



# Norsk Hydro Kepler Cheuvreux Swedbank Metals & Mining seminar 2019

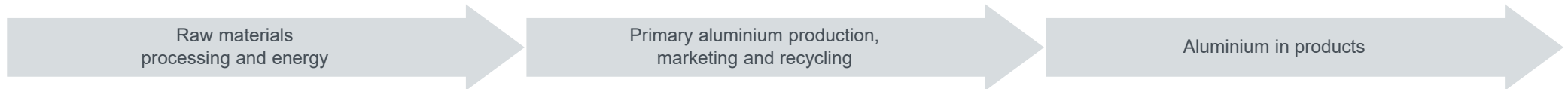
Stian Hasle, Head of Investor Relations

# Agenda



- 1) Hydro – a resource rich global aluminium company
- 2) Market update
- 3) Q2 highlights
- 4) Q&A

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



## Bauxite & Alumina

- High quality Gibbsite bauxite
- Bauxite capacity 10.8 million tonnes (100% Paragominas and 5% MRN)
- World's largest alumina refinery outside China with capacity of 6.3 million tonnes
- Long-term sourcing contracts for bauxite and alumina



## Energy

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



## Primary Metal

- 2.3 million tonnes primary capacity
- 200 k mt technology-driven capacity creep by 2025
- Karmøy Technology Pilot in full production
- High LME and USD sensitivity
- Improving cost position
- Leading in technology



## Metal Markets

- ~3.4 million tonnes (primary, remelt, recycling and cold metal)
- Expertise in materials
- Flexible system
- Strengthening recycling position
- High share value-add products
- Strong marketing organization
- Risk management
- Strong market positions in Europe, Asia and the US



## Rolled Products

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



## Extruded Solutions

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

100% of volumes for assets that are fully consolidated and pro rata volumes for other assets.

# Strong global presence throughout the aluminium value chain



Built on market understanding, customer closeness and competence

## The complete aluminium company

- High-quality bauxite and alumina production in Brazil
- Primary production in Norway, Germany, Qatar, Slovakia, Brazil, Canada, Australia
- 10 TWh captive hydropower production
- European #2 in rolled products
- World leader in aluminium extruded profiles
- Remelting in the US, European recycling network
- Unparalleled technology and R&D organization



1) Outside China  
 2) Extrusion ingot, sheet ingot, primary foundry alloys and wire rod  
 3) Primary Foundry Alloys

# Strong positions across the value chain



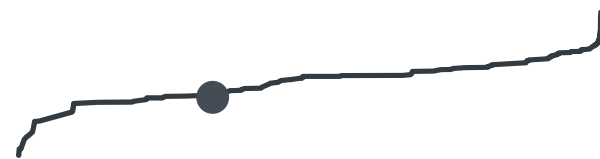
## Upstream

Competitive cash cost position upstream

Alumina BOC curve by company<sup>1</sup> (2018)  
USD/mt



Smelter BOC curve by company<sup>2</sup> (2018)  
USD/mt



Source: Republished under license from CRU International Ltd

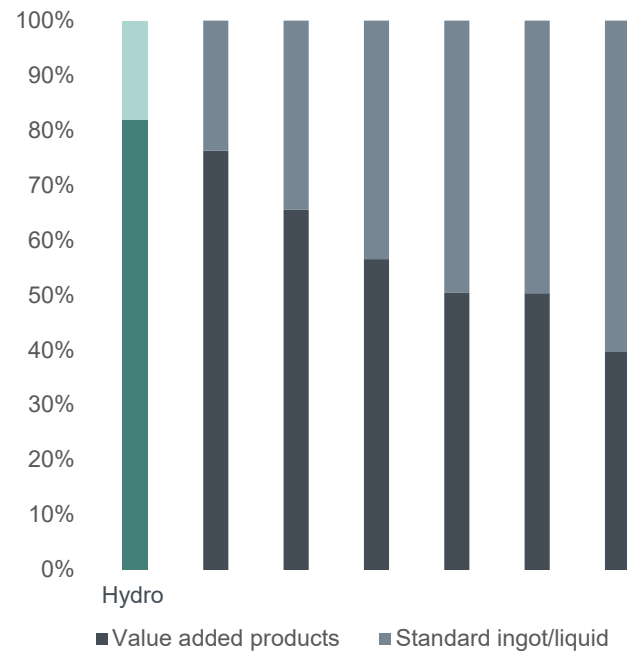
1) Alumina cost curve: caustic soda USD 600, USD/BRL 3.75

2) Aluminium cost curve: LME USD 1 945, alumina USD 412, NOK/USD 8.5

Assumed 100% production at Alunorte and Albras

## Midstream

Strong position in value added products<sup>1</sup>

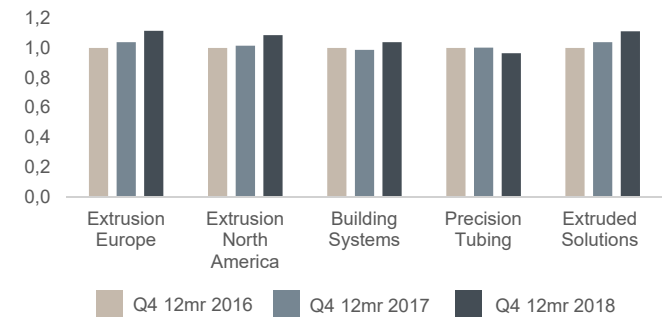


Source: Republished under license from CRU International Ltd  
Actual figures for Hydro sales 2017

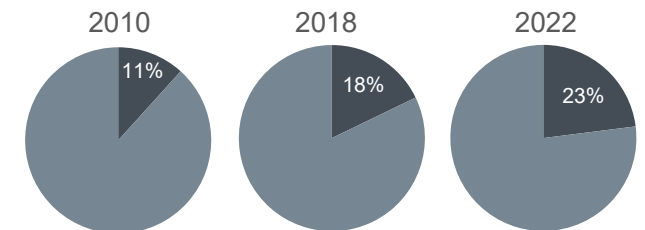
1) % of total shares being value added products; extrusion ingot, wire rod, sheet ingot and primary foundry alloy

## Downstream

Improving NAV<sup>1,2</sup> in Extruded Solutions



Increasing automotive share in Rolled Products<sup>3</sup>



1) Net Added Value: calculated as operating revenues less cost of material, including freight costs out

2) NOK indexed, translated to NOK based on Q4 2018 12 m rolling currency rates

3) In percentage of total sales

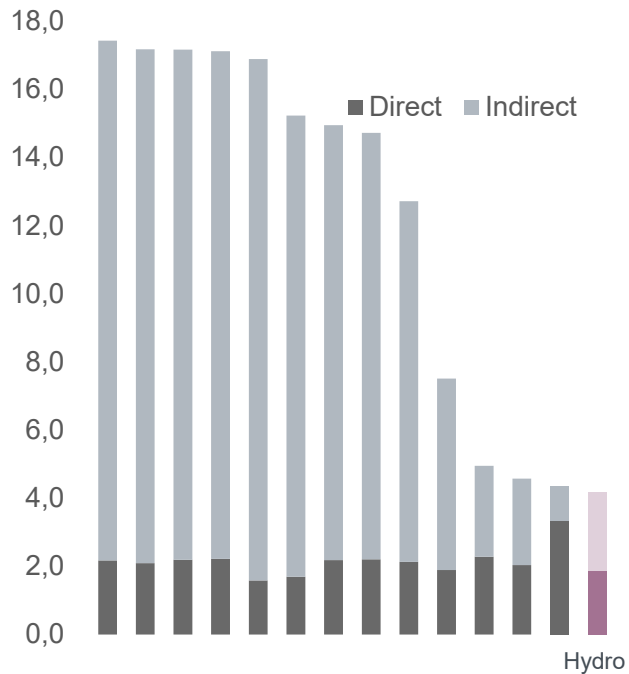
# Sustainability – key competitive advantages



Responsible, low-carbon products for a greener future

## Lowest CO<sub>2</sub> emissions

Tonnes CO<sub>2</sub>/tonne aluminium, 2018



asi Aluminium Stewardship Initiative



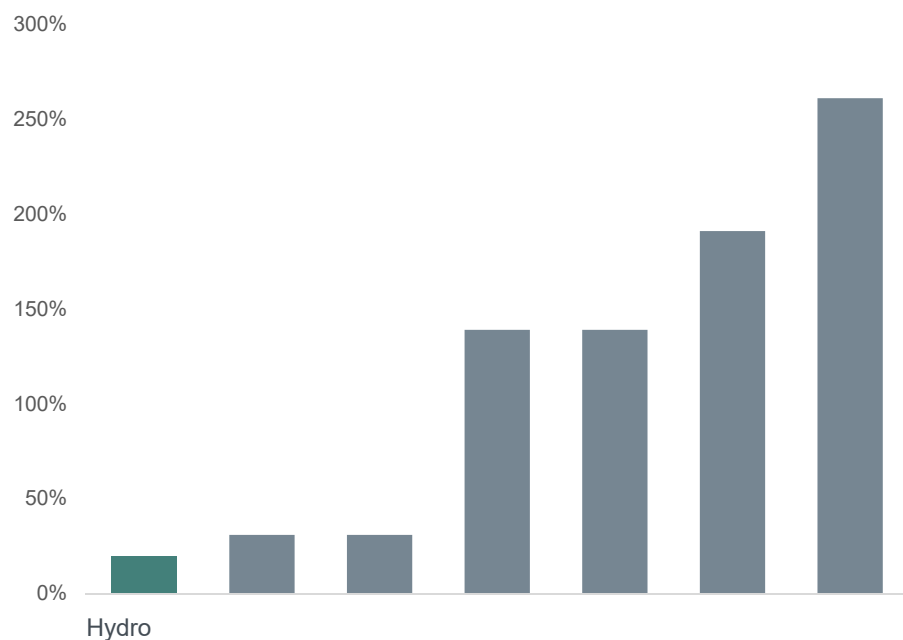
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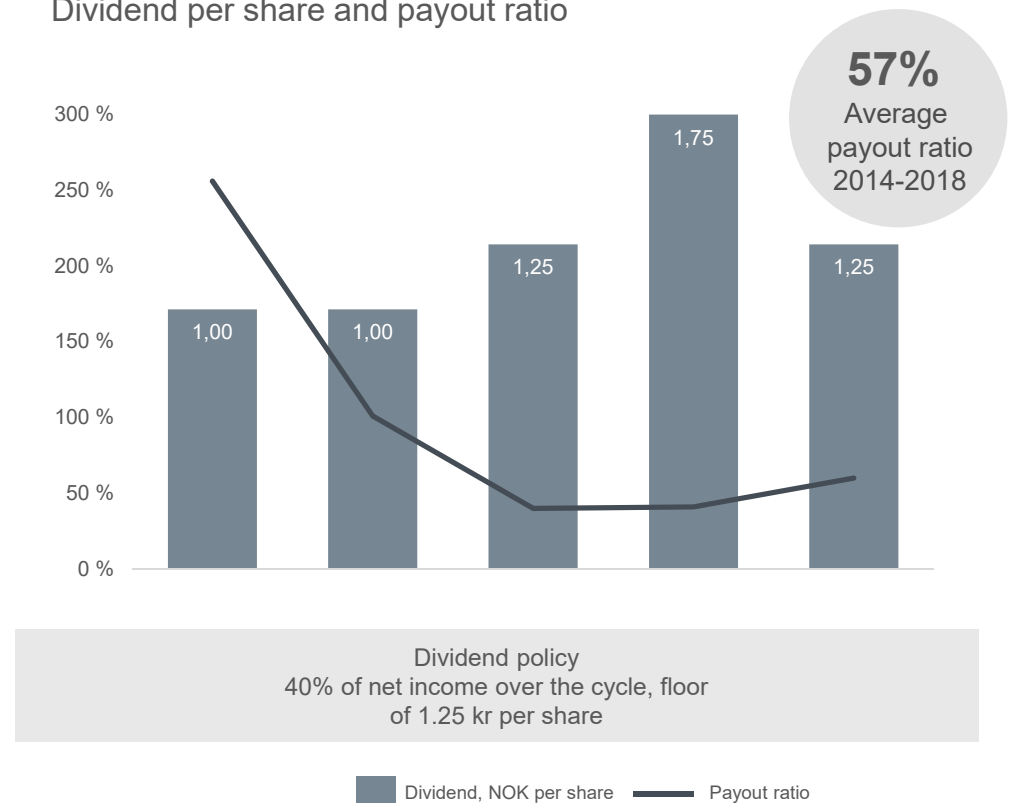
# Robus balance sheet, competitive pay-out ratio



Debt/equity compared to peers\*



Dividend per share and payout ratio



Source: Debt/equity - Nasdaq

\*Peers include Alcoa, Arconic, Rusal, Chalco, Century, Hindalco

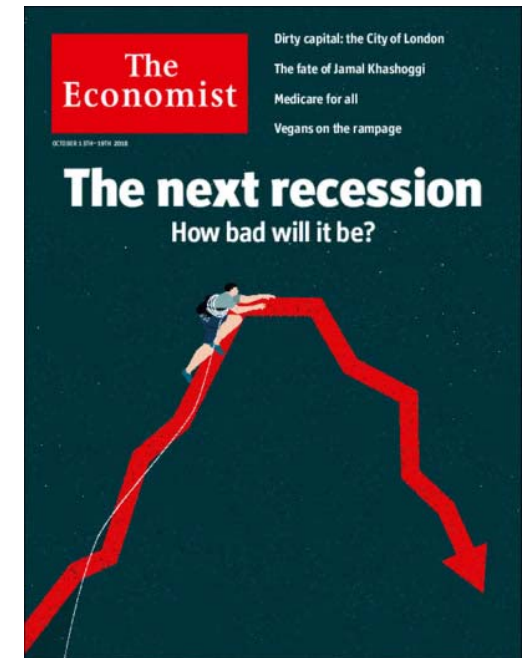
Total debt/Total Equity end-2017 = (Long Term Debt + Short Term Debt & Current Portion of Long Term Debt) /Equity attributable to shareholders

# Market Update



# Increasing geopolitical unpredictability

Continued macro uncertainty and competitive pressures

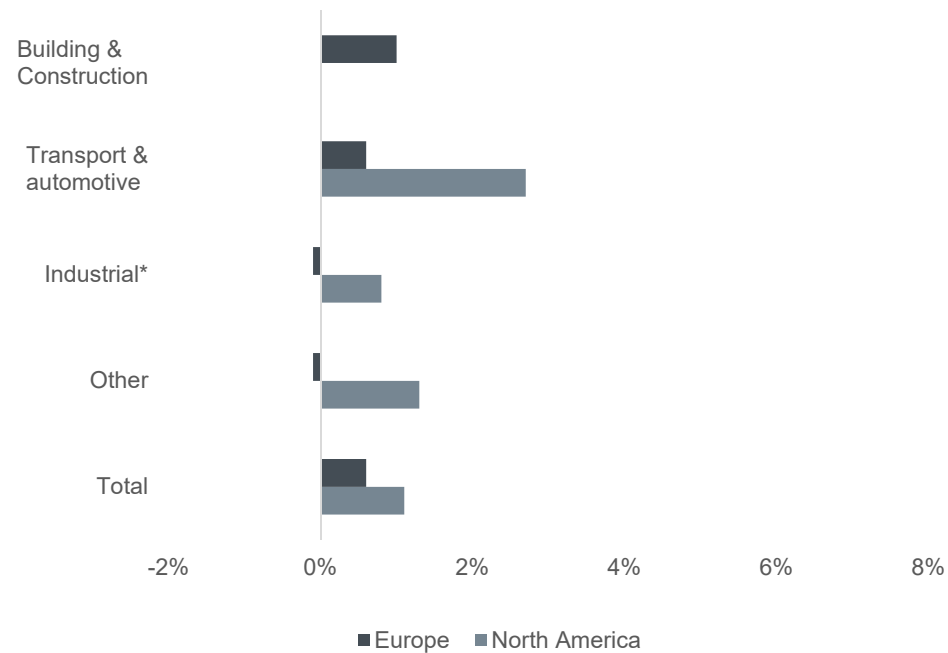


# Softening downstream demand growth

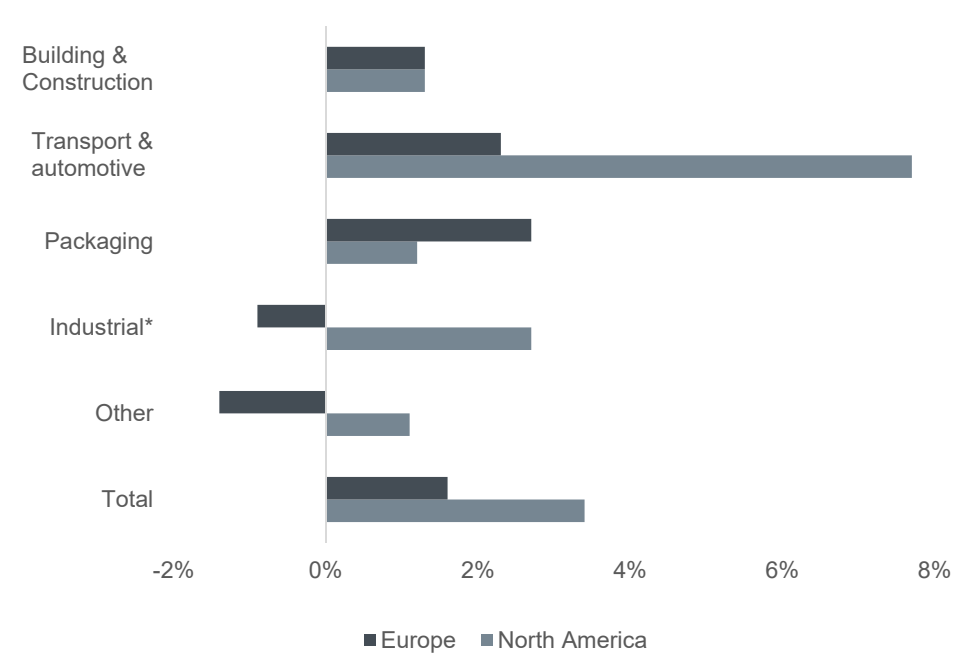


Weak demand in Europe, reduced extrusion growth in North America

Extrusions – estimated market growth 2019 vs 2018 (%)



Rolled products – estimated market growth 2019 vs 2018 (%)



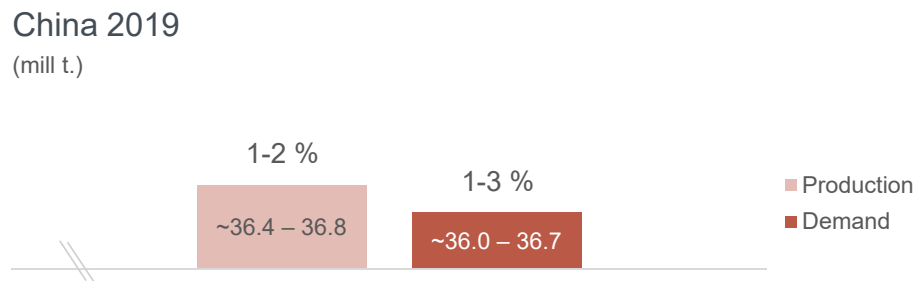
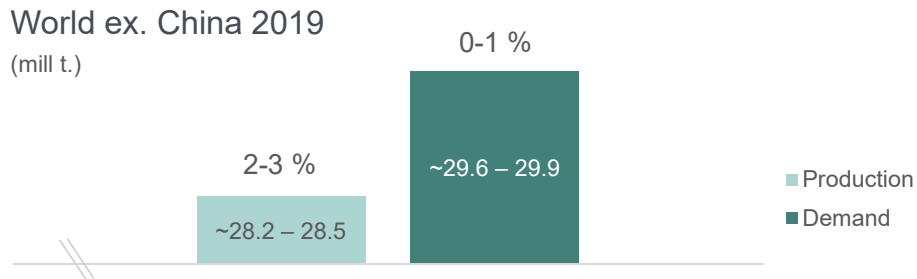
Source: CRU / Hydro analysis

\* Industrial includes consumer durables, electrical and machinery  
Europe excluding Russia/Turkey

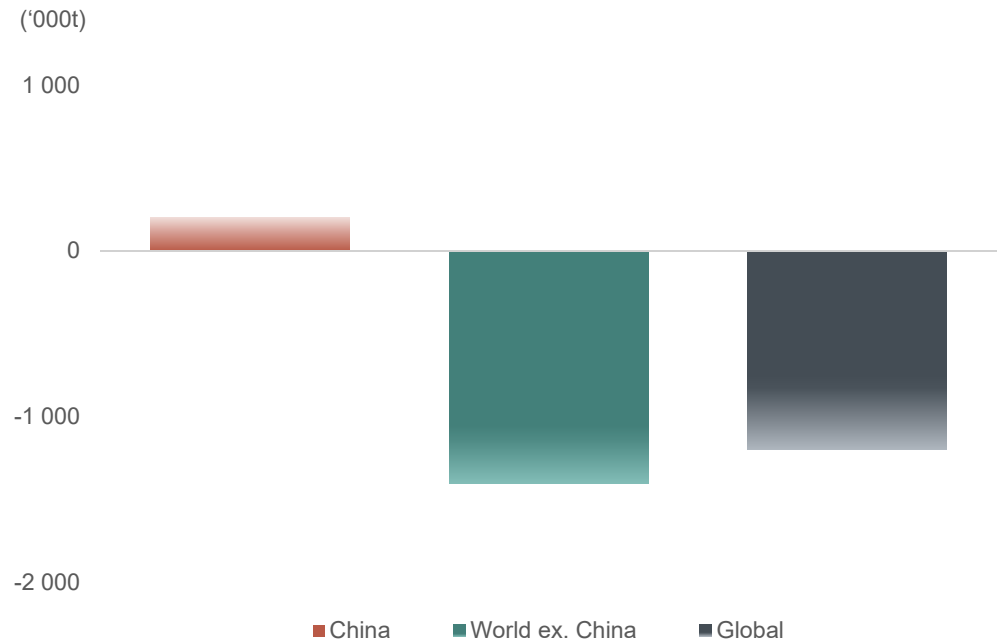
# Global market expected in deficit for 2019



China largely balanced, world outside China in deficit

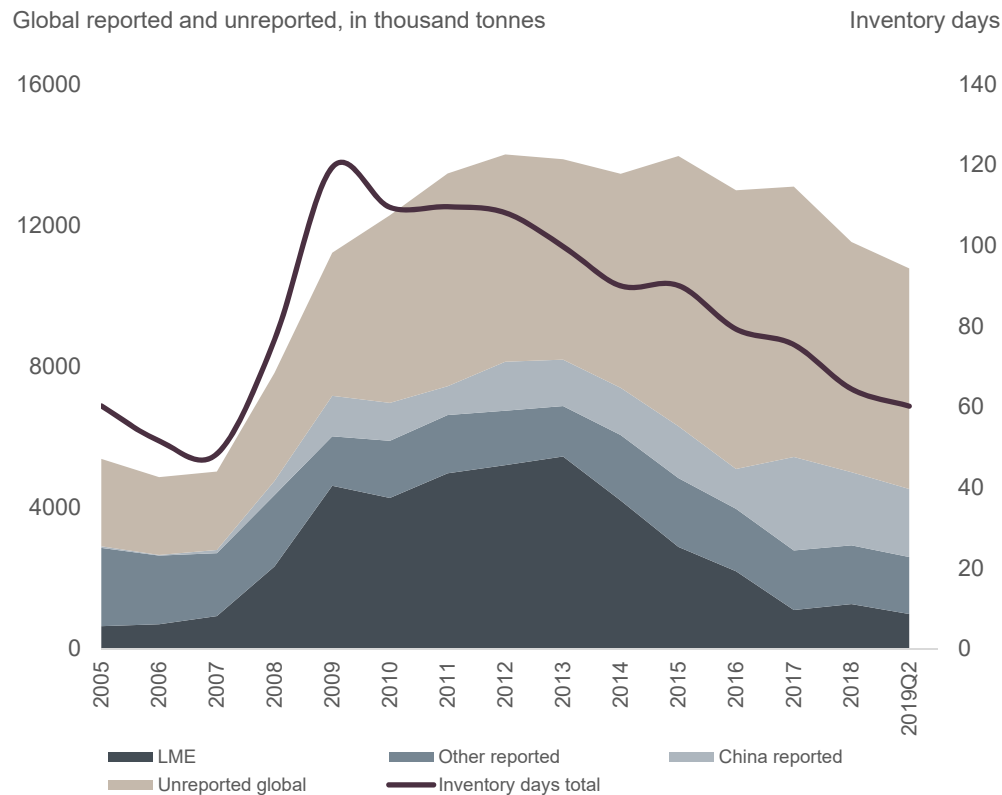


Estimated primary market balance 2019

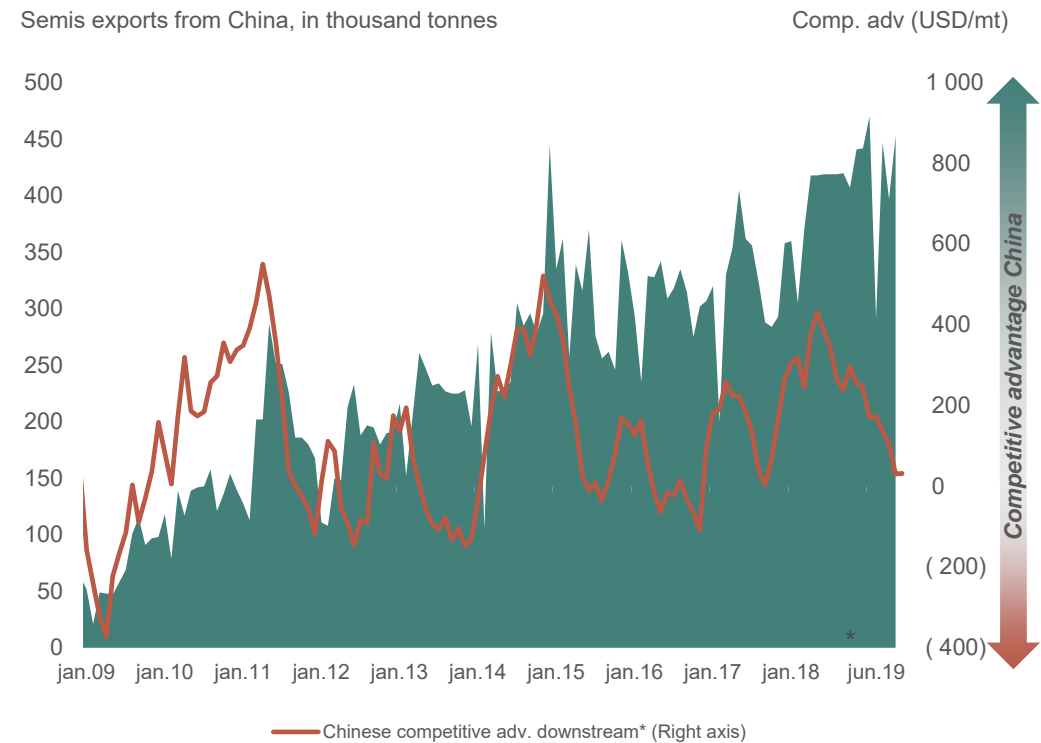


Source: CRU, Hydro analysis  
%: Growth from 2018 to 2019

# Inventories gradually trending downwards, increasing Chinese semis exports



\*2019 Q2 inventory days estimated on 12-months rolling historic consumption  
 Source: Republished under license from CRU International Ltd, Hydro analysis



Source: CRU, Thomson Reuters  
 Estimated metal cost China versus Europe  
 Europe: LME cash + European duty-paid standard ingot premium  
 China: SHFE cash + avg. local premium + freight – export rebates (~13 %)  
 \*No detailed data for April to September 2018, semis months for these months distributed flat

# LME aluminium prices trending downwards

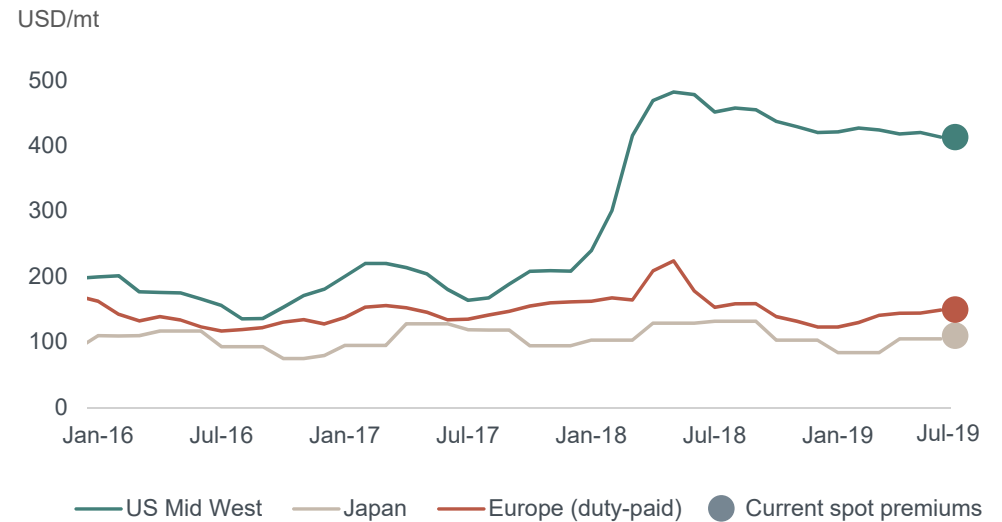


## LME and SHFE aluminium prices



- LME averaged around 1 800 USD/t in Q2 2019, downward trend in quarter
- SHFE up in Q2, decreasing price differential between LME and SHFE

## Regional standard ingot premiums

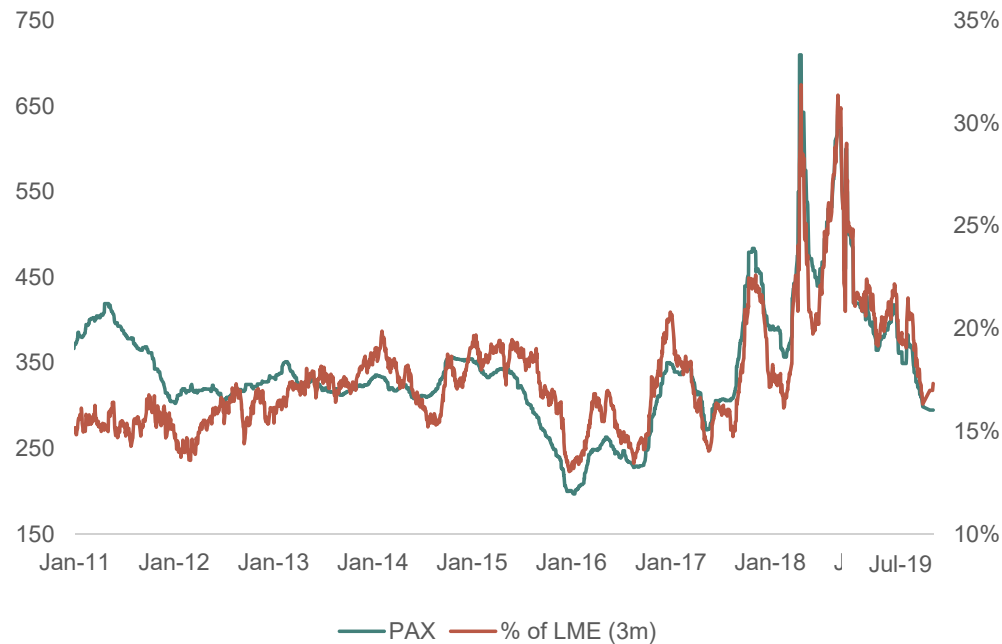


- US premium continuing its slow decline
- Slightly improving European and Japanese premiums during Q2

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

# Alumina prices down in Q2, continued volatility

Platts alumina index (PAX)  
USD/t



- Alumina prices trending downwards in 1H 2019 and into Q3
- Continued price volatility, impacted in Q2 by Chinese environmental curtailments and Alunorte restart
- Refinery cost in general trending downwards on lower input cost, primarily caustic soda
  - High Chinese domestic bauxite prices impacting competitiveness of inland Chinese refineries
- China moving from exporting alumina in 2018 and Q1 2019, to importing limited volumes in Q2 2019

# Aluminium's reach is growing over the next decade in response to key long-term trends

Substitution continues to be a key driver for aluminium

**Transport**  
3-4%



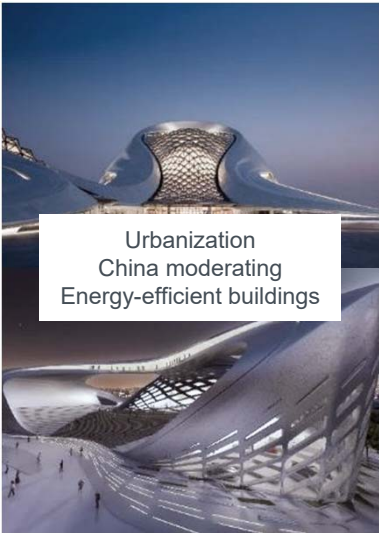
Light-weighting  
Substitution

**Packaging**  
2-3%



Urbanization  
Sustainability  
Substitution

**Building & construction**  
2-3%

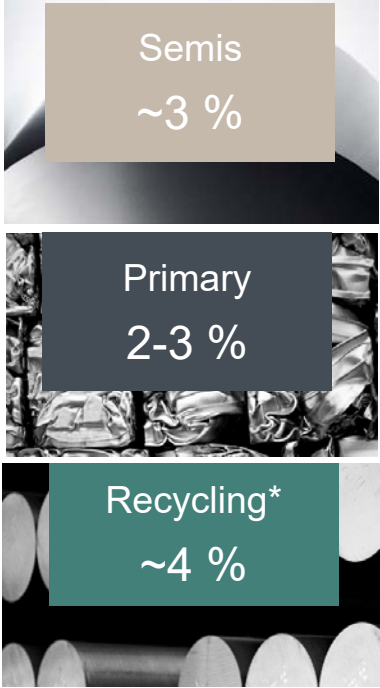


Urbanization  
China moderating  
Energy-efficient buildings

**Electrical**  
2-3%



Substitution  
Urbanization  
Electrification



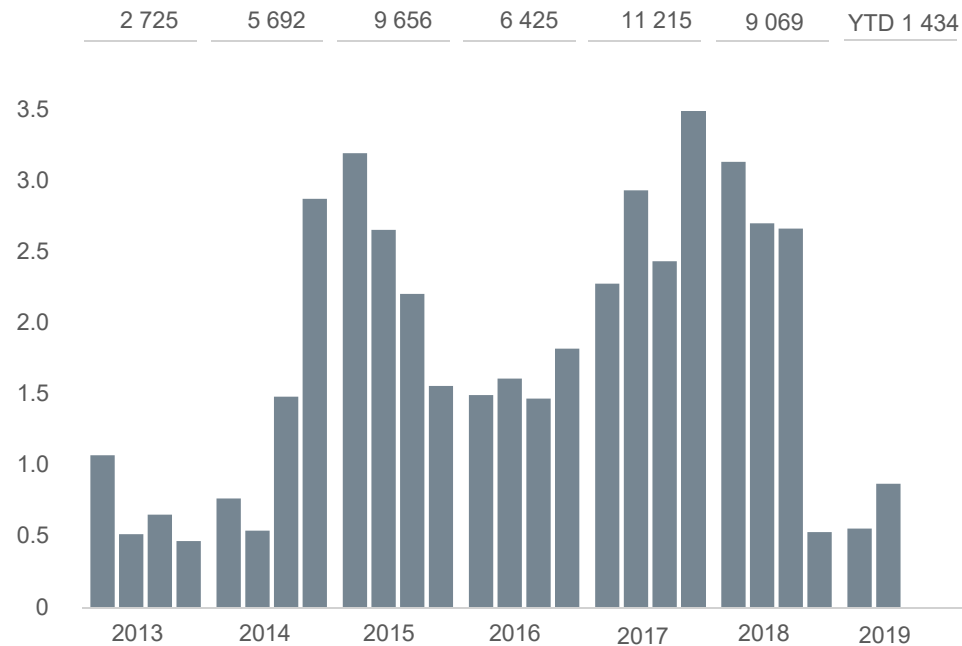
Global semis demand for segment, CAGR 2018-2028  
Source: CRU, Hydro Analysis  
\* Post-consumer and fabrication scrap



# Q2 highlights

# Hydro: a resource rich global aluminium company

Hydro underlying EBIT quarterly, NOK billion



Extruded Products classified as discontinued operations, and thereby excluded from revenues and underlying EBIT in 2013. Figures for 2013 are adjusted reflecting IFRS 11  
 1) As per August 20, 2019



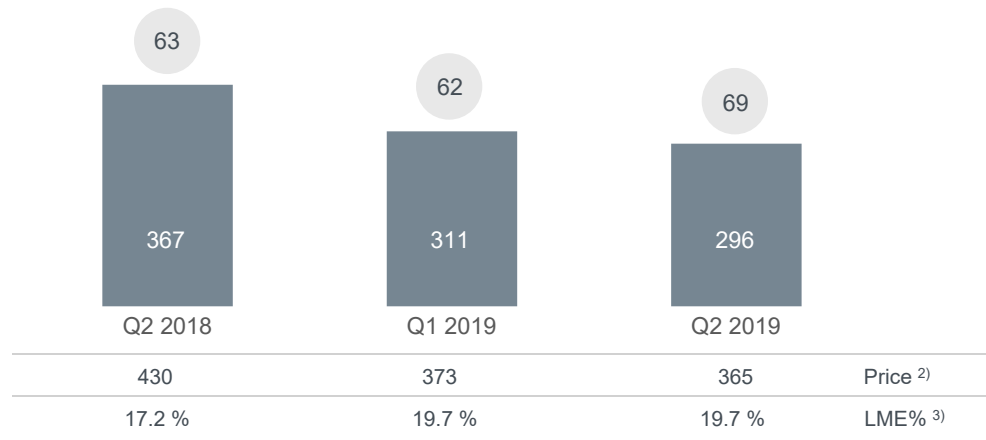
- Based in Norway, involved in activities in more than 40 countries
- Operating revenues
  - 2018: NOK 159 billion
  - 2017: NOK 109 billion
- ~35 000 employees
- Current market capitalization
  - ~NOK 60 billion/ USD 6.7 billion<sup>1)</sup>

# Upstream costs trending downwards



## Implied alumina cost and margin

USD/mt <sup>1)</sup>



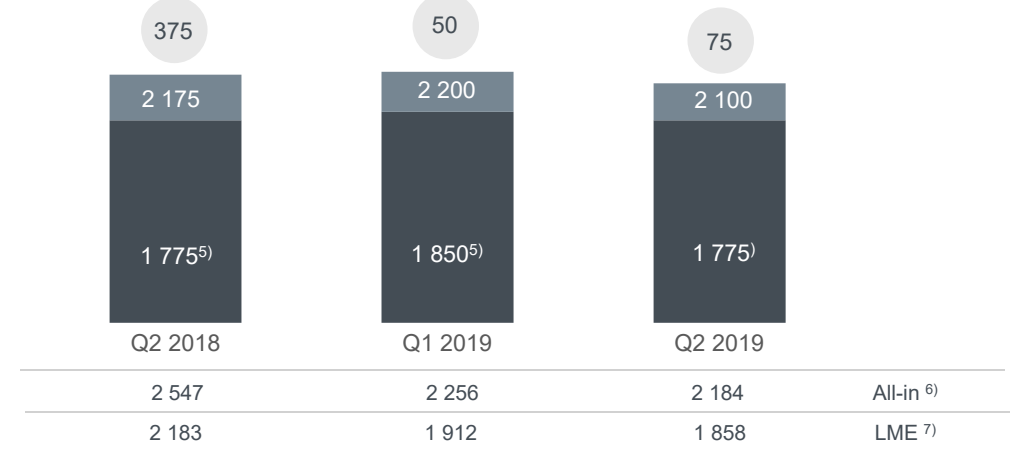
Implied alumina cost down in Q219 vs Q119, mainly increased production and lower raw material costs at Alunorte

■ Implied EBITDA cost per mt    ● EBITDA margin per mt

1) Realized alumina price minus underlying EBITDA for B&A, per mt alumina sales  
 2) Realized alumina price  
 3) Realized alumina price as % of three-month LME price with one month lag  
 4) Realized all-in aluminium price less underlying EBITDA margin, incl Qatalum, per mt aluminium sold.  
 Implied primary cost and margin rounded to nearest USD 25

## All-in implied primary cost and margin

USD/mt <sup>4)</sup>



Implied primary cost down in Q219 vs Q119 on reduced costs, mainly related to alumina

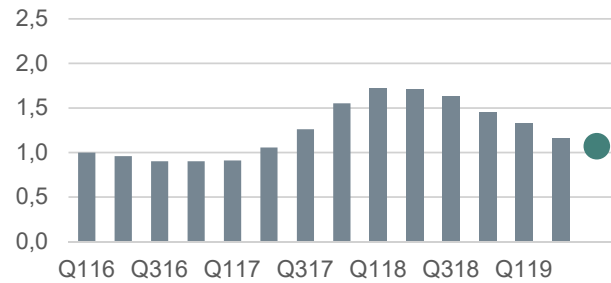
■ All-in Implied EBITDA cost per mt    ■ LME Implied EBITDA cost per mt    ● All-in EBITDA margin per mt

5) Realized LME aluminium price less underlying EBITDA margin, incl Qatalum, per mt primary aluminium produced  
 6) Realized LME plus realized premiums, including Qatalum  
 7) Realized LME, including Qatalum

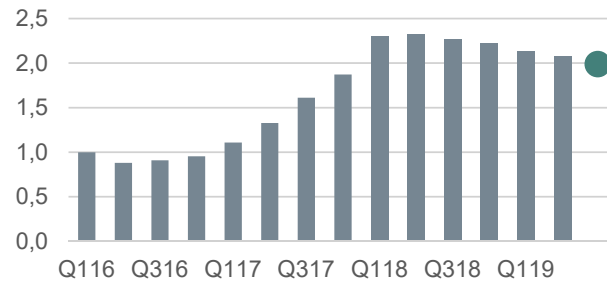
# Raw material costs for the aluminium industry continue to trend downwards



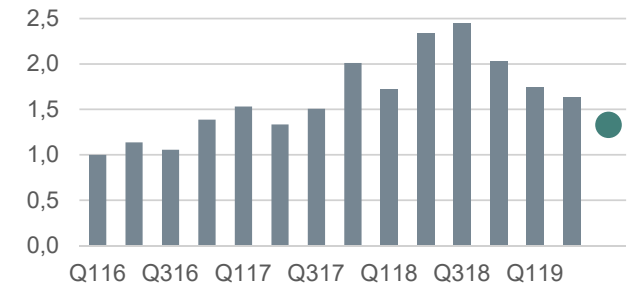
Petroleum coke FOB USG (indexed)



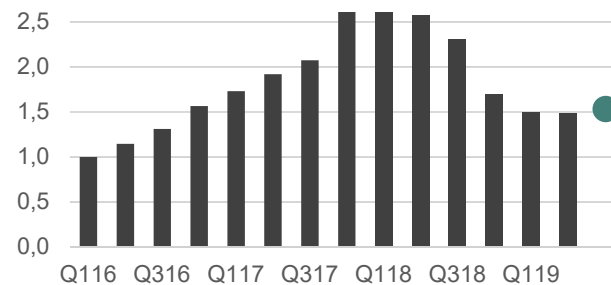
Pitch FOB USG (indexed)



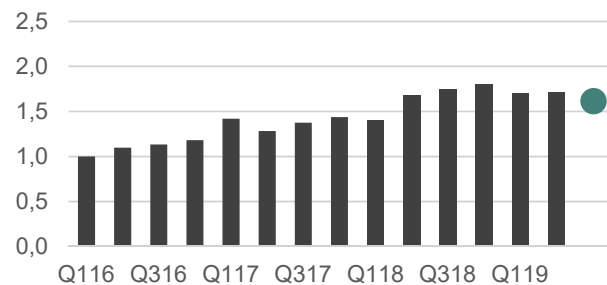
Alumina PAX index (indexed)



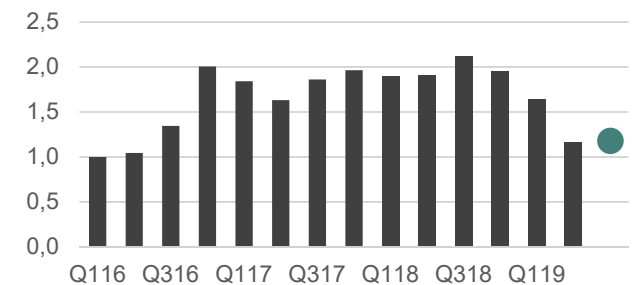
Caustic soda (indexed)



Fuel oil A1 (Indexed)



Steam coal (indexed)



● Indication of current market prices

Source: Thomson Reuters, PACE, IHS Markit, Platts, ANP, CRU

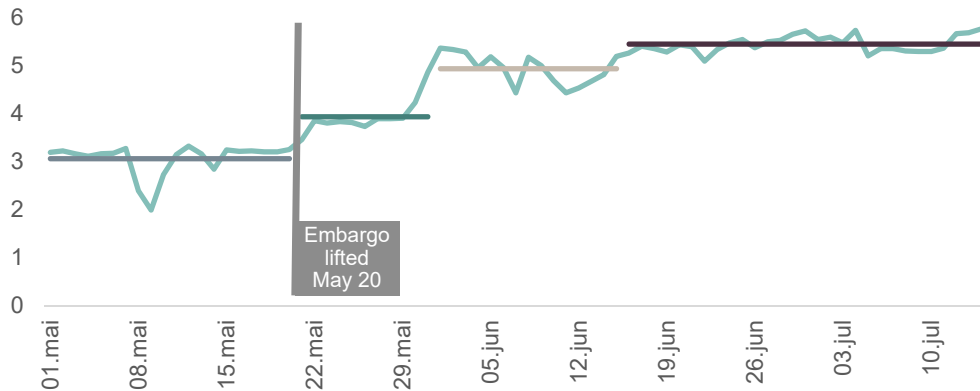
# Ramp-up progressing successfully in Pará



## Commissioning new press filter technology at Alunorte

### Ramp-up process

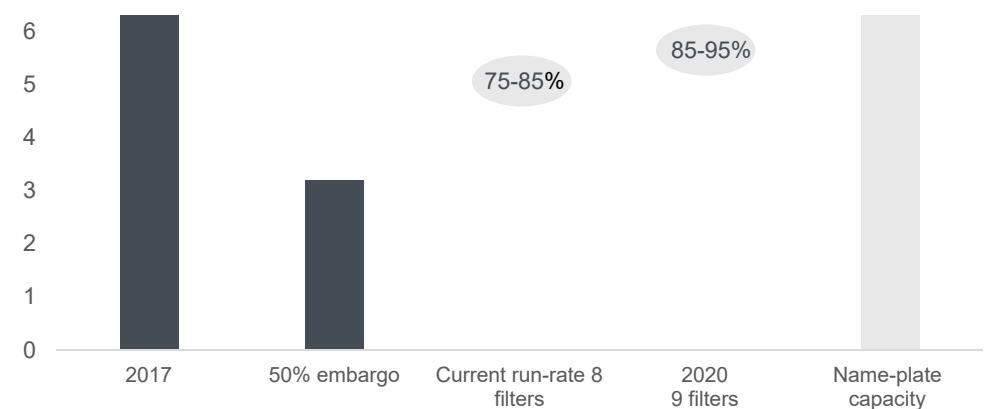
Alunorte production in ramp-up period, daily production annualized in million mt



- Successful ramp-up at Alunorte reaching targeted 75-85% production, steadily lifting and stabilizing at higher output
- Paragominas ramping up in line with ramp-up speed at Alunorte
- All electrolysis cells at Albras expected to be in operation by end-Q3 2019

### Way forward Alunorte

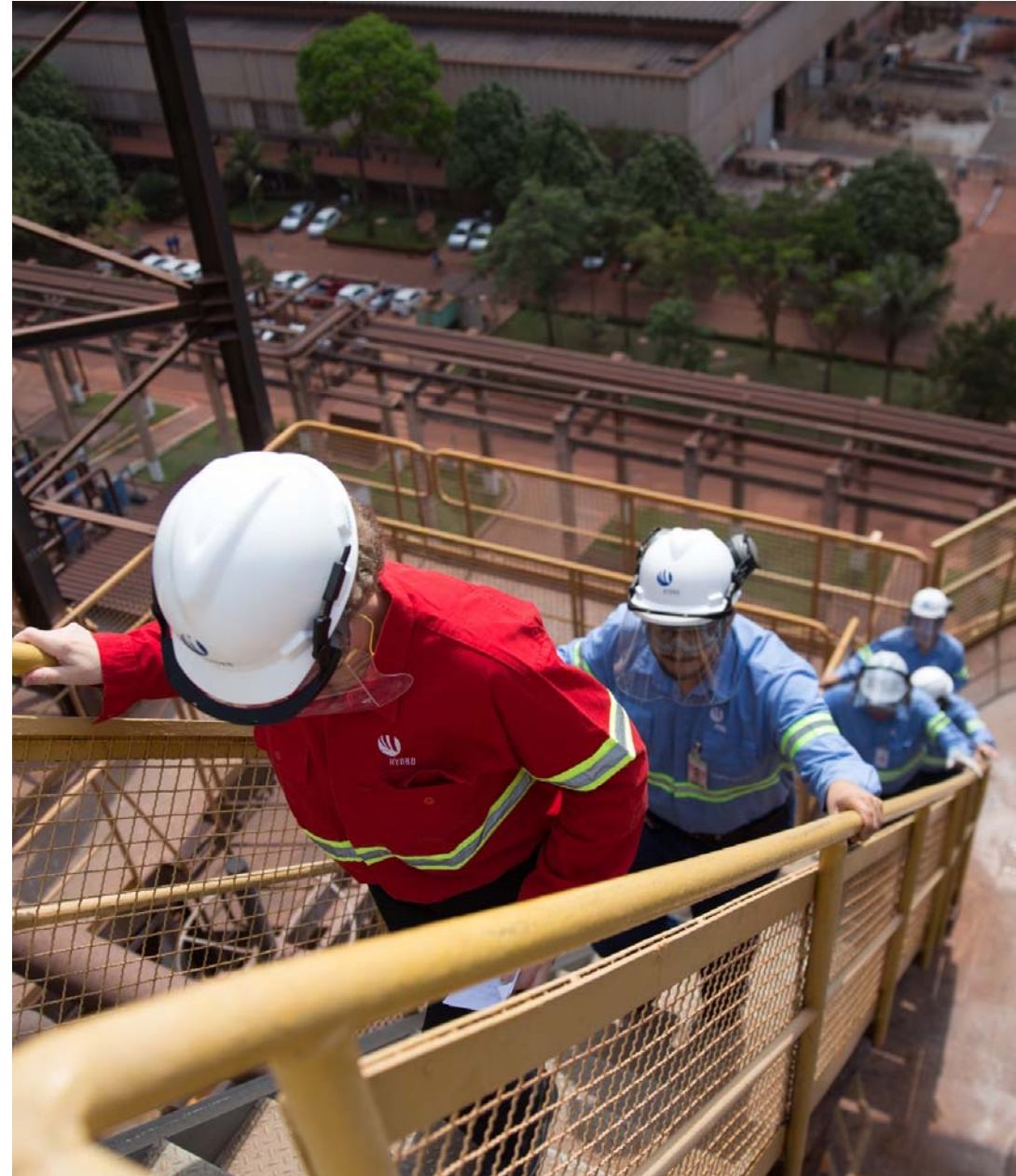
Alunorte production, annualized in million mt



- Commissioning of 9th press filter expected to start September/October 2019
- Current experience with press filters indicates capacity utilization of 85-95% with 9 press filters
- Further process optimization will continue, to reduce downtime and cycle time of press filters and further increase productivity

## Brazil: key focus going forward

- Safe ramp-up of Alunorte, Albras and Paragominas key priority
- Fully committed to deliver on obligations under technical and social agreement (TAC and TC)
- Continued dialogue with state environmental agency SEMAS and Ministerio Público on creating common platform – timing for embargoes on DRS2 being lifted remains uncertain
  - Lifetime of DRS1 estimated to ~1 year





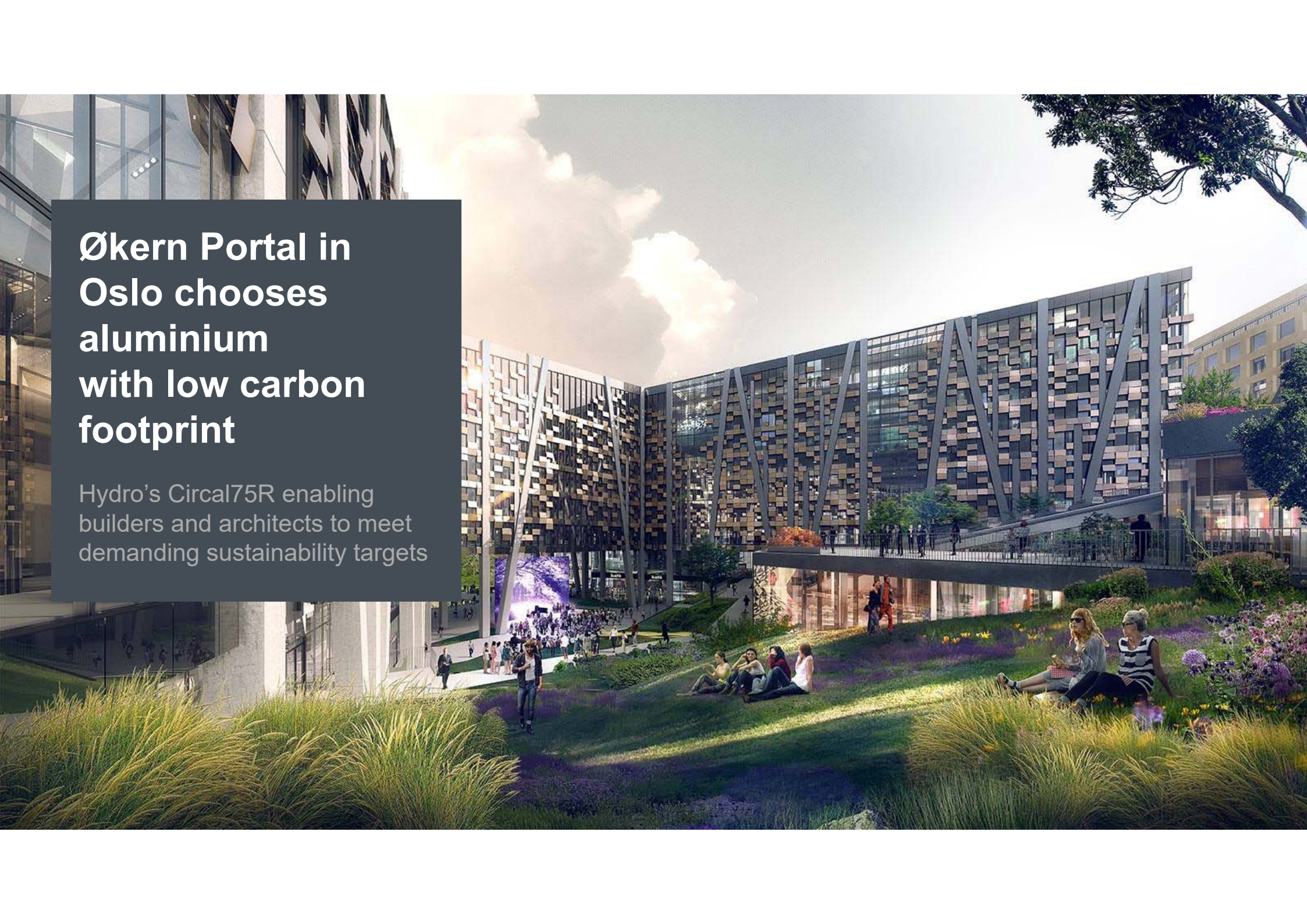
# Status update cyber attack

## Operational and financial impact

- Overall financial impact for Q2 NOK 250-300 million
  - Of which Extruded Solutions NOK 150-200 million
- Overall financial impact for Q1 NOK 300-350 million
  - Of which Extruded Solutions NOK 250-300 million
- At end-Q2 operations have largely returned to normal
- Limited financial impact estimated for Q3 2019
- Hydro has a robust cyber insurance policy in place with recognized insurers







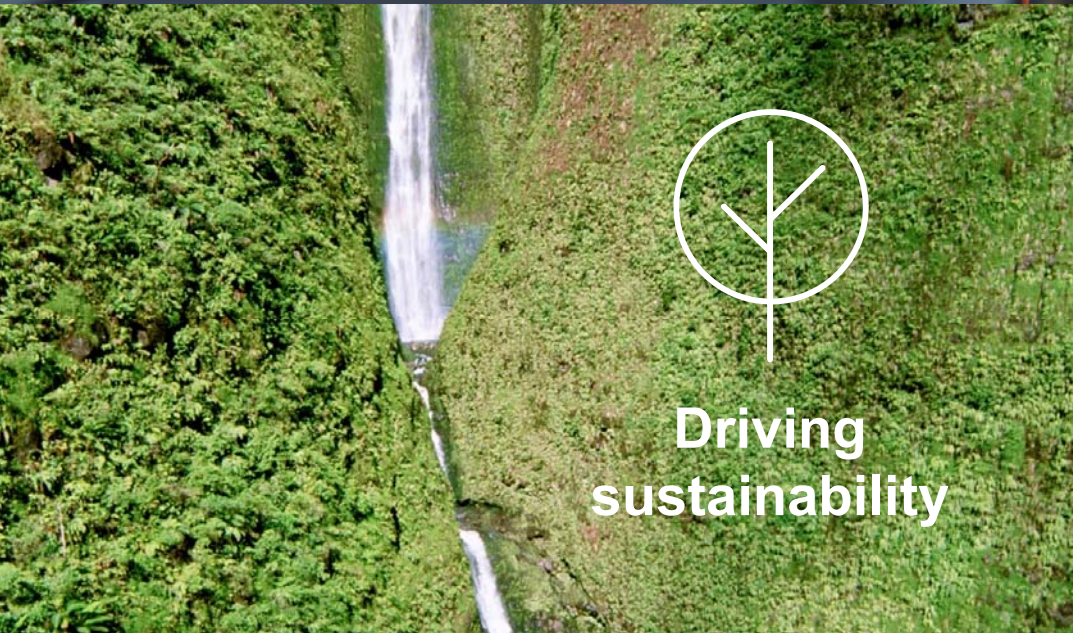
**Økern Portal in  
Oslo chooses  
aluminium  
with low carbon  
footprint**

Hydro's Circa175R enabling  
builders and architects to meet  
demanding sustainability targets





**Lifting  
profitability**



**Driving  
sustainability**

## Measures to improve performance and cash generation

- Safe and efficient operations - always key priority
- Return Alunorte, Paragominas and Albras to full production and operational excellence
- Rolled Products restructuring and strategic review
- New improvement efforts across all business areas and staffs
- Strict capital discipline and capital allocation
- Differentiate through low-carbon position
  
- Hydro will host Investor Day in Oslo on September 24



# Hydro

*We are aluminium*

