grid, long-term competitive power contract, and market conditions for aluminium must indicate a satisfactory profitability outlook.

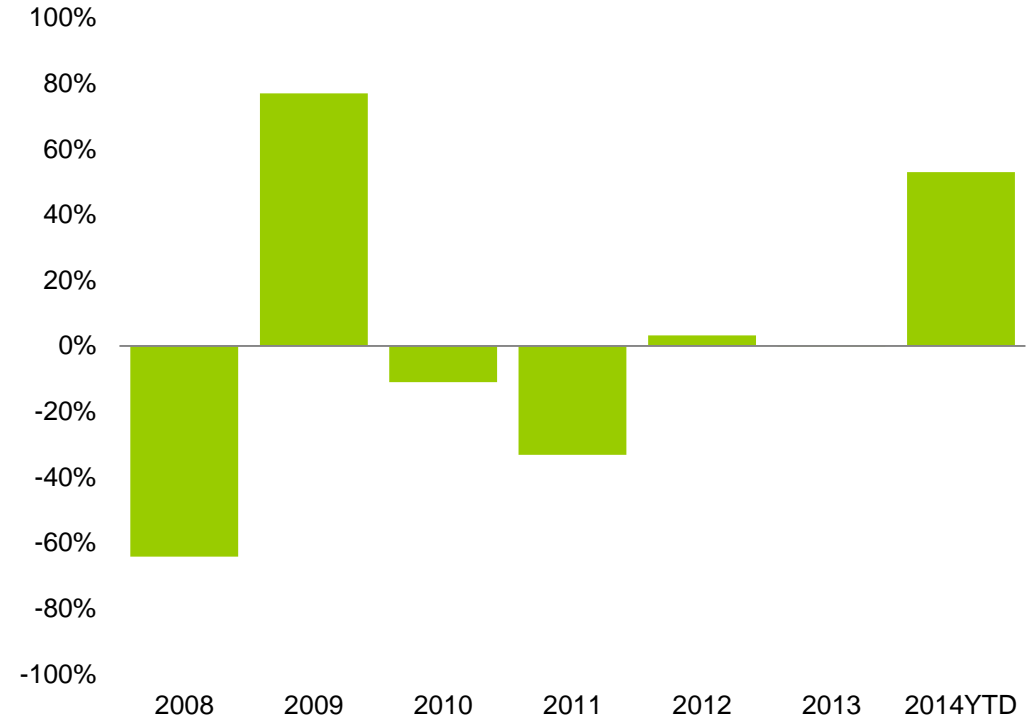
# Recent positive developments, following unsatisfactory low-cycle returns

Reflecting developments in underlying market fundamentals

**TSR in percentage Hydro and Peers  
2008 - YTD2014 (Including financial crisis of 2008)\***



**TSR in percentage Hydro  
2008 – YTD 2014\***



Source: Thomson Reuters  
\*2014 excludes dividend. As of 2014.11.24



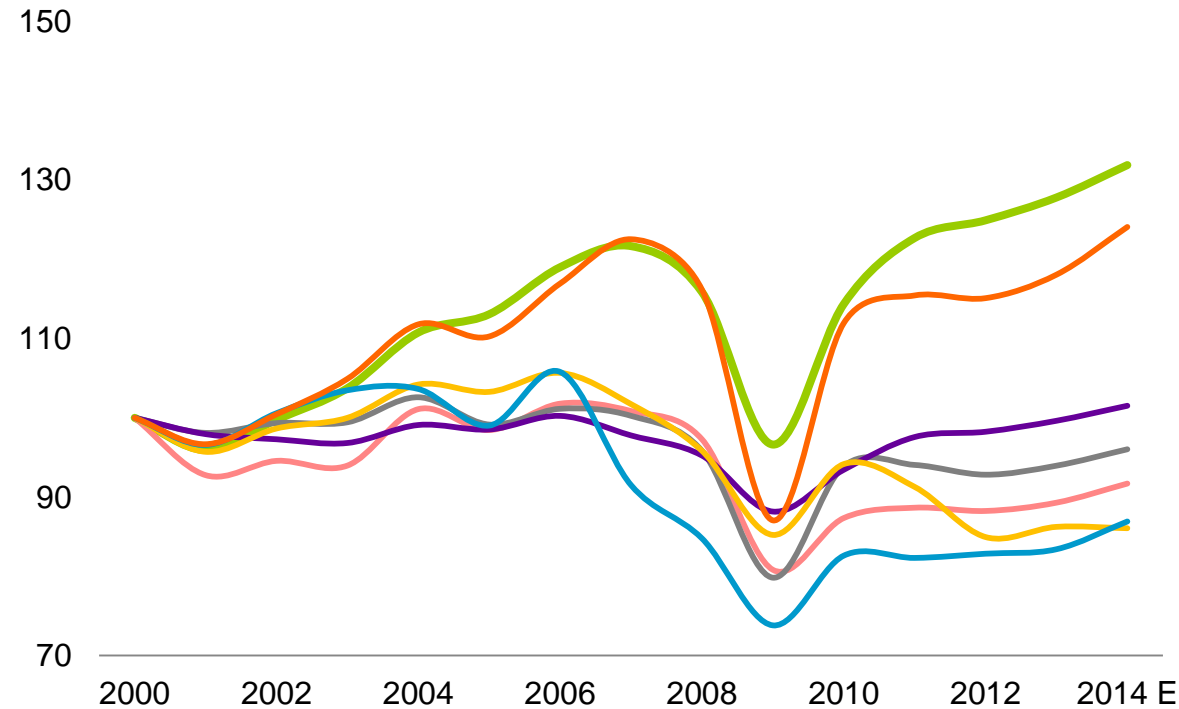
# Improving markets



# Aluminium demand expectations remain healthy

## World ex-China demand base metals

Index 2000=100



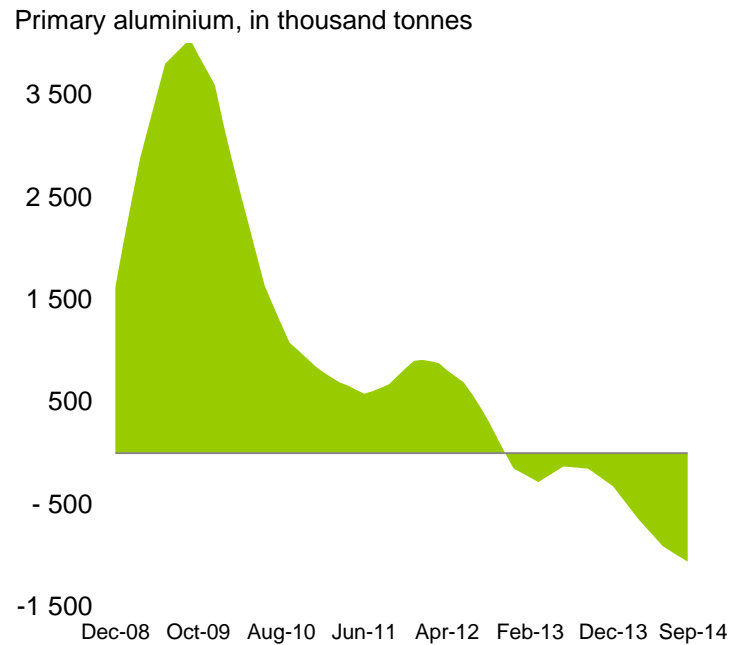
2014-2024  
**3-4 %  
CAGR**

- Aluminium semis
- Zinc
- Tin
- Cold-Rolled Stainless Steel
- Copper
- Lead
- Nickel

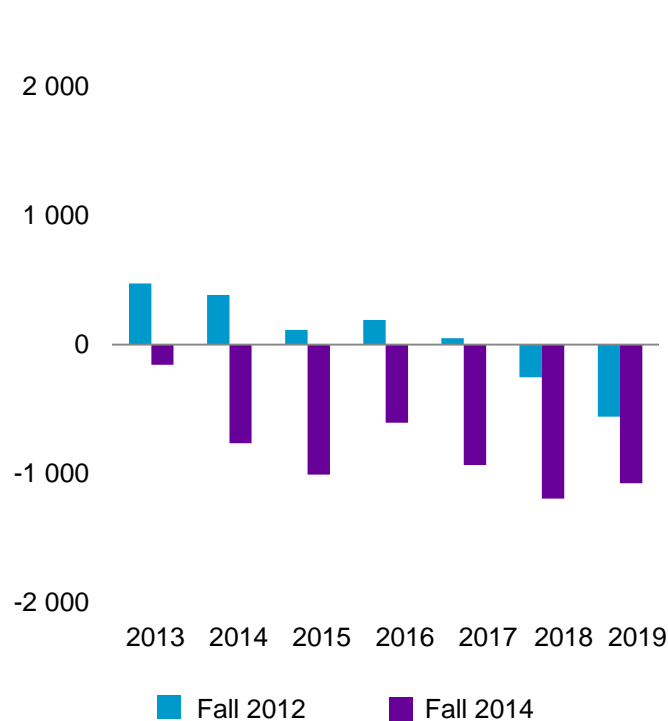
Source: CRU, Reuters Ecowin  
CAGR – Compound annual growth rate

# Inventory reductions driven by primary curtailments

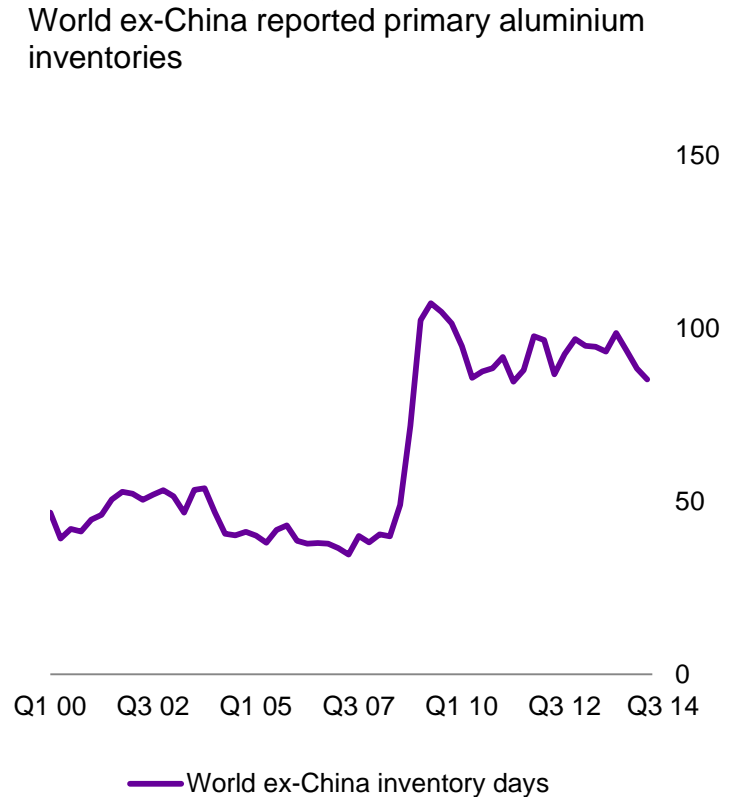
**Production less demand world ex-China**  
Quarterly annualized\*



**Supply/demand world ex-China\*\***  
Primary aluminium, in thousand tonnes



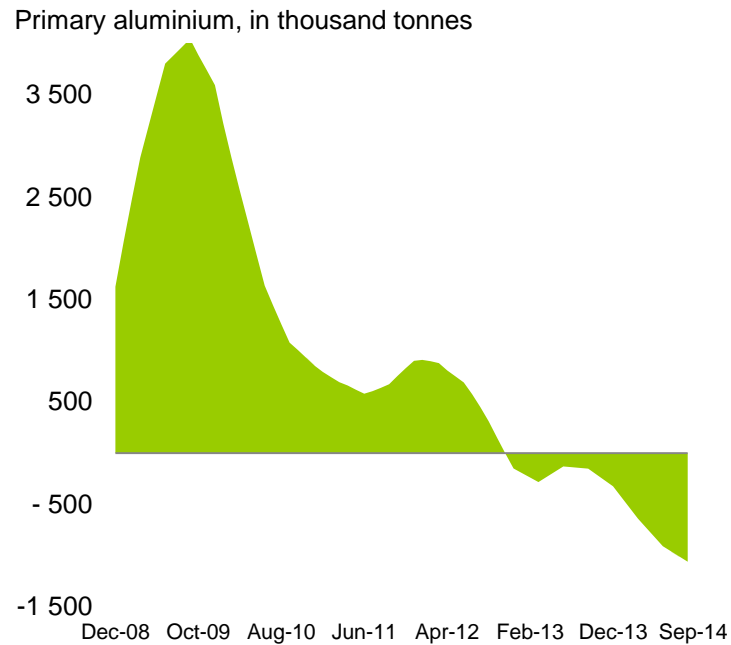
**Inventory days**



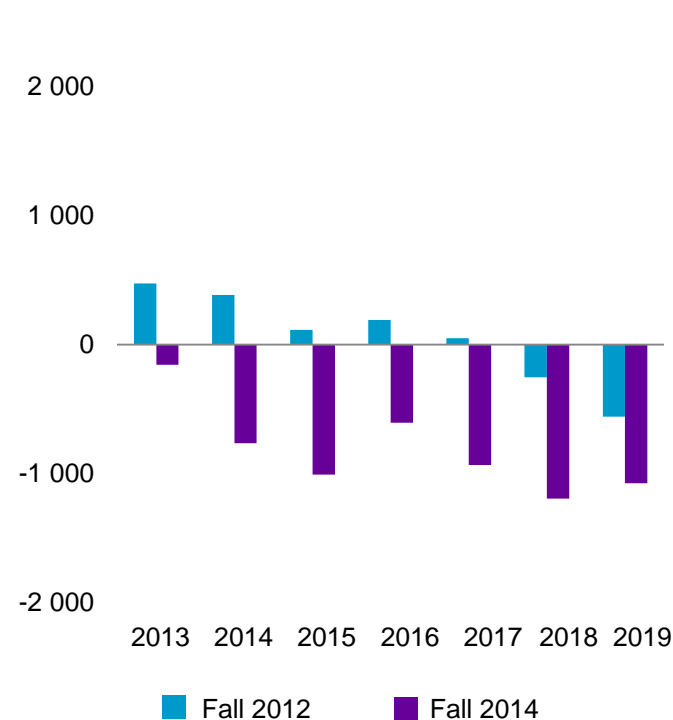
Source: CRU/Hydro  
\*12 month rolling average \*\* CRU estimates

# Inventory reductions driven by primary curtailments

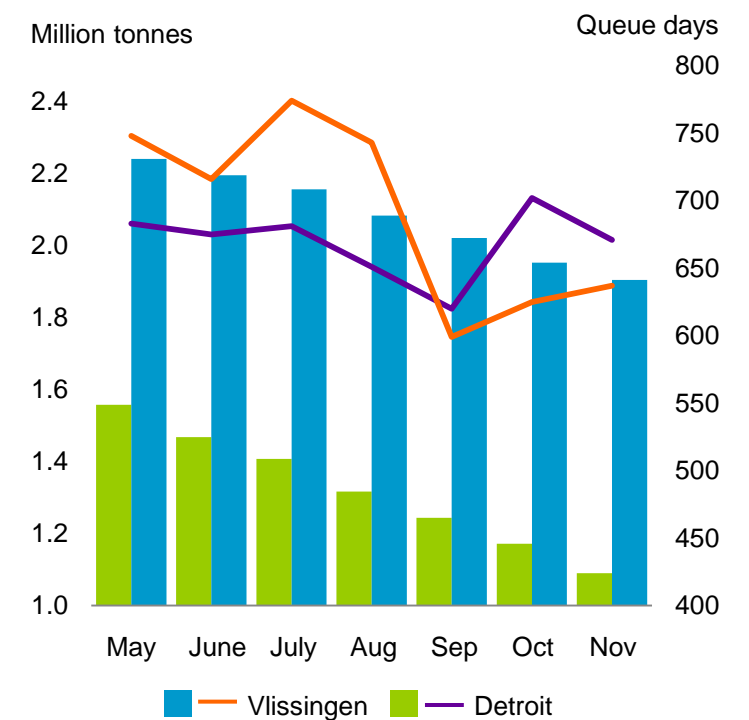
**Production less demand world ex-China**  
Quarterly annualized\*



**Supply/demand world ex-China\*\***  
Primary aluminium, in thousand tonnes



**Total stock levels in 2014**  
Detroit and Vlissingen



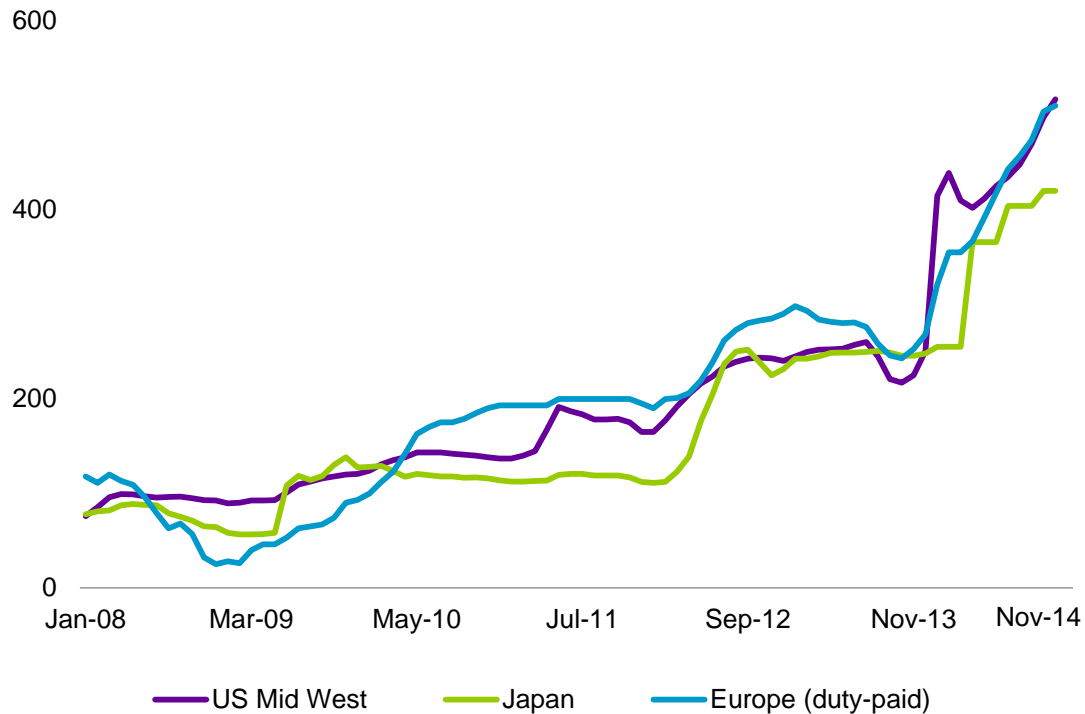
Source: CRU/Hydro/London Metal Exchange  
\*12 month rolling average \*\* CRU estimates

# All-in price of aluminium in upward trend

All-in ingot price exceeds USD 2 500/tonne as premiums continue to rise to new records

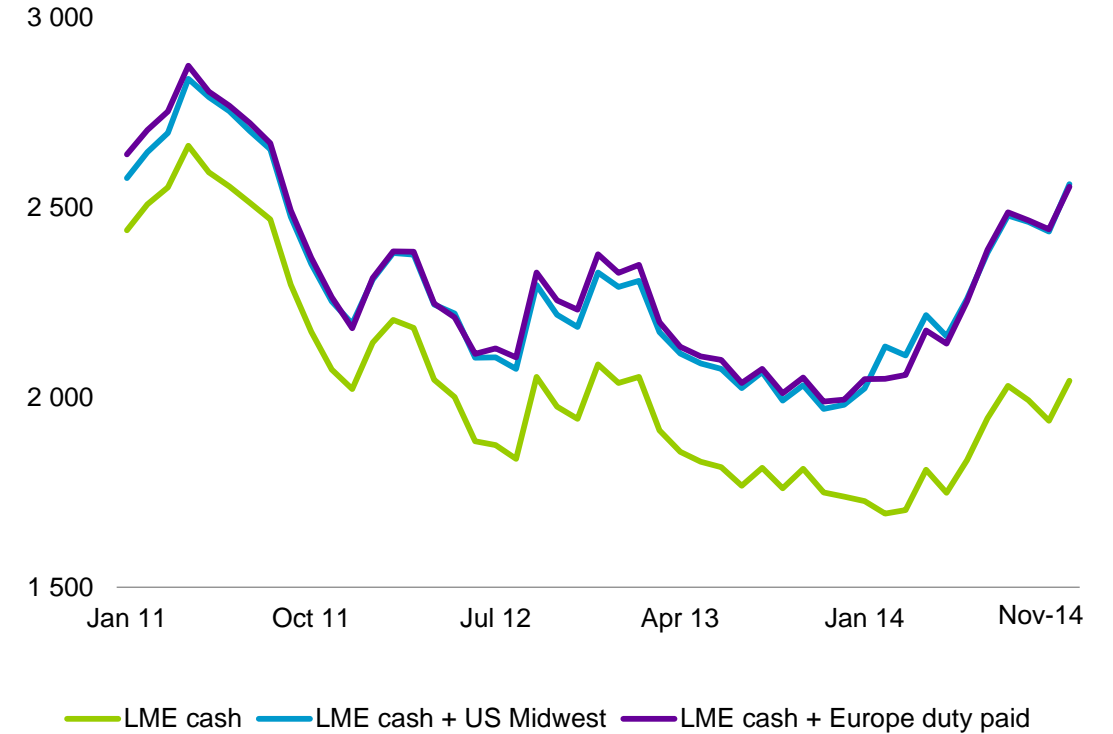
## Regional standard ingot premiums

USD per tonne



## All-in ingot aluminium price

USD per tonne



Source: Metal Bulletin, MW/MJP: Platts

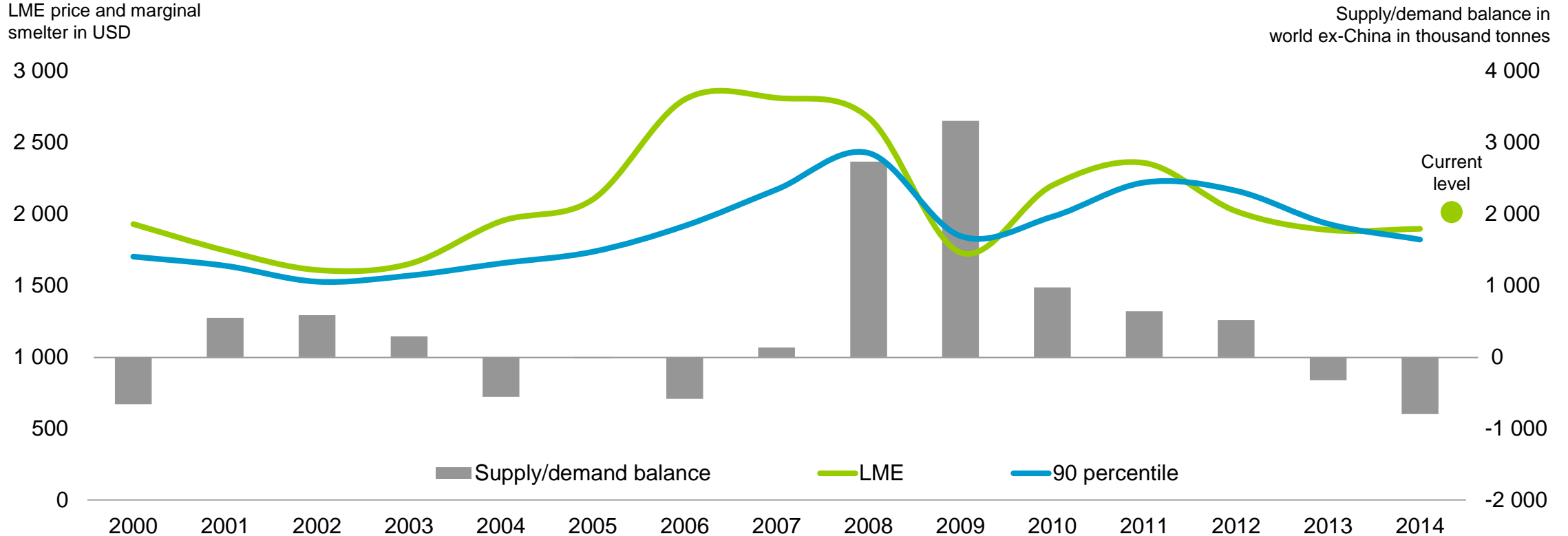
Source: Metal Bulletin, MW/MJP: Platts, Reuters Ecowin

# Market balance indicates pricing above 90<sup>th</sup> percentile on the cost curve

High inventories separates current period from earlier periods where demand exceeded production

## LME price vs BOC development world ex-China

LME price and marginal smelter in USD



Source: CRU/Hydro  
\*BOC = Business Operating Costs

# The world around us

Main external drivers for aluminium and Hydro



Global GDP



Materials substitution



Climate change



China

# The main approaches within the global aluminium industry



Shareholder return



Monetizing energy



Resource re-valuation



China



# Hydro's aspiration for higher value creation



*Better Bigger Greener*

# *Better*

- Continue improvements drive
- Capture commercial opportunities
- Extend technology and innovation lead

# *Bigger*

- Further strengthen relative industry position
- Enhance market positions and high-grade portfolio
- Mature selective growth projects for when time is right

# *Greener*

- Turn leading HSE/CSR position into competitive advantage
- Deliver on fast-developing customer demands
- Capitalize on strong climate position over time

*Better*

# Strengthening our performance by improving the way we work

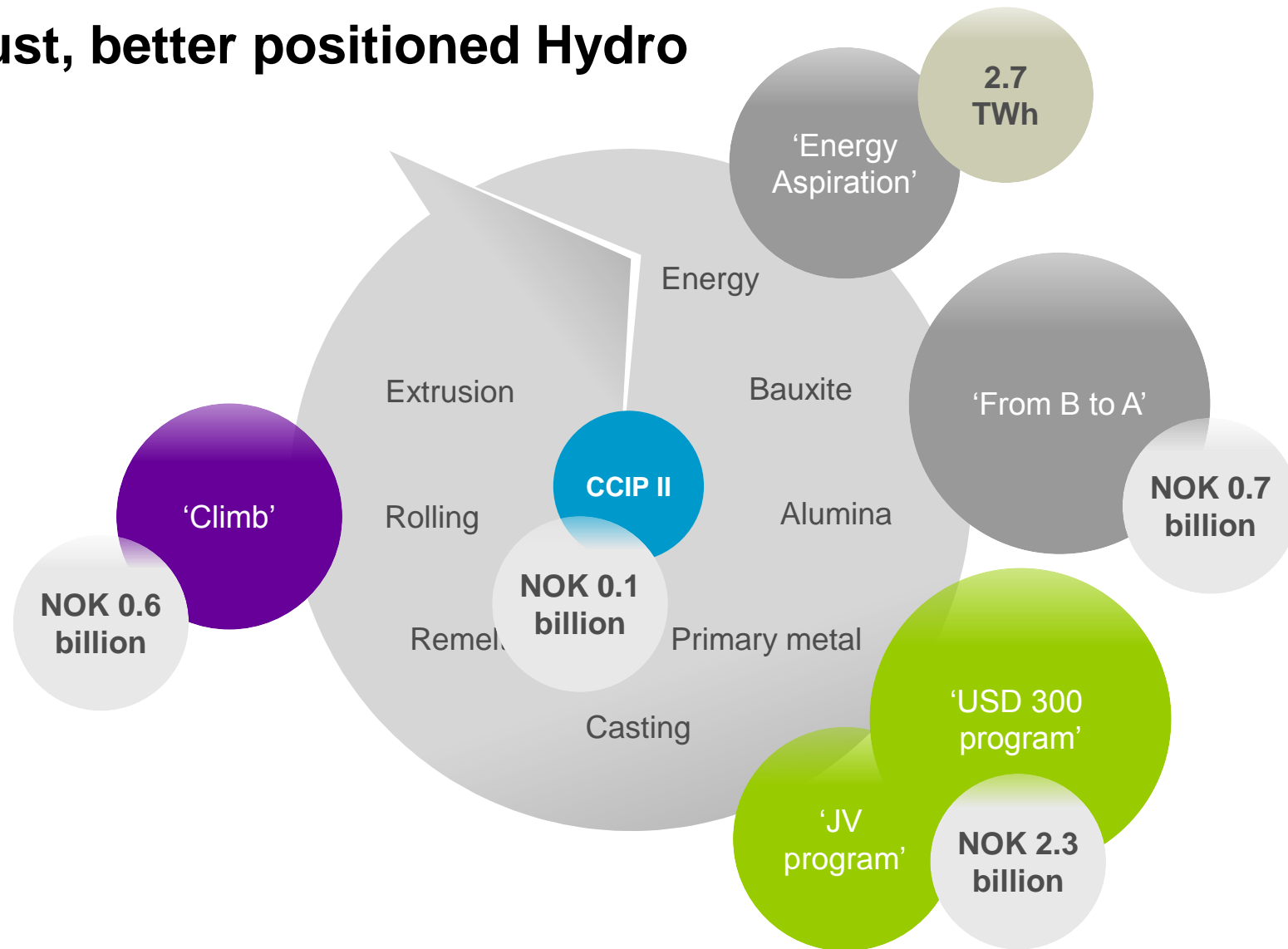


Health and safety



People and competence

# A more robust, better positioned Hydro



Delivered improvements 2011-2014 (USD 300 from 2009). YTDQ3-2014 annualized.

# Energy: Realizing full potential of strong asset base and competencies

Further improve earnings from energy asset management and commercial activities



- Increase value creation based on “new normal” equity production of 10 TWh per year
- Further improve operational performance
- Capture full value potential of unique industry combination of operational and commercial competence (consumer and producer)
- Increase utilization of global energy sourcing competence to provide stronger support to Hydro’s other business areas

# Bauxite and Alumina: Lifting production, reducing costs

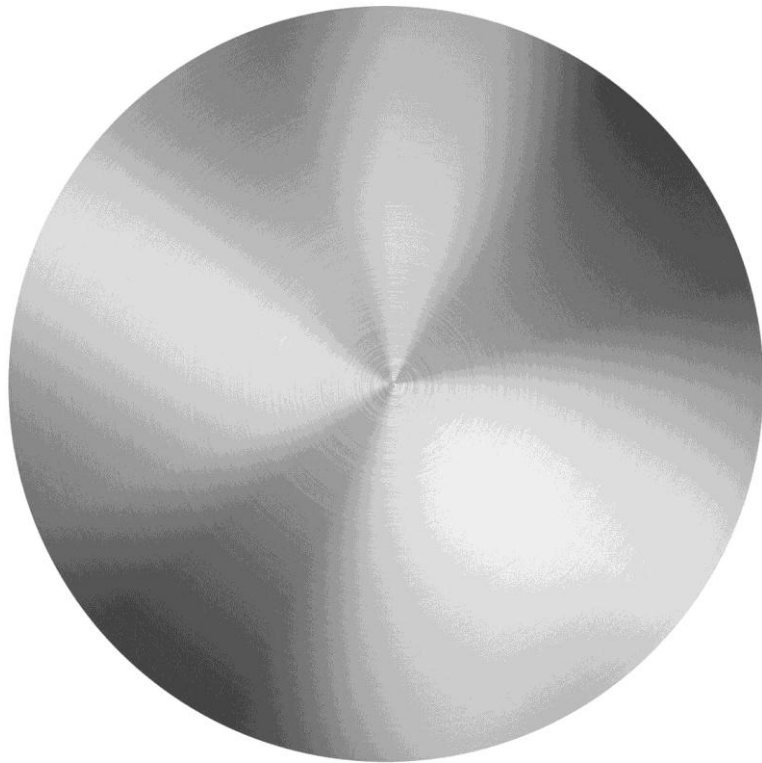
Aiming to seize value from fundamental pricing and tightening markets



- Reach nameplate capacity for Paragominas bauxite and Alunorte alumina production (9.9 and 6.3 million tonnes/yr)
- Further reduce costs and increase efficiency
- Expand alumina volumes sold on index to capture more of upside potential from pricing on own fundamentals
- Continue commercialization of bauxite sales

# Primary Metal: Capitalizing on operational improvements

Increasing efforts to capture high-premium markets



- Utilize improvement momentum to further reduce cost position of smelter portfolio
- Continue to target high-premium segments, aiming to deliver increased value over standard ingot
- Capture more value from metal markets through quality, reliability and customer satisfaction
  - Build on top primary foundry alloys (PFA) position in Asia ex-China and strengthen market platform in the Americas
  - Maintain customer satisfaction lead in Europe within extrusion ingot and PFA



# Rolled Products: Meeting customer demands and expanding in attractive markets

Taking a bigger share in high-margin growth segments



- High-grading portfolio through margin management and portfolio adjustments
- Increase volumes and lift margins based on automotive lightweighting trend
- Utilize UBC\* recycling investment to lower production costs
- Create customer value and competitiveness through innovation, quality and service

---

\* Used Beverage Can

# Sapa: On track to deliver on ambitious NOK 1 billion restructuring program

Flexibility and capability to meet customer expectations

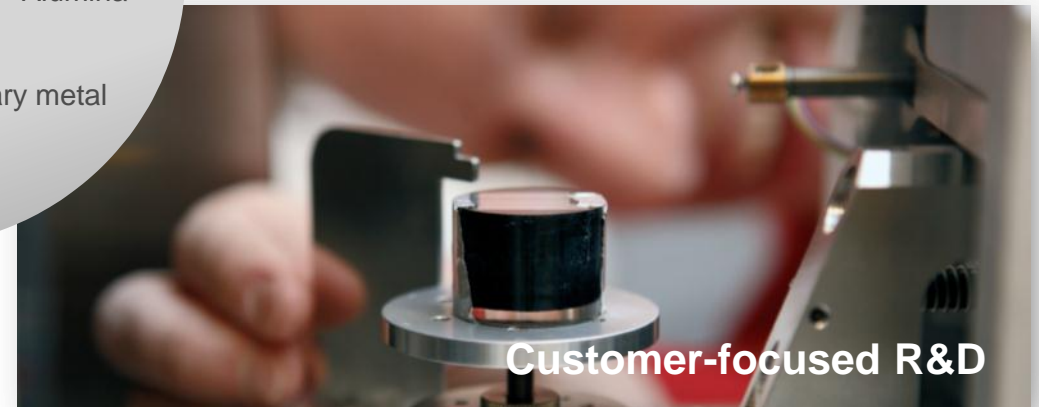
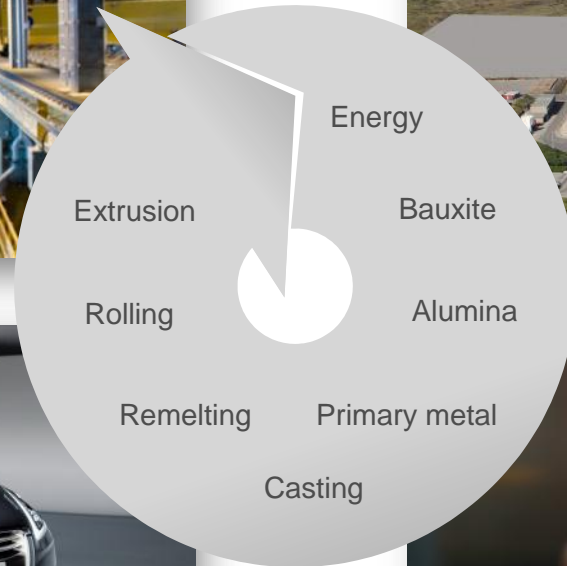
## sapa:

- Continue improvement efforts and realization of annual synergies through rightsizing portfolio
- Maintain No. 1 position in North America and Europe through unique network, R&D expertise, process capacity and strong customer focus
- Develop attractive positions in high-growth markets
- Capitalize on expectations of a continued strong US market, and respond to more challenging outlook for Europe and South America

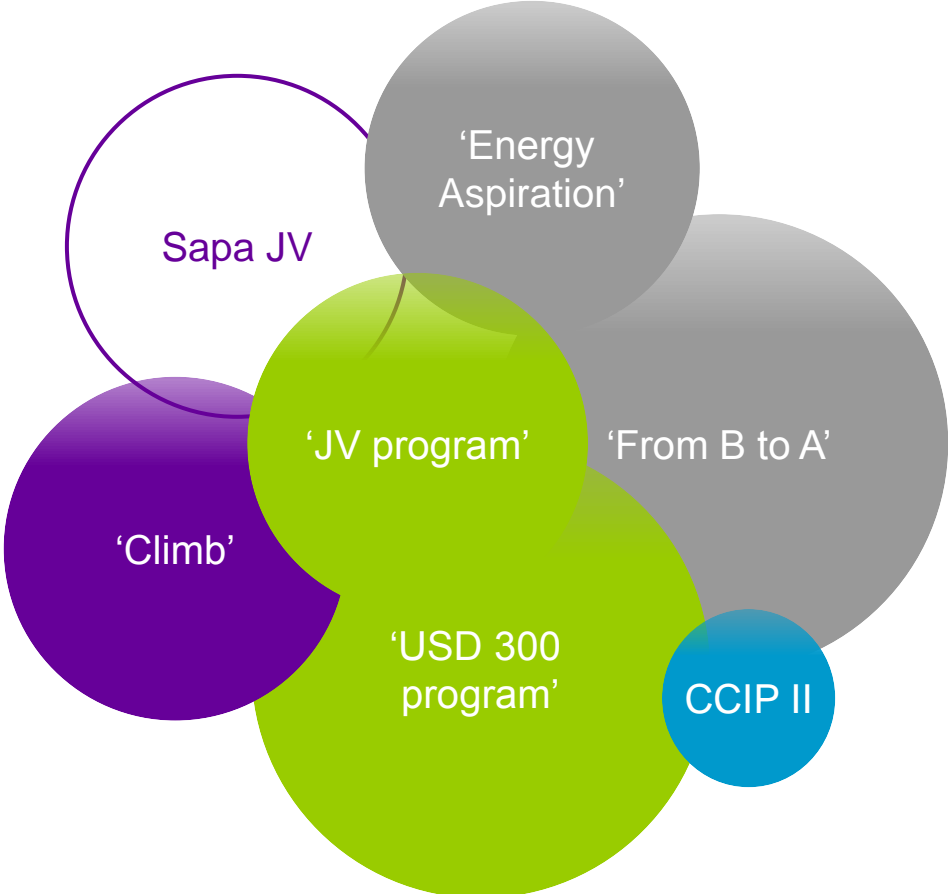


# Company-wide focus areas to lift competitiveness and value creation

Competence, technology, product development and innovation



# Hydro improvement drive continues at full pace



Total contribution from Hydro's improvement programs (excl. Sapa)

2011*-2014	2015-2016**
<b>BNOK 3.7</b>	<b>BNOK 1.5</b>

\* USD 300 from 2009  
\*\* Real 2014 terms  
Realized improvement efforts is YTD Q314 annualized.

# *Bigger*

# Aluminium – an increasingly important building block of modern society

Providing exciting commercial opportunities throughout the value chain

## Transportation



**Transport**  
**6 % CAGR\***  
2014-2024

## Food packaging



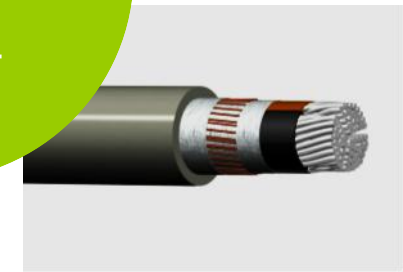
**Building & construction**  
**4 % CAGR\***  
2014-2024

## Buildings, constructions and Powerhouse



**Electrical**  
**5 % CAGR\***  
2014-2024

## Applications and products



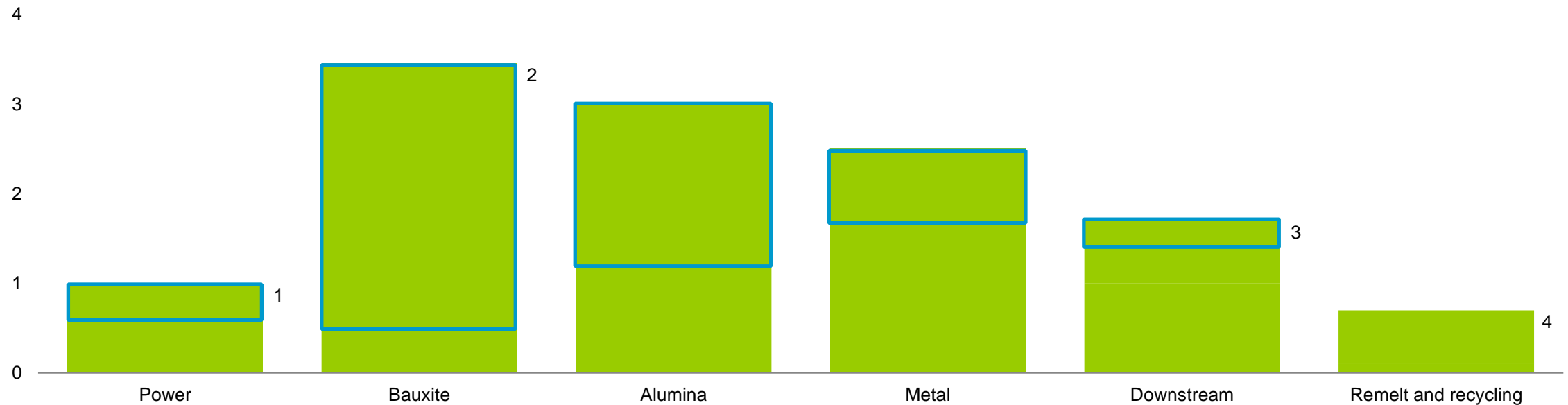
\* CRU, 2014; global estimates  
CAGR – Compound annual growth rate

# Low-cycle period utilized strategically to strengthen relative positions

Rectangles show changes since 2008, including Qatalum, Vale, Sapa JV and Husnes



Annual consolidated capacity in metal equivalents (million tonnes)



1) Gas plant Qatalum + new hydro power Noway  
 2) Includes evergreen MRN  
 3) 50% of Sapa (rectangle = delta volume)  
 4) Includes stand-alone remelters and recycling of post-consumed scrap

# Bigger: A solid platform for building an even stronger Hydro



## Bauxite & Alumina

- Move beyond nameplate capacity
- Further improve bauxite positions
- Mature CAP project and Paragominas expansion for when time is right



## Energy

- Mature captive growth opportunities
- Raise income potential from market operations
- Leverage value from Nordic power surplus



## Primary Aluminium

- Enhance position in high-margin segments
- Realize 100,000 tonnes creep in fully-owned smelters
- Extend technology lead with Karmøy pilot plant
- Mature Qatalum 2 and Alouette expansion for when time is right



## Rolled Products

- Expand automotive capacity to 200,000 t/yr by end-2016
- Increase recycling of post-consumed scrap above 250,000 t/year\*
- Build positions and lift margins through technology leadership and innovation

\* Includes recycling ambition in Primary Metal



# *Greener*

# 'Greener' captures Hydro's full sustainability agenda

Aiming to set new standards to support the value proposal from communities to customers



Climate change



Social projects



Environment

# The industry's most ambitious climate strategy: Carbon-neutral by 2020

Supported by the three pillars of Hydro's technology strategy



## Energy and primary production

Reduce emissions, increase efficiency



## Aluminium in use

Maximize user-phase benefits



## 'End-of-life'

Increase recycling, back to the loop

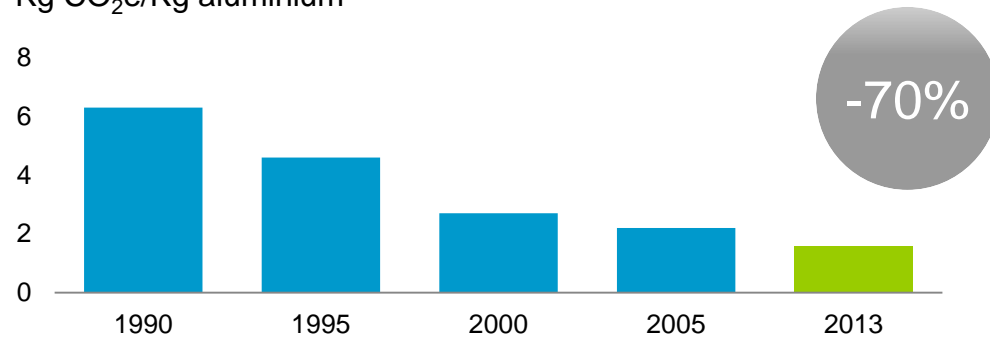


# Climate as a competitive advantage

Will gradually grow stronger as the world moves to meet the climate challenge

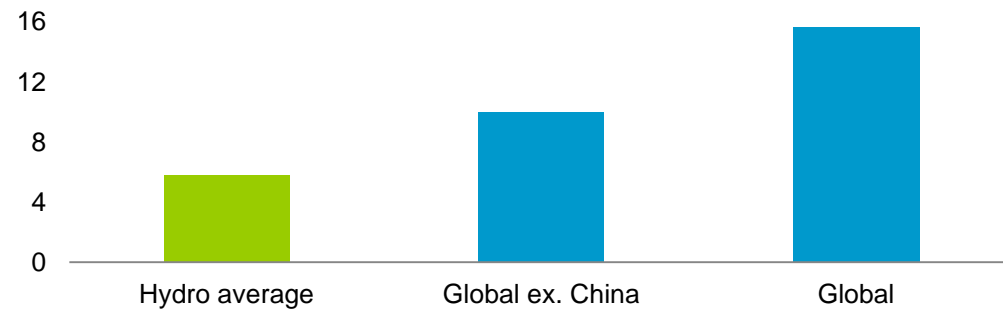
## Lower direct emissions in Hydro

Kg CO<sub>2</sub>e/Kg aluminium



## Hydro in leading industry position on CO<sub>2</sub> emissions

Kg CO<sub>2</sub>e/Kg aluminium

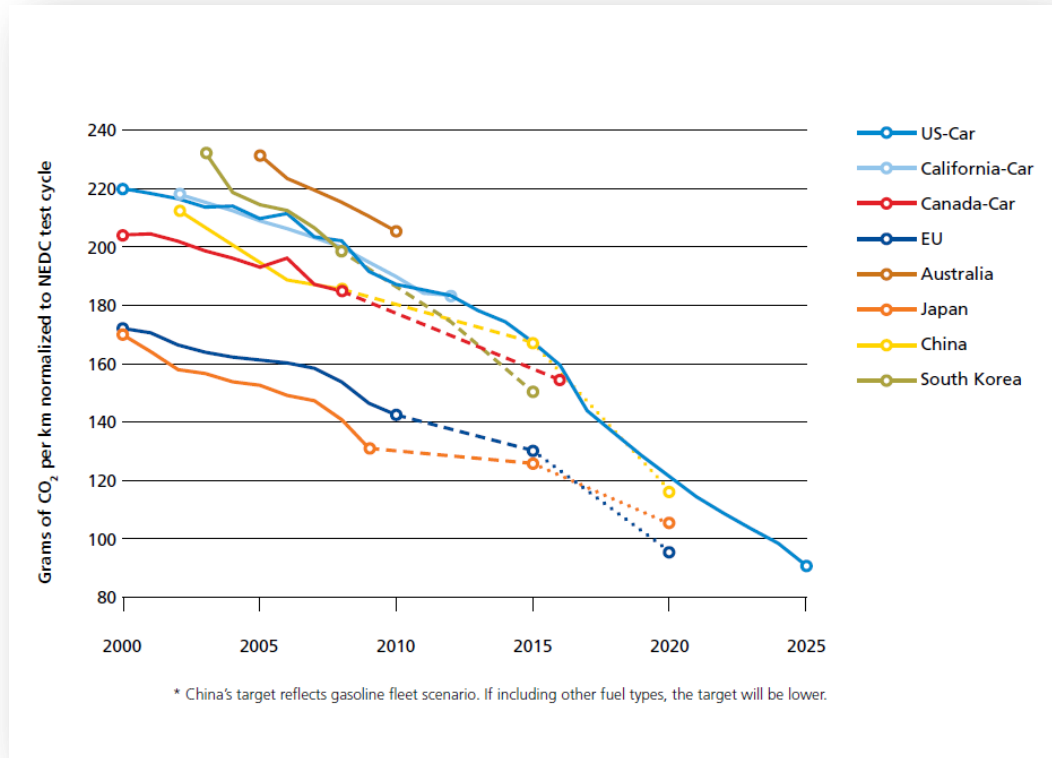


Source: CRU, Hydro Analysis, IAI

# Lighter vehicles make a big impact on the climate challenge

Aluminium – part of the solution

## Declining CO<sub>2</sub> emission targets around the world



For each **10%** reduction in vehicle weight, car manufacturers achieve fuel-savings of **5-7%**



Land Rover Sport 2010

**3,100 kg**

CO<sub>2</sub> emissions  
**327 g/100 km**



Land Rover Sport 2014

**2,200 kg**

CO<sub>2</sub> emissions  
**194 g/100 km**

Sources: EAA, ICCT, IAI





Hydro's value  
proposition



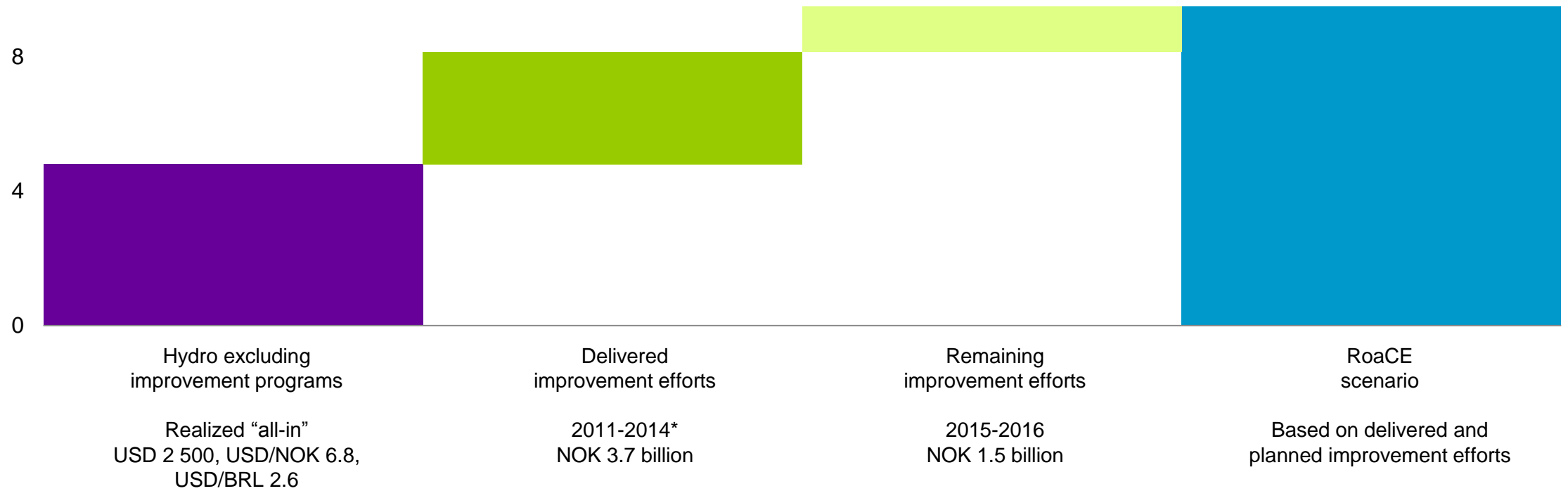
*Better Bigger Greener*

# Hydro's roadmap towards sustainable profitability

Solid contribution from improvement efforts

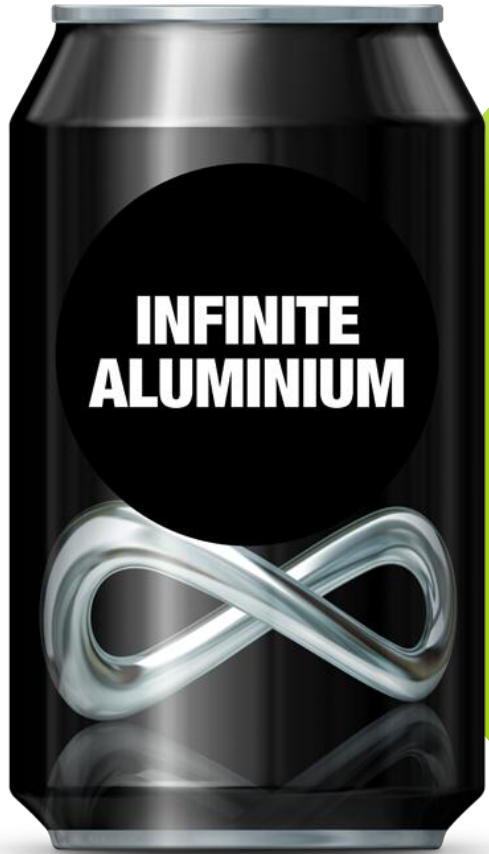
RoaCE (%)

12



Last 4 quarters underlying EBITDA as basis. Adjusted using Hydro sensitivities to realized all-in USD 2 500 (LME 2 050, Hydro realized premium last 4 quarters of ~450), USD/NOK 6.8, USD/BRL 2.6. Delivered improvement efforts are YTD Q314 annualized. Remaining improvement efforts are real 2014. Sapa improvement efforts are excluded from improvement efforts  
 \* USD 300 from 2009





# Value creation in Hydro

## Increase shareholder returns through

- Operational and commercial improvement drive
- High-grading and selective growth to improve relative industry position
- Lower energy consumption and footprint to strengthen future competitive climate advantage



# Finance

Eivind Kallevik

Capital Markets Day 2014



An aerial photograph of a large industrial complex, possibly a steel mill or refinery, situated on a grassy hillside overlooking a vast, blue lake. In the background, there are rolling mountains under a partly cloudy sky. The foreground shows a road with a roundabout and some residential houses. A large, semi-transparent white circle is overlaid on the left side of the image, containing the text for the presentation.

# Finance 2014

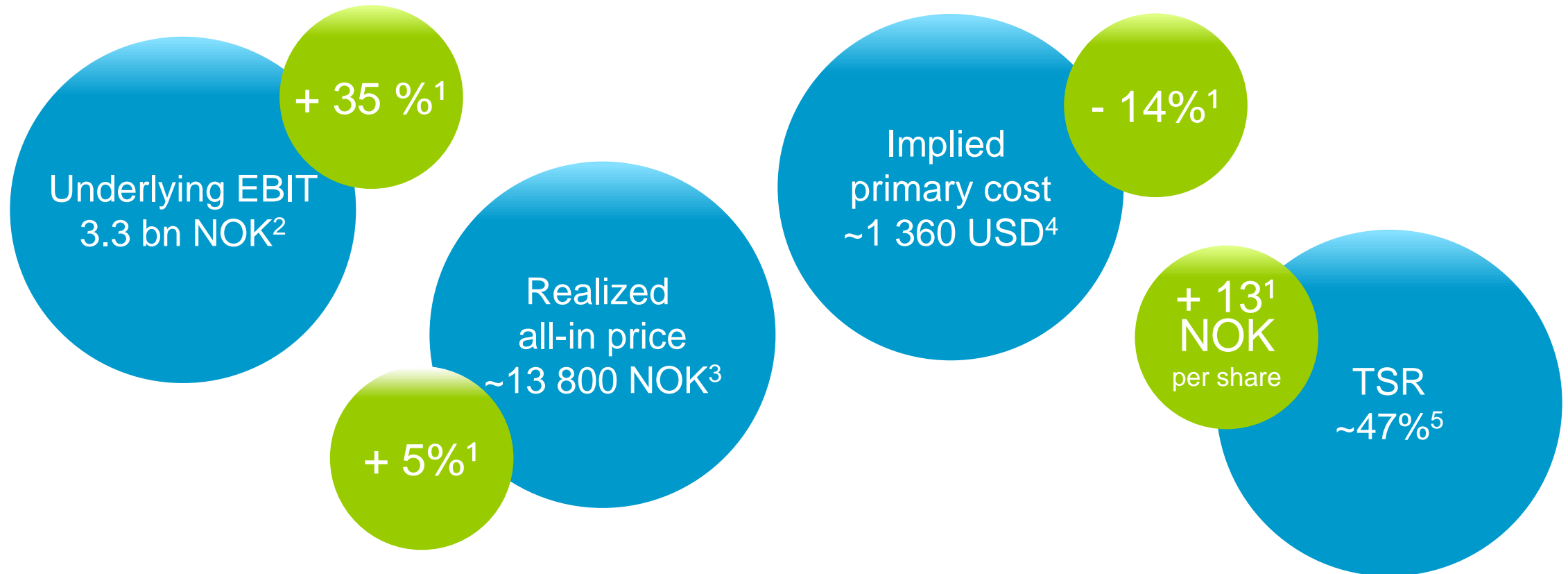
- 1 Financial developments
- 2 Sensitivities
- 3 Financial policy
- 4 Financial reporting going forward

# Finance 2014

- 1 Financial developments
- 2 Sensitivities
- 3 Financial policy
- 4 Financial reporting going forward



# Financial highlights



1) Q4 2013 – Q3 2014 compared to Q4 2012 – Q3 2013

2) Underlying EBIT. Sum 12 months rolling Q4 2013 – Q3 2014

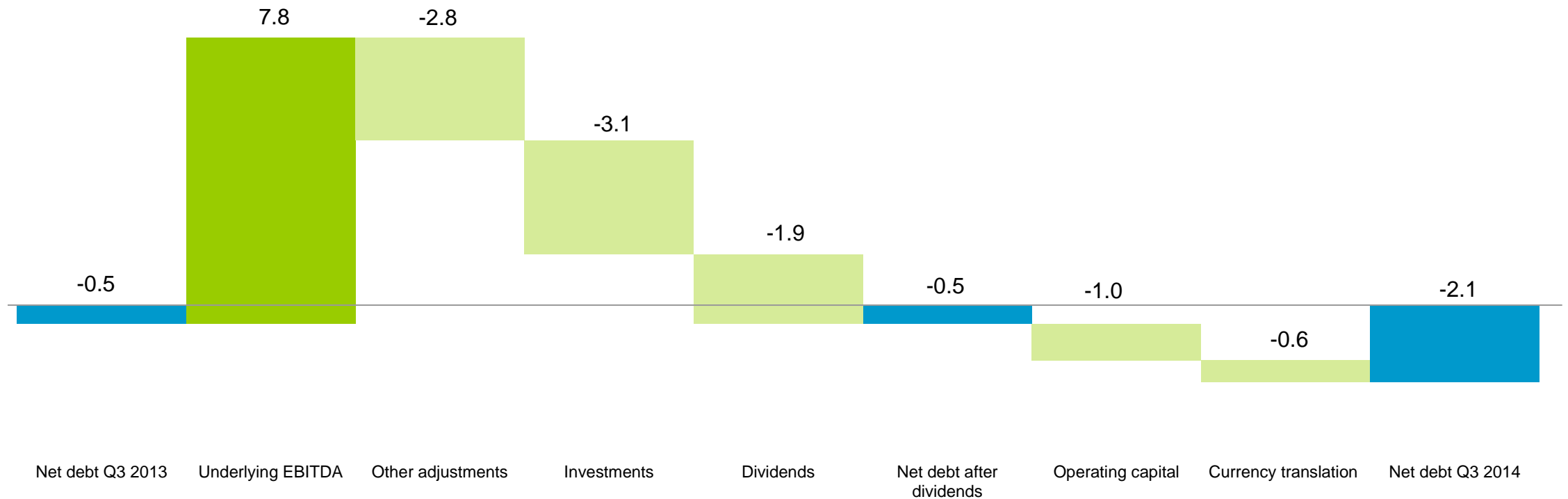
3) Realized aluminium price + realized premium above LME. Average 12 months rolling Q4 2013 – Q3 2014

4) Implied primary cost. Average 12 months rolling Q4 2013 – Q3 2014. Implied cost developments including premiums: - 6%

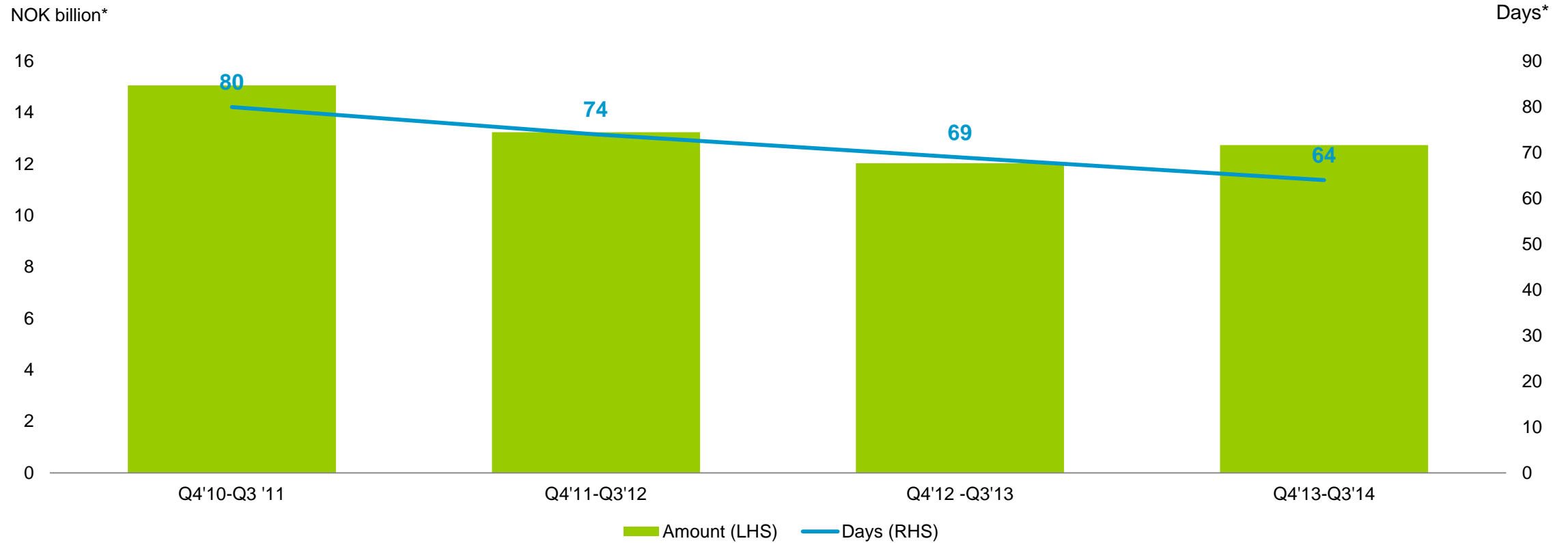
5) Hydro share priced development + dividend paid. Sum 12 months rolling Q4 2013 – Q3 2014

# Cash neutral after dividend at realized all-in price ~2 300 USD/mt

NOK billion



# Continued decline in operating capital days

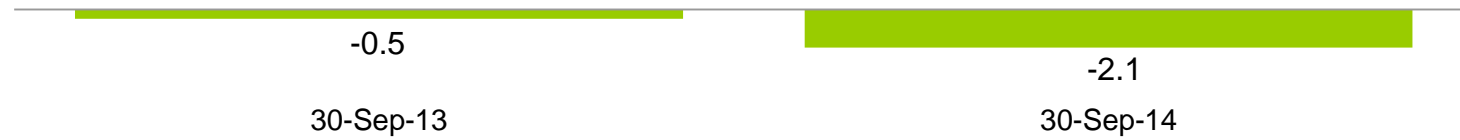


\* Pro-forma, excluding extruded products for Q4 2010 – Q3 2013  
LHS = left hand side. RHS = right hand side

# Maintain solid financial position

NOK billion

Net cash/(debt)



Adjusted net debt<sup>1</sup>



1) Net pension liability, operating lease commitments and other. Hydro's share of EAI net debt from Qatalum and Sapa not included.



## Finance 2014

- 1 Financial developments
- 2 **Sensitivities**
- 3 Financial policy
- 4 Financial reporting going forward



# Understanding Hydro's earning drivers

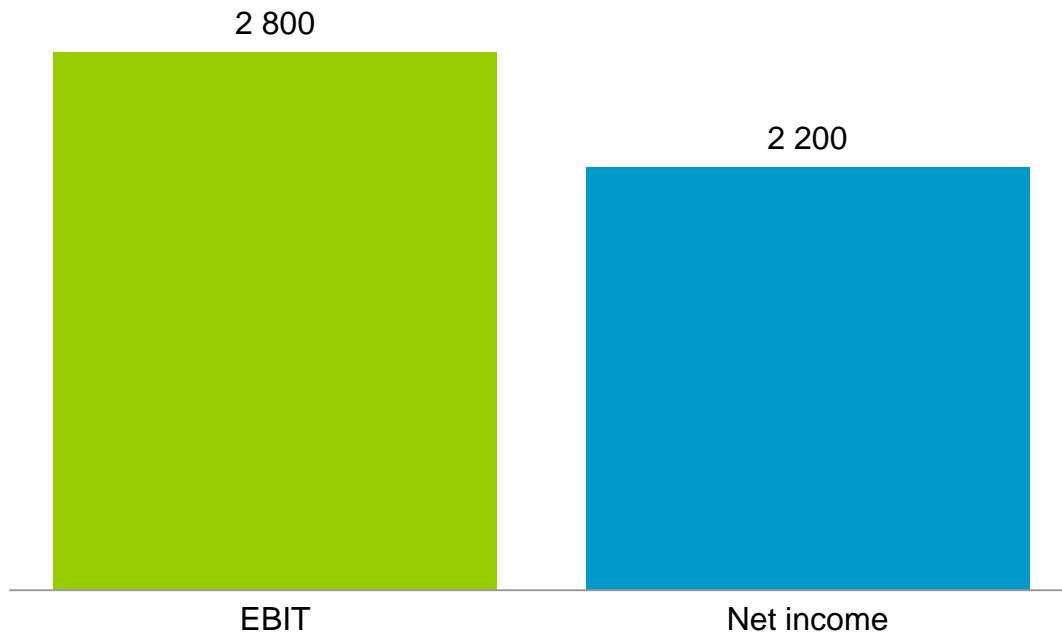


- Starting point and assumptions
- Simplified models
- Negative correlations
- Complexity

# Hydro price and currency sensitivities

## Aluminium price sensitivity +10%\*

NOK million



## Currency sensitivities +10%\*

NOK million	EBIT	Financial items
USD	2 800	-1 100
BRL	-850	700
EUR	-300	-1 000

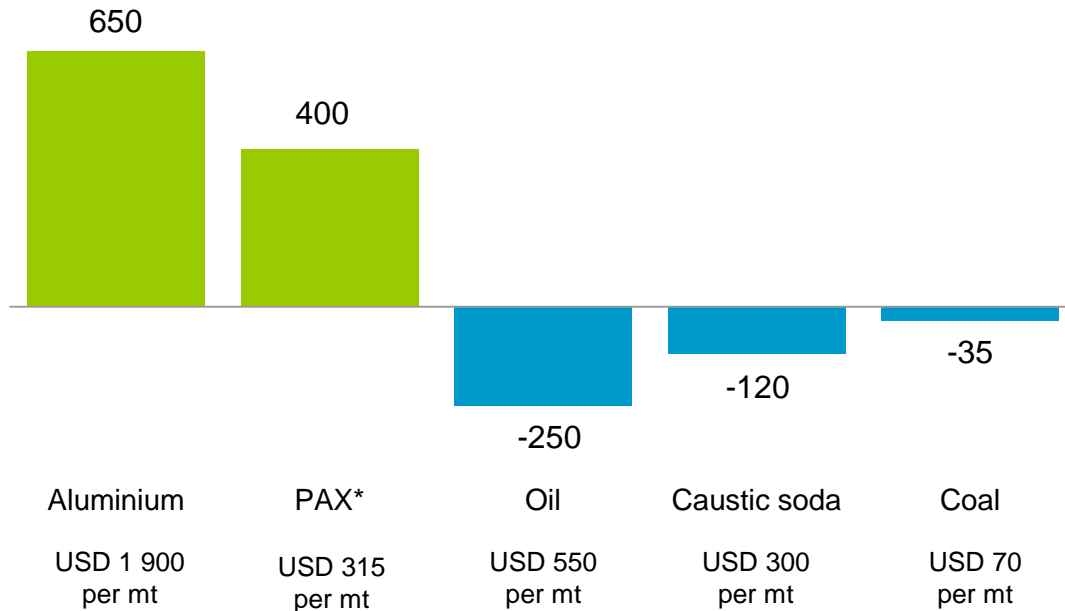
- Annual sensitivities based on normal annual business volumes, LME USD 1 900 per mt, Oil USD 550 per mt, petroleum coke USD 400 per mt, caustic soda USD 300 per mt, coal USD 70 per mt, NOK/USD 6.30, NOK/BRL 2.80, NOK/EUR 8.30
- Aluminium price sensitivity is net of aluminium price indexed costs and excluding unrealized effects related to operational hedging
- Excludes effects of priced contracts in currencies different from underlying currency exposure (transaction exposure)
- Currency sensitivity on financial items includes effects from intercompany positions
- 2015 Platts alumina index (PAX) exposure used

\* Excluding Sapa JV

# Bauxite & Alumina sensitivities

## Sensitivities on underlying EBIT if +10% in price

NOK million



## Revenue impact

- ~14.3% of 3-month LME price per tonne alumina
  - ~One month lag
- Realized alumina price lags PAX by one month

## Cost impact

### Bauxite

- ~2.45 tonnes bauxite per tonne alumina
- Pricing partly LME-linked for bauxite from MRN

### Caustic soda

- ~0.1 tonnes per tonne alumina
- Prices based on average of CMAI and Harriman US, pricing quarterly or per shipment

### Energy

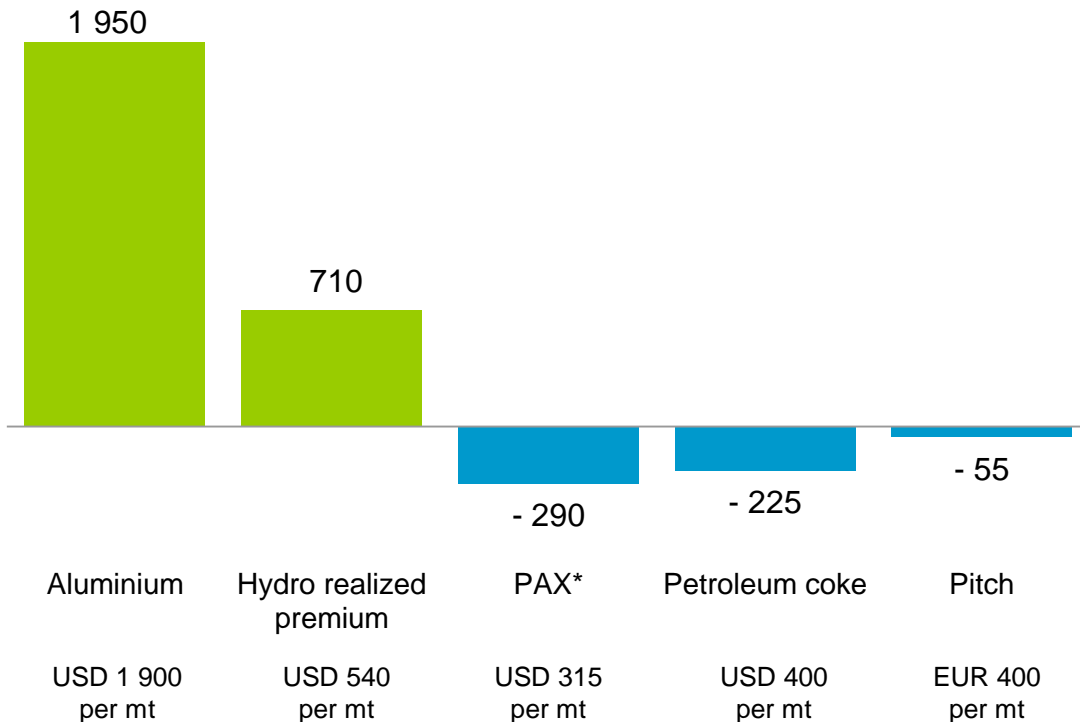
- ~0.11 tonnes coal per tonne alumina, one year contracts
- ~0.11 tonnes heavy fuel oil per tonne alumina, market prices
- Increased use of coal as energy source in Alunorte

\* 2015 Platts alumina index exposure  
 Currency rates used: NOK/USD 6.30, NOK/BRL 2.80, NOK/EUR 8.30

# Primary Metal sensitivities

## Sensitivities on underlying EBIT if +10% in price

NOK million



## Revenue impact

- Realized price lags LME spot by ~1-2 months
- Realized premium lags market premium by ~2-4 months

## Cost impact

### Alumina

- ~1.9 tonnes per tonne aluminium
- ~14.3% of 3-month LME price per tonne alumina, increasing volumes priced on Platts index
- ~Two months lag

### Carbon

- ~0.35 tonnes petroleum coke per tonne aluminium
- Half yearly pricing
- ~0.08 tonnes pitch per tonne aluminium
- Quarterly pricing

### Power

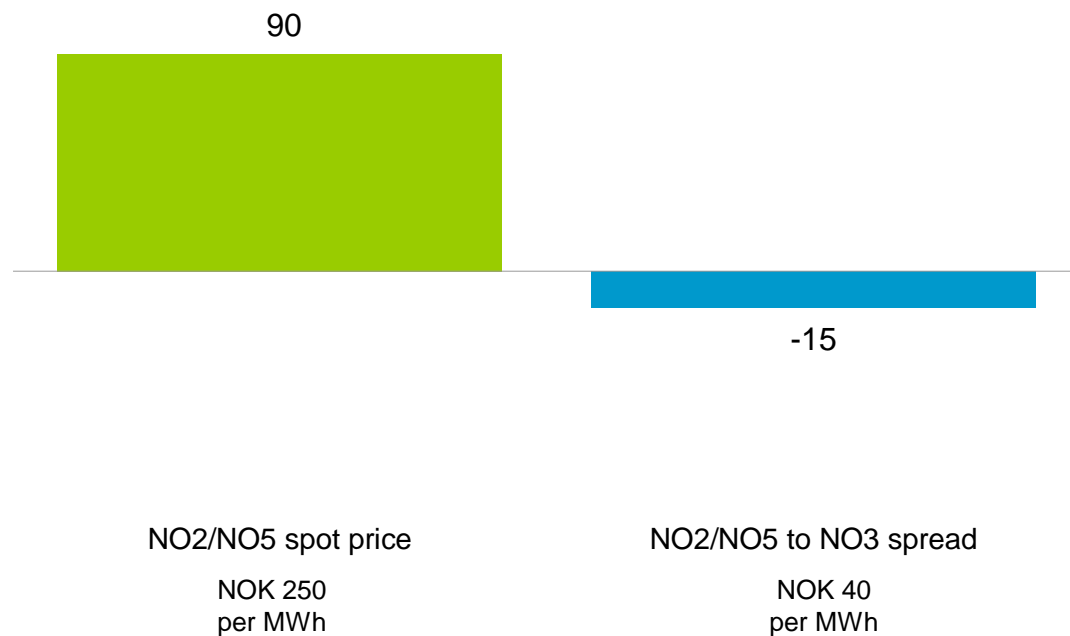
- 13.7 MWh per tonne aluminium
- Long-term power contracts with indexations

\* 2015 Platts alumina index exposure  
 Currency rates used: NOK/USD 6.30, NOK/BRL 2.80, NOK/EUR 8.30

# Energy sensitivities

## Sensitivities on underlying EBIT if +10% in price

NOK million



## Revenue impact

- NO2 and NO5 spot price for net spot sales
- Internal contract sales based on own production are priced on long term market based prices
- Internal contract sales based on externally sourced contracts are priced back to back

## Cost impact

- NO2/NO5 to NO3 spot price spread
  - 3.5TWh annual NO3 exposure

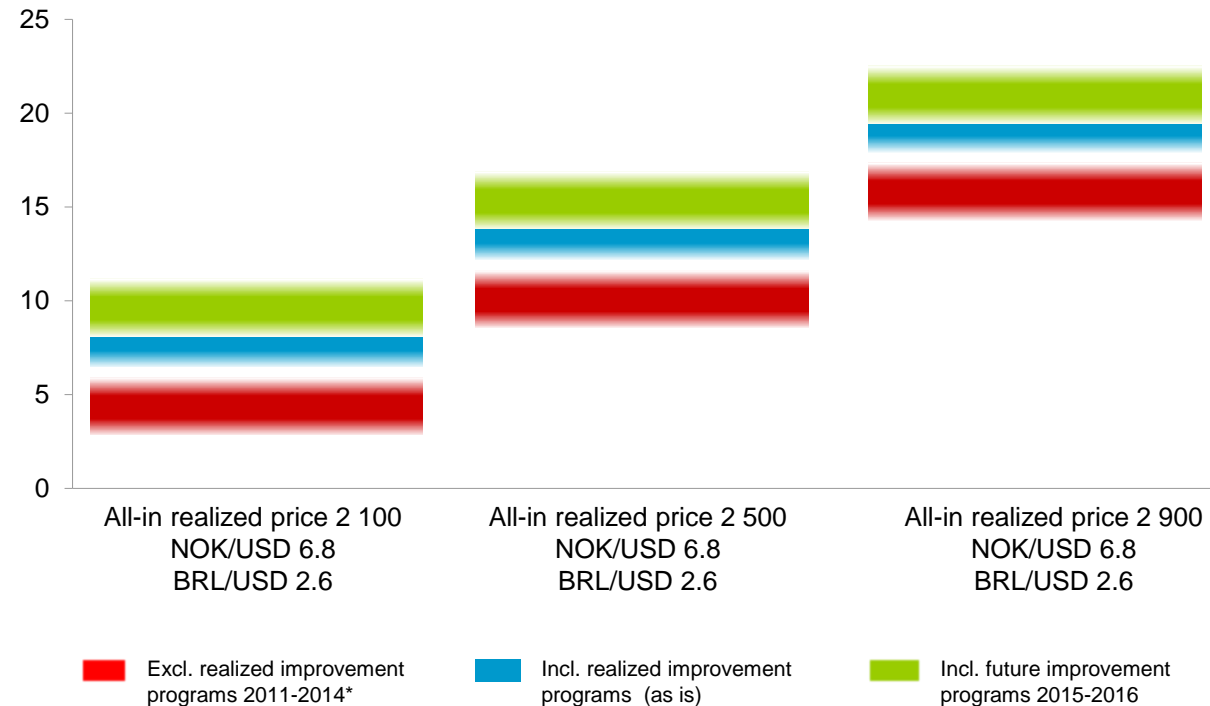
• Currency rates used: NOK/USD 6.30, NOK/BRL 2.80, NOK/EUR 8.30

# Annualized underlying EBITDA scenarios

Scenarios are not forecasts, but represent earnings potential based on sensitivities

## Indicative EBITDA-range in 3 scenarios

NOK billion



## Additional factors influencing earnings

- Production volumes
- Alumina index prices
- Energy prices
- Downstream margin developments
- Raw material cost development
- Premiums
- ICMS
- Inflation
- Currency
- Other

EBITDA scenarios comparable to Operational Cash flow scenarios when adjusting for taxes and working capital

Last 4 quarters underlying EBITDA as basis. Non-LME related revenues/cost and other currencies unchanged. Realized improvement efforts is YTD Q314 annualized. Future improvement efforts in real 2014 terms. Improvements used for scenarios exclude Sapa. All-in realized Hydro price includes realized premiums above LME of ~450 USD.  
\* USD 300 from 2009



## Finance 2014

- 1 Financial developments
- 2 Sensitivities
- 3 **Financial policy**
- 4 Financial reporting going forward

# Priorities for capital allocation

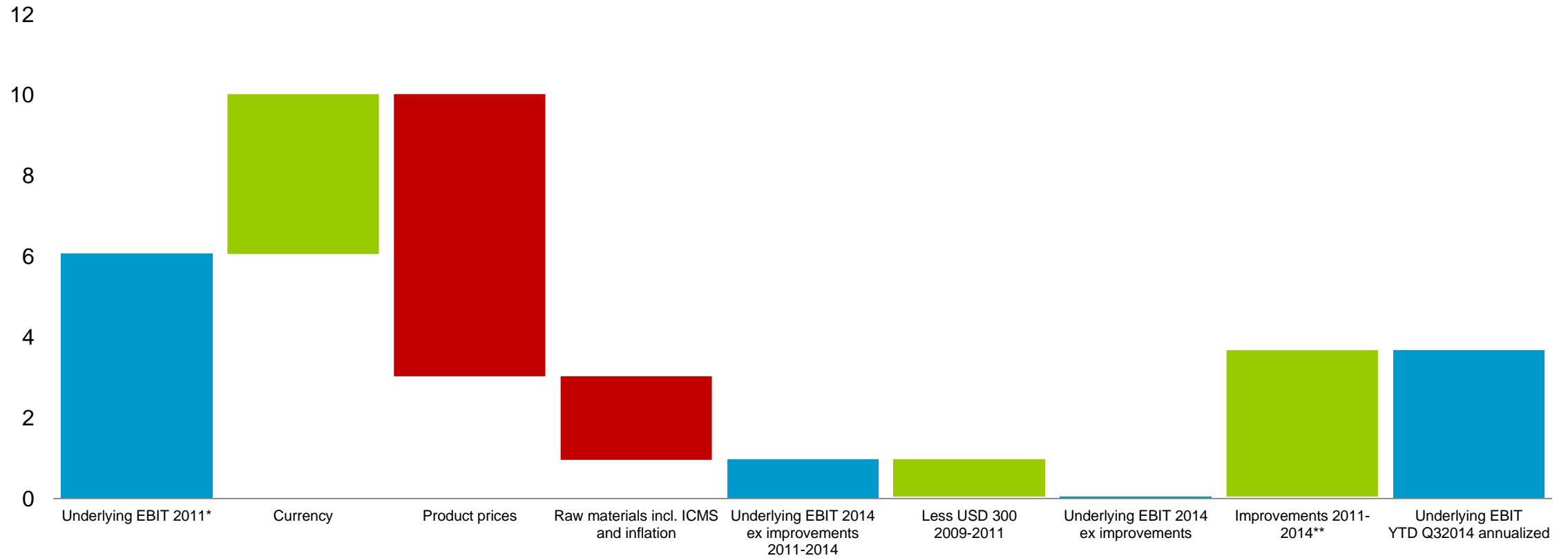


- Aim for competitive return to shareholders
- Maintain a solid balance sheet
- Pursue disciplined and selective growth



# Improving the potential for competitive returns

In NOK billion

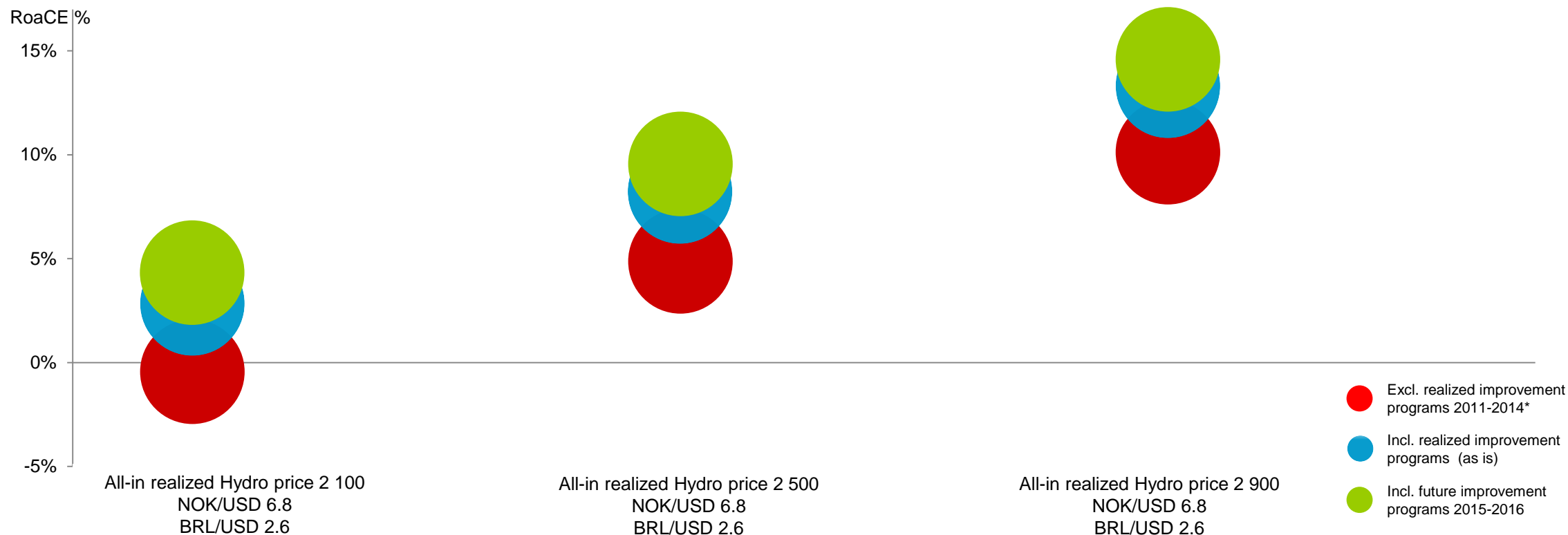


\*Hydro Underlying EBIT excluding Extruded Products.  
 \*\*USD 300 included from 2009. Improvements exclude Sapa.

# Lifting the potential for competitive returns through improvement efforts

Scenarios are not forecasts, but represent earnings potential based on sensitivities

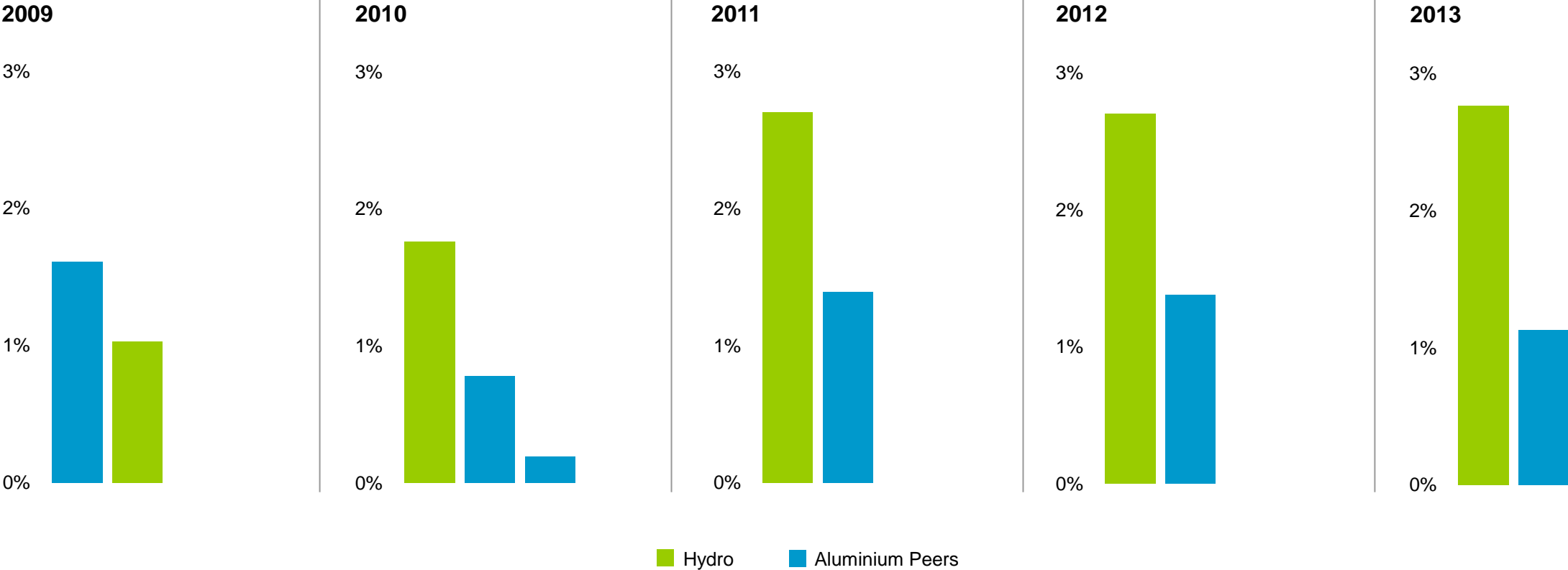
## Indicative RoaCE-range in 3 scenarios



Last 4 quarters underlying EBITDA as basis. Non-LME related revenues/cost and other currencies unchanged. Realized improvement efforts is YTD Q314 annualized. Future improvement efforts in real 2014 terms. Improvements used for scenarios exclude Sapa. All-in realized Hydro price includes realized premiums above LME of ~450 USD. RoaCE – Return on average capital employed  
 \*USD 300 from 2009

# Competitive yield compared to aluminium peers

Dividend yield in percentage, based on year-end share-prices

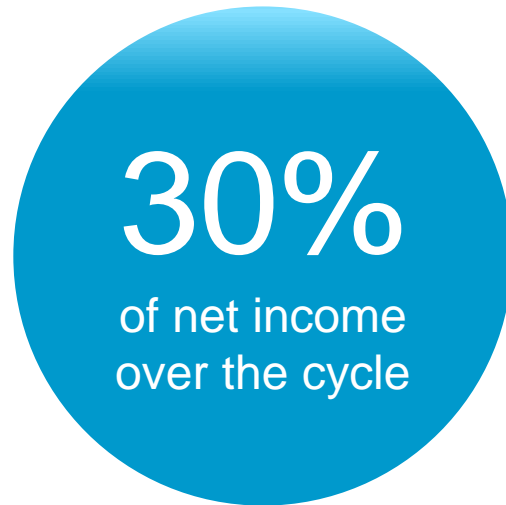


Source: Thomson Reuters

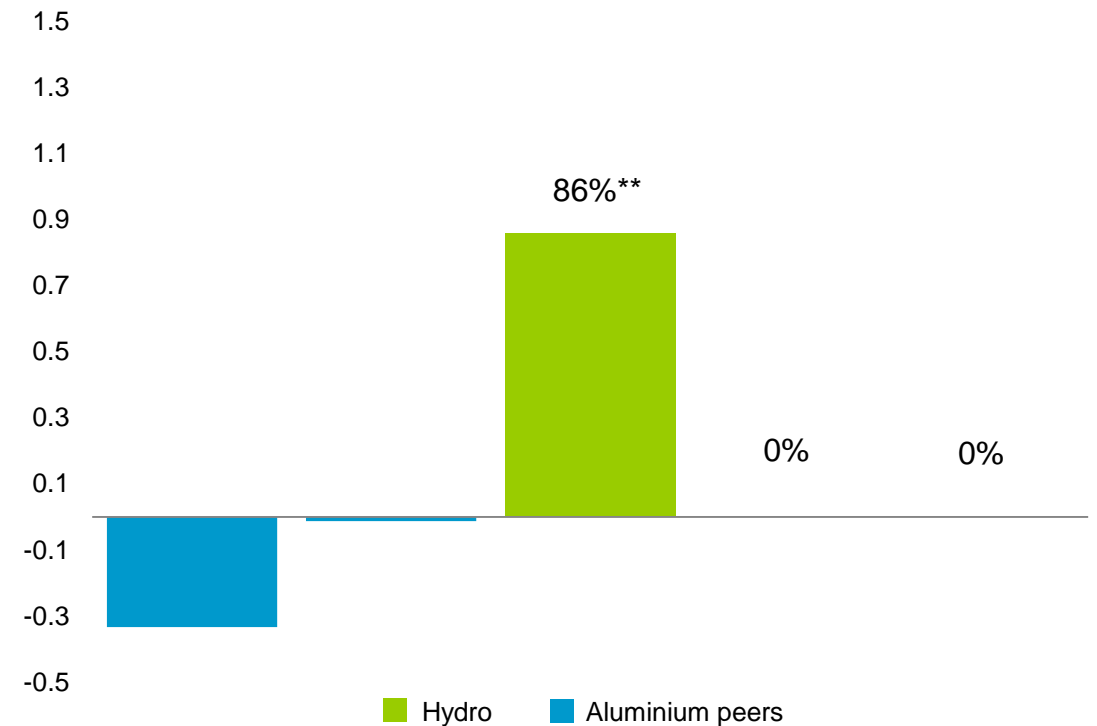


# Aiming for stable and competitive cash return to shareholders

- Average 86% 2009-2013
- Share buybacks and extraordinary dividends considered when earnings, liquidity position and capital structure allow



5 year payout ratio, 2009 – 2013\*



\* Dividend paid divided by EPS from continuing operations

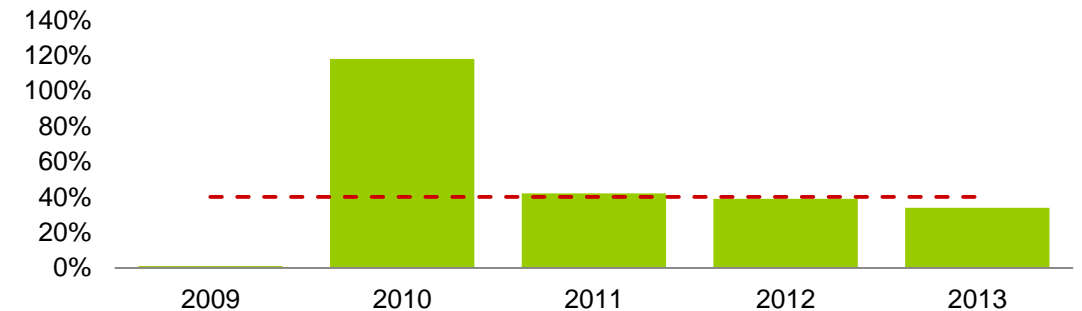
\*\* Including Alunorte revaluation gain

Source: Thomson Reuters

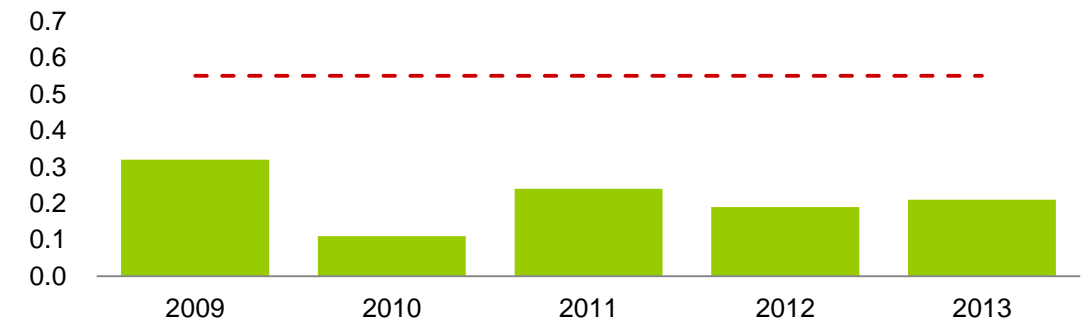
# Maintain a solid balance sheet

- Maintain investment-grade rating
  - Currently: BBB (S&P), Baa2 (Moody's), both with stable outlook
  - Competitive access to capital important for Hydro's business model
- Financial ratio ambitions over business cycle
  - Funds from operations to net adjusted debt > 40%
  - Net adjusted debt to equity < 0.55
- Funds from operations determined balance sheet structure over the last years
- Strong liquidity
  - NOK 6.0 billion in cash and cash equivalents by end-Q3 2014
  - USD 1.7 billion credit facility with maturity 2019\*, currently undrawn

## Adjusted funds from operations / Adjusted net interest-bearing debt



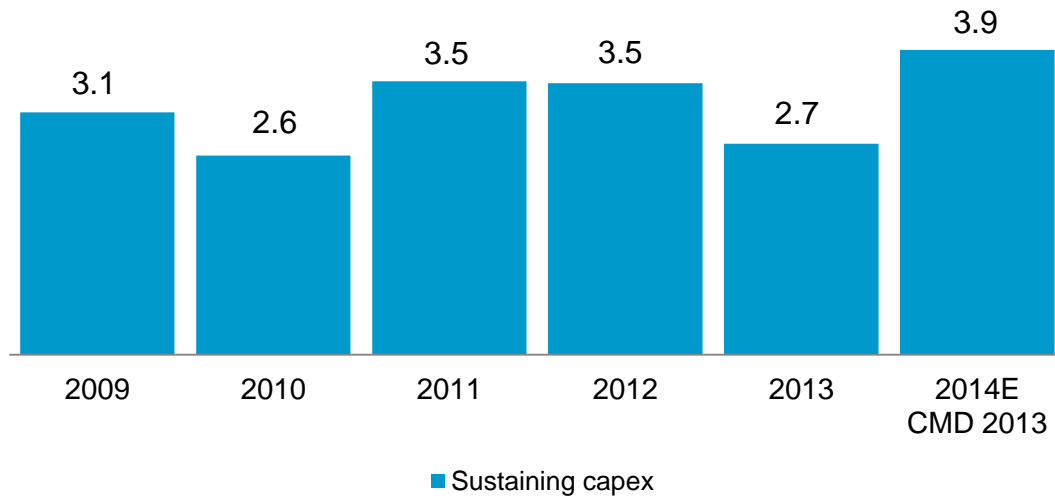
## Adjusted net interest-bearing debt to adjusted equity ratio



\* Potential to extend through one year extension option

# Long-term sustaining capex NOK ~3.5 billion

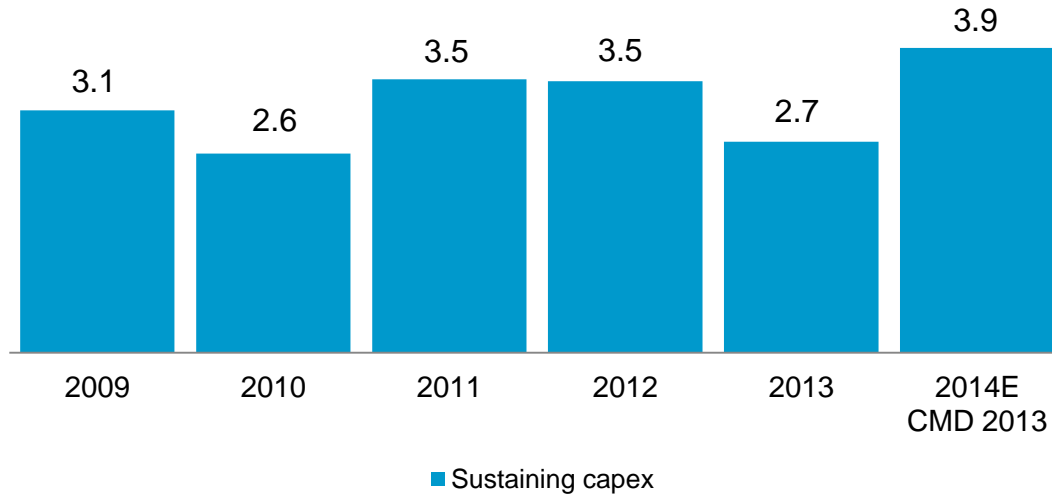
NOK billion



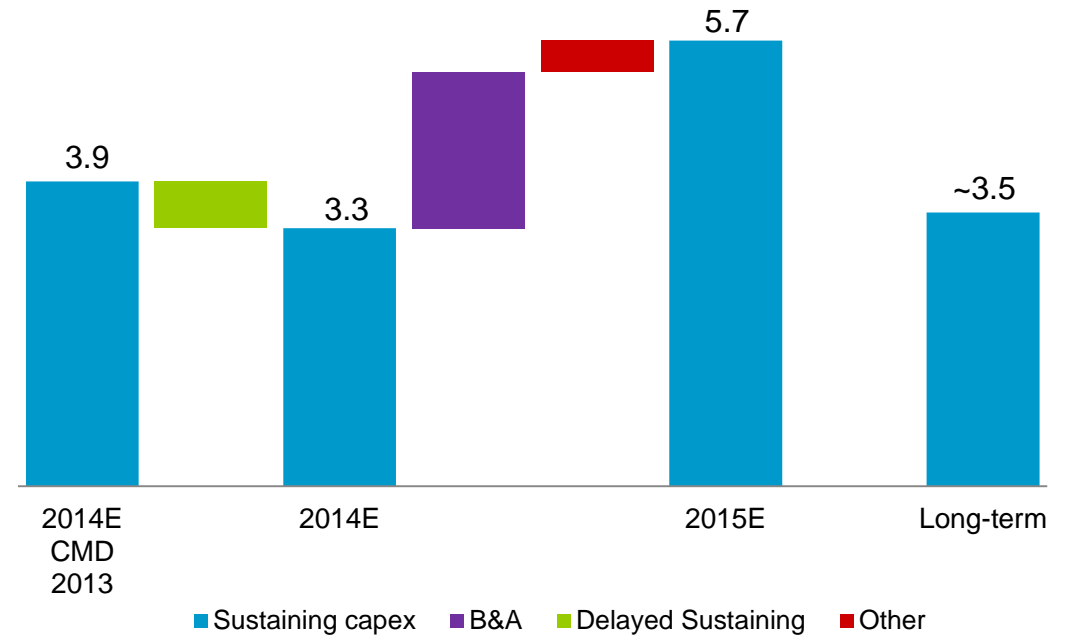
Excluding Extruded Products from 2013 onwards

# Long-term sustaining capex NOK ~3.5 billion

NOK billion



NOK billion



Excluding Extruded Products from 2013 onwards

# High-grading portfolio through 2015



## Clervaux remelter to get a significant upgrade

(February 18, 2014) Hydro will revamp the Clervaux aluminium recycling and remelt plant in Luxembourg, resulting in considerable benefits for the climate and the bottom line.

## Feb 25, 2014 Hydro boosts capacity for growth market in automotive products

Norsk Hydro ASA will invest in a new production line at its rolled products plant in Grevenbroich, Germany. The new line will increase annual capacity for aluminium car body sheet to 200,000 metric tons.



June 24, 2014

## Hydro to invest in advanced casting technology, targeting automotive industry

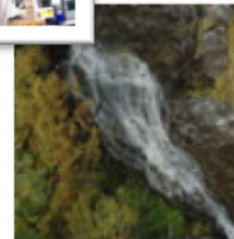
Hydro has decided to invest in new casting technology for its sheet ingot casthouses in Høyanger and Årdal, Norway. The investment will enable the company to better serve customers in the automotive industry.



April 30, 2014

## Hydro adds new recycling line for aluminium beverage cans

Hydro will build a new, integrated recycling line for used aluminium beverage cans at its Neuss plant in Germany. The line will be completed by end 2015, and increase the plant's existing annual recycling capacity of 50,000 tonnes to more than 100,000 tonnes.



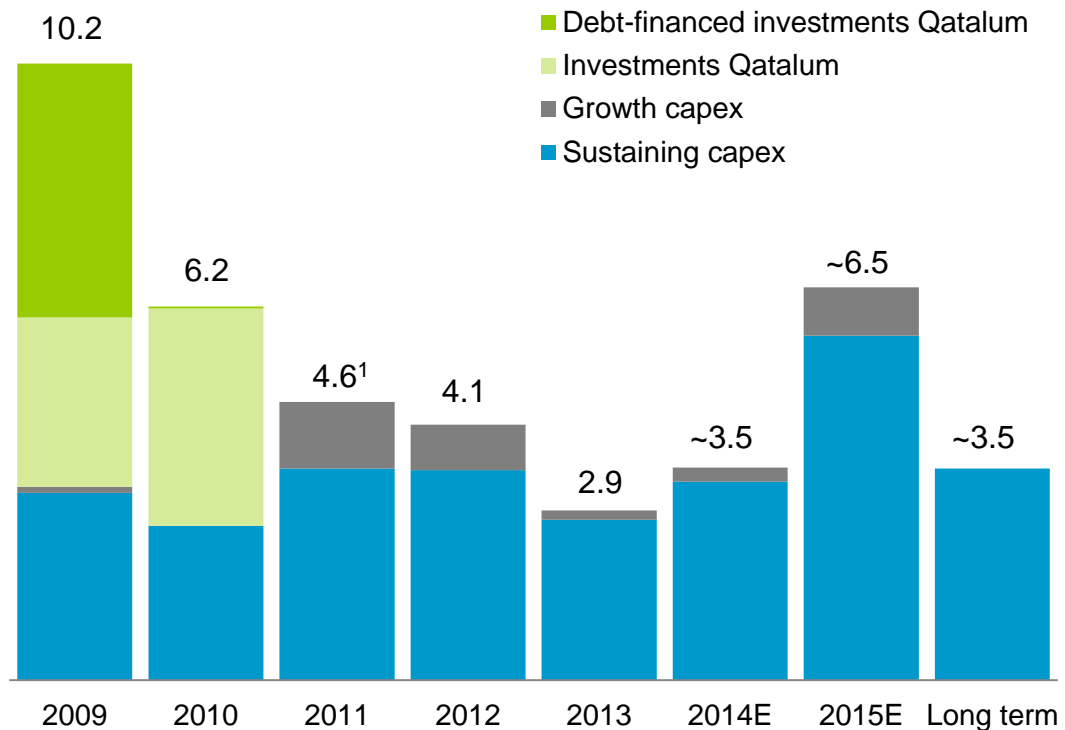
## Energy to pursue new equity production with Midtlægge and Mannsberg

(October 23, 2014) Energy is pursuing two exciting new hydropower projects in Norway, aiming to add close to 30 GWh in total annual production and increase commercial flexibility by realizing the Midtlægge project in the Røldal-Suldal power system and the planned Mannsberg project in the Tyn power system.



# Majority of capital allocated upstream

NOK billion



- Long-term sustaining capex NOK 3.5 billion annually
- Sustaining projects for 2014 – 2016:
  - Red mud disposal area
  - Bauxite tailing dam
  - Smelter relining
- Some growth projects impacting 2015
  - RP Automotive line
  - RP UBC Recycling line

1) Excluding Vale assets acquisition  
Excluding Extruded Products from 2013 onwards

# Hedging policy



- Bauxite & Alumina, Primary Metal
  - Operational LME hedging
    - One-month forward sales
  - Currency exposure, mainly USD, NOK and BRL
    - Policy of maintaining long-term debt in USD
    - BRL hedged for 2014
- Metal Markets, Rolled Products
  - Operational LME and currency hedging to secure margin
- Volatility mitigated by strong balance sheet
- Flexibility to hedge LME or currency in certain cases

## Finance 2014

- 1 Financial developments
- 2 Sensitivities
- 3 Financial policy
- 4 **Financial reporting going forward**



# Consolidation of Hydro Husnes (Søral) & Aluchemie

- Transaction closed October 31
  - Full consolidation as of November 1 2014
- Proportional consolidation of Aluchemie anode factory
  - Hydro now owns 46.7%
- Combined effects of Husnes transaction
  - Increased sustaining capex
    - NOK ~100 million per year
  - Increased depreciation
    - NOK ~100 million per year

## Husnes

- Annual capacity of 180 000 tonnes primary metal
  - Currently producing 90 000 tonnes
- 100% value added products
- Located on the west coast of Norway

## Aluchemie

- Annual capacity of 500 000 tonnes anodes
- Joint venture with Rio Tinto Alcan
- Located in Rotterdam, Netherlands

# Regulatory framework in Brazil



- Hydro aims to develop robust and viable operations in Pará with stable and predictable framework conditions
- Aluminium industry in Pará ICMS deferral to be revisited in July 2015
  - ICMS on fuel oil remains in place since February 2014
    - ~BRL 60 million per quarter
  - Ongoing dialogue continues following elections
- Reintegra tax refund program reintroduced
  - Hydro receives refund of ~BRL 170 million per year on alumina and aluminium exports

# Short-term update: Increasing all-in prices and higher B&A production



- Increasing all-in metal and alumina prices
- Weakening NOK and BRL
- Higher bauxite and alumina production
- Rolled products Q4 maintenance
- Lower NO2 power prices

## Financial priorities

- Shareholder return
- Cash flow generation
- Continuous improvements
- Margin management
- Financial strength and flexibility



*Better Bigger Greener*

# Market outlook

Arvid Moss

Erik Fossum

Capital Markets Day 2014





# Agenda market outlook

- 1 Macroeconomic and downstream outlook
- 2 Primary supply/demand
- 3 Premium development
- 4 Bauxite and alumina market
- 5 China
- 6 Energy
- 7 Long-term outlook



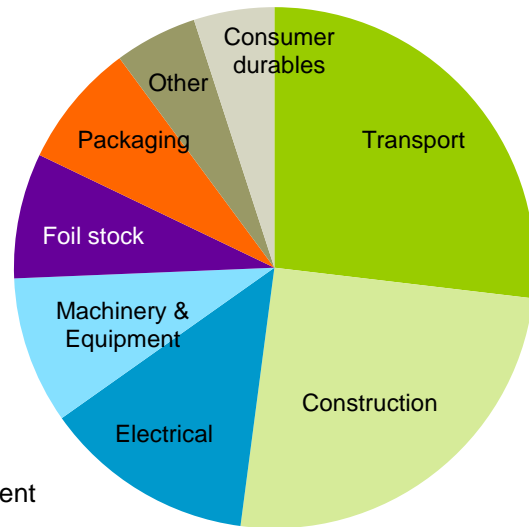
01

Macroeconomic and  
downstream outlook

# Broad-based aluminium demand growth across segments and regions

## Global aluminium semis demand, per segment

Million tonnes (2014)



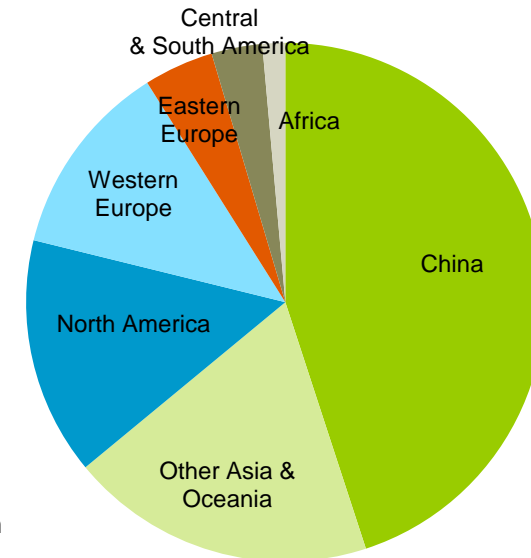
CAGR per segment  
2004-2014

Transport	5.2 %	Construction	7.6 %
Electrical	8.0 %	Machinery & Equipment	5.6 %
Foil stock	5.9 %	Packaging	3.3 %
Other	4.3 %	Consumer durables	4.9 %

## Global aluminium semis demand, per region

Million tonnes (2014)

Global semis demand 2014  
**74.9 million tonnes**



CAGR per region  
2004-2014

China	16.7 %	Other Asia & Oceania	3.6 %
North America	~0 %	Western Europe	~0 %
Eastern Europe	6.2 %	Central & South America	7.6 %
Africa	7.7 %		

Source: CRU, Hydro Analysis  
CAGR = Compound annual growth rate

# Aluminium demand progressing in line with economic growth

Economic activity and semis demand picking up in western economies

## The US

YoY-growth



## Western Europe

YoY-growth

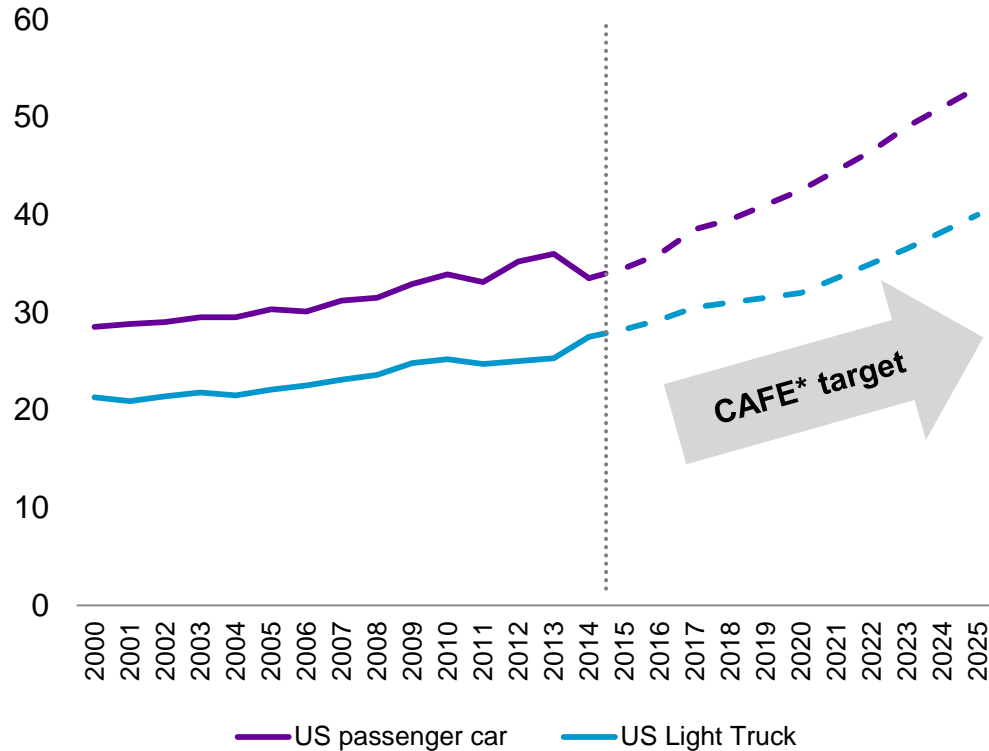


Source: CRU/Global Insight/Hydro Analysis

# Legislation is key driver for growing intensity in auto segment

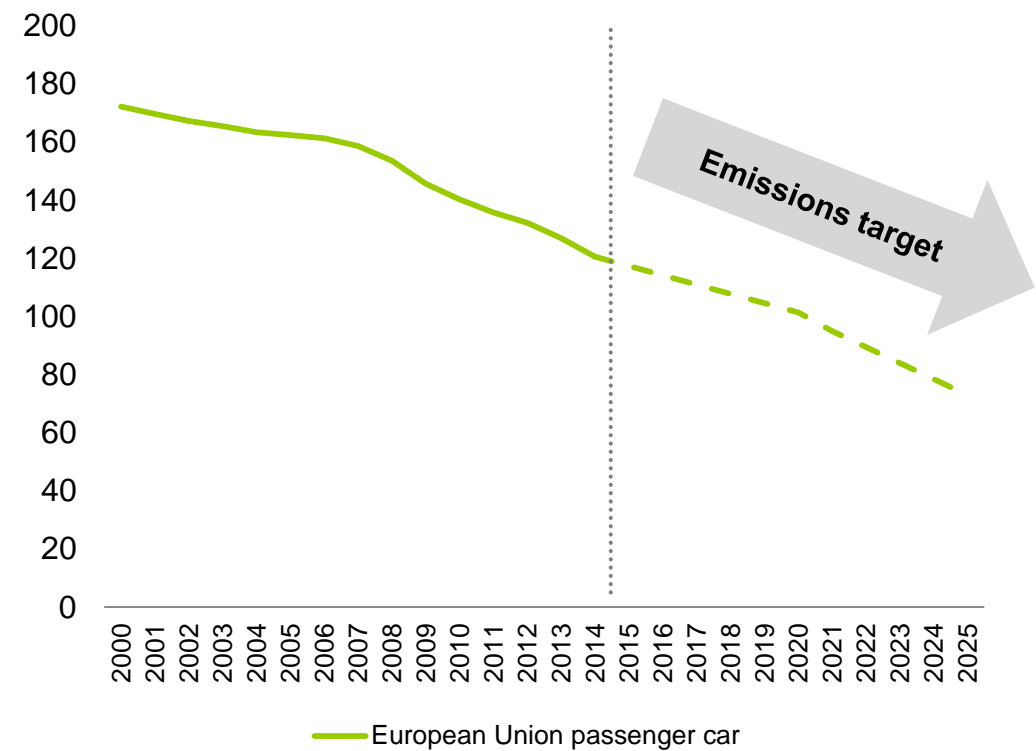
## US: CAFE target

MPG: miles per gallon



## European Union: emissions target

g/km: grams of CO2 per km



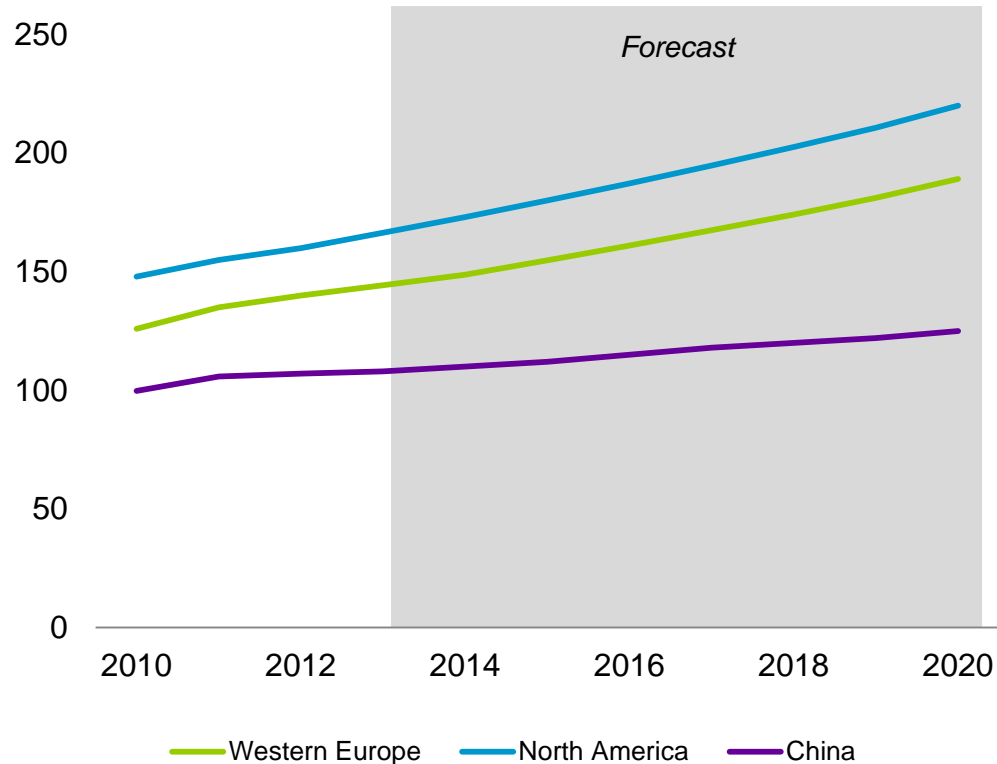
Source: CRU, Hydro Analysis

\* Corporate Average Fuel Economy (CAFE)

# High growth in transport segment supported *both* by increasing aluminium usage per car *and* vehicle production volumes

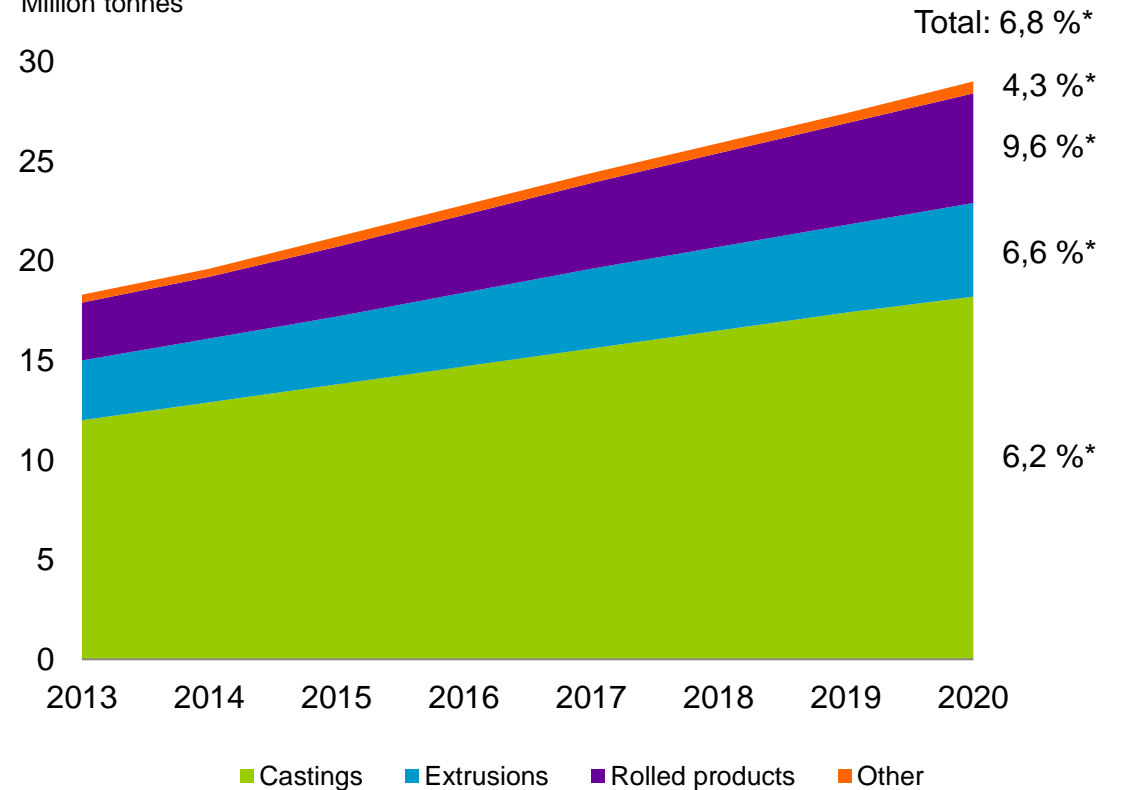
## Aluminium content in cars increasing

Average kg per car



## Global semis demand for transportation sector by product form

Million tonnes

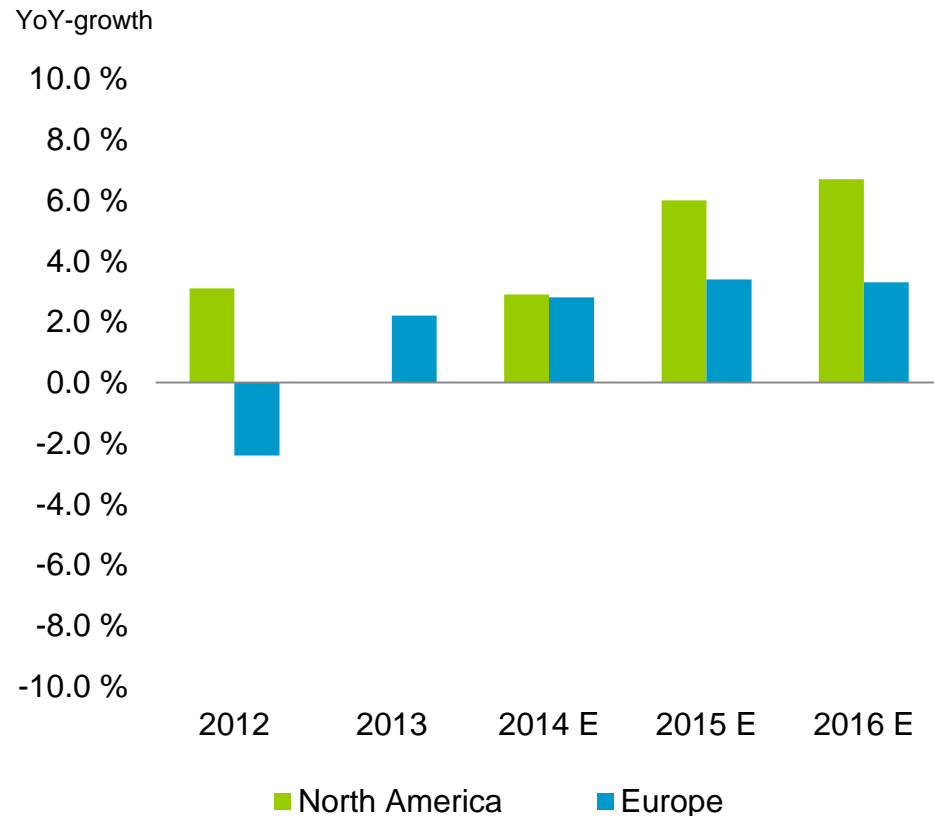


Source: CRU, Hydro Analysis, WoodMackenzie  
CAGR – Compound annual growth rate

\* CAGR per product form 2013-2020

# Rolled products segment much supported by transport sector, but also general improvements in other industrial segments

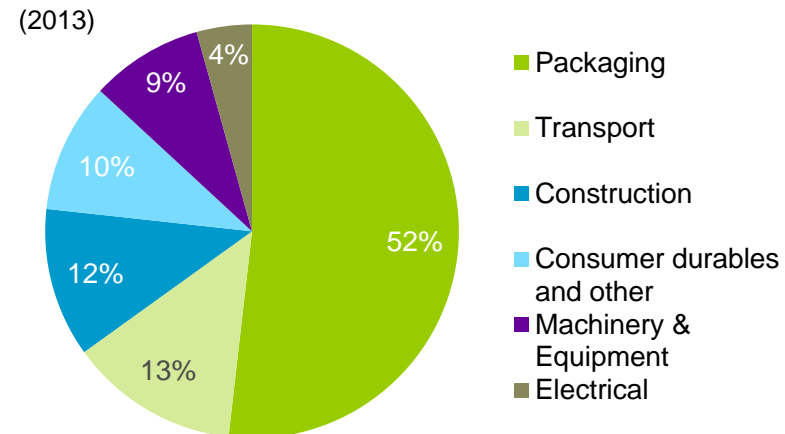
## General rolled products demand, selected regions



## Expected market development

- Strong demand contribution from increased aluminium usage in transport segment
- Healthy growth expected in packaging segment driven by end consumer packaging

## Global segment composition, rolled products

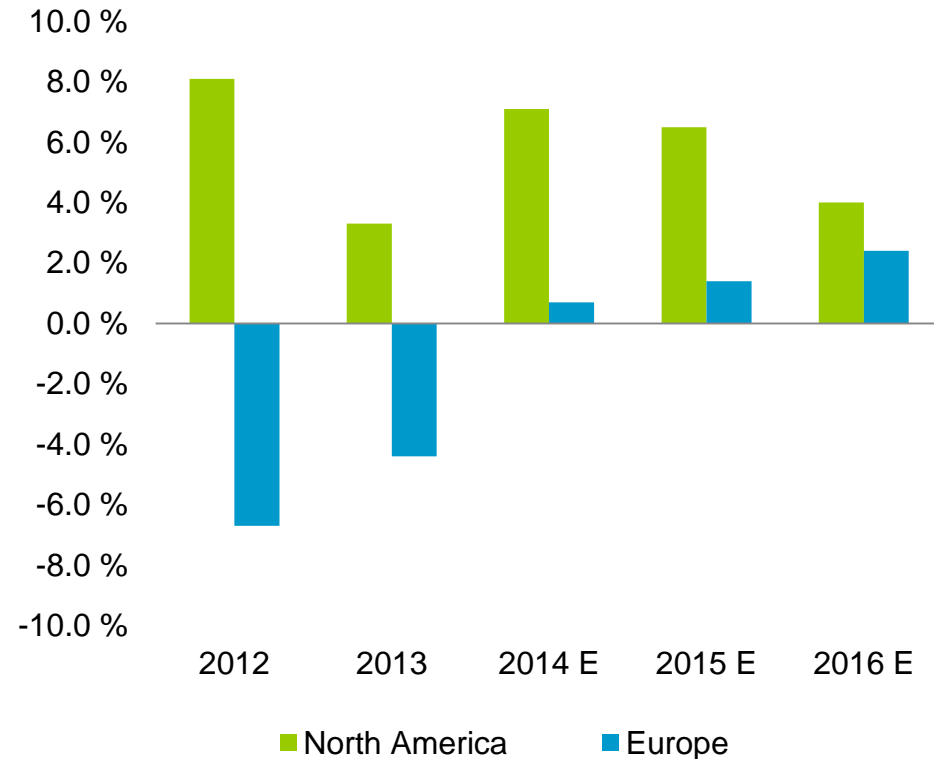


Source: CRU, Hydro Analysis

# Extrusion outlook improving on the back of solid construction activity in the US and improvement from low levels in Europe

## Extrusion demand, selected regions

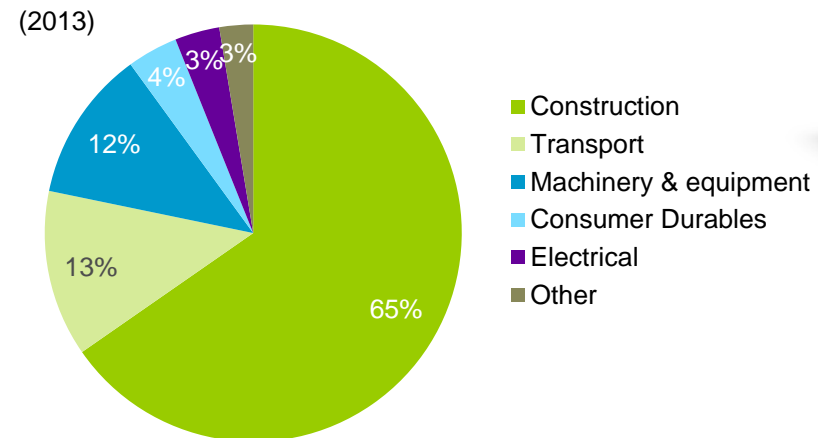
YoY-growth



## Expected market development

- US housing market sustaining positive momentum
- Construction activity in peripheral Europe showing signs of recovering, although from low levels
- Growth in transport segment

## Global segment composition, extrusion (2013)



Source: CRU, Hydro Analysis



02

Primary supply/demand

# Recap Capital Markets Day 2013: Balanced outlook for 2014

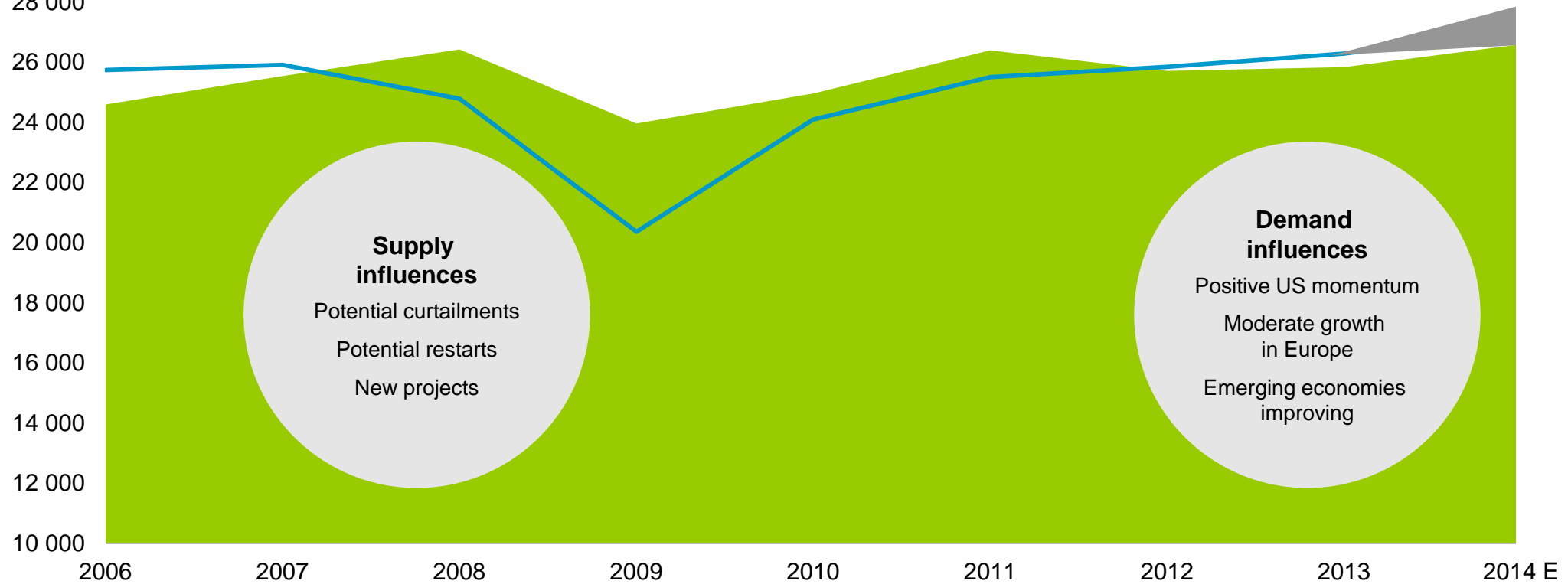
Possibility of modest inventory decline

## World ex-China

Thousand tonnes  
28 000

Supply Demand

Demand growth  
base case: 2-4 %



Source: CRU, Hydro Analysis

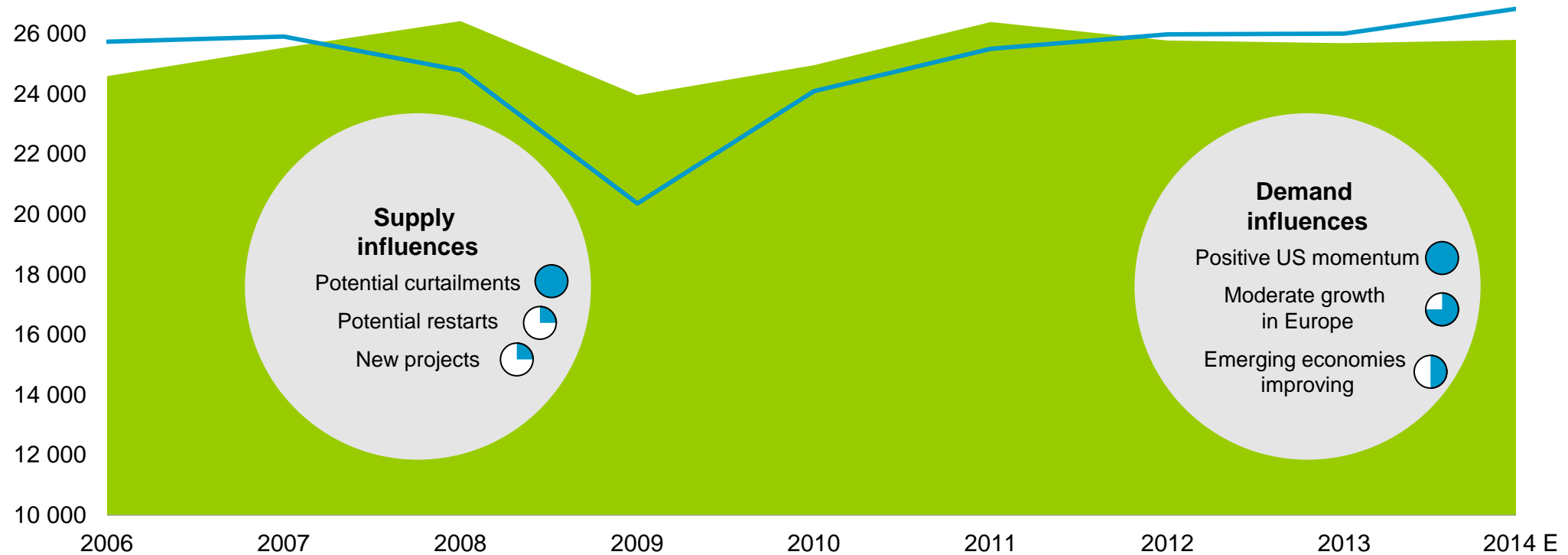
# Production curtailments and solid demand resulting in a market deficit for 2014

## World ex-China

Thousand tonnes  
28 000

Supply Demand

Est. demand growth  
2014: 3 - 4 %



**Supply influences**

- Potential curtailments (Large extent)
- Potential restarts (Limited extent)
- New projects (Limited extent)

**Demand influences**

- Positive US momentum (Large extent)
- Moderate growth in Europe (Limited extent)
- Emerging economies improving (Limited extent)

Source: CRU, Hydro Analysis

 Happened to a limited extent
  Happened to a large extent

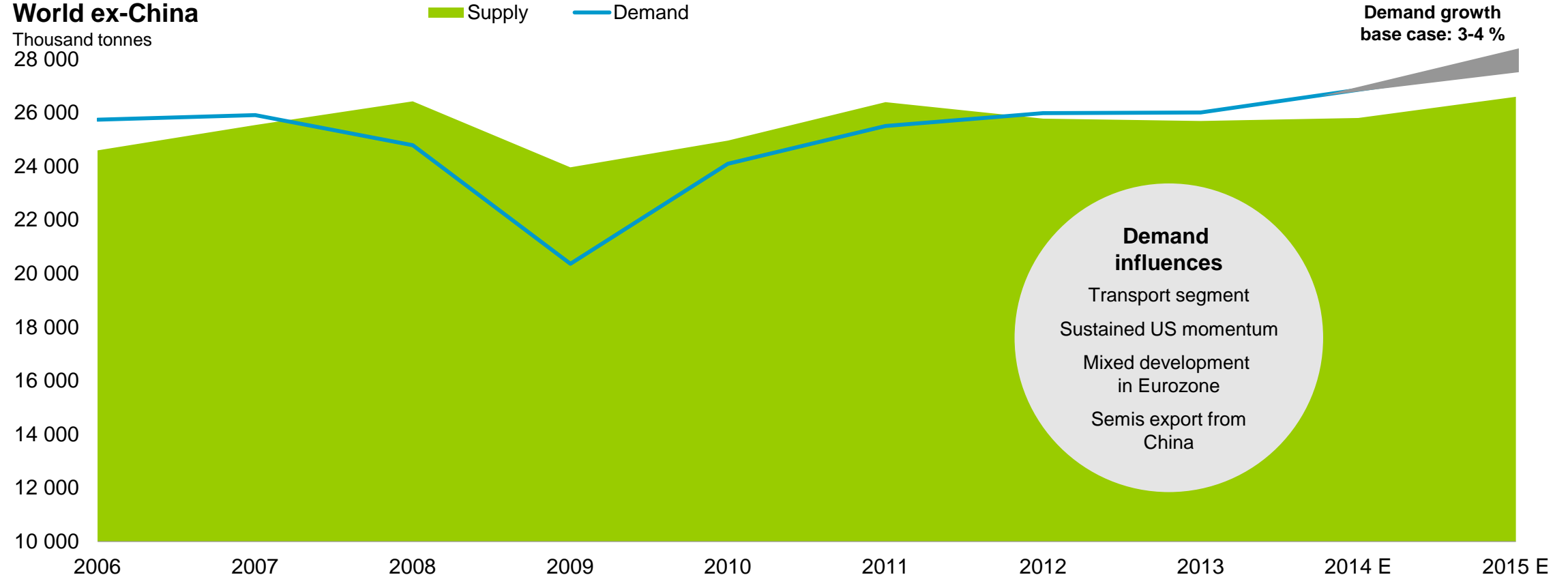
# Expectations for modest inventory decline also in 2015

Tight market balance continuing

## World ex-China

Thousand tonnes  
28 000

Supply Demand

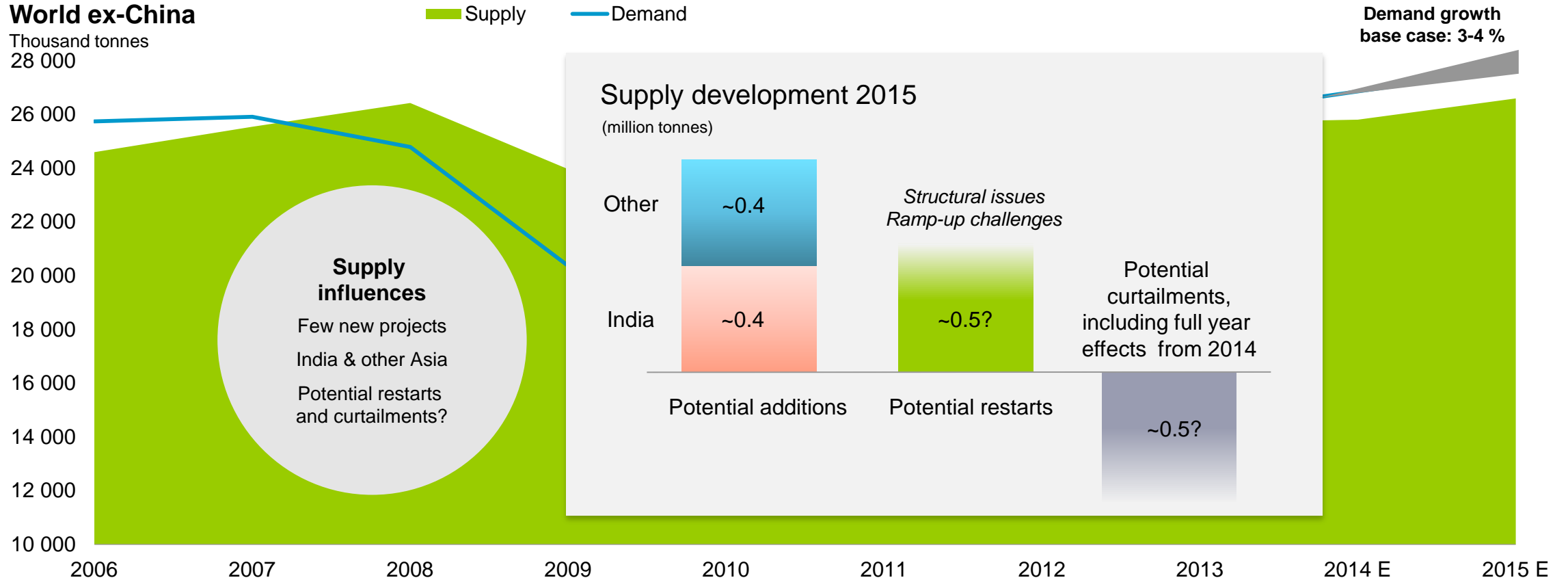


Source: CRU, Hydro Analysis

# Supply growth next year mainly in Asian regions

## World ex-China

Thousand tonnes  
28 000



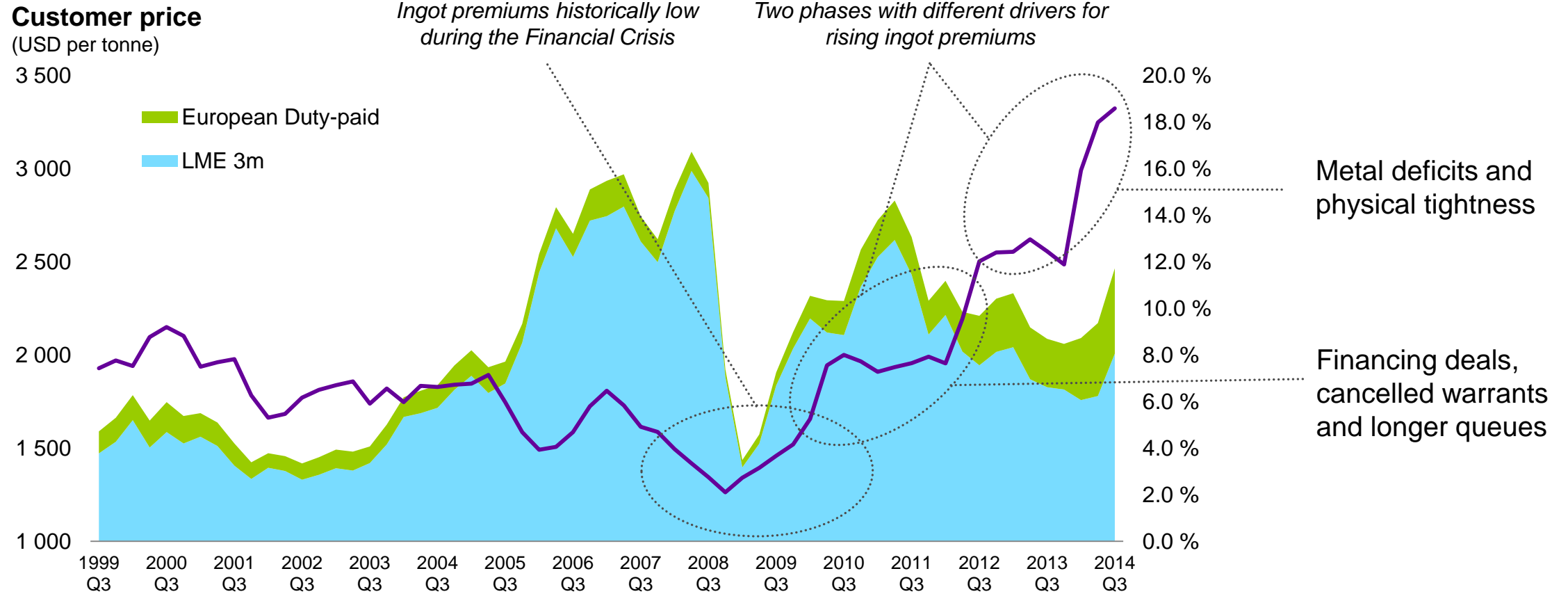
Source: CRU, Hydro Analysis

03

# Premium development

Head of Commercial,  
Erik Fossum

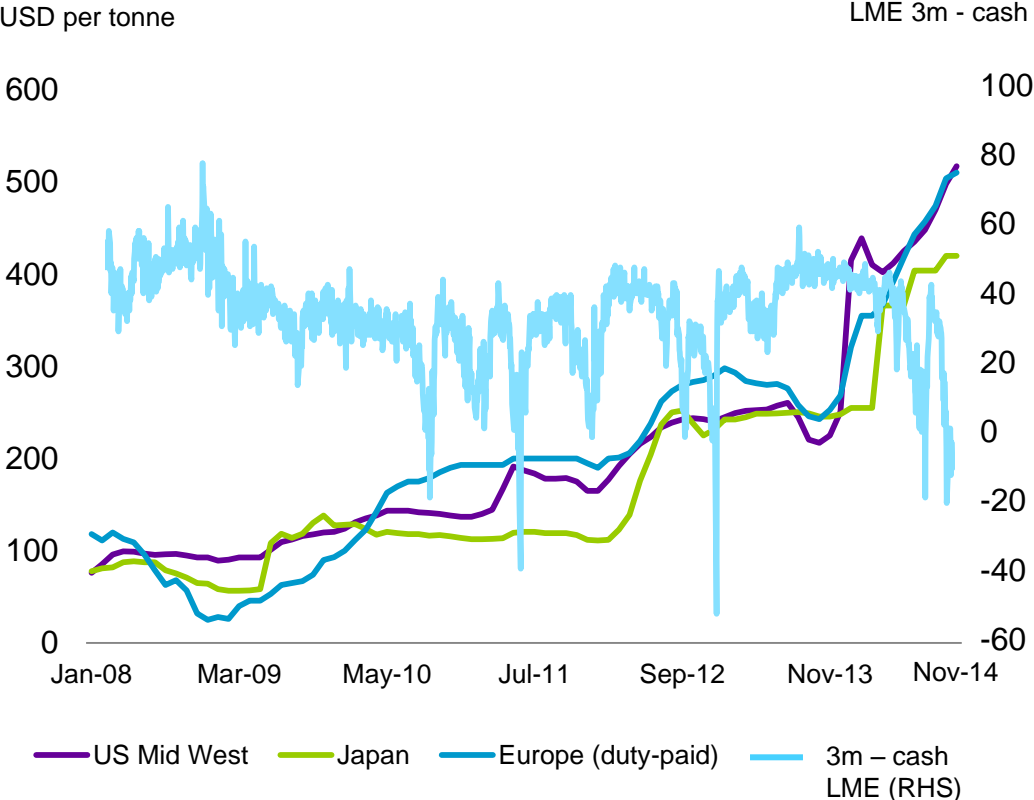
# Several factors have contributed to a steady rise in standard ingot premiums since the Financial crisis



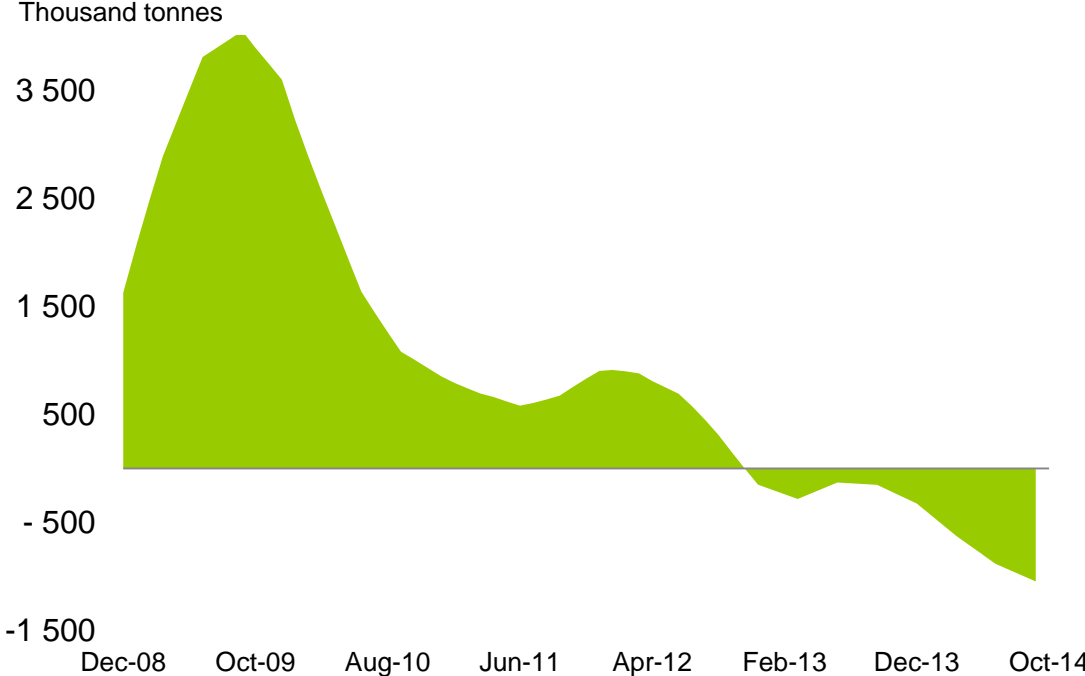
Source: CRU/Hydro analysis

# Solid ingot premium development amid metal tightness

**Regional standard ingot premiums and contango**



**Production less demand, (quarterly annualized)\*  
World ex-China**



Source: Metal Bulletin, MW/MJP: Platts

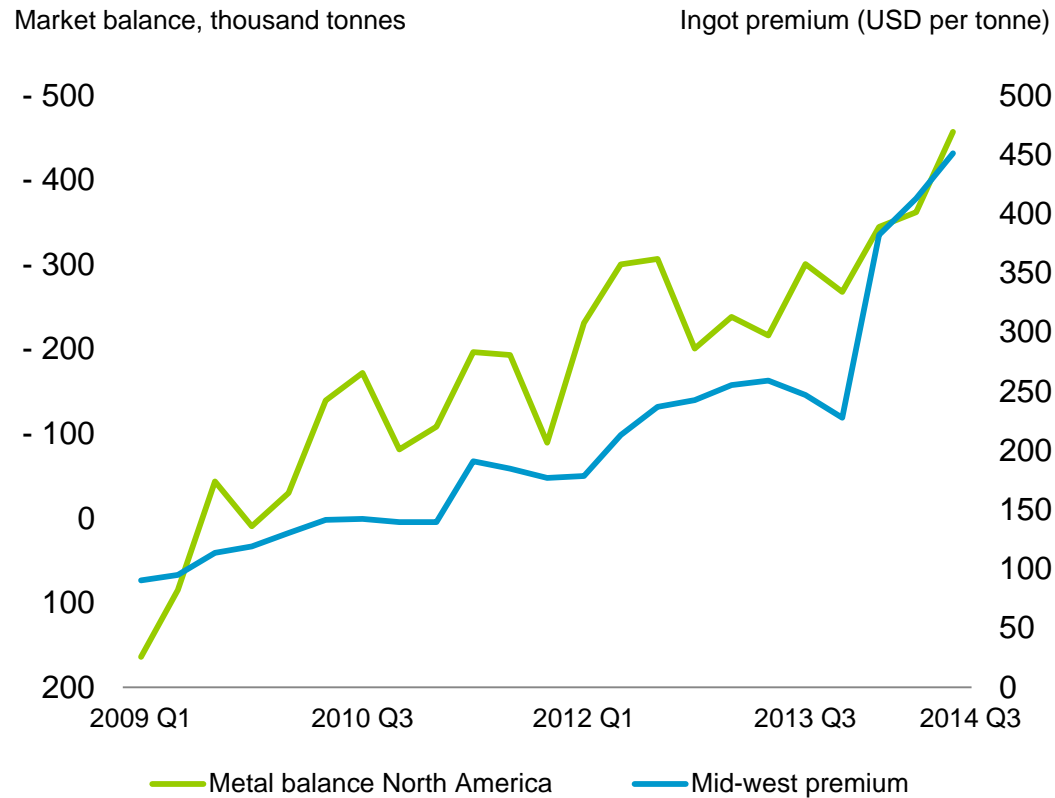
Source: CRU/Hydro Analysis



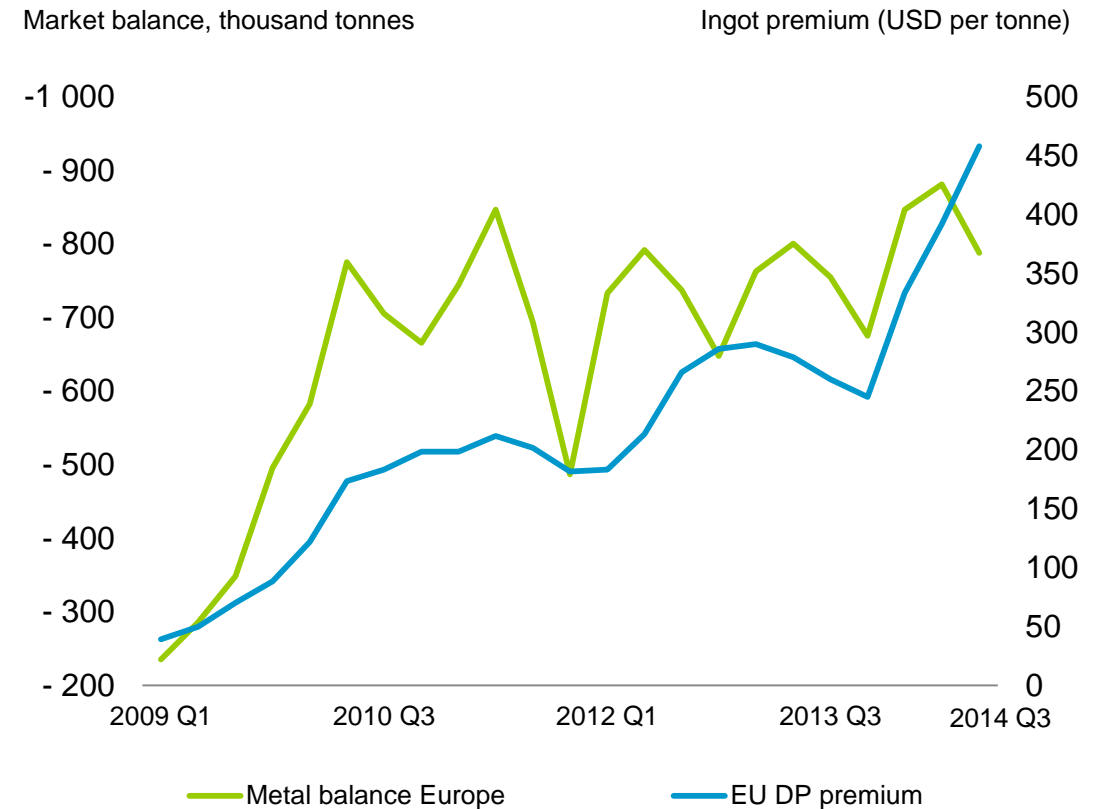


# Tighter metal balances amid smelter curtailments further underpinning rise in standard ingot premium levels

## North America



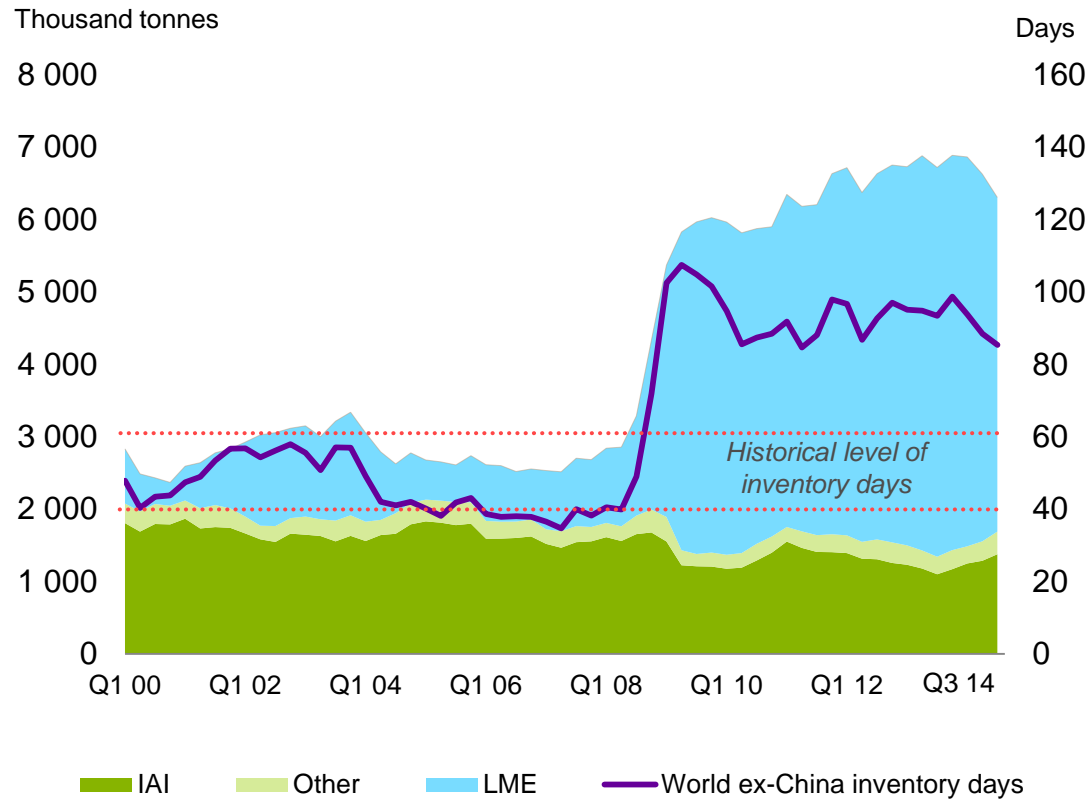
## Europe



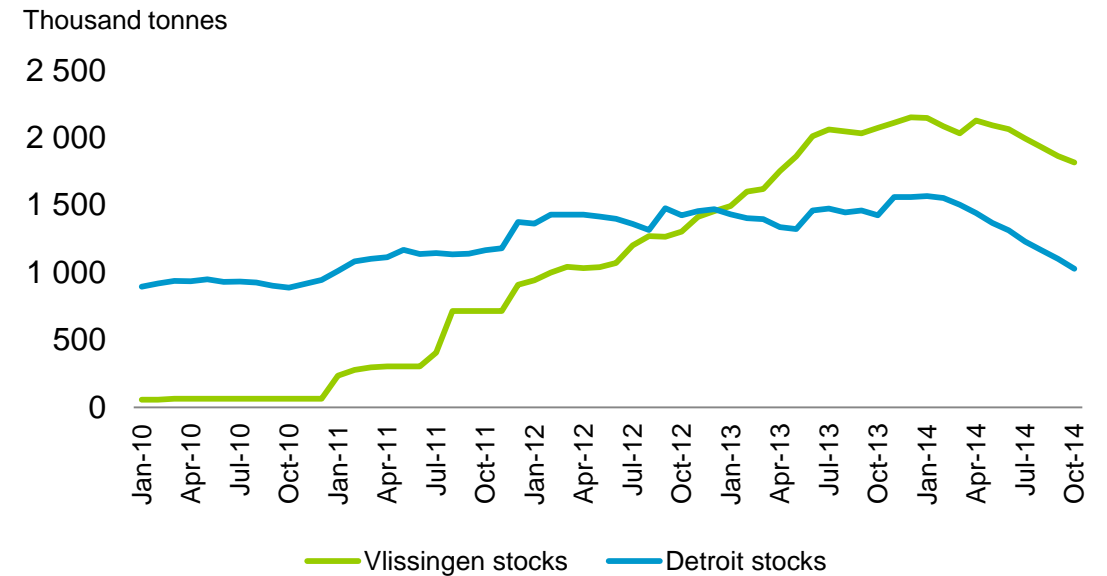
Source: CRU/Hydro analysis

# Declining stock levels, several warehouses already complying with suggested LME rules

## World-ex China reported primary aluminium inventories



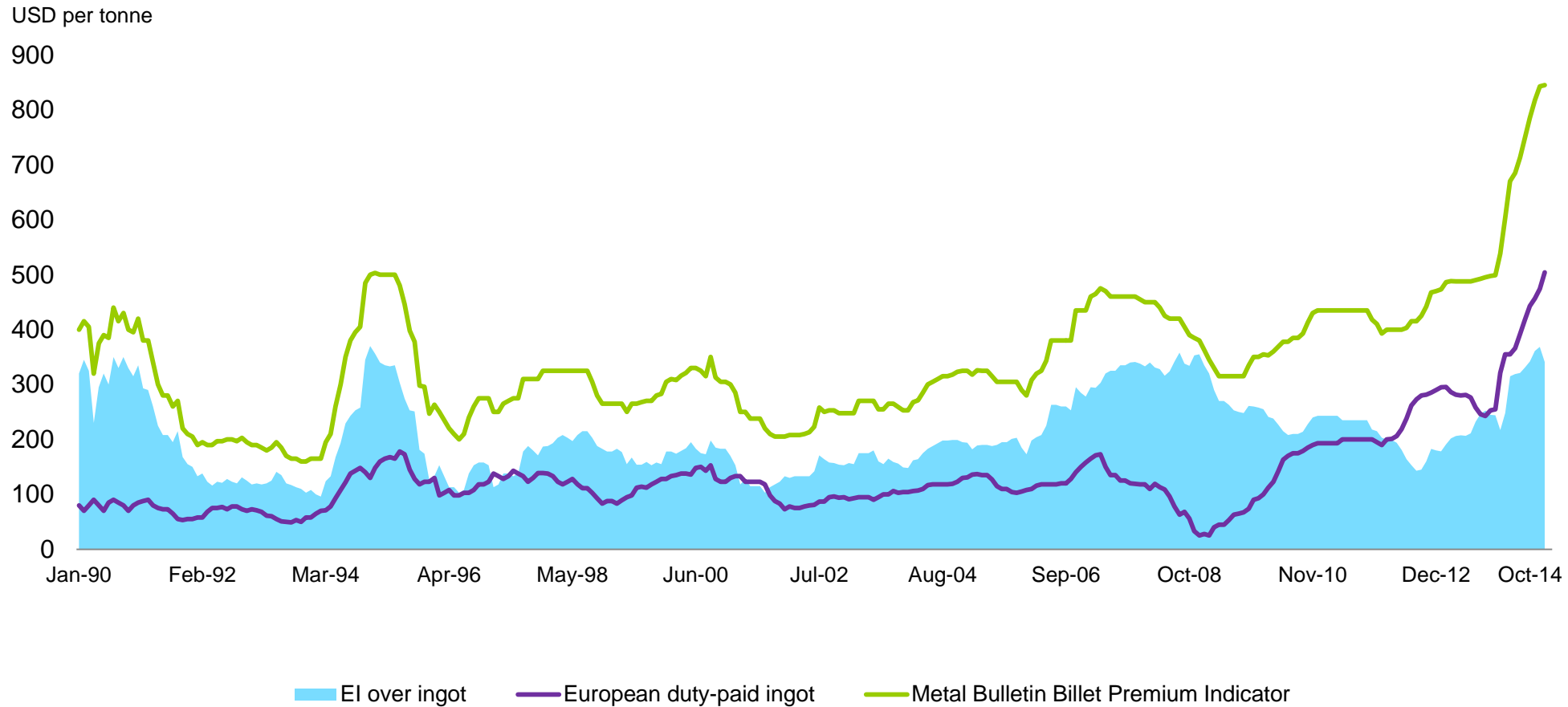
## Stock levels selected warehouses



Warehouse	Gross load in 2014 YTD	Gross load out 2014 YTD	Load-out/load-in
Metro Detroit / Pacorini Vliissingen	450 kt	1.335 kt	3.0 X

Source: CRU/Hydro analysis

# Product premiums also at record high levels



*Product premium lifted on its own fundamentals*

Source: Metal Bulletin, Hydro Analysis

04

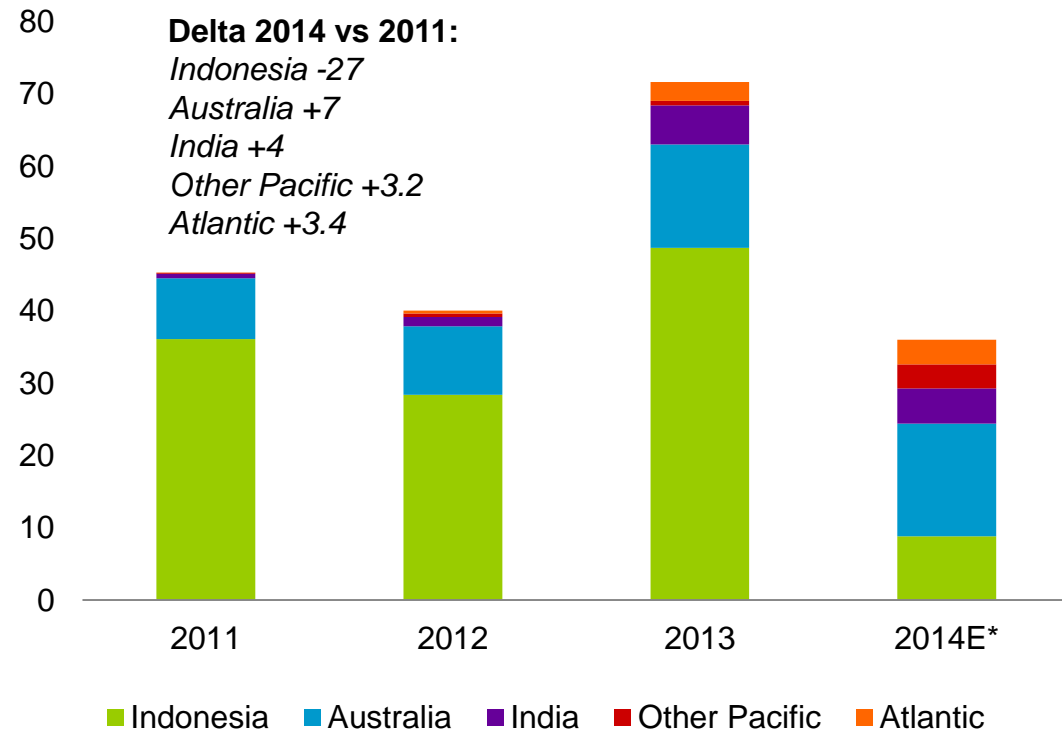
## Bauxite and alumina market

# China developing new bauxite import sources

No Indonesian bauxite exports translates to higher prices average CIF China

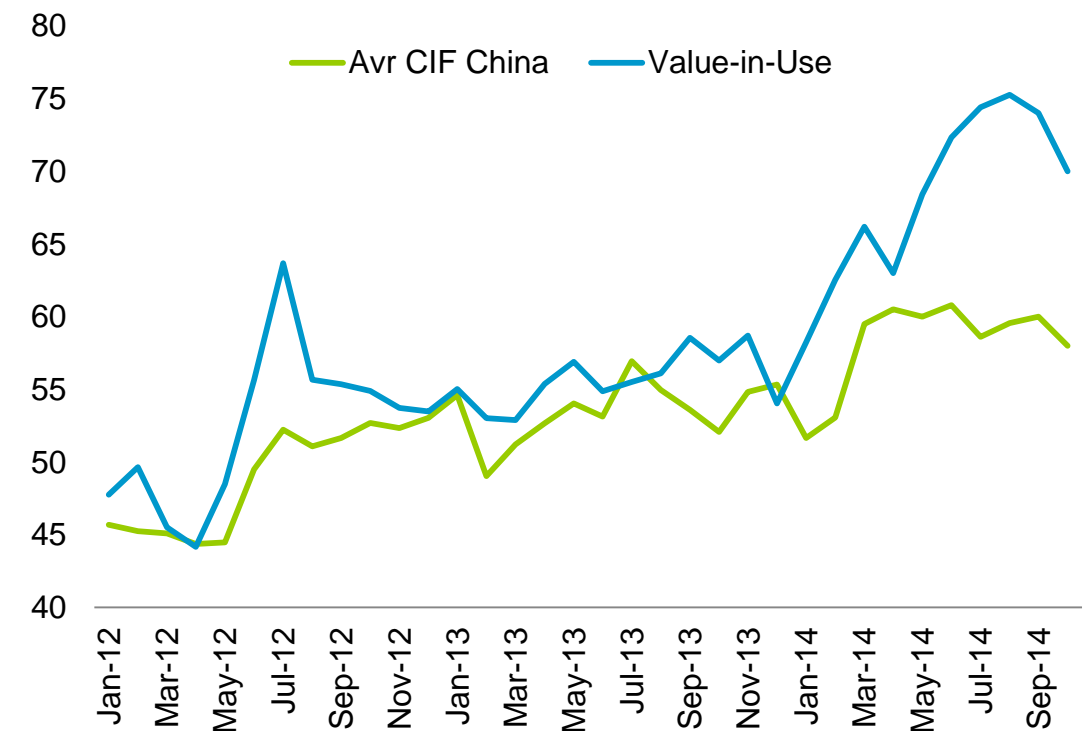
## Import volume by origin

Million tonnes



## Value-in-use bauxite price increasing more

USD per tonne

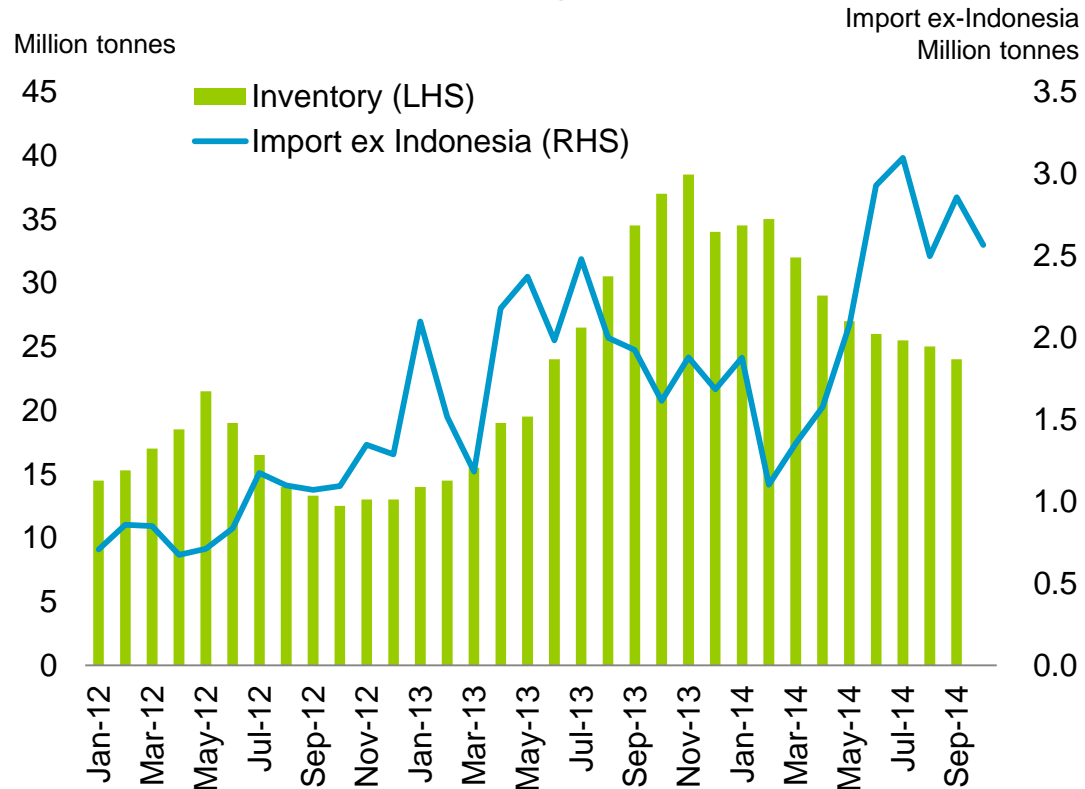


Source: China Custom, CMgroup, Hydro Analysis, \* using a proxy for Q4

# Short term, new imports and inventory offer relief

Enough volume, but higher cost

## Inventory and import excluding Indonesia



## No short/mid term bauxite squeeze

- China demand for imported bauxite is below 4 million tonnes per month
- Chinese bauxite import around 3 million tons per month should keep China with sufficient supply the next 2 years, however stocks are unevenly distributed
- Medium term, potential export projects in Guinea and Australia could balance China's import demand
- Bauxite prices could continue to strengthen somewhat leading to a cost push for alumina producers

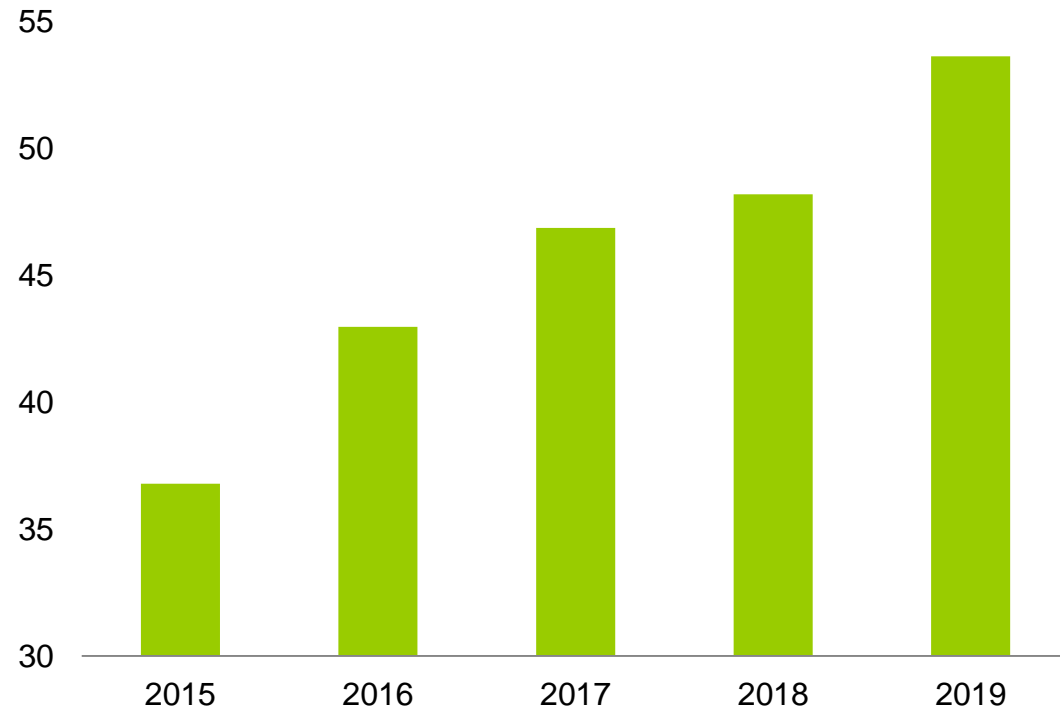
Source: China Custom, CMGroup, Hydro Analysis

# Long term China has bauxite challenges

Greenfield is needed, but cost CIF China is uncertain

## Chinese bauxite import forecast

Million tonnes



## More challenging in and outside China

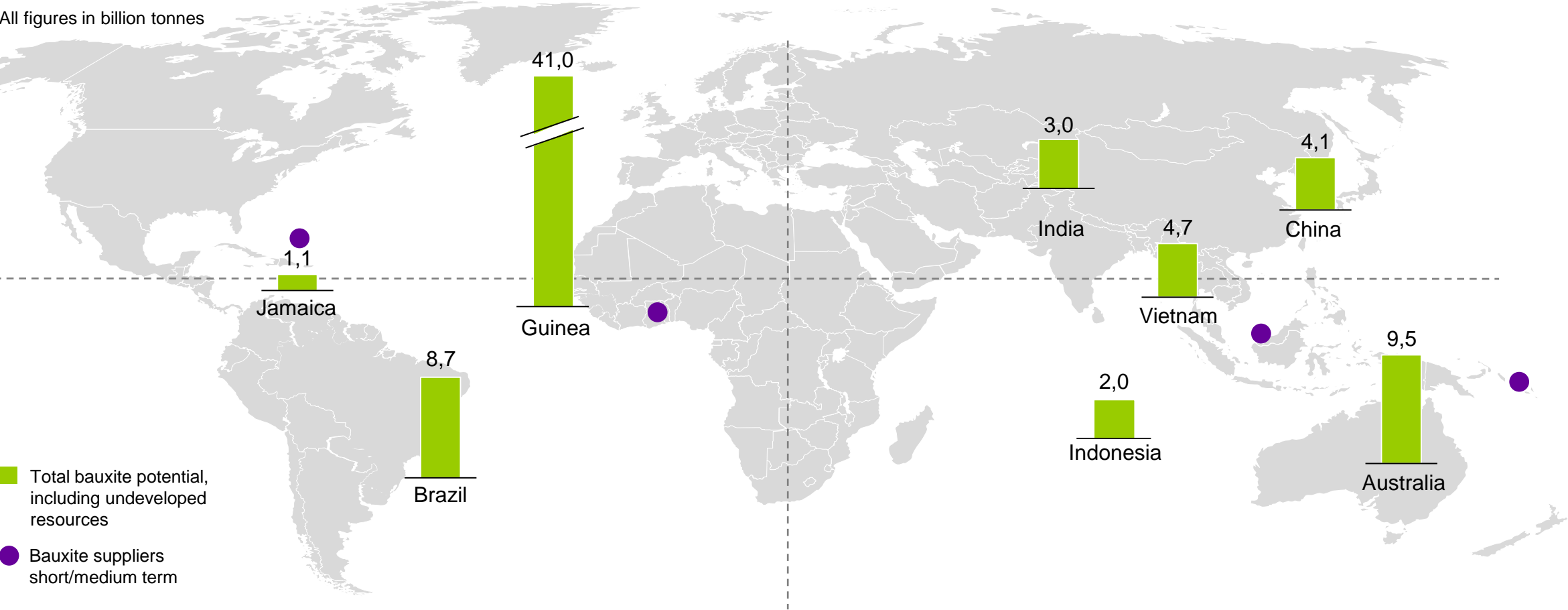
- Lower quality on new China domestic bauxite resources
- Domestic bauxite prices increasing, especially in the new areas like Guizhou and Guangxi
- Resource nationalism growing
- Stronger environmental policies
- Higher infrastructure cost expected
- Atlantic bauxite long term to China faced with shipping exposure

Source: CRU, Hydro Analysis

# Bauxite potentials

New sources being explored, but not expected to replace the importance of Indonesia

All figures in billion tonnes



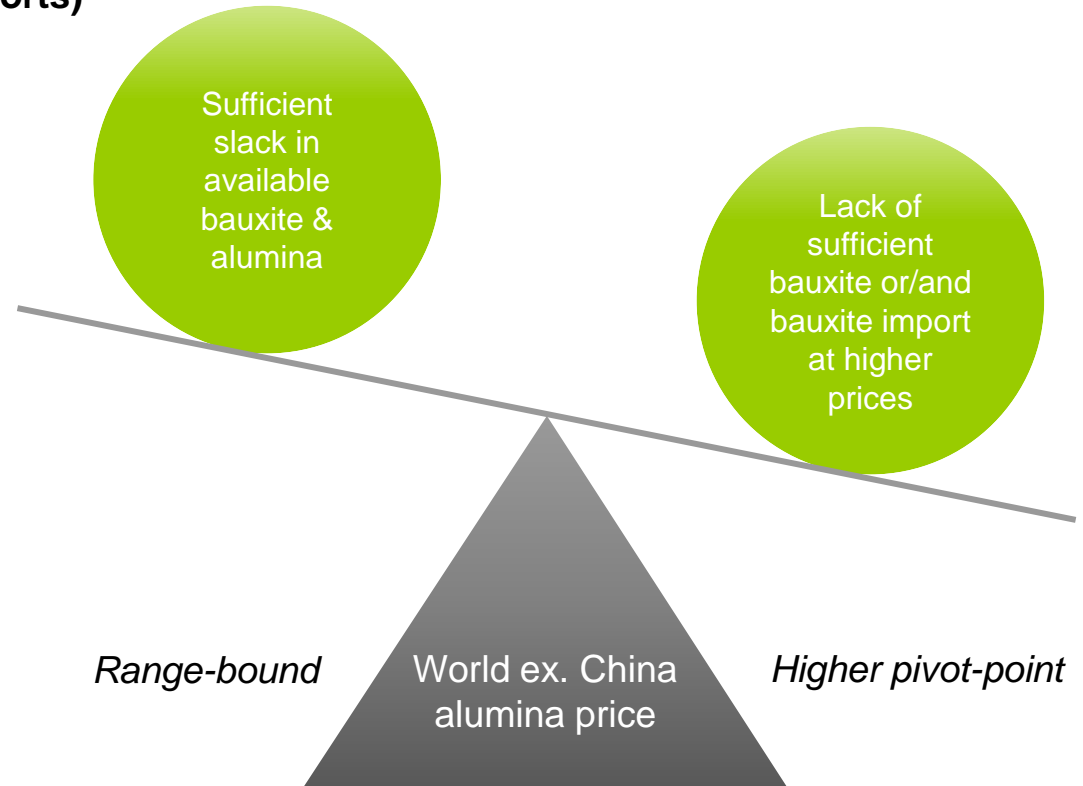
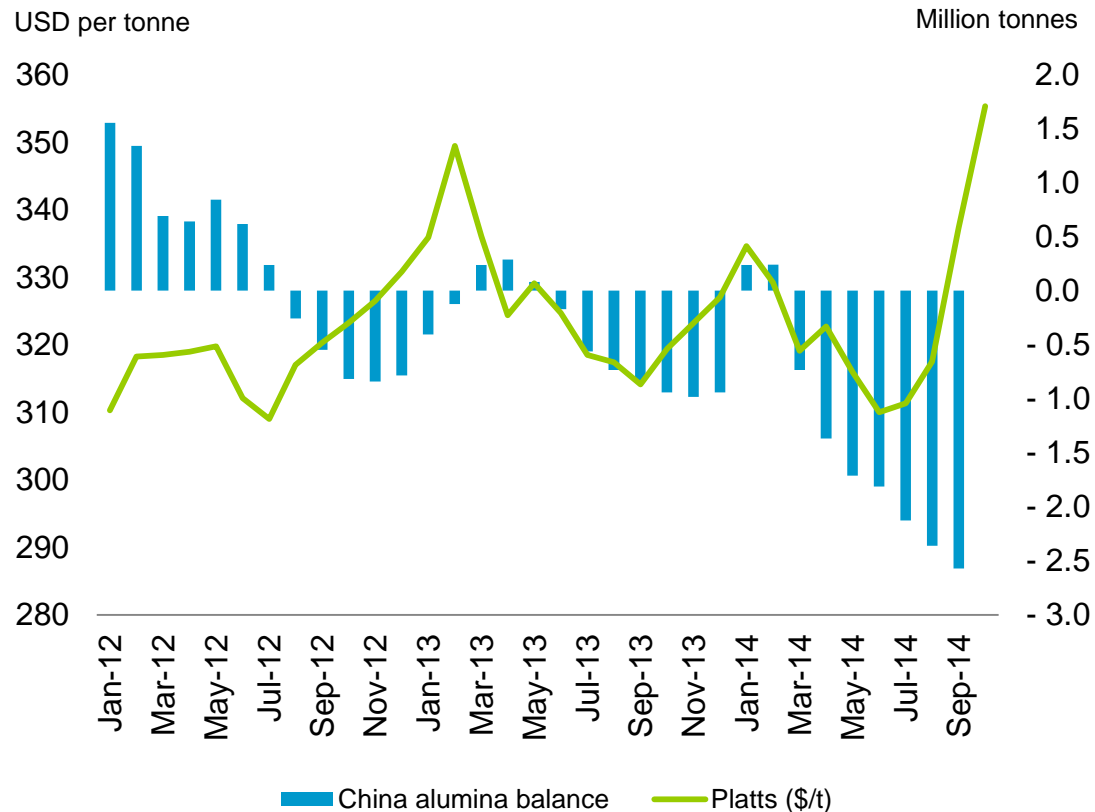
Source: CRU, Hydro Analysis



# Alumina curtailments have tilted China into domestic alumina deficit

High impact on world alumina prices

Platts FOB Australia and China domestic alumina balance (ex imports)



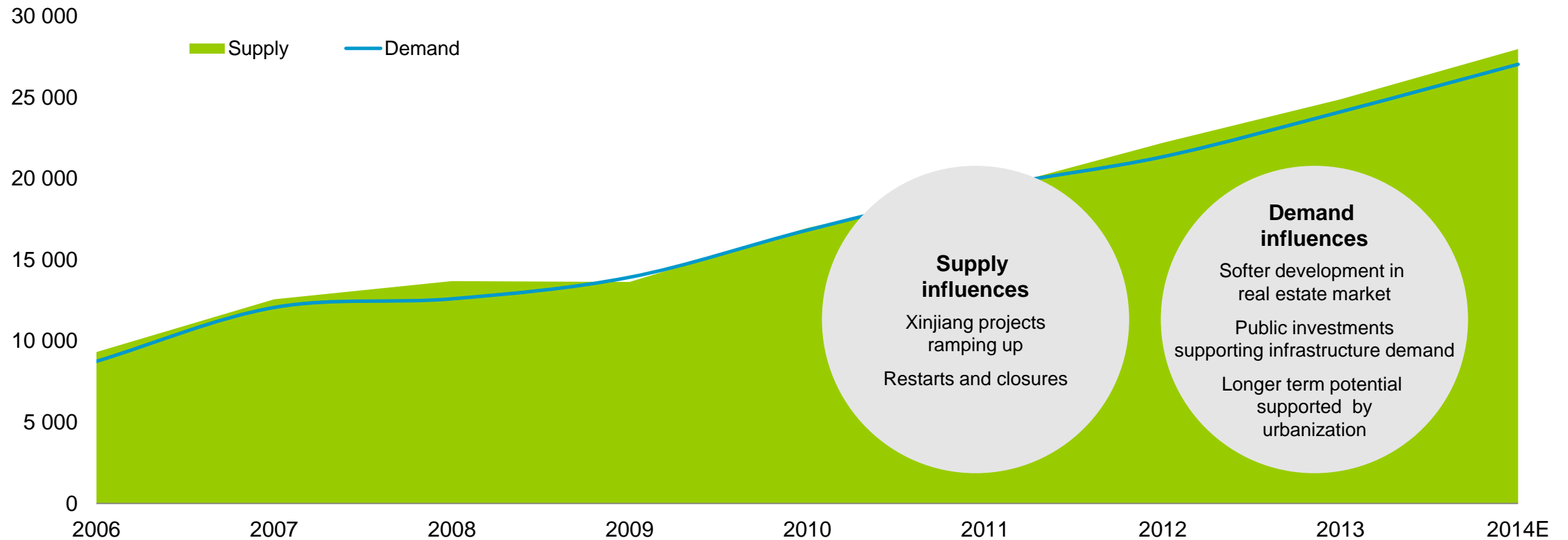
Source: Platts, Antaike

05

China

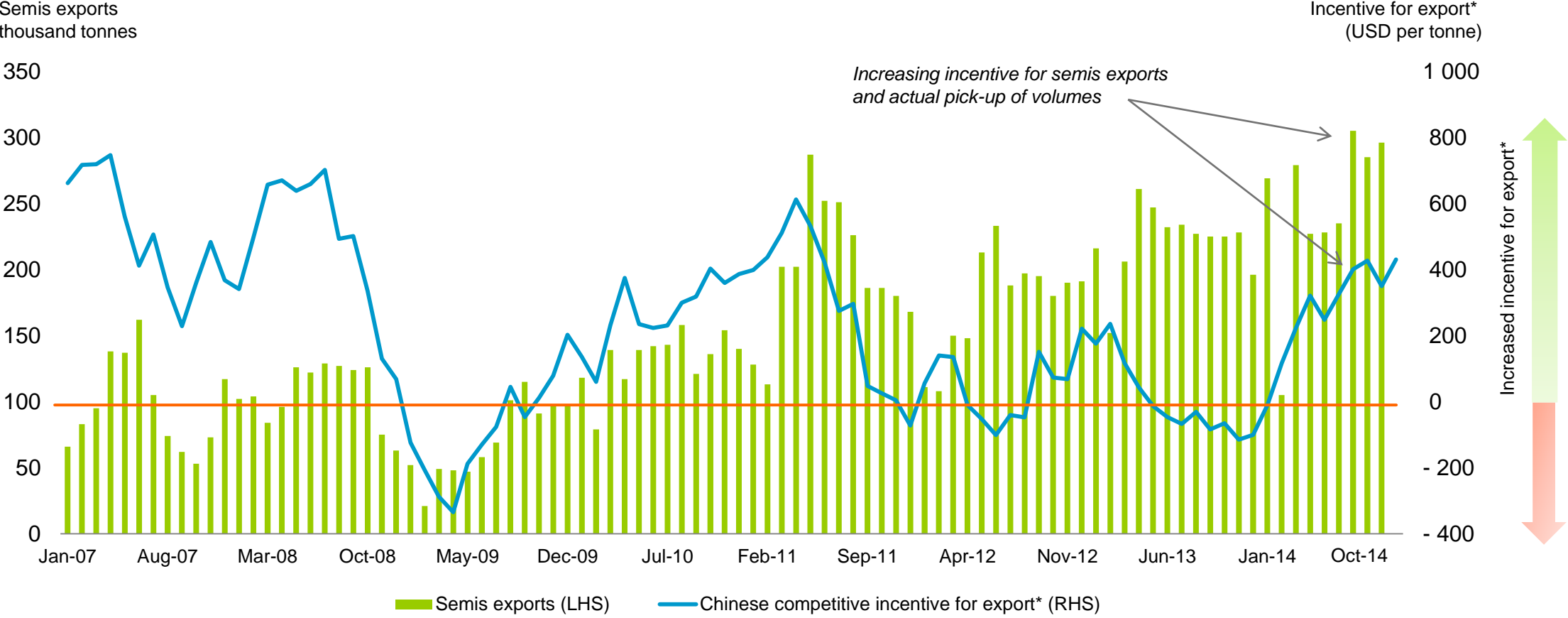
# Chinese primary market in slight oversupply

Supply/Demand thousand tonnes



Source: CRU, Hydro Analysis

# Chinese net semis exports picking up over the last months amid current cost advantage

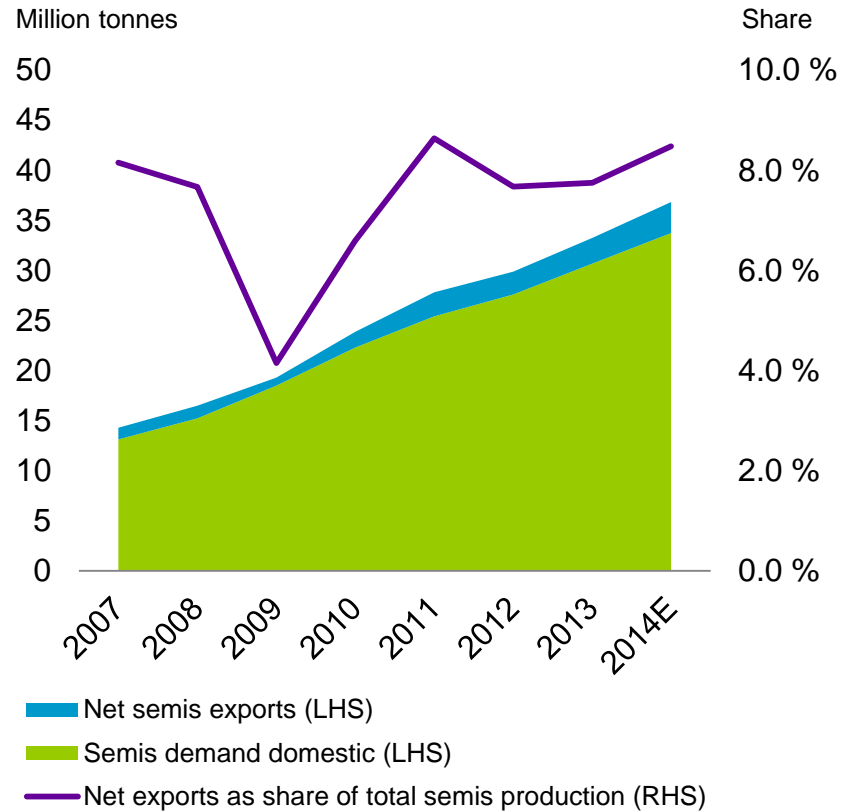


Source: CRU, Antaika, Ecwin, Hydro Analysis

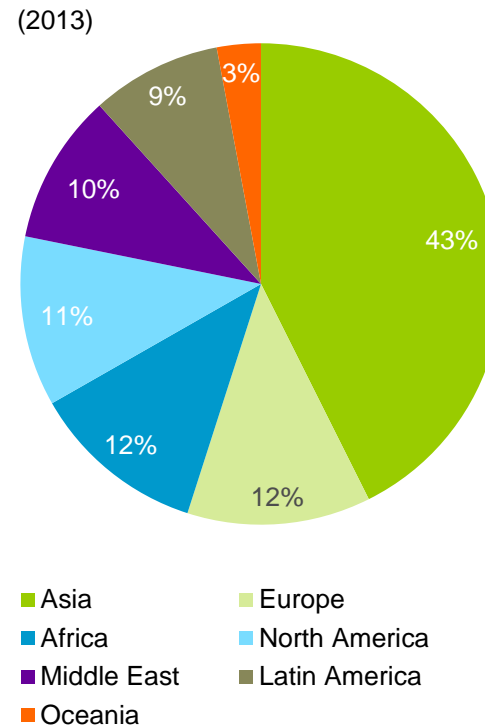
\*Est. metal price China versus Europe  
 Europe: LME cash + European duty-paid standard ingot premium – freight from China  
 China: SHFE cash (excl. VAT) + avg. local premium + VAT (incl. rebate)



# Net semis exports stable as share of total production, Asia key destination area



## Semis exports by destination (2013)



## Factors influencing semis export trend

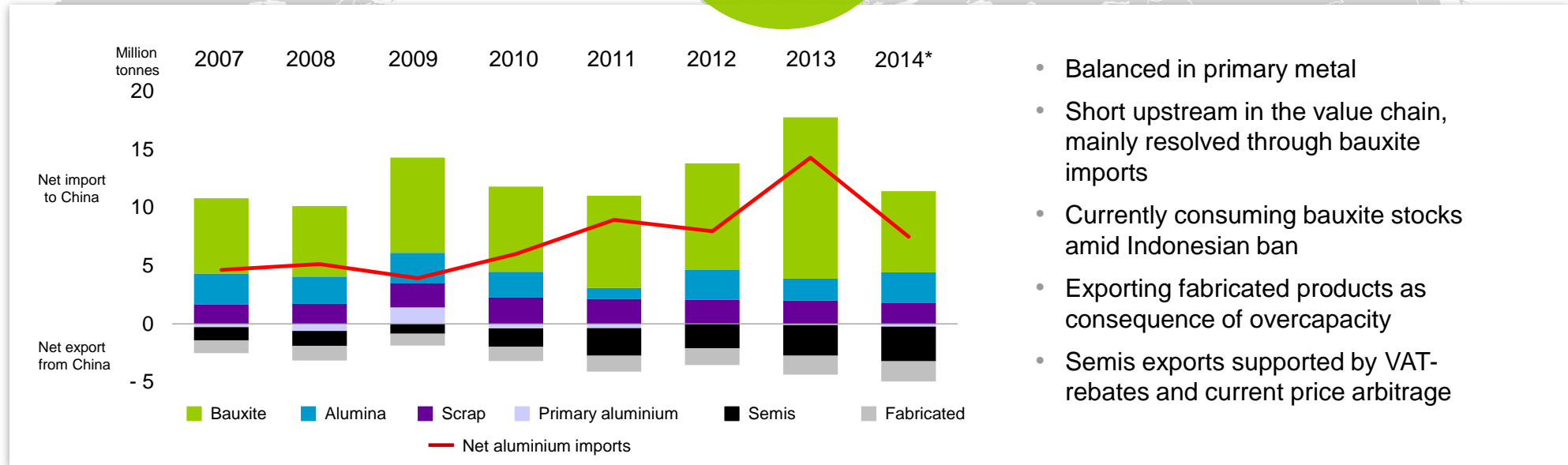
- Continued metal price advantage and VAT-rebates
- Higher quality gives better export opportunities
- Increasing downstream capacity
- Integrated business models gaining presence
- Bauxite & alumina cost
- Energy costs challenged by increasing focus on pollution and potentially lower subsidies
- Transport costs to/from Xinjiang
- Labor costs increasing
- VAT-rebates
- Government support of new applications domestically

Source: CRU, Antaika, Hydro Analysis

# China's metal flows underpinned by trade barriers at several parts of the value chain



VAT  
Tolling  
Export duties  
Transport  
Premiums



- Balanced in primary metal
- Short upstream in the value chain, mainly resolved through bauxite imports
- Currently consuming bauxite stocks amid Indonesian ban
- Exporting fabricated products as consequence of overcapacity
- Semis exports supported by VAT-rebates and current price arbitrage

Source: CRU/Antaiko/Hydro.  
Bauxite/alumina to aluminium conversion factor: 5.0/1.925 \*Annualized January-September

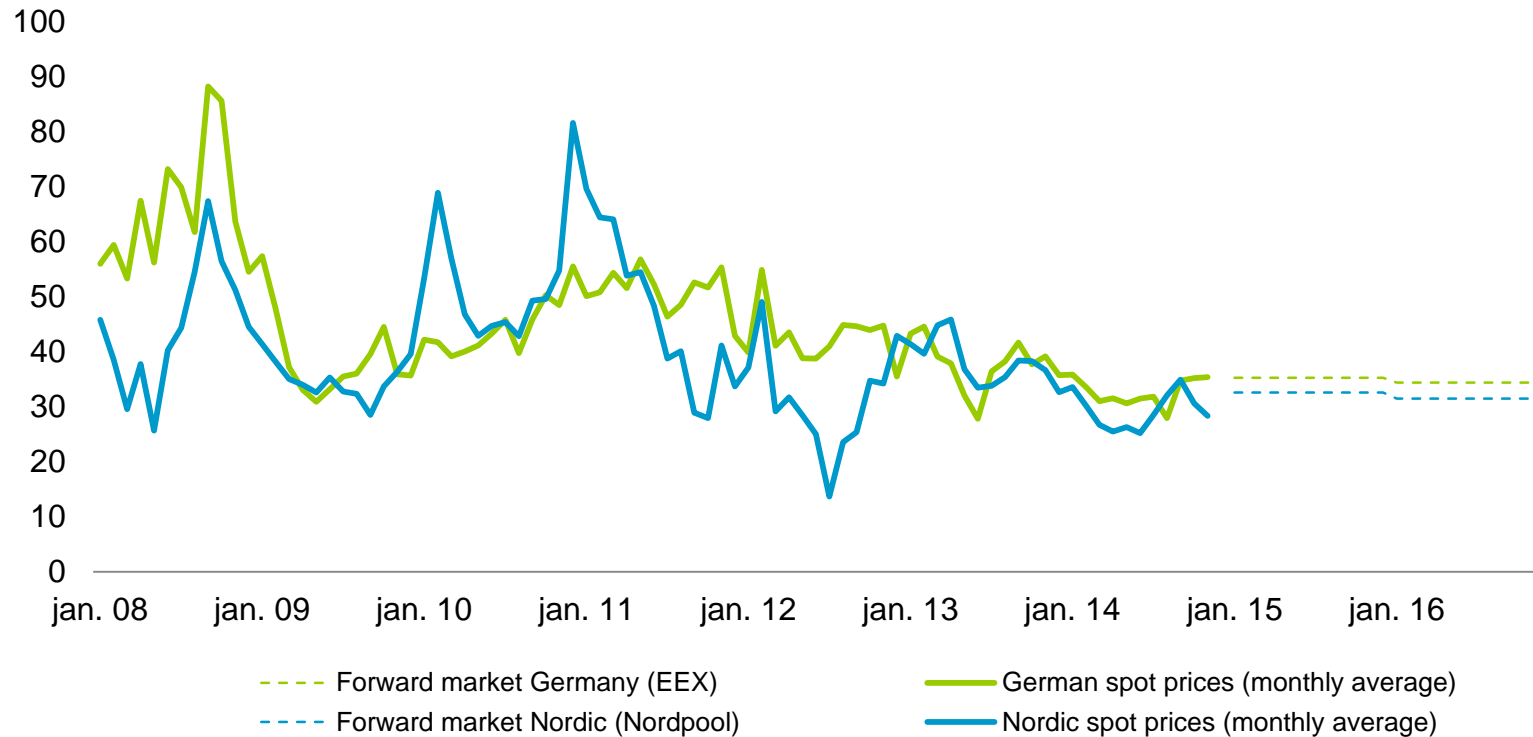
06

Energy

# Current German & Nordic power prices low over last years

## German & Nordic power market, forward and history

EUR per MWh



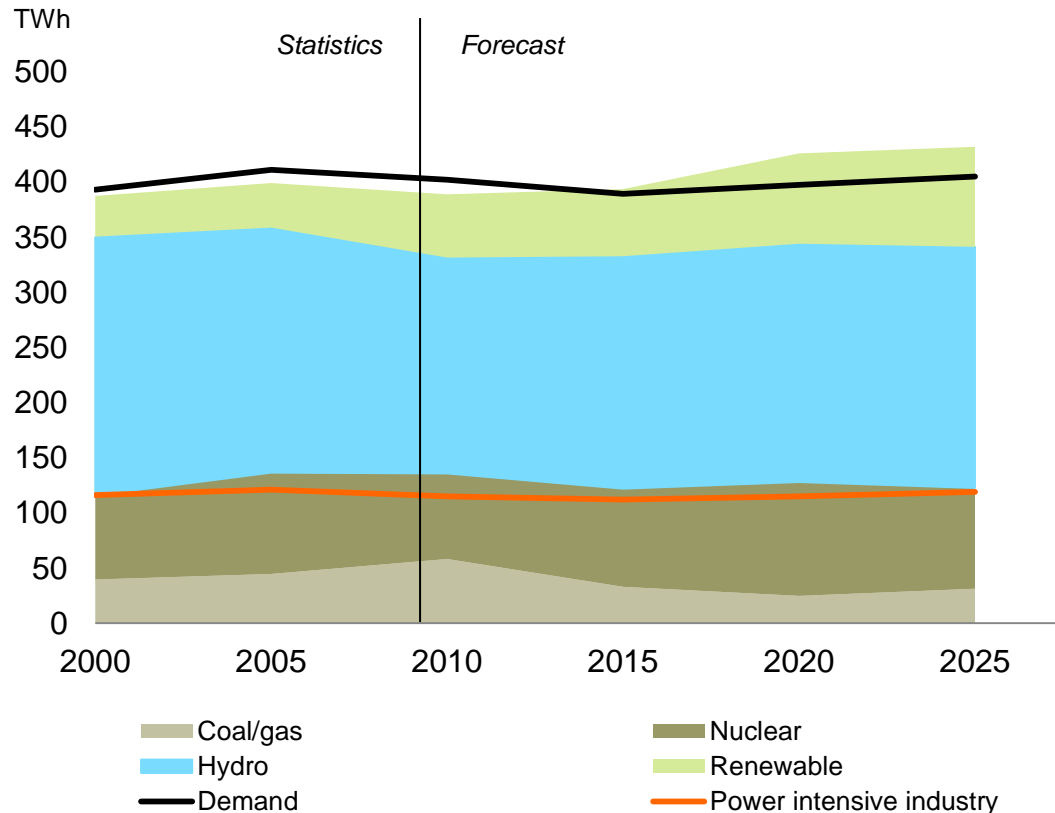
- Low CO2 price
- Relatively low fuel prices
- Lower power demand
- High growth in renewables

Source: Nord Pool, EEX, Hydro Analysis



# Nordic power generation expected to increase more than demand

## Nordic power demand and consumption



## Main power price drivers medium & long term:

### Fuel and CO2

- Prices on coal, gas and CO2 are most important for power prices via cross border trade with Germany, Poland and the Netherlands

### Nordic power balance

- Power surplus will – all other things equal – keep prices down
- Development of Nordic nuclear capacity adds uncertainty post 2020

### Interconnectors

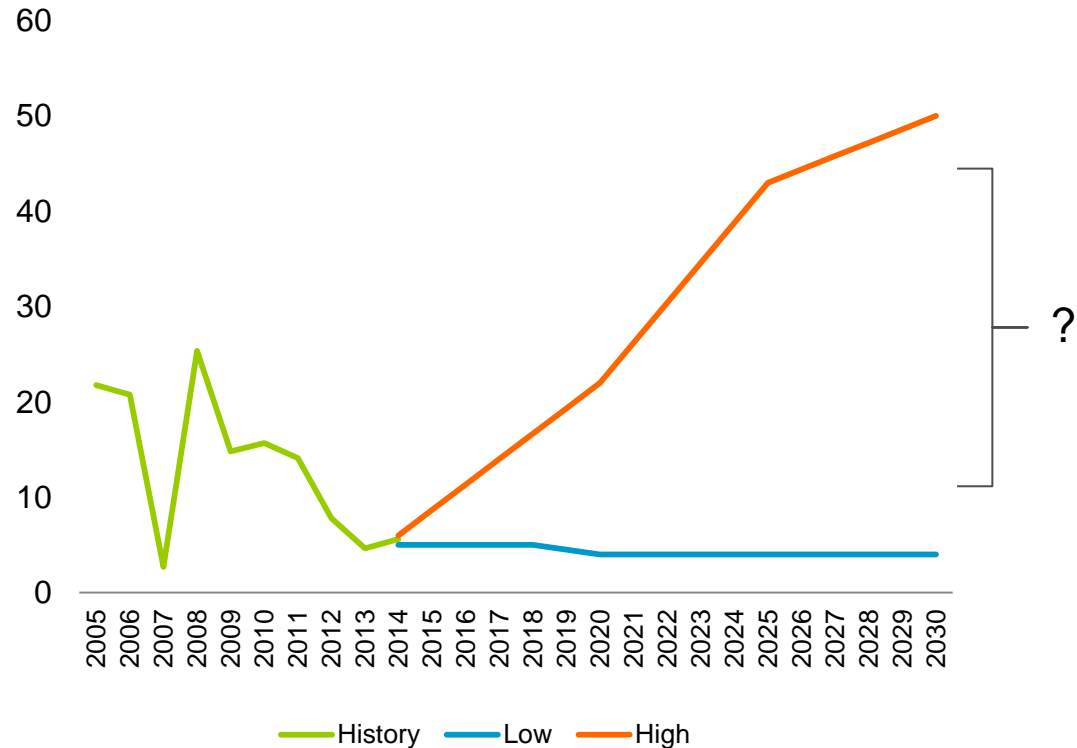
- Power prices – both level and volatility – influenced by the interconnectors to rest of Europe

Source: Hydro Analysis

# Uncertain CO<sub>2</sub> prices going forward

## The possible CO<sub>2</sub> price until 2030 spans a wide range

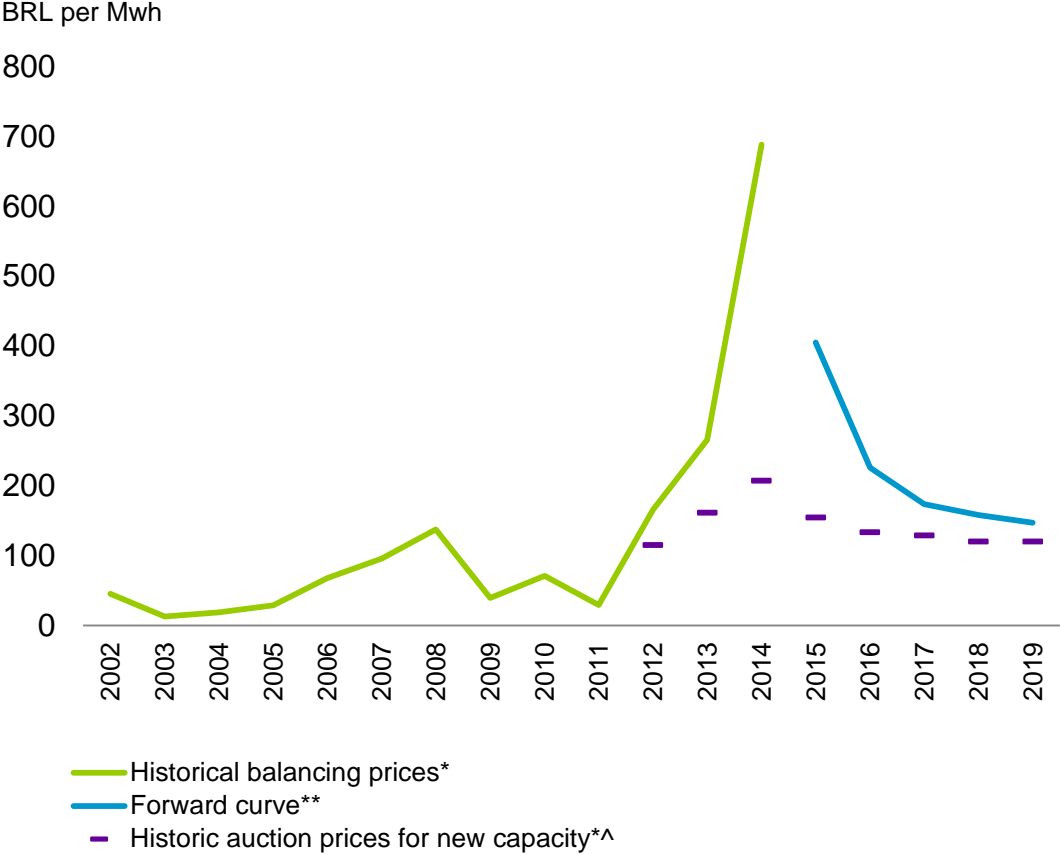
EUR per tonne



- The EU ETS regulatory regime has high impact on European power prices
  - Final regulatory scheme for 2030 expected in second half of the decade
- CO<sub>2</sub> costs are reflected in the power price
  - Continued CO<sub>2</sub> compensation for direct emissions and CO<sub>2</sub> costs in power necessary post 2020

Source: Nord Pool, SKM, Hydro Analysis

# Brazilian power market affected by hydrological draught



- Brazilian power market suffering from historic low inflows
- High short term balancing prices impacting the power industry
- Hydro is covered on long term contract to 2024 for Albras

Source: \*CCEE \*\*DCIDE (oct-2014) ^ Average price for new hydro power projects










# Long Term Outlook



07

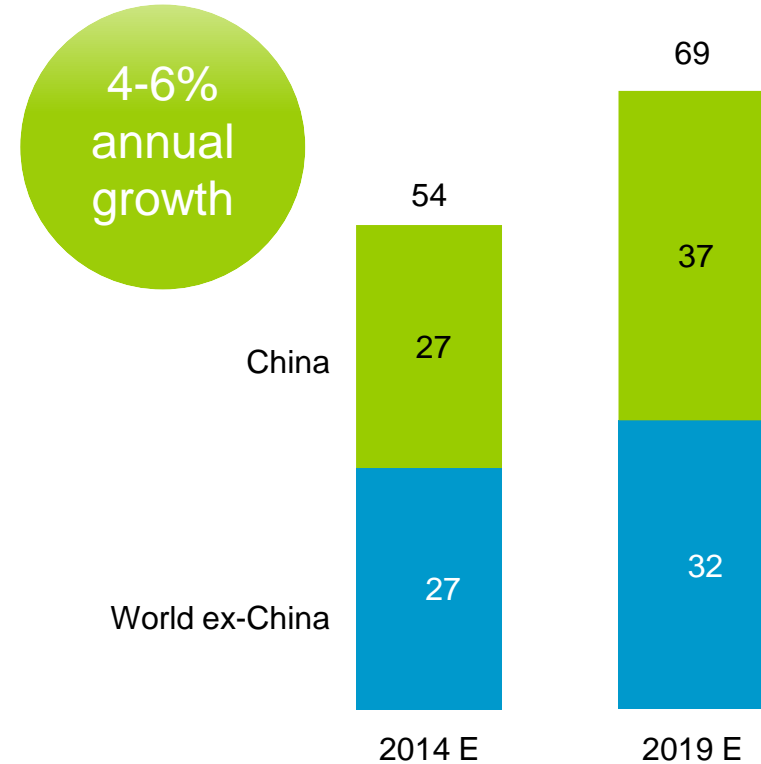
# Global aluminium primary demand growth set to experience continued strong growth across regions and segments

## Strong demand drivers in key aluminium segments

	Transport	<p><i>Growth in automotive vehicle production</i>  <i>Aluminium content in cars increasing</i>  <i>Growth in other transport modes, e.g. railway</i></p>
	Construction	<p><i>Urbanization</i>  <i>Housing market recovery in mature regions</i>  <i>Energy neutral buildings</i></p>
	Electrical	<p><i>Urbanization</i>  <i>Substitution from copper</i></p>
	Machinery & equipment	<p><i>Improving industrial sentiment in mature regions</i>  <i>Manufacturing activity and industrial growth in emerging countries</i></p>
	Packaging	<p><i>Urbanization</i>  <i>Environmental friendly solutions</i></p>

## Global Primary demand estimates

Million tonnes



Source: CRU, Hydro Analysis

- Solid, broad-based demand growth across segments and regions, but European macro uncertainty prevails
- Primary market deficits expected to continue in World ex-China, gradually reducing inventories
- Bauxite and alumina increasingly priced on their own merits
- Increasing upstream costs lifting Chinese cost curve – uncertain effects on China's production and export growth



*Better Bigger Greener*

# Rolled Products

Oliver Bell

Capital Markets Day 2014





1 Business overview

2 Market update

3 Better

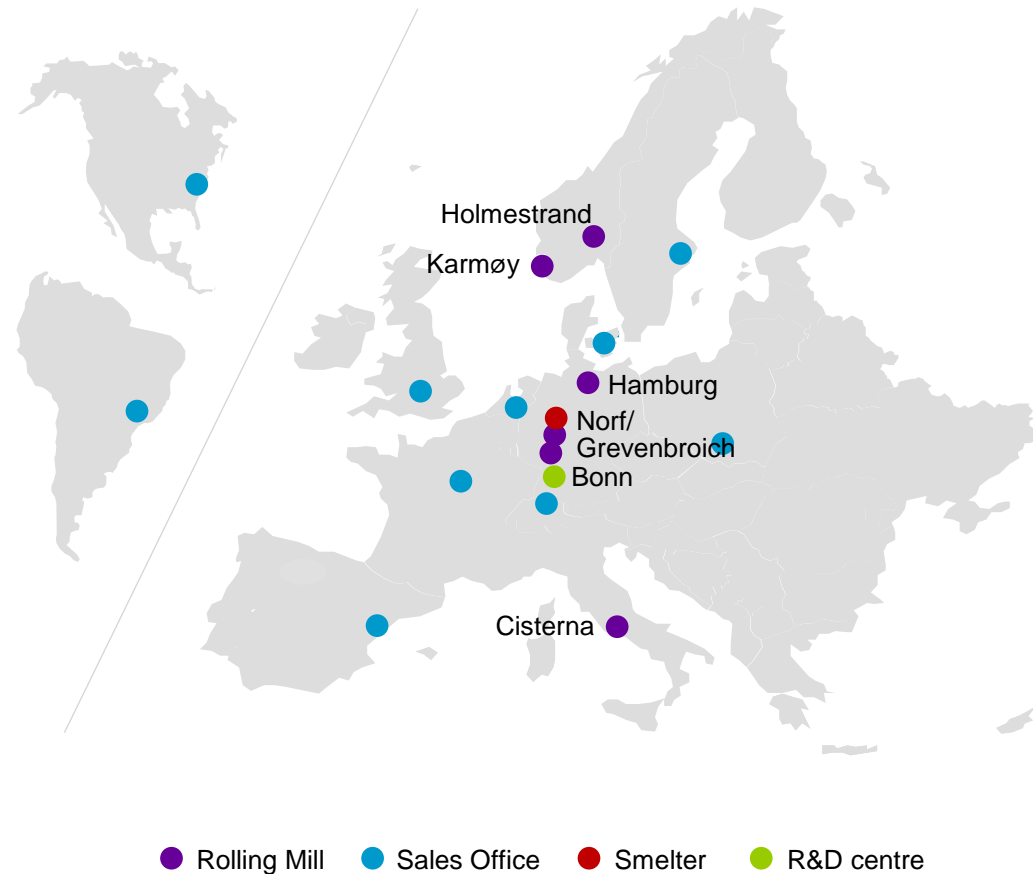
4 Bigger

5 Greener

6 Summary



# Rolled Products – No 1 producer in Europe



- European production base with global reach
- 1 million tonnes of flat rolled products per year
- World class assets
  - Casthouse network & integrated recycling capacity
  - World's largest rolling mill with dedicated conversion mill
- Industry leading R&D facility
- Turnover ~20 billion NOK
- ~4 200 employees

# Rolled Products market positions

Leading market positions – supported by leading R&D competence



**Lithography**  
World market leader



**Foil**  
World market leader  
in aseptic foil



**Beverage can**  
Leading position  
in Europe

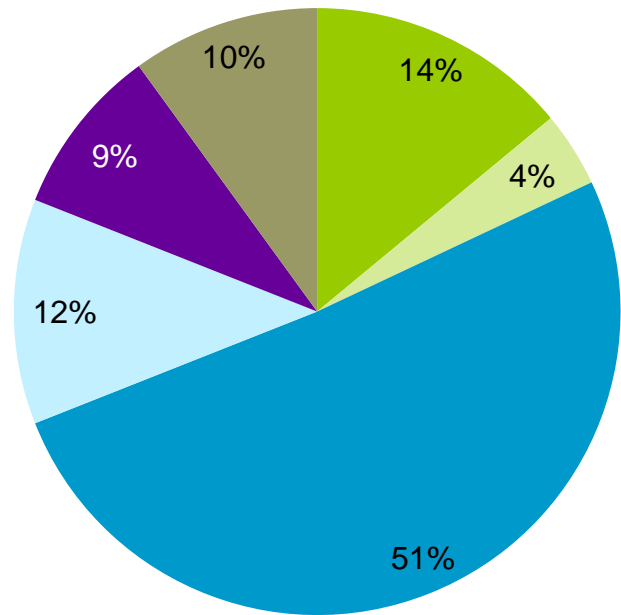


**Automotive**  
Leading position  
in Europe

# Robust long-term growth outlook for flat rolled products worldwide

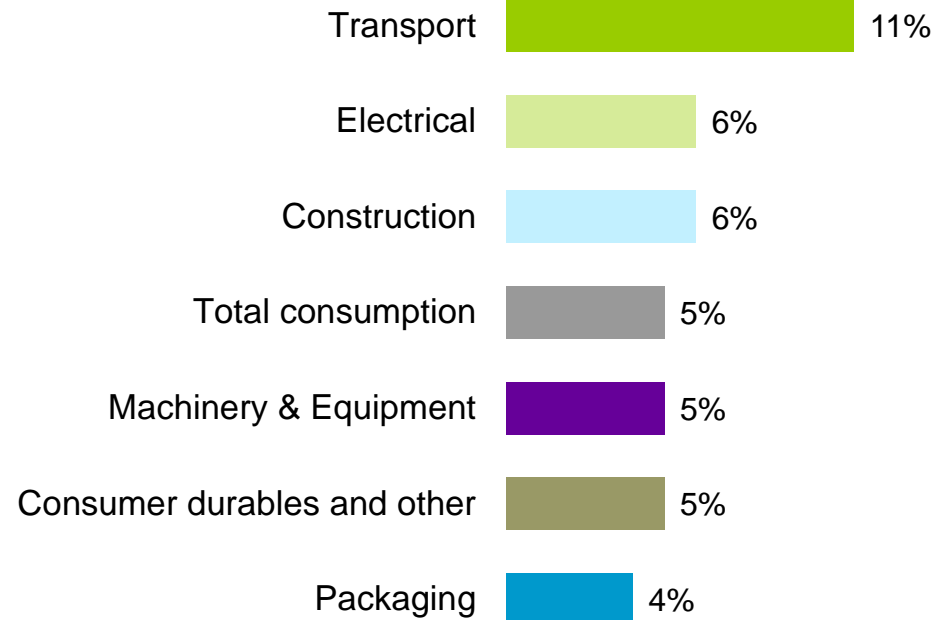
Transport is main driver for growth – Body-in-White consumption growth outperforming all other segments

Global FRP consumption by end-use 2014

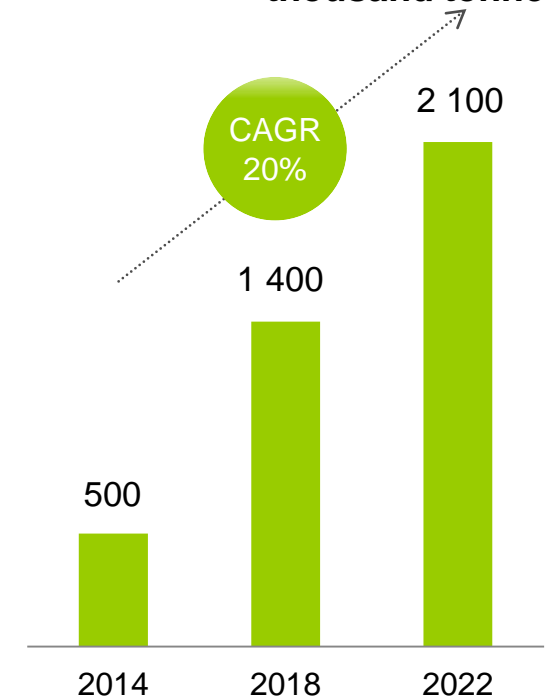


Total consumption around 23 million tonnes

CAGR 2014-2018



Body-in-White demand in thousand tonnes

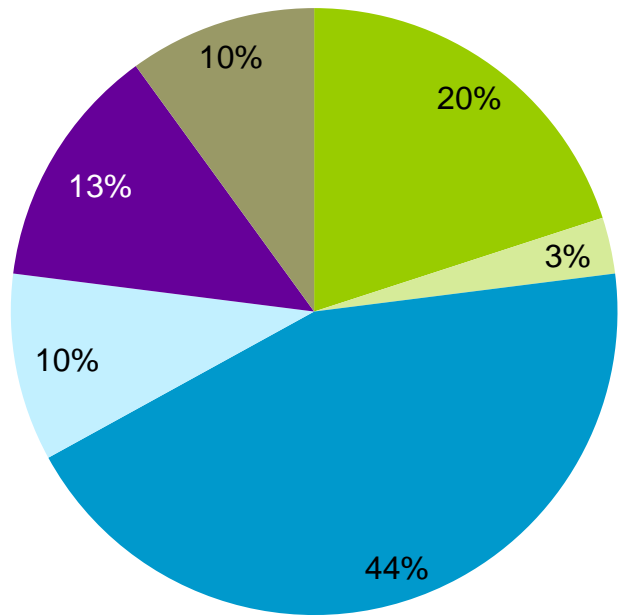


Source: CRU FRP quarterly August 2014, Rolled Products analysis  
 FRP - Flat rolled products  
 CAGR – Compound annual growth rate

# Stable long-term development in Europe

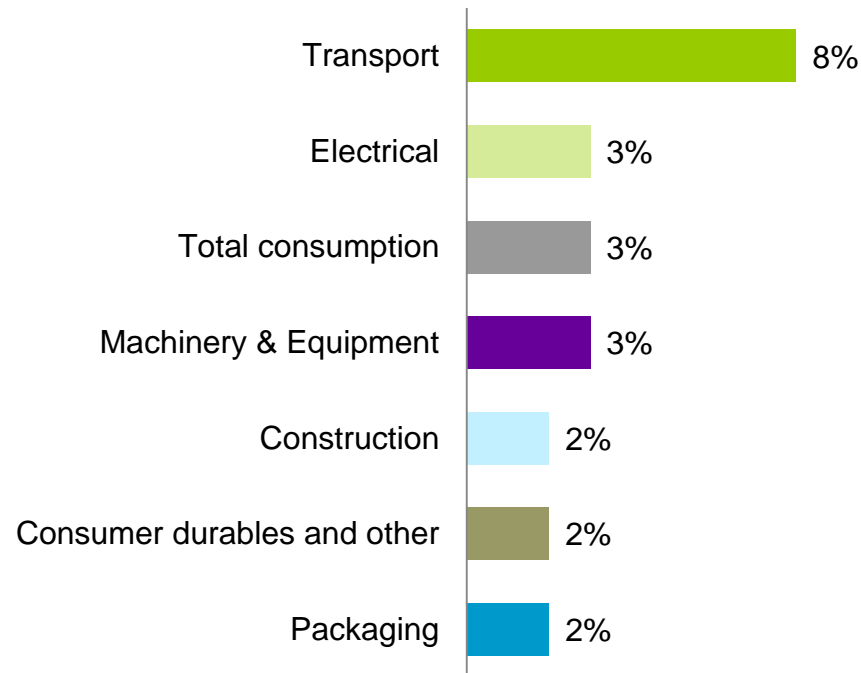
Potentially some signs of weakening short-term

European FRP consumption by end-use 2014

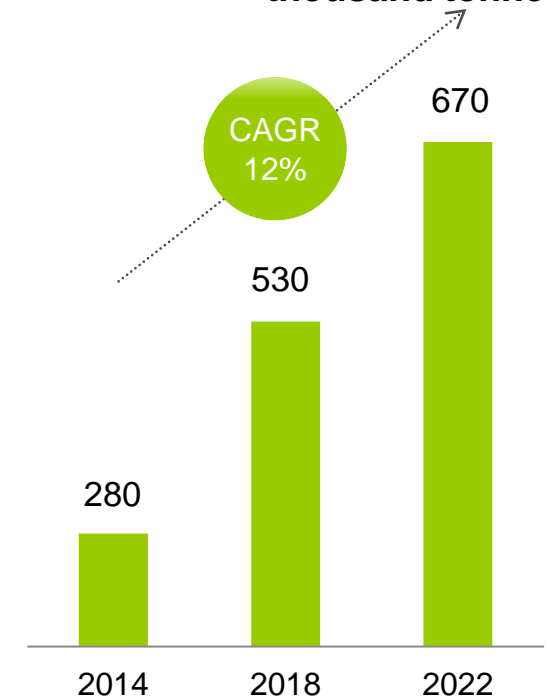


Total consumption around 5 million tonnes

CAGR 2014-2018



Body-in-White demand in thousand tonnes

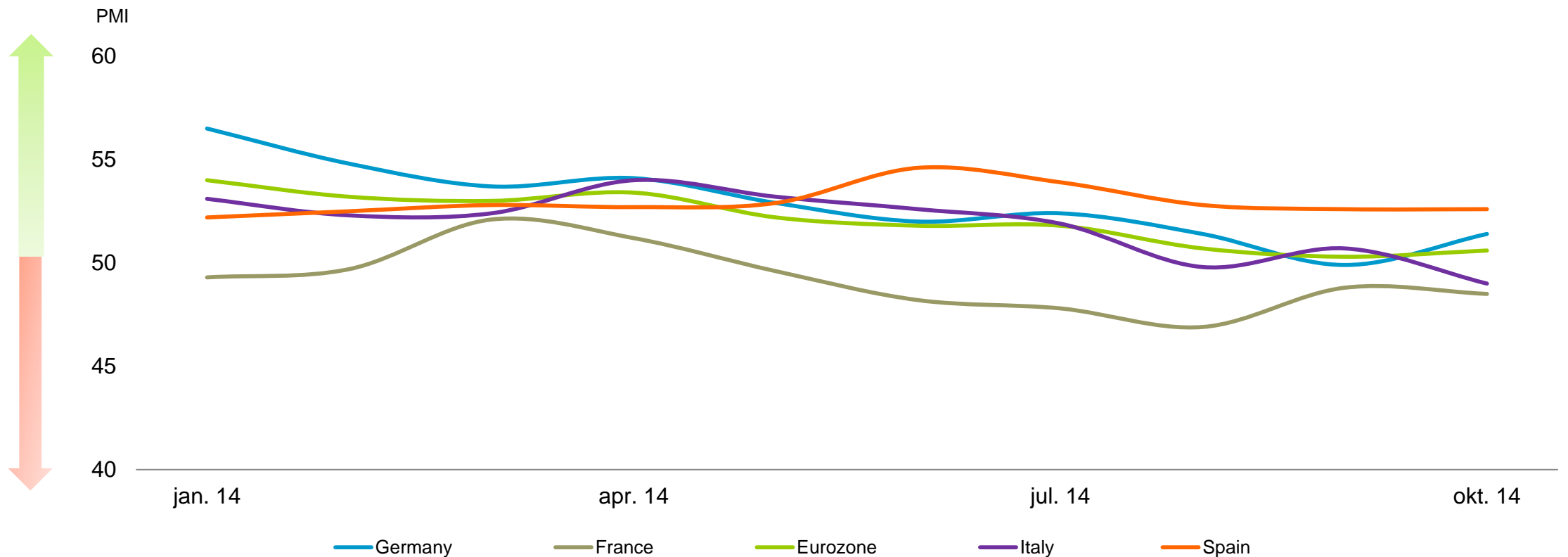


Source: CRU FRP quarterly August 2014, Rolled Products analysis  
FRP - Flat rolled products  
CAGR - Compound annual growth rate

# Mixed macro economic development in the Eurozone short term

Softer short-term signals in core countries, signs of improvement in peripheral regions

## Manufacturing PMI, major Eurozone economies

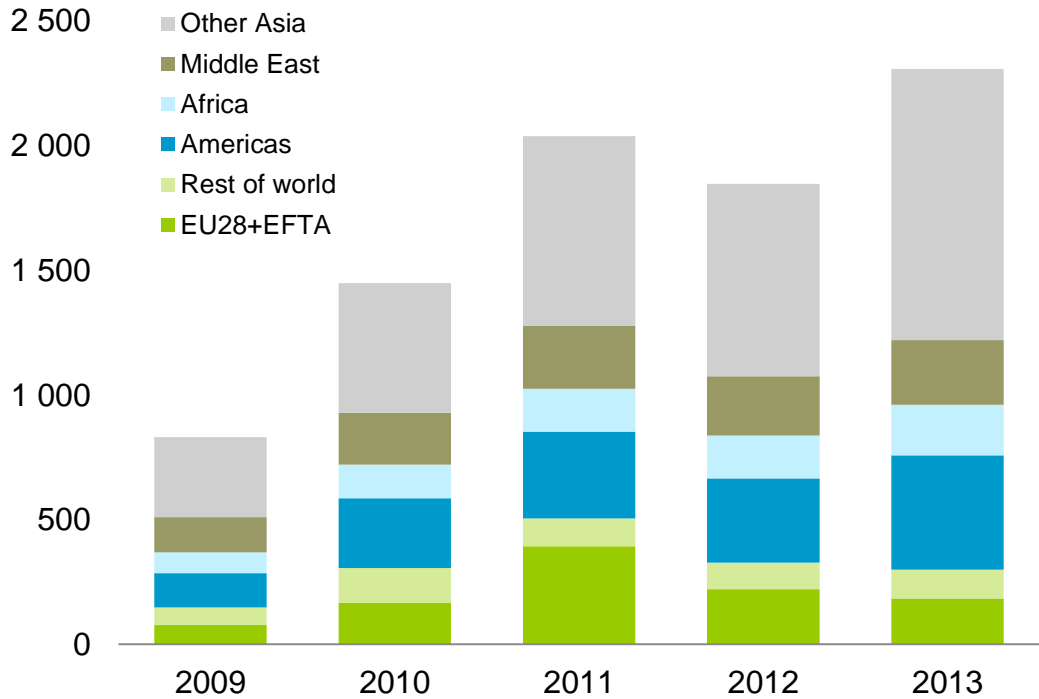


Source: Ecwin  
PMI – Purchasing manager index

# Chinese exports increasing, driven by metal advantage

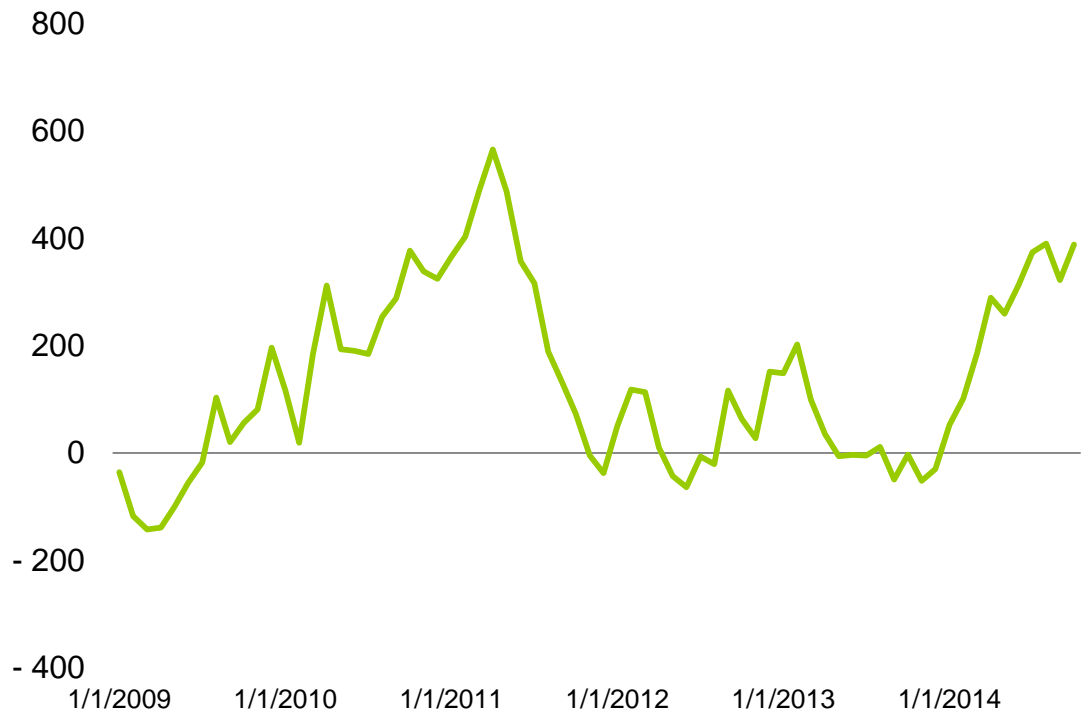
## Chinese strip and foil exports

Thousand tonnes



## Chinese metal advantage\*

USD per tonne

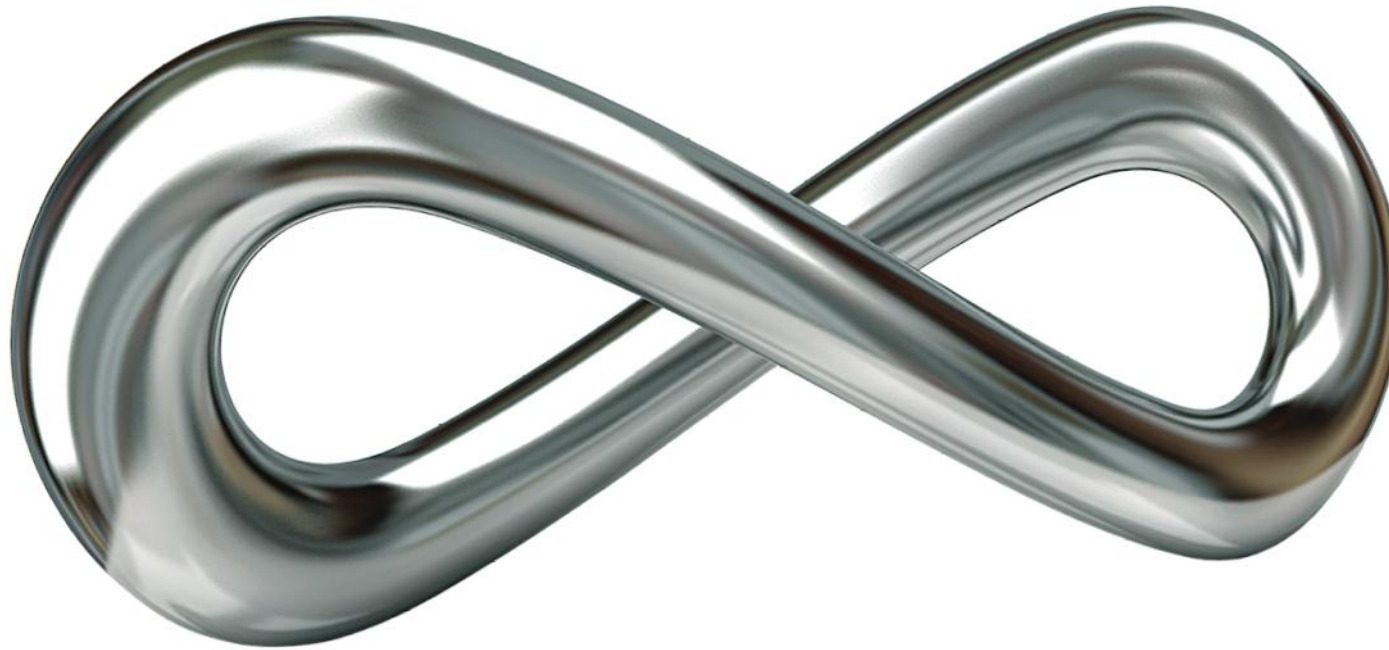


Sources: Antaika, CRU, Hydro analysis

\* Est. metal price China versus Europe  
 Europe: LME cash + European duty-paid standard ingot premium – freight from China  
 China: SHFE cash (excl. VAT) + avg. local premium + VAT (incl. rebate)



# Better, Bigger, Greener in Rolled Products



*Better Bigger Greener*

*Better*



# Close to customer: creating value through innovation



## Forming optimized AA5182 variant in automotive applications

- High formability and high corrosion resistance due to optimized specification
  - Strategic supplier to major European OEM's
  - Based on leading R&D competence



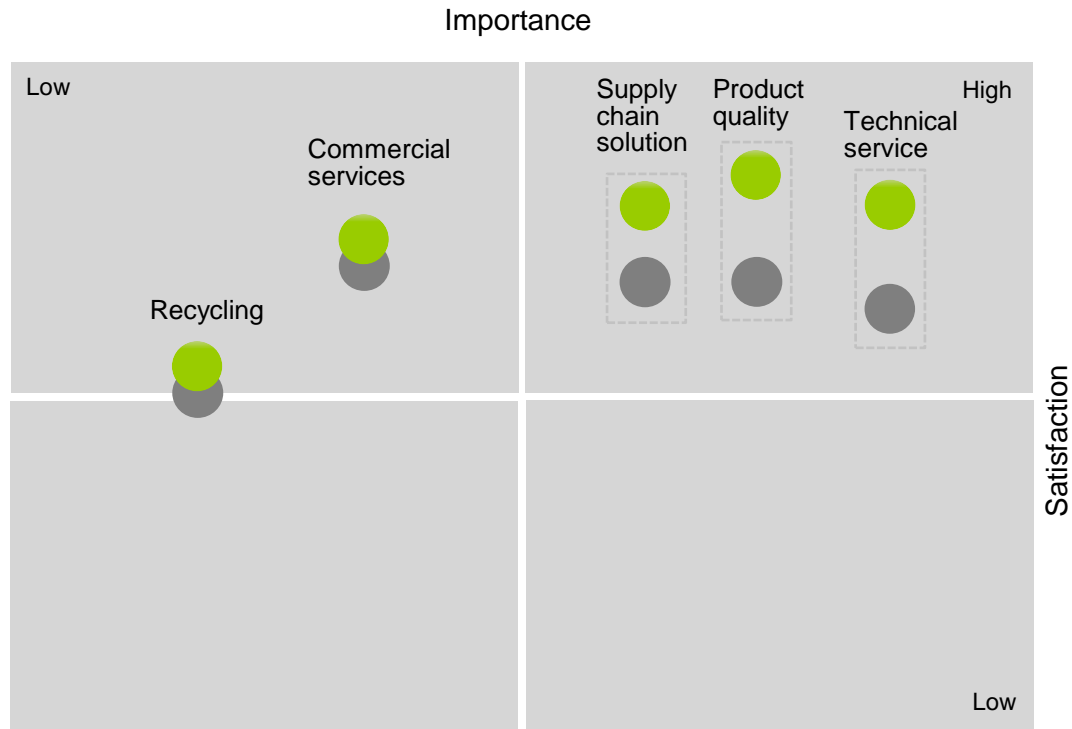
## Introducing 5 $\mu$ m\* high-performance aluminium foil

- Full protection at record-thin gauges
- Maintains absolute barrier protection against food spoilage
  - Material savings of up to 16 percent
  - Improved material properties
  - Improved run ability on customers' equipment

\* Micrometre

# Close to customer: creating value through quality and services

## Specialty segment



## Commercial segment



● Competitors ● Hydro

# Rolled Products' "Climb" improvement program on track

Target

**800 MNOK**

Time period

**2012-2016**

Contributions driven by

- High-grading product portfolio
- Margin management
- Productivity improvement
- Reducing net cost level

NOK Million

1 000

900

800

700

600

500

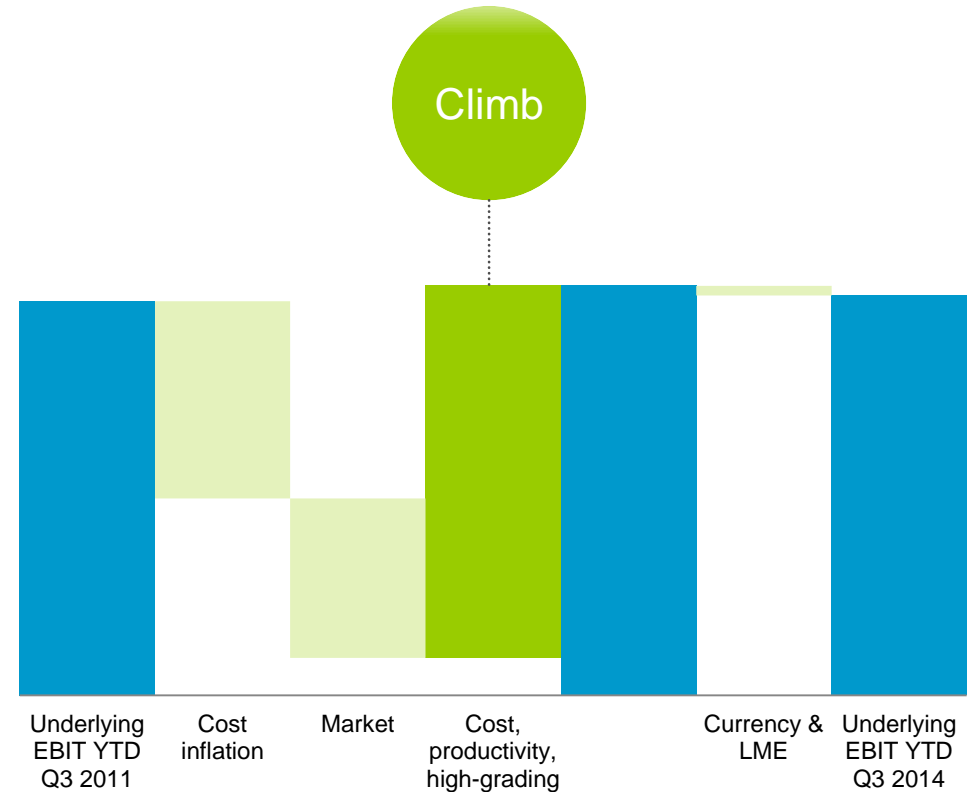
400

300

200

100

0



# *Bigger*

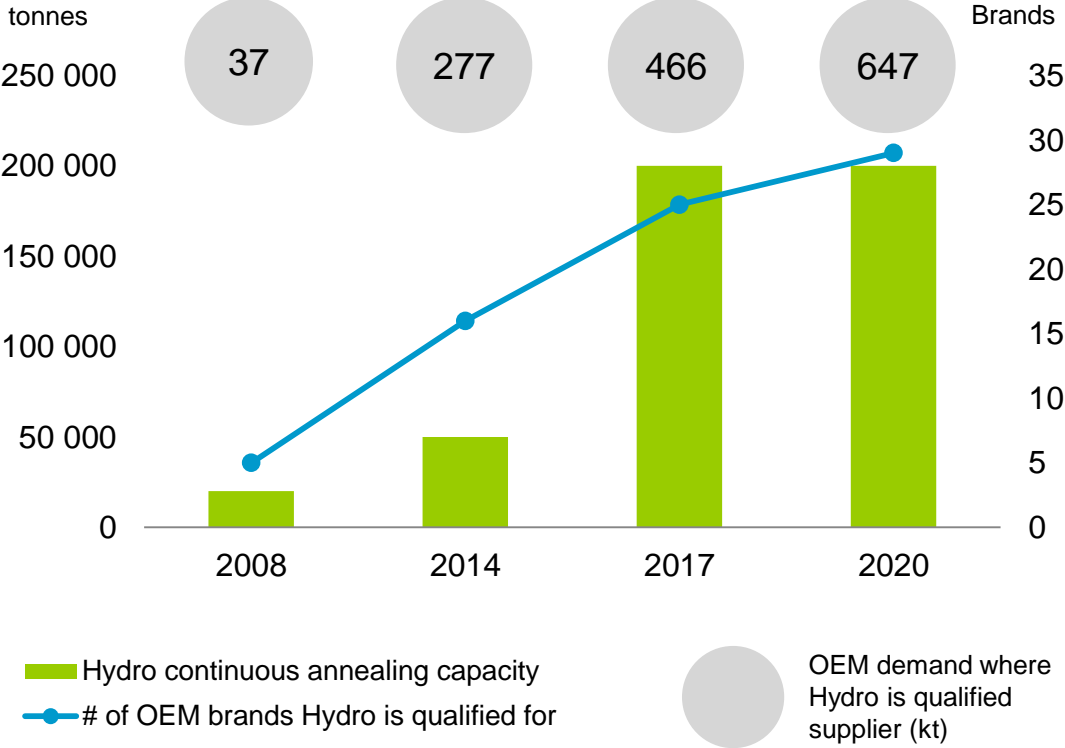
# Pursuing attractive growth opportunities



## Major step in automotive Body-in-White (BiW) market

- Installation of automotive line 3 lifting capacity to 200 thousand tonnes per year
- Step change in BiW production process
- Production start second half 2016

## Hydro BiW development

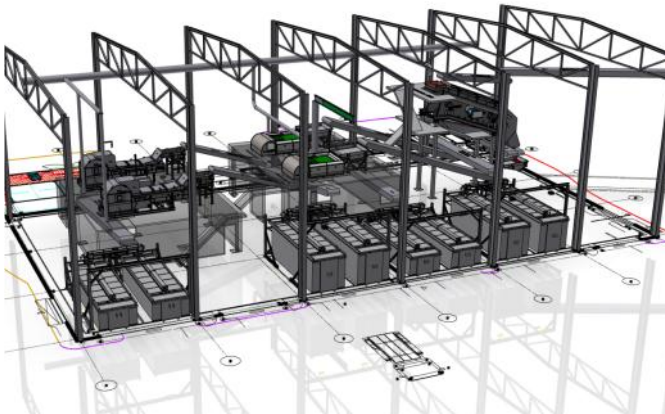


# Hot mill expansion and strengthening of recycling position



## Expanding AluNorf hot mill capacity

- Capacity increase by ~60 000 tonnes
- Debottlenecking core asset
- Start of production 2016



## Establishing strong recycling position

- Installation of UBC\* recycling line
- Fulfilling customer needs and strengthening beverage can market position
- Improving metal cost position
- Start of production end 2015

\* UBC: Used beverage can

# *Greener*

# Fulfilling customer and environmental needs

## Greener

### Products

- 5µm high-performance aluminium foil saves up to 16% in material
- Light-weighting in automotive by replacing steel saves up to 20kg of CO<sub>2</sub> per kg of aluminium used

### Process

- Continuous improvement and step changes
- Award-winning efficiency in annealing of aluminium coils

### Recycling

- Closing the loop
- Significant CO<sub>2</sub> savings from recycling post-consumed scrap at new UBC recycling line





# Our ambition: No 1 in Europe and benchmark in the world

## *Better*

- Differentiate through innovation, quality, service and lead time
- Continue operational improvement drive
  - ✓ Lifting the bar and staying competitive
  - ✓ Deliver improvements through “Climb”

## *Bigger*

- Enhance market positions and portfolio high-grading
- Strengthen relative industry position
  - ✓ Automotive Line 3
  - ✓ Norf expansion
  - ✓ UBC line

## *Greener*

- Fulfill customer and environmental needs
- Being part of the solution in low carbon society
  - ✓ Improved processes
  - ✓ Resource efficient products
  - ✓ UBC – closing the loop

# Primary Metal

Hilde M. Aasheim

Capital Markets Day 2014



A large industrial factory with a circular overlay containing a table of contents. The factory floor is filled with rows of industrial machinery, including large metal frames and pipes. A worker in a red uniform is visible in the lower left, and a large mechanical arm is on the right. The background shows a complex network of pipes and structural beams under a high ceiling with many lights.

1 Business overview

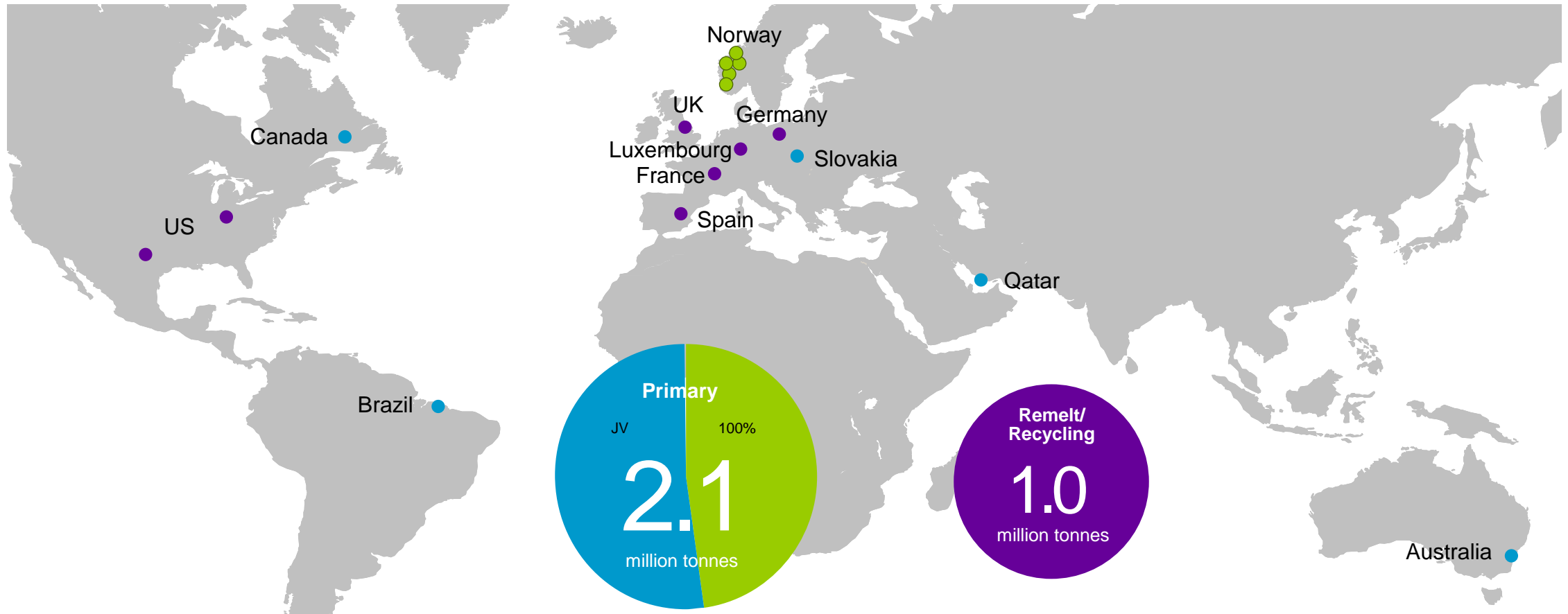
2 Better

3 Bigger

4 Greener

5 Summary

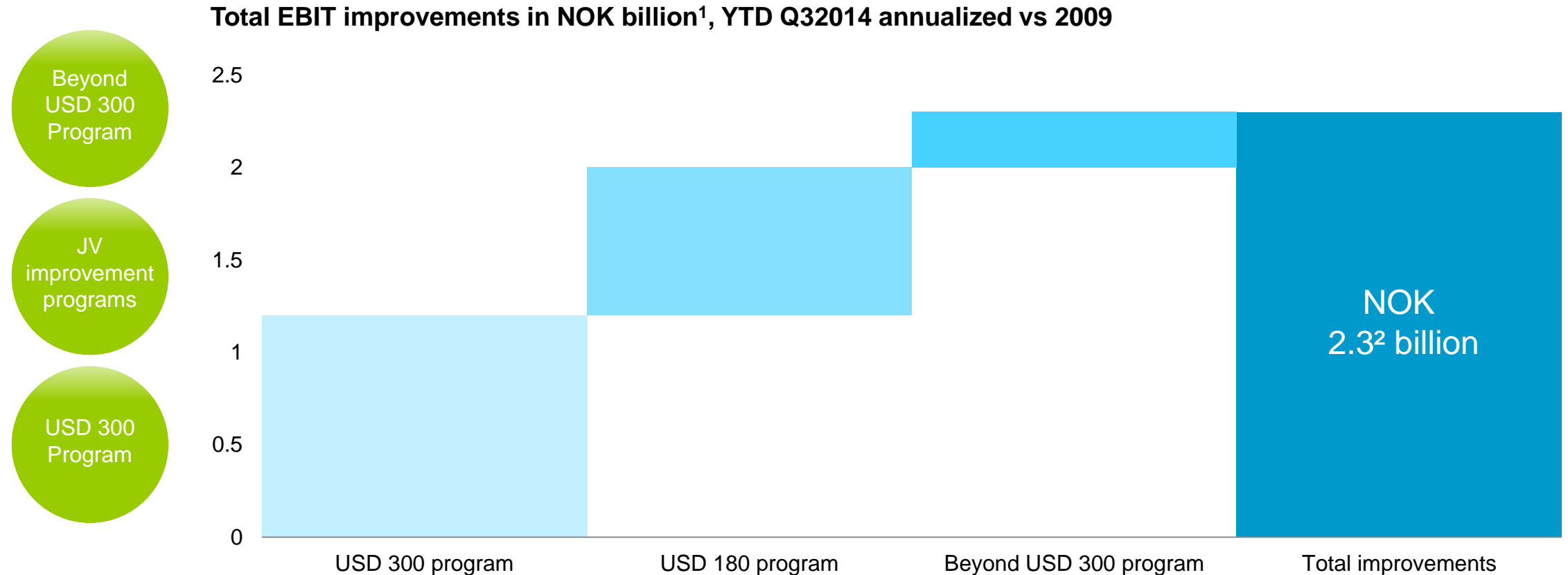
# Primary Metal and Metal Markets production portfolio



2.1 million mt is consolidated capacity . Slovalco and Albras are fully consolidated, Tomago and Alouette are proportionally consolidated and Qatalum is equity accounted. 90.000 mt of capacity is currently mothballed in Hydro Husnes. Neuss, which is a part of Rolled Products, is not included. 1.0 million mt includes stand-alone remelters, recycling facilities and additional casthouse capacity at primary plants.

*Better*

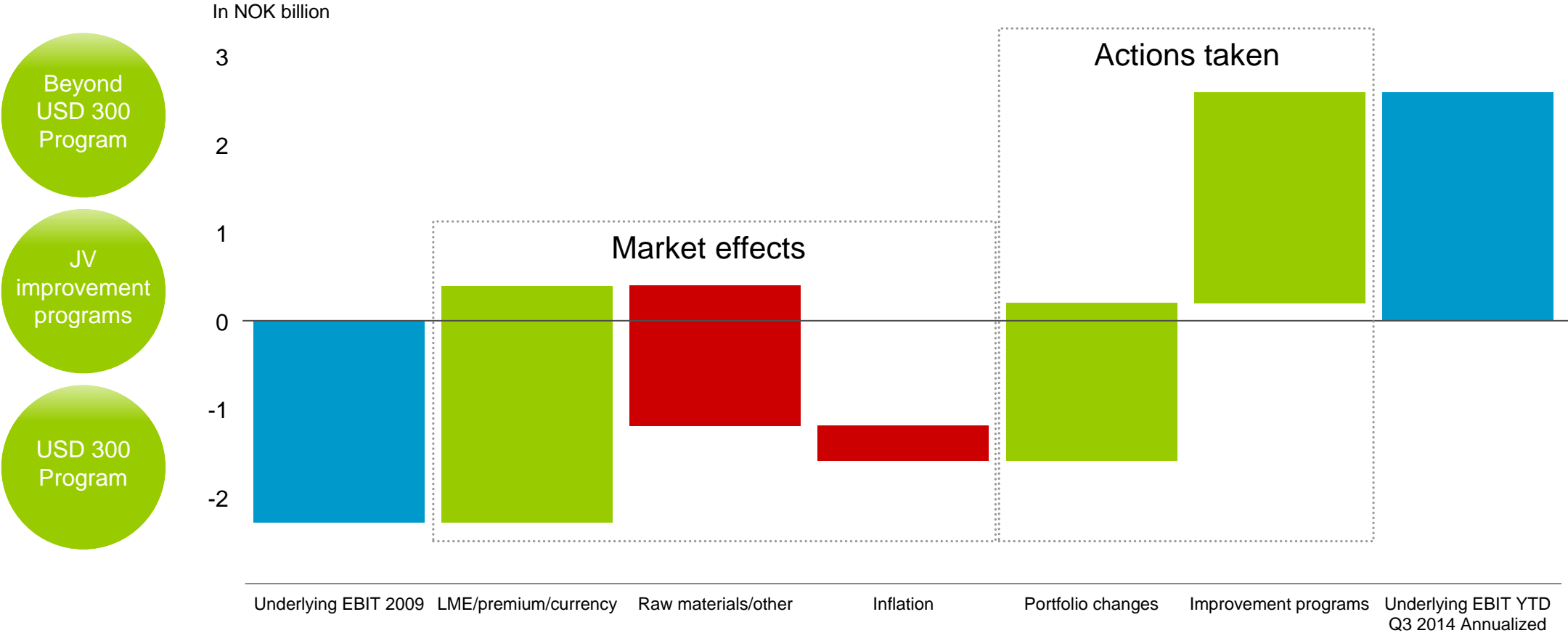
# Systematic improvement work over several years



1) Compared to 2009 cost level for USD 300 program and "other". Compared to 2011 for USD 180 program. In real terms. Effect of exchange rates and raw materials cost changes are neutralized

2) Excludes NOK 0.2 billion improvements in capex and relining

# Repositioning through improvement focus and portfolio measures



# Qatalum: First decile cash cost position



- Continued strong production performance with superior products to the market
- Improvement efforts providing solid results – strong cost discipline and operational excellence
- Implementing next generation cathodes to further increase productivity
- Strong cash flow – EBITDA of NOK 1.7 billion\* Q4 2013 – Q3 2014
- NOK ~900 million\* dividend received last 12 months
- NOK ~450 million\* of debt repaid last 12 months

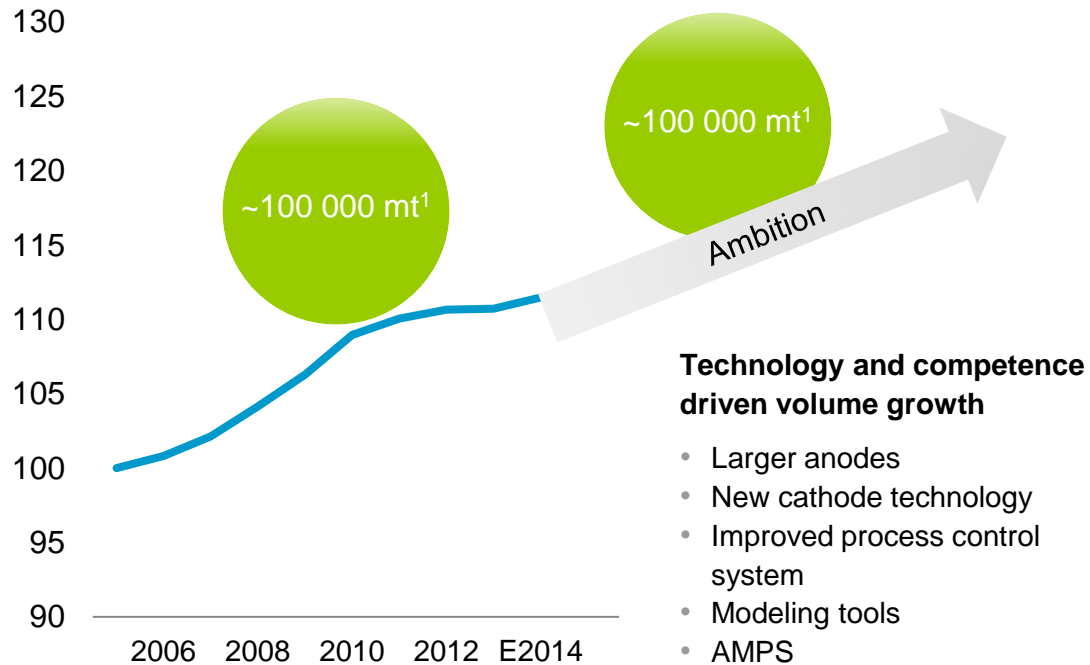
\* Hydro's 50% share



# Ambitious improvement programs continue

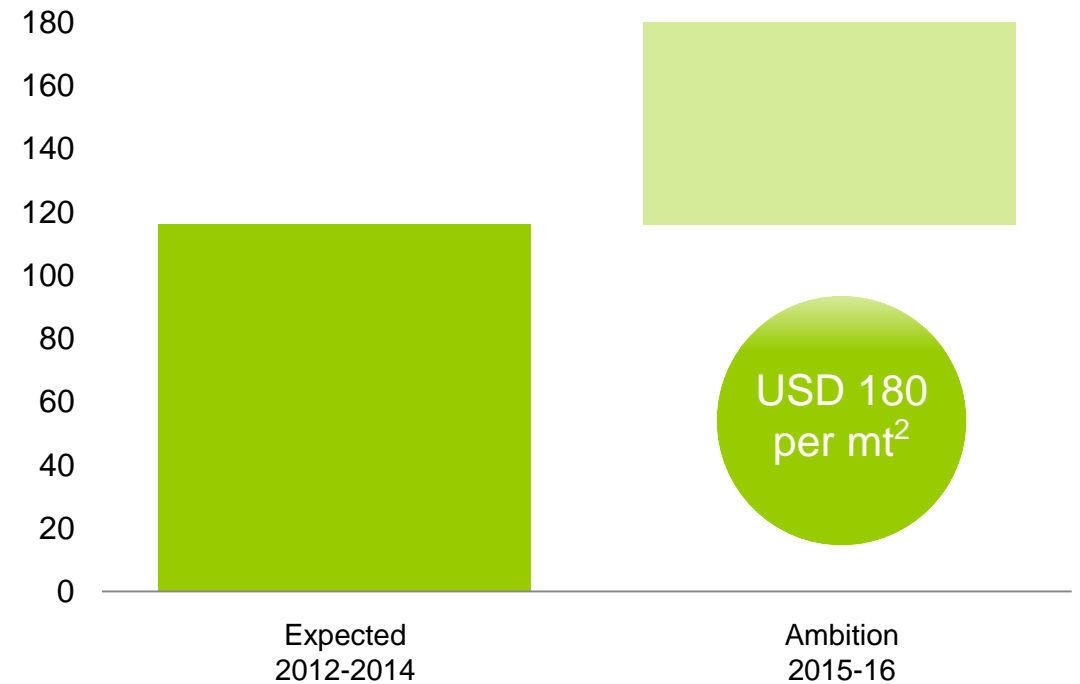
## Fully-owned smelters – increasing output from existing lines, gaining productivity

Production development in Norwegian fully-owned smelters, indexed from 2005



## JV improvement program on track

USD 180 per mt improvements by end-2016, corresponding to NOK 1.2 billion  
Improvements in USD per tonne

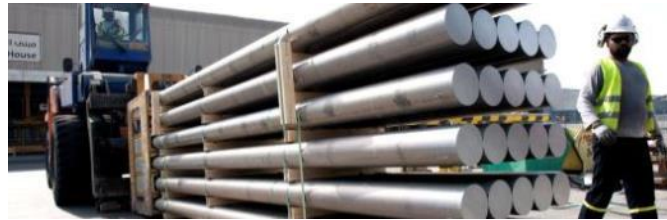


1) Not including Hydro Husnes

2) Compared to 2011 cost level. USD 180 per mt in real terms corresponds to USD 150 in nominal terms. Effect of exchange rates, LME and raw materials cost changes are neutralized. Casthouse margins and cost above plants are not included.

# Strong position in value-added casthouse products

85% of global sales volume is value added



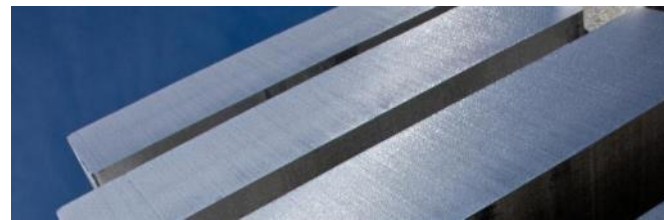
● Extrusion ingot, 52%



● Foundry alloys, 19%



● Wire rod, 2%



● Sheet ingot, 12%



● Standard ingot, 15%

2.7 million tonnes casthouse production in 2013

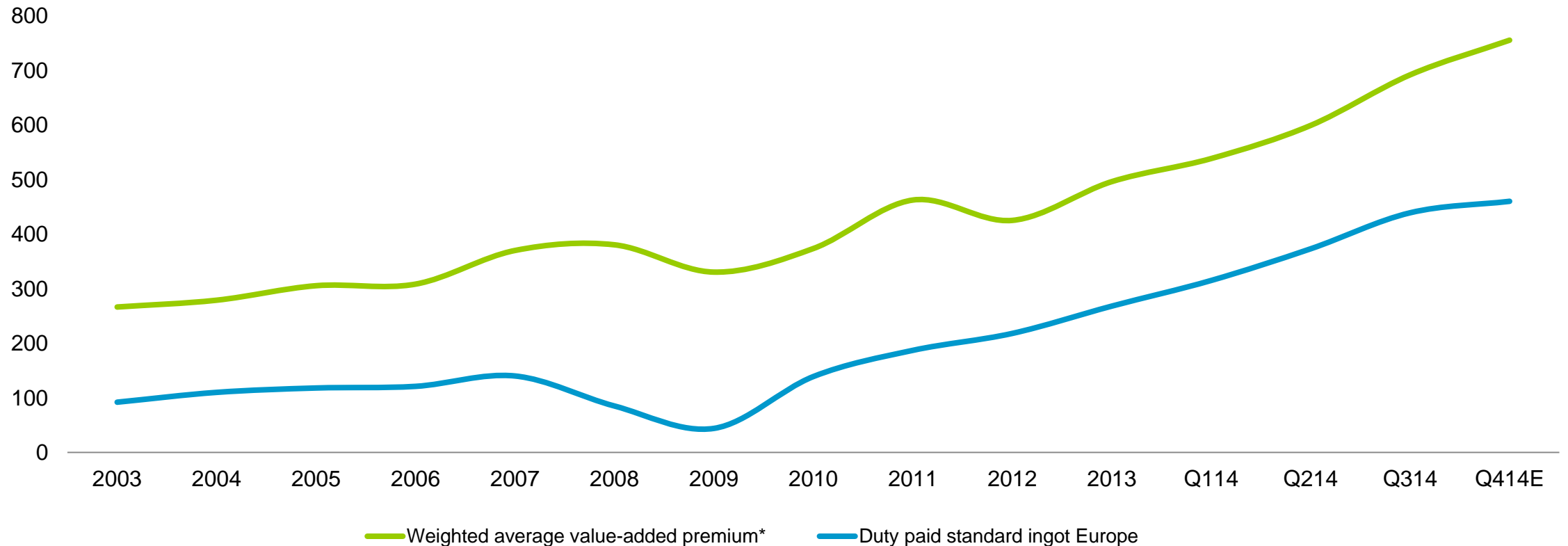


All numbers are based on 2013 production and includes equity production at primary plants, remelters at primary plants, stand-alone remelters and partner share of production in Qatalum, Slovalco + some other minor commercial contracts.

# Significant value creation through value-added products

Illustrated by the European market

Average premium above LME in USD per tonne



\* Weighted average of European premiums for Extrusion ingot, Foundry alloys and Sheet ingot based on Hydro's sales volumes

# Focusing on advanced customers

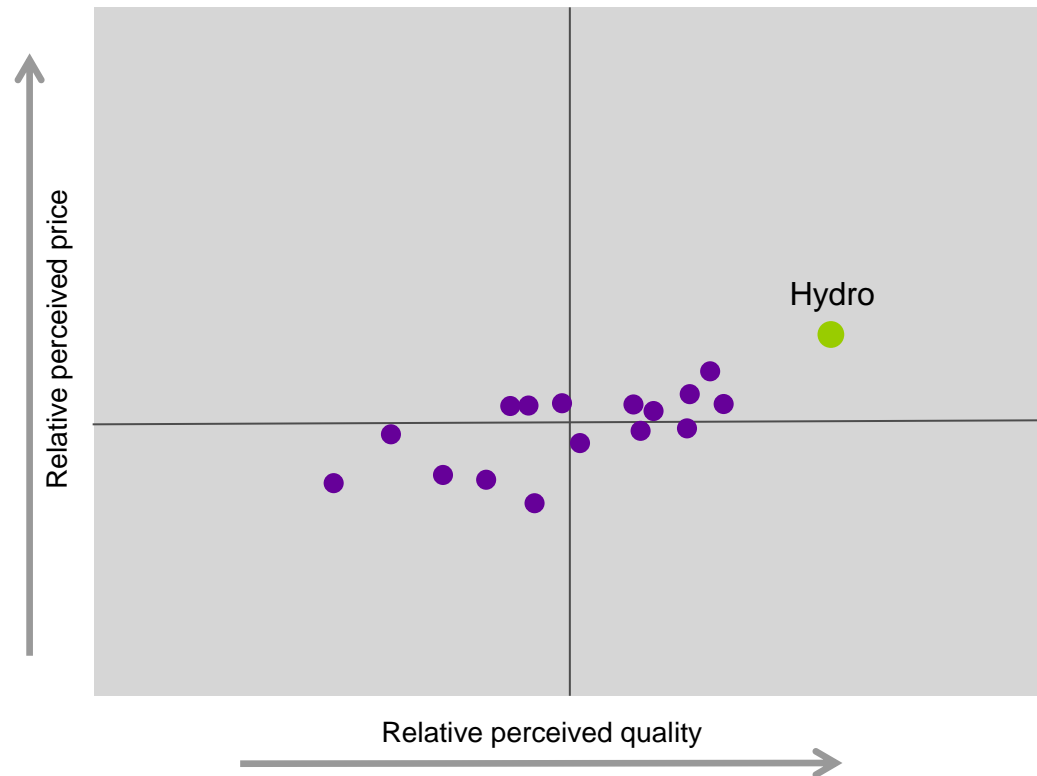


- Strategy of high-grading product portfolio
- AFM\* technology to strengthen capabilities towards automotive sector
- Strong R&D focus on alloy developments in cooperation with customers
- Focus on total quality aspect
  - Service and technical support
  - Reliable and on-time delivery

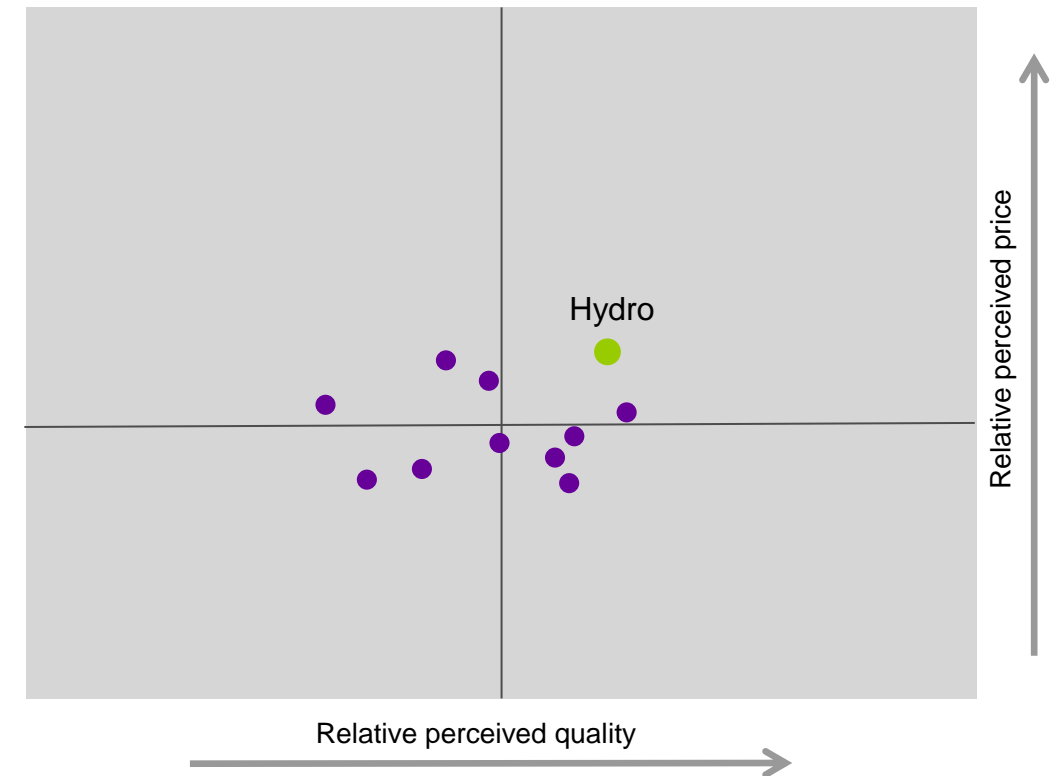
\* Adjustable, Flexible, Mold technology

# Strong relative position compared to peers

Customer satisfaction survey\*  
Extrusion Ingot



Customer satisfaction survey\*  
Foundry alloys



\*2014 Customer satisfaction survey for Europe performed by Malik (PIMS)

● Competitors

# *Bigger*

# Strengthening the Norwegian production base



- Five Norwegian fully-owned smelters including newly acquired Husnes
- Competence cluster and technology
  - Pilot at Karmøy to utilize highly advanced smelting technology
- Current macroeconomic cycle favorable for power sourcing, confirmed by 2.7 TWh contracts (2021-2030) in 2014
- Attractive source for European value-added markets with increasing primary aluminium deficit

# Possible pilot plant at Karmøy



- Annual production 70 000 tonnes
- Using next-generation cell technology
  - World's most energy efficient cell with the lowest CO2 footprint
- Springboard for portfolio-wide competence and technology development and operational improvements
- Conditions
  - Aluminium market balance
  - Grid upgrade and long-term competitive power sourcing
  - Cooperation and support from Enova, pending ESA approval



# Several opportunities within Norwegian portfolio

Potential to add 310 000 tonnes per year



\* Restart of remaining cells in progress

# Attractive growth opportunities

When time is right



Norway



Qatalum



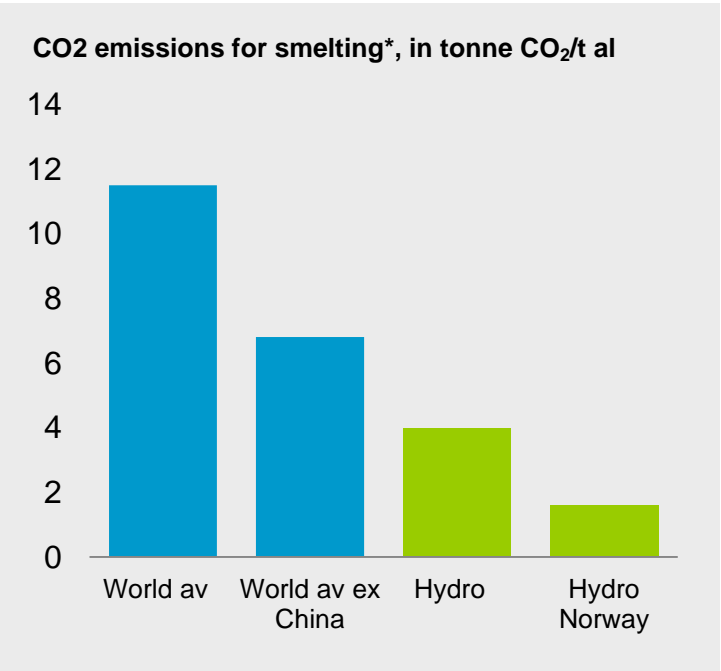
Alouette

# *Greener*

# Primary Metal contributing to a greener Hydro

## Emissions

Reduce energy consumption and emissions in our own processes



## Use-phase benefits

Develop products/solutions helping customers reduce energy consumption and emissions



## Recycling

Reduce waste and recover value from used products



\* Direct and indirect

# A globally leading aluminium producer

## *Better*

- Deliver on improvement programs
- Secure competitive power sourcing
- Continue to develop products and services towards advanced customers to improve margins

## *Bigger*

- Realize 100,000 mt creep in fully-owned smelters
- Extend technology lead with Karmøy pilot plant
- Further mature growth options for when time is right

## *Greener*


- Grow the recycling business to improve margins and environmental footprint
- Reduce energy consumption and emissions in our processes
- Develop products/solutions helping customers reduce energy consumption and emissions

# Bauxite & Alumina

Alberto Fabrini

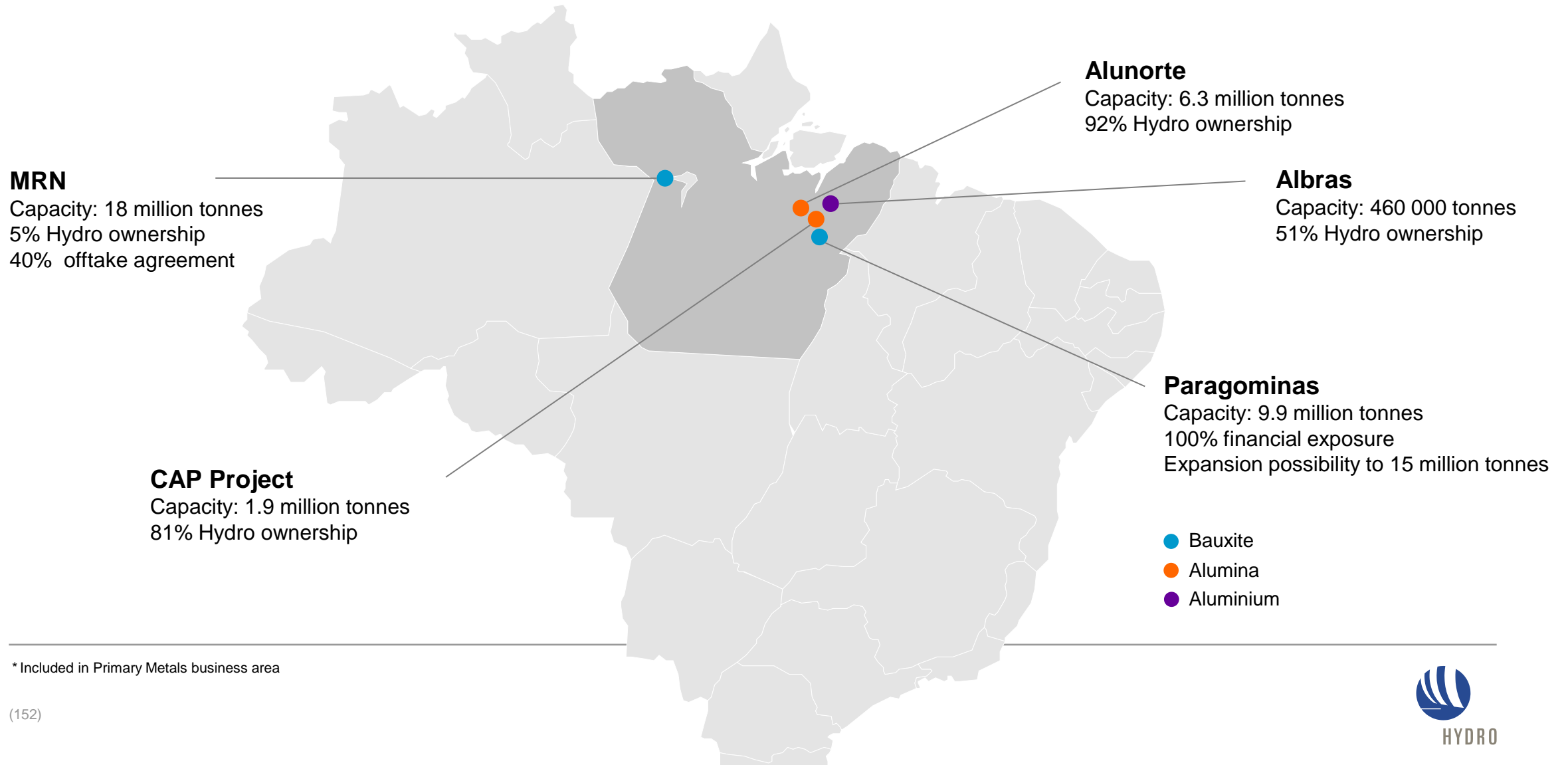
Capital Markets Day 2014



- 
- 1 Introduction
  - 2 Better: From B to A
  - 3 Bigger
  - 4 Greener
  - 5 Strategic direction

# Competitive aluminium cluster in Pará

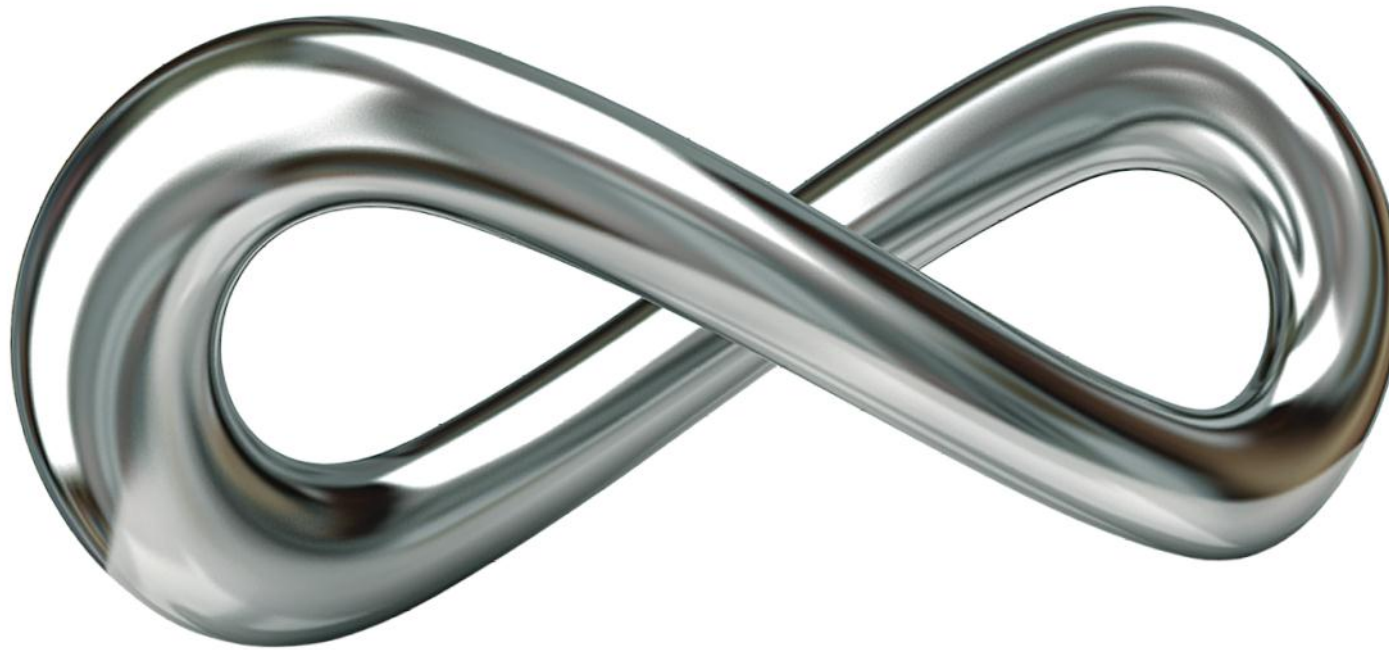
Strategic position in mineral resources creates competitive advantage



\* Included in Primary Metals business area



# Better, Bigger, Greener in Bauxite & Alumina



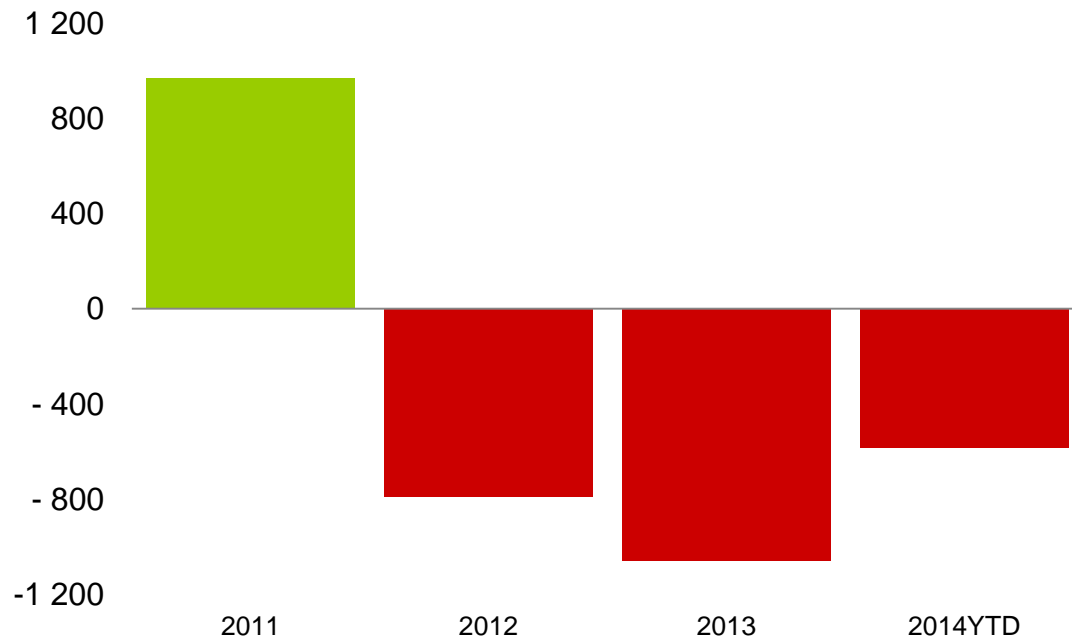
*Better Bigger Greener*

*Better*

# Weak B&A results over the past years

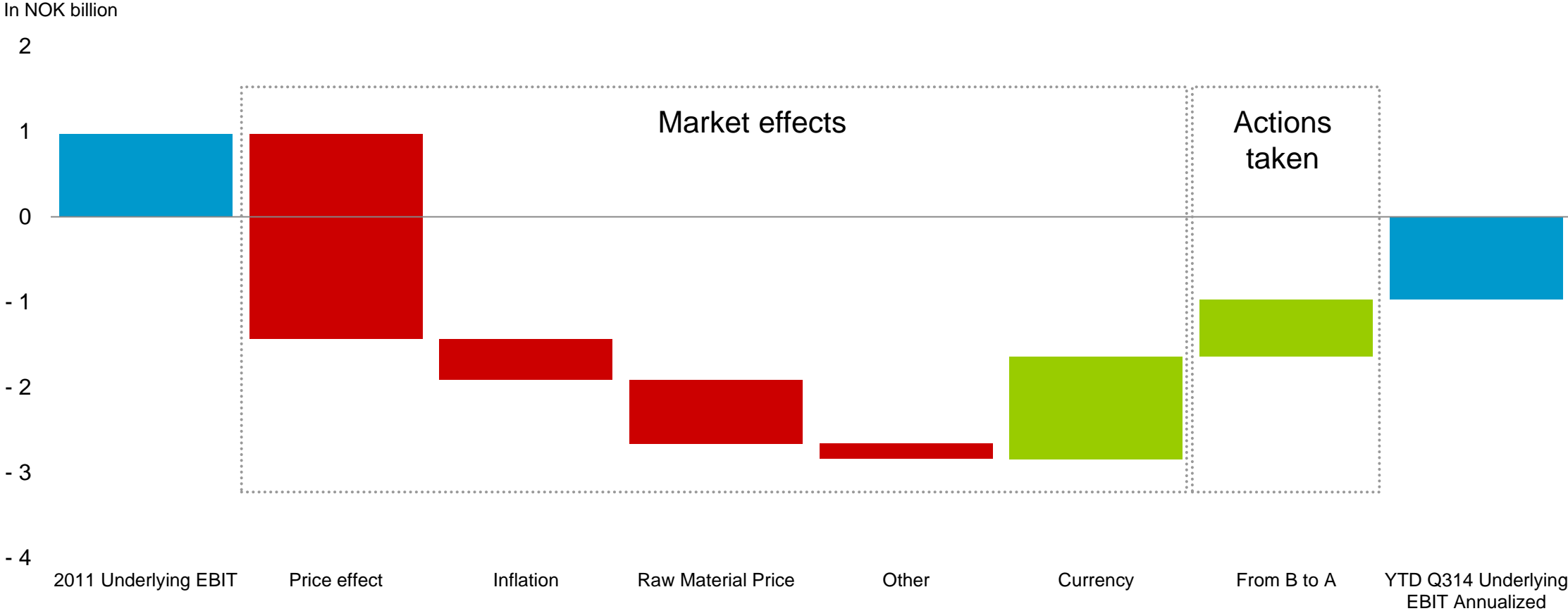
## Underlying EBIT

NOK million



- Operational issues in 2013 at Alunorte
  - Also affecting performance in Paragominas
- High Brazilian inflation impacting costs
- Continuous low alumina prices
- Regulatory challenges
- Positive currency development

# Responding to challenges with improvement efforts



# From B to A back on track in 2014

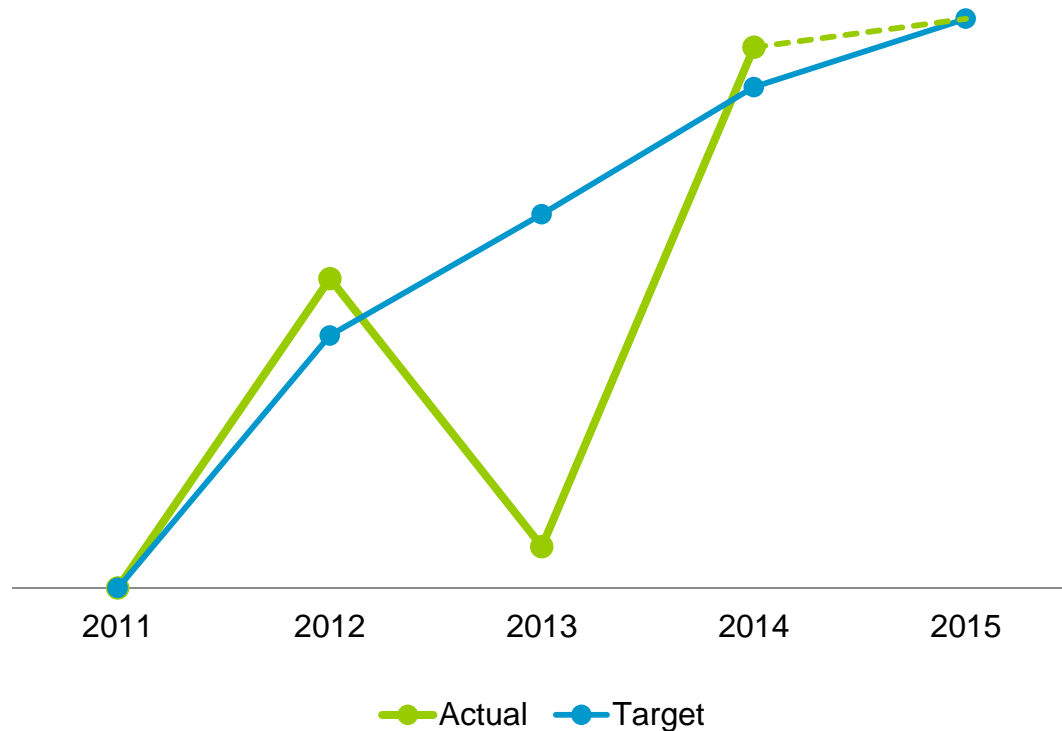
- Total program on track
  - Paragominas ahead of target
  - Underlying improvements in Alunorte ongoing, bringing program closer to target level during 2014
  - Strong commercial contribution, ahead of target
- Estimated delivery by end 2014: NOK 700 million
- 2015 target confirmed
  - 20% manning reduction by end of 2015
  - NOK 1 billion annual improvement by end of 2015



# *Better*

Paragominas

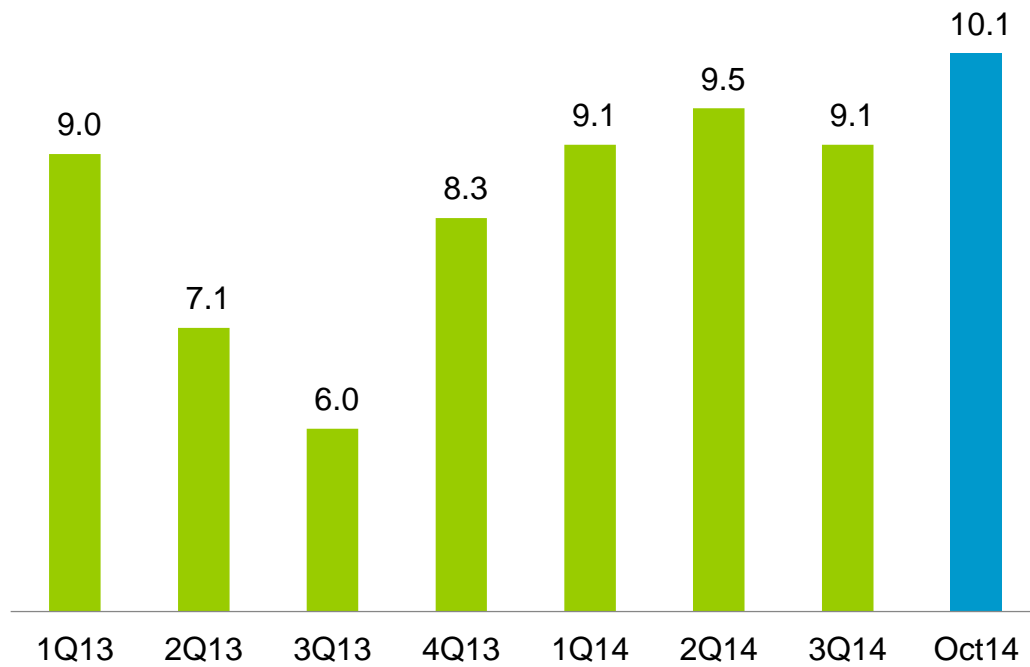
# Paragominas ahead of planned cost improvements



- Positive contributions from all areas
  - Production increased to record levels
  - Productivity improvements driven by debottlenecking at beneficiation plant and optimization of mining operations
  - Fixed cost reduction mainly due to manning reduction of 25%

# Paragominas production beyond nameplate capacity

Production, annualized million tonnes

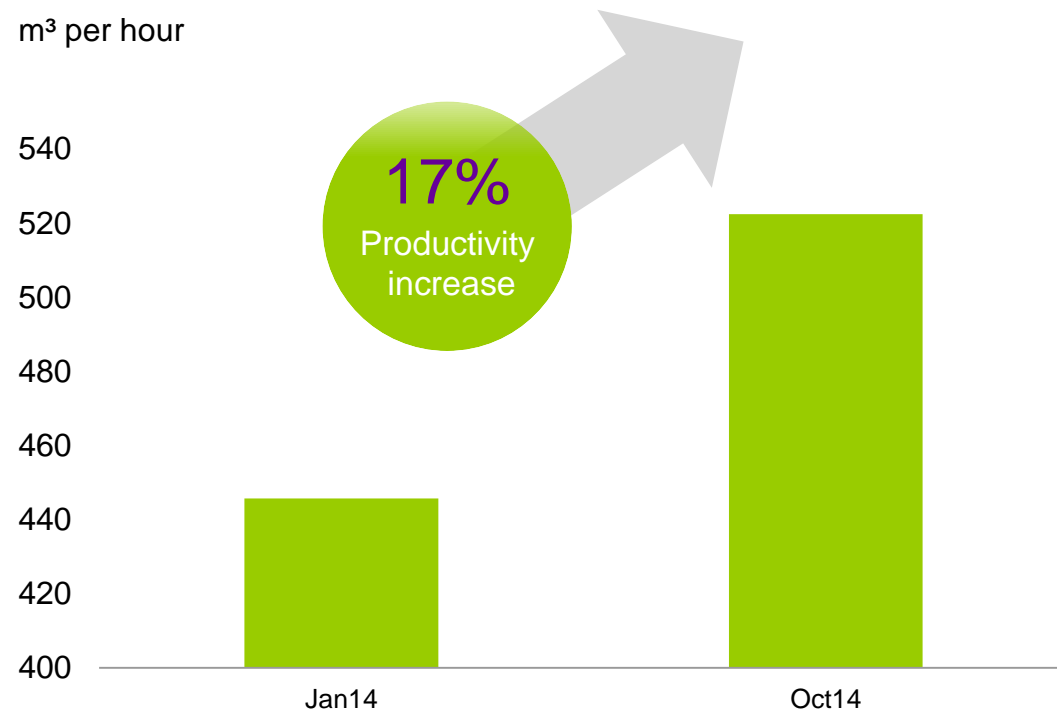




# Productivity increased through reduction in number of dozers

## Dozer productivity

m<sup>3</sup> per hour



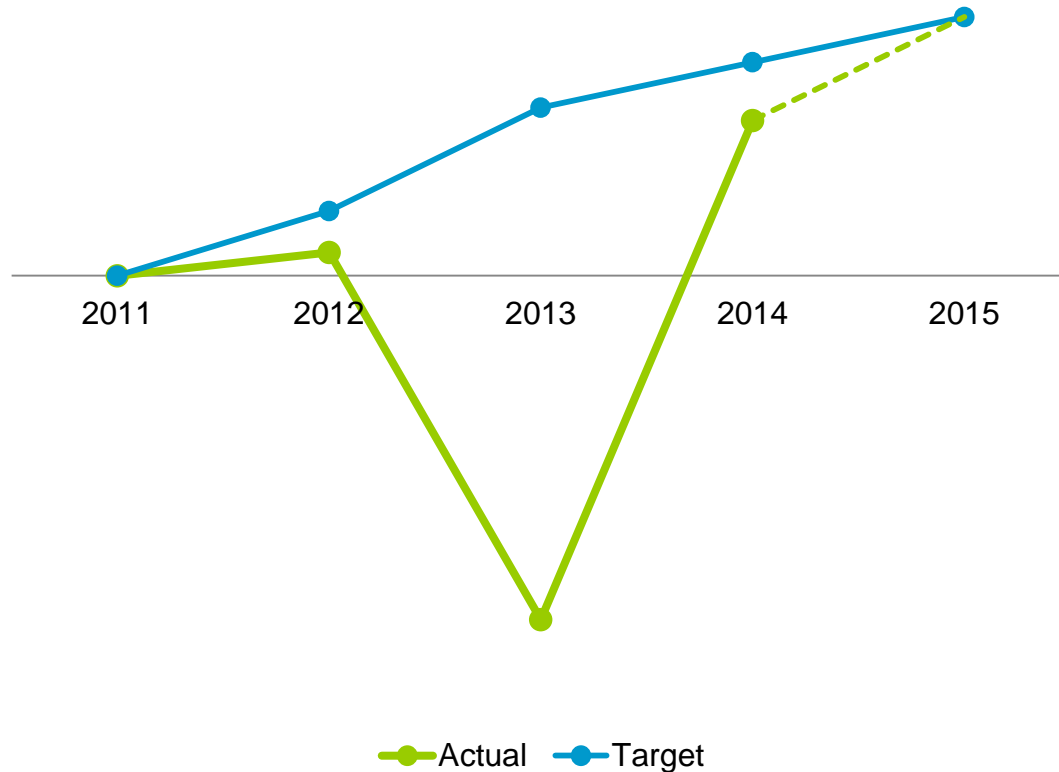
- Improved process for removing overburden to open mining strips
- Reducing distance travelled for moving equipment by increasing cut angle for transport ramps 14° to 18°



# *Better*

Alunorte

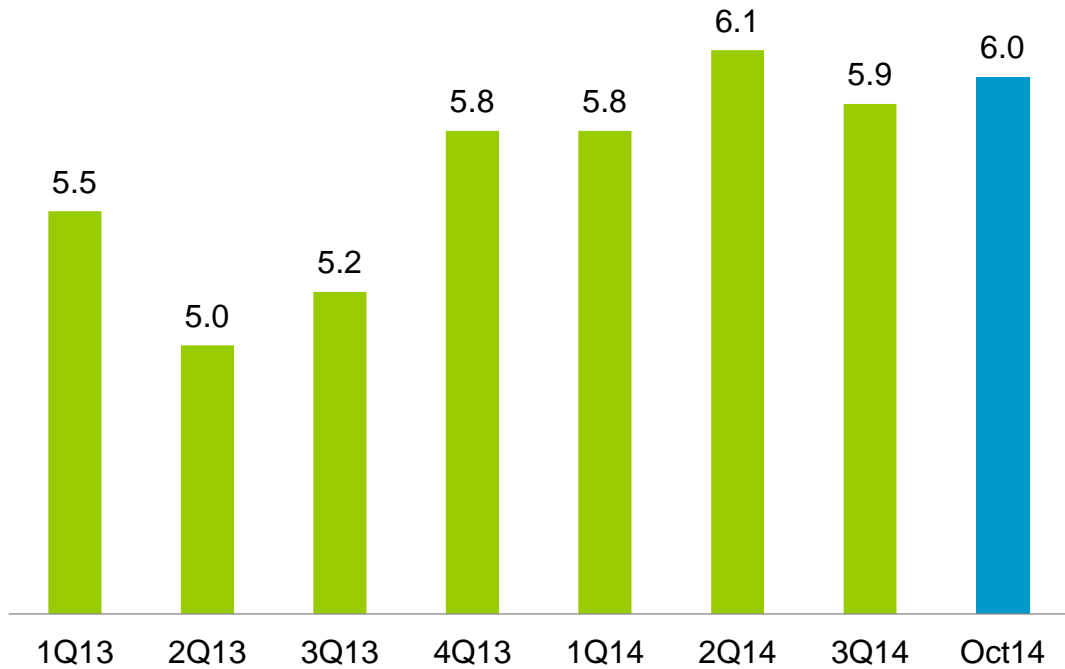
# Alunorte improvement efforts recovering following 2013 setback



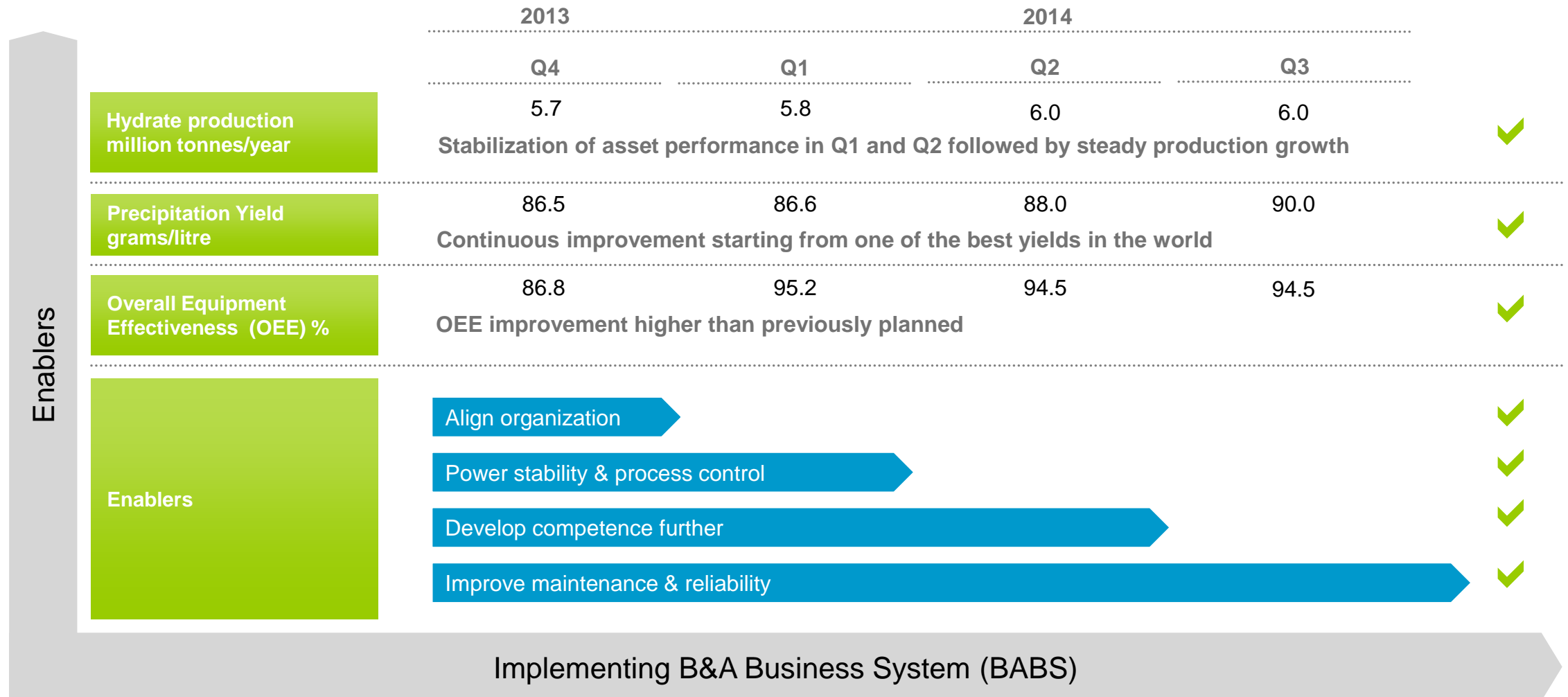
- Strong recovery during 2014
  - Continuing positive contributions from increasing production
  - Stabilizing performance and increasing raw material efficiency
  - Still lagging development in manning reduction
- Increased robustness against power outages
  - Automation of substations and powerhouse

# Positive production trend continues

Production, annualized million tonnes

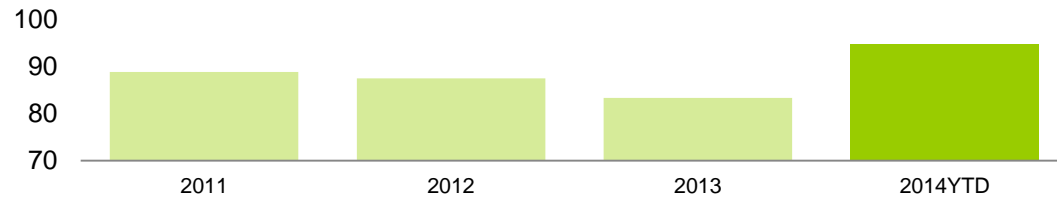


# Delivering on Alunorte plan towards nameplate capacity



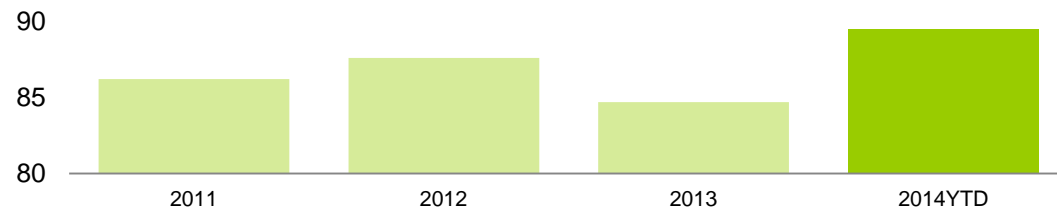
# Improved operational parameters resulting in lower costs

**Overall equipment effectiveness (OEE) (%)**



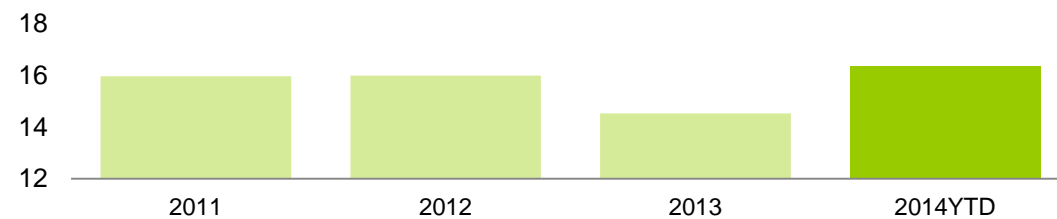
- Focus on residual life
- Disciplined root cause failure analysis

**Precipitation yield (grams/litre)**



- OEE achievements
- Better temperature control and A/C ratio

**Hydrate Production (tonnes per day)**

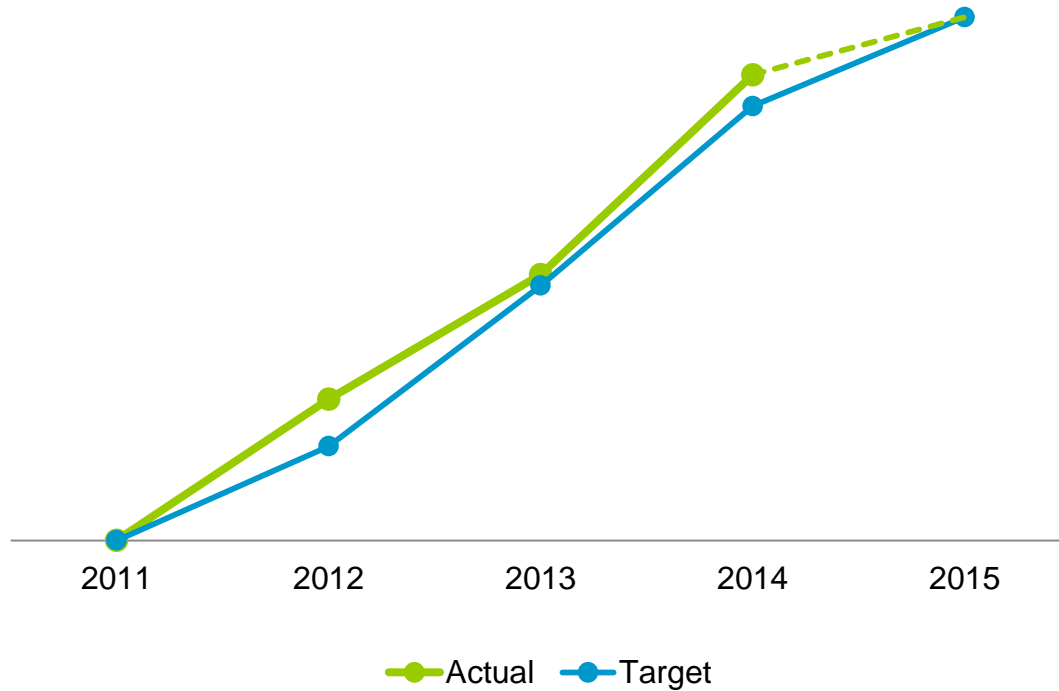


- Shift from line to process orientation
- Daily meetings with root cause failure analysis
- OEE and yield improvements

# *Better*

## Commercial

# Strong improvements in commercial



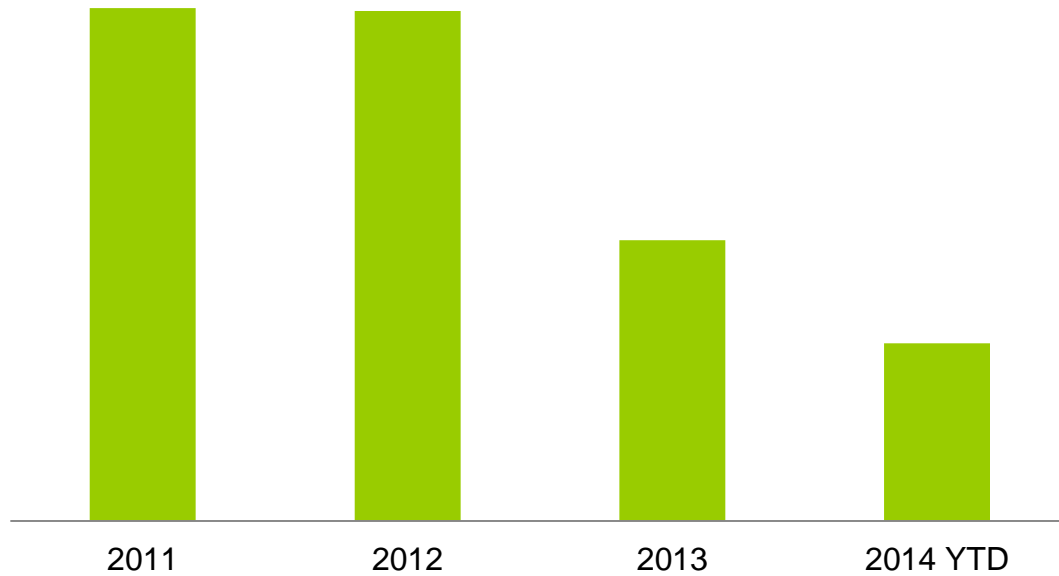
- Commercial improvements achieved through
  - Strategic pricing ambitions to price bauxite and alumina on own fundamentals
  - Reduce demurrage cost
  - Portfolio optimization
  - Improved pricing terms on existing and new contracts



# Creating value through reduced demurrage costs, and higher bauxite margins

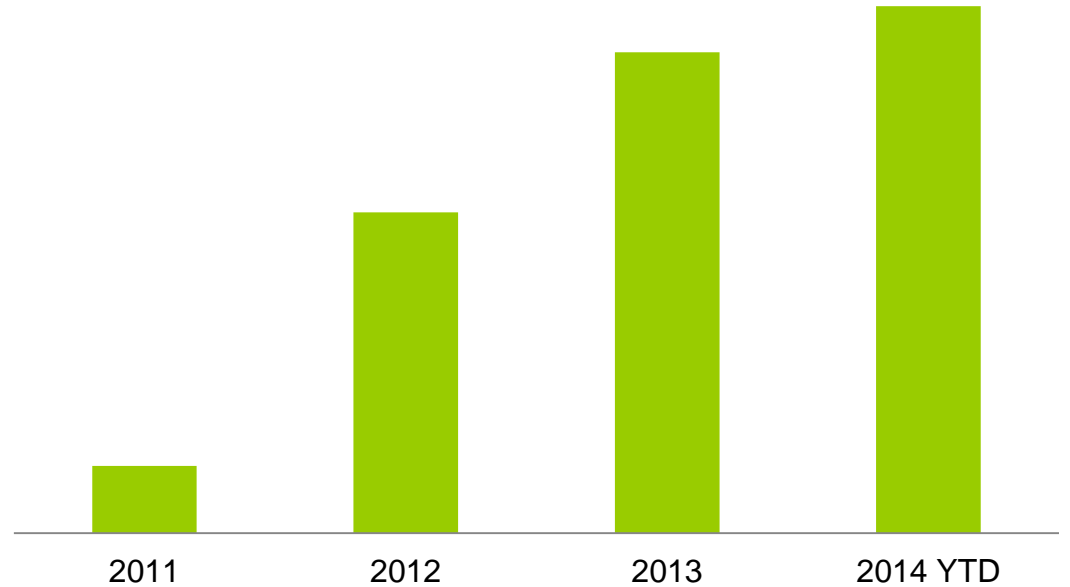
## Demurrage cost

2011 – 100% basis



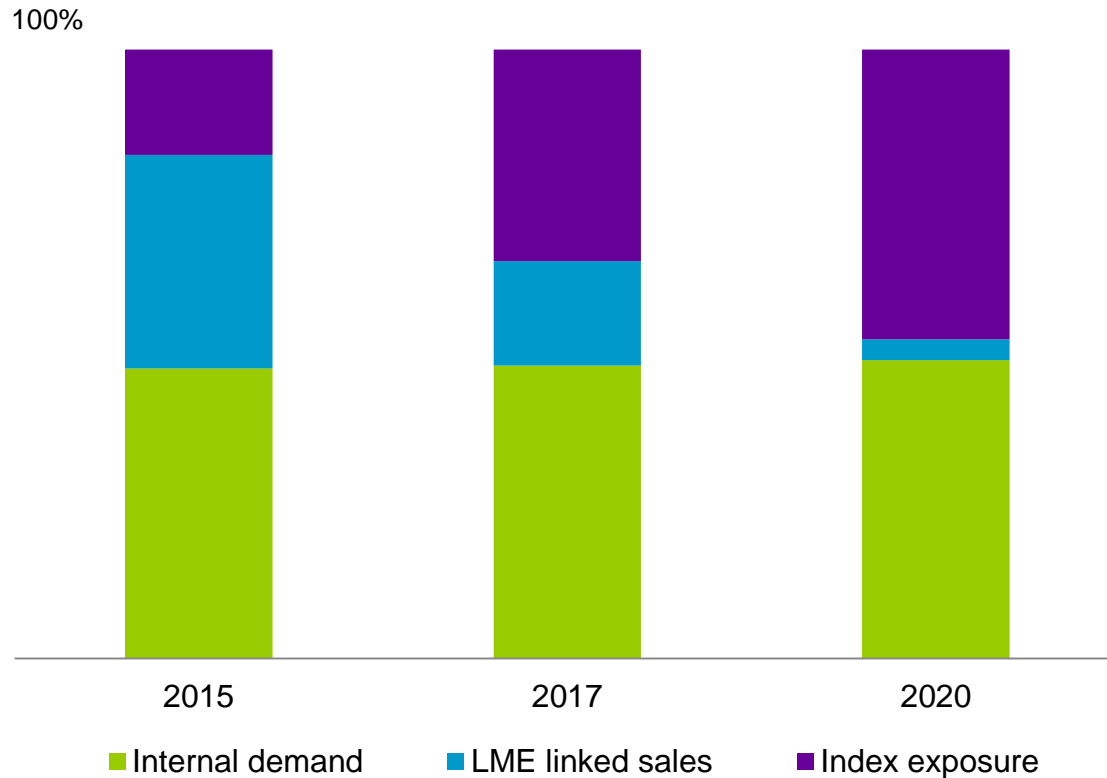
## Commercial bauxite EBIT/tonne

2011 – 100% basis



# Alumina pricing on own fundamentals

## Index spot price exposure



- Increased index potential
  - Some contract renegotiations
  - Sourcing volumes higher than previously indicated, stable going forward
- Focus on developing strategic consumer business
  - Closer links with end-users
- Sales on delivered (CIF) terms
  - Better control of total value chain and logistics

# More attractive market positions



- China and Indonesia represent commercial opportunities
  - Brazilian bauxite quality attractive in global market
  - Excess bauxite sold at a premium
  - Bauxite pricing on own merits, value-in-use pricing gaining traction
- Increasing commercial diversification through Atlantic and Pacific presence

# *Biggger*

# Secure and develop bauxite resources for future decades



- High-quality Gibbsite bauxite at Paragominas
  - High available alumina
  - Good alumina/silica ratio
  - Low impurities
  - Organic free
- Paragominas expansion possibility to 15 million tonnes per year, supported by current pipeline
  - Securing bauxite supply for CAP project
- Important to secure long term supply to Alunorte
  - Long-life resource base

# CAP alumina refinery project: attractive project when time is right



## Utilize large bauxite reserves in Paragominas

- Competitive investment cost and cost position
  - Utilizing existing pipeline capacity
- Full review of technical solutions to further reduce cost and increase efficiency
- Ready to proceed as soon as new capacity is needed in the market
- Phase one: 1.86 million tonnes per year

Source: China Custom, Cmgrouop, Hydro

# *Greener*

# Hydro's social and environmental commitment in Pará

Focus on health, safety, environment, social and educational programs



Safety first



Education



Social projects



Environment



# Reforestation: Our “license to operate”

Mining rehabilitation ratio 1:1 by 2017, aiming for no net loss in biodiversity long term



# Para Sempre: Proactive approach to regulatory challenges



- Systematic dialog with key stakeholders
  - Politicians: Local, state, federal
  - Industry associations
  - NGOs and media
- Focus on Hydro's contribution to a sustainable aluminium value chain in Pará state
- Underline need for competitive and predictable framework conditions for Hydro's operations
- Hydro ICMS strategy and task force in place

# Aiming for operational and commercial leadership in bauxite and alumina

## *Better*

- Continue operational improvement drive
- Price bauxite and alumina on own fundamentals

## *Bigger*

- Secure and develop bauxite resources for future decades
- Mature CAP project and Paragominas expansion for when time is right

## *Greener*

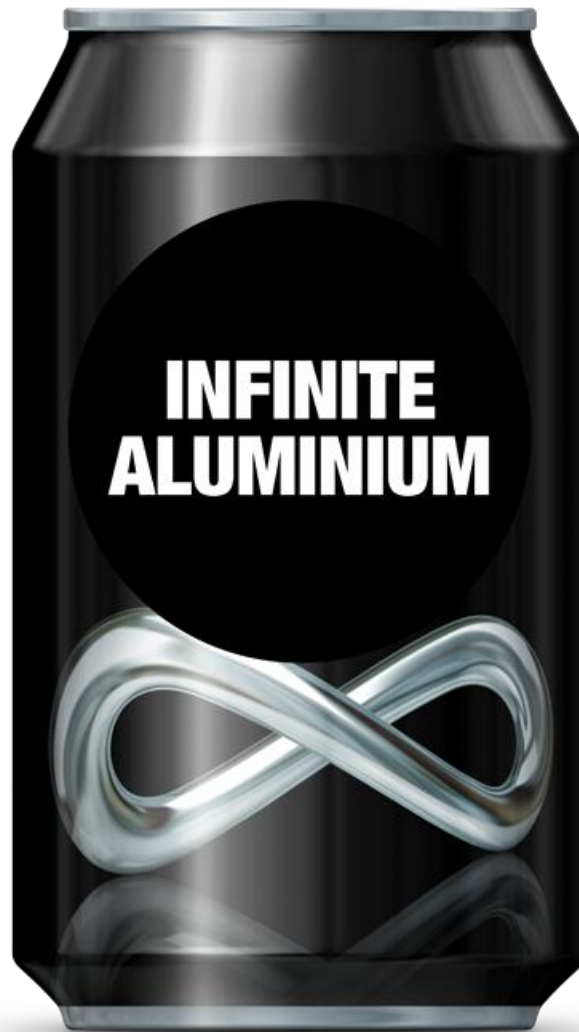
- Improve organizational capabilities and HSE performance
- Deliver on reforestation ambition 1:1 in 2017

# Hydro 2015

## Lifting performance and shareholder value in tight physical markets

- Delivering on improvement programs
- Targeting high-margin markets and maturing growth portfolio, while maintaining tight capital discipline
- Increasing energy-efficiency and lowering climate footprint

*Better Bigger Greener*



# Investor Relations in Hydro



**Pål Kildemo**

*Head of Investor Relations*

t: +47 970 96 711

e: pal.kildemo@hydro.com



**Olena Lepikhina**

*Investor Relations Officer*

t: +47 96853035

e: olena.lepikhina@hydro.com

Next events  
**Fourth Quarter Results**  
**February 11, 2015**

For more information see  
[www.hydro.com/ir](http://www.hydro.com/ir)