



# Second quarter 2019 Investor presentation

July 2019

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## Cautionary note

Certain statements included in this announcement contain forward-looking information, including, without limitation, information relating to (a) forecasts, projections and estimates, (b) statements of Hydro management concerning plans, objectives and strategies, such as planned expansions, investments, divestments, curtailments 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, and (i) qualified statements such as "expected", "scheduled", "targeted", "planned", "proposed", "intended" or similar.

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 businesses; 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.



# Second quarter results 2019

Investor presentation, July 2019

# Second quarter highlights

- Underlying EBIT of NOK 875 million
- Ramp-up progressing successfully at Alunorte, Paragominas and Albras
- Bauxite & Alumina up on increased production and currency, mostly offset by lower realized alumina prices
- Primary Metal down on lower realized aluminium price
- Financial impact of cyber-attack estimated to NOK 250-300 million in Q2 – main impact in Extruded Solutions
- Downstream results down on margin and volume, reflecting softening demand
- Energy down on lower volumes
- 2019 global primary aluminium market expected in deficit, demand growth expectations for 2019 reduced to 1-2%

All result explanations versus same quarter previous year



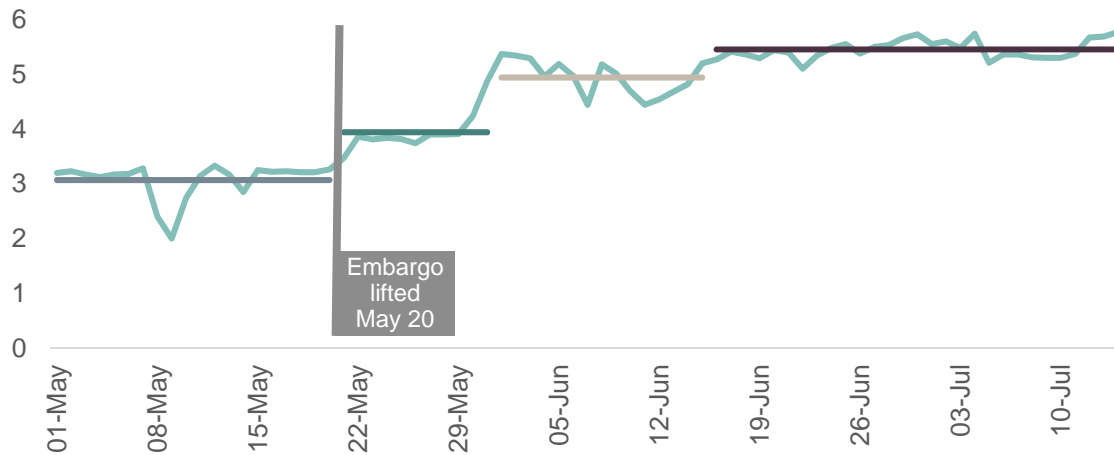
# Ramp-up progressing successfully in Pará



## Commissioning new press filter technology at Alunorte

### Ramp-up process

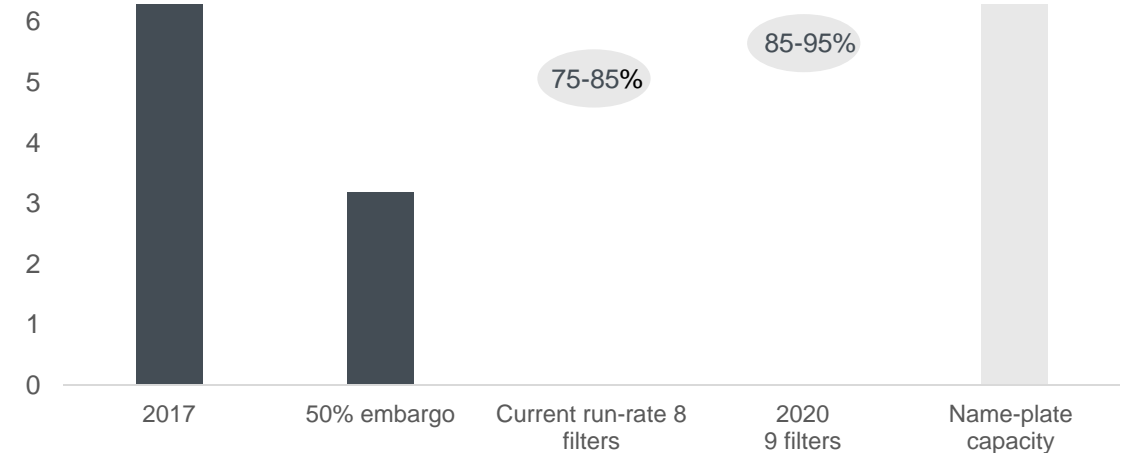
Alunorte production in ramp-up period, daily production annualized in million mt



- 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

# Key focus going forward

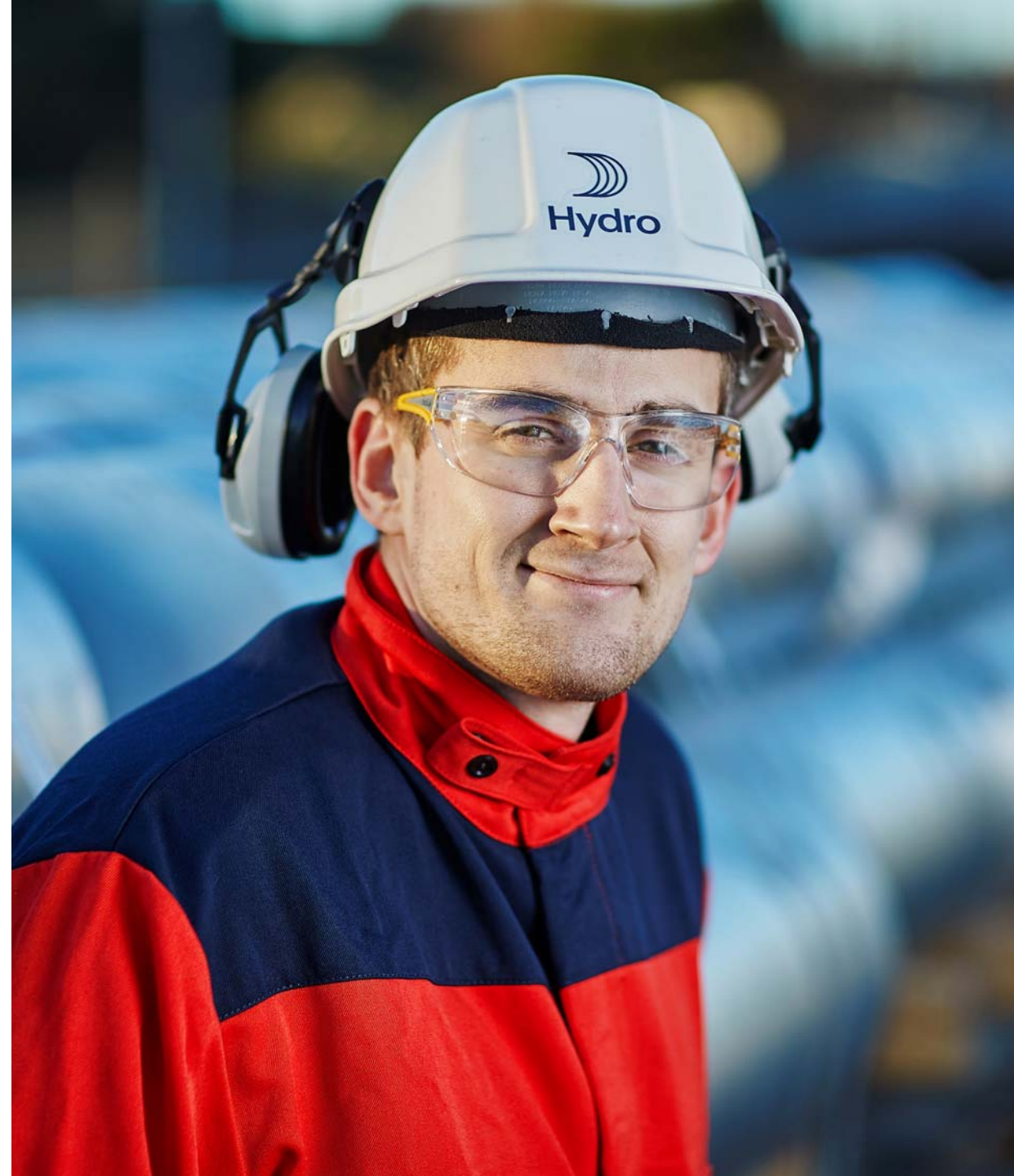
- Safe ramp-up of Alunorte, Albras and Paragominas key priority
- Fully committed to deliver on obligations under technical and social agreement (TAC and TC)
- Continued dialogue with state environmental agency SEMAS and Ministerio Público on creating common platform – timing for embargoes on DRS2 being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



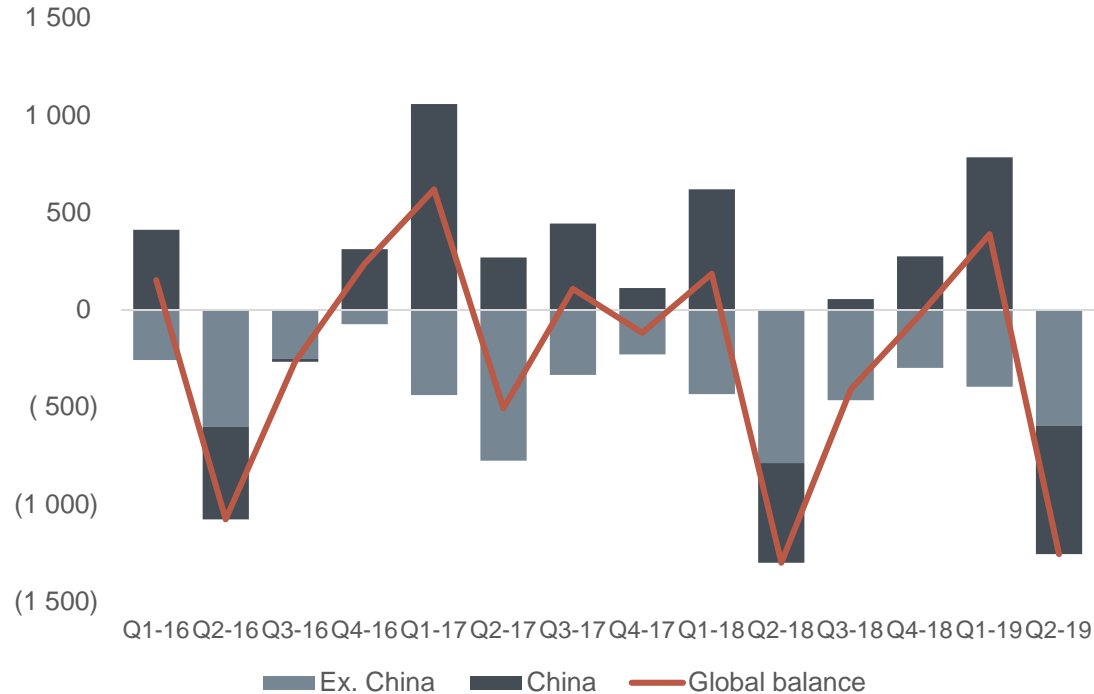
# Global aluminium market in deficit in Q2 2019



Continued deficit in world outside China, Q2 deficit also in China

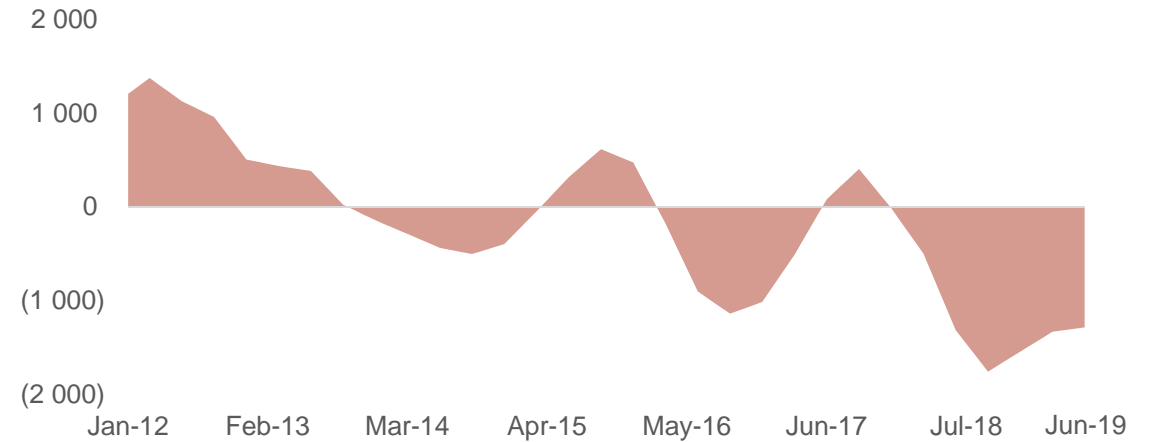
Quarterly market balances, world ex. China and China

1 000 mt primary aluminium



Production less demand\*)

1 000 mt primary aluminium



- ~0.8 % demand growth Q2-19 vs Q2-18
  - ~1.5 % China
  - ~0 % World ex. China
- 2019 demand growth expected at 1-2 %, downside risk

Source: CRU/Hydro

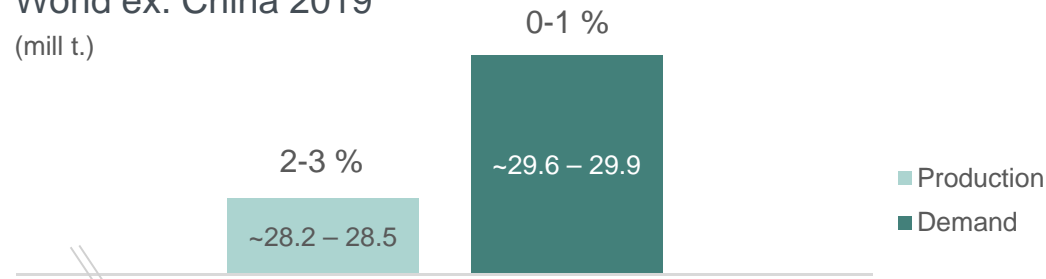
\* Yearly rolling average of quarterly annualized production less demand



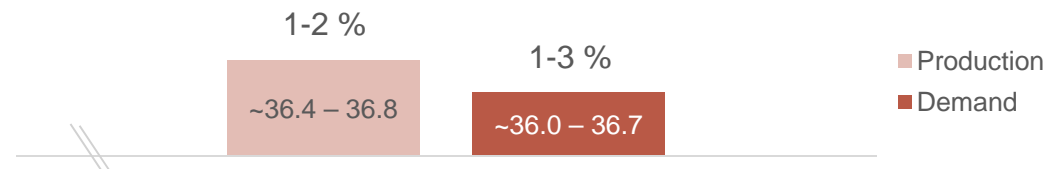
# Global market expected in deficit for 2019

China largely balanced, world outside China in deficit

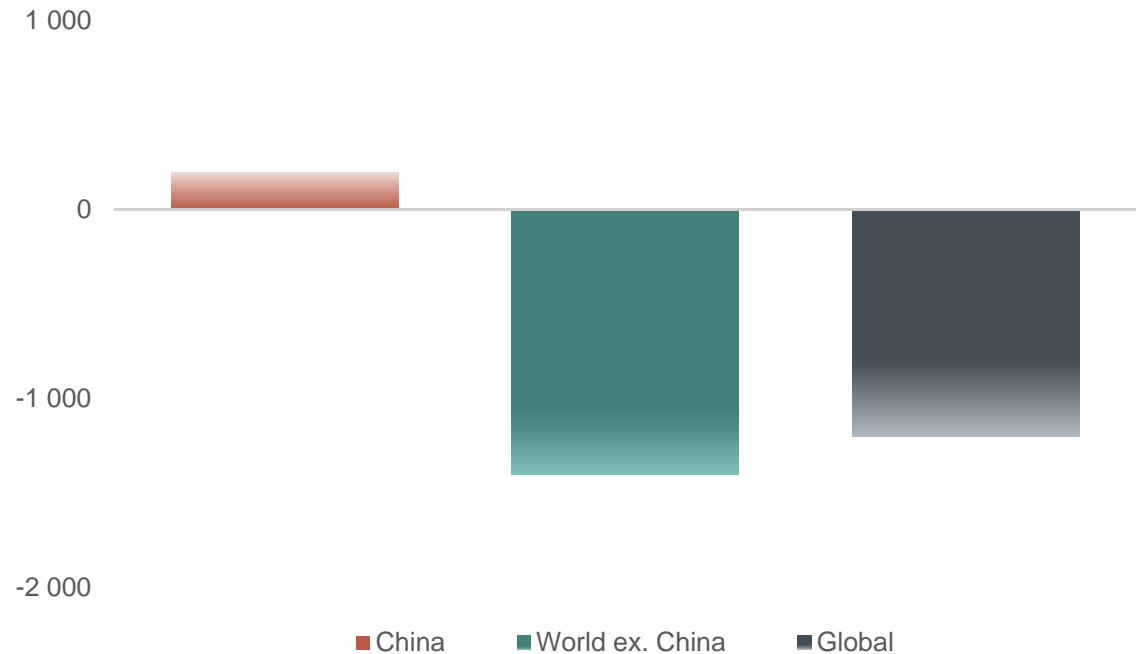
World ex. China 2019  
(mill t.)



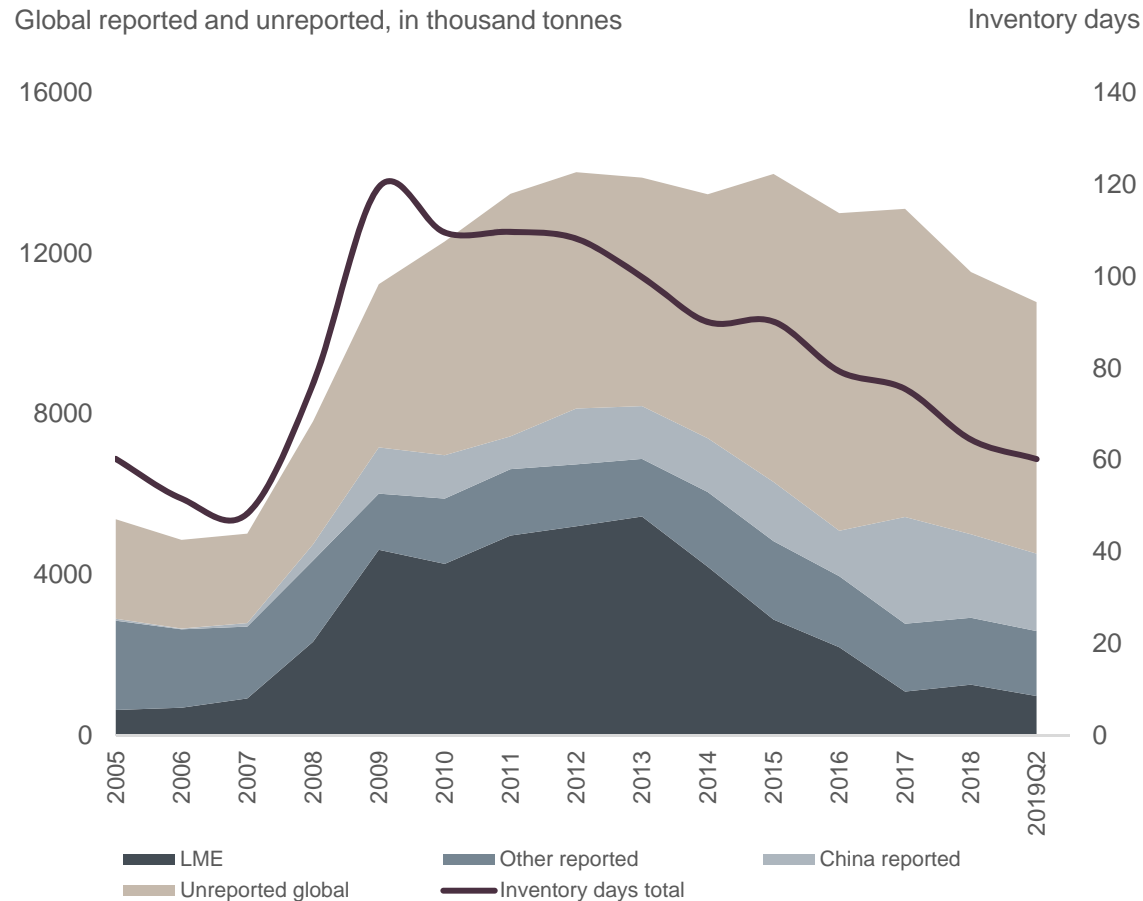
China 2019  
(mill t.)



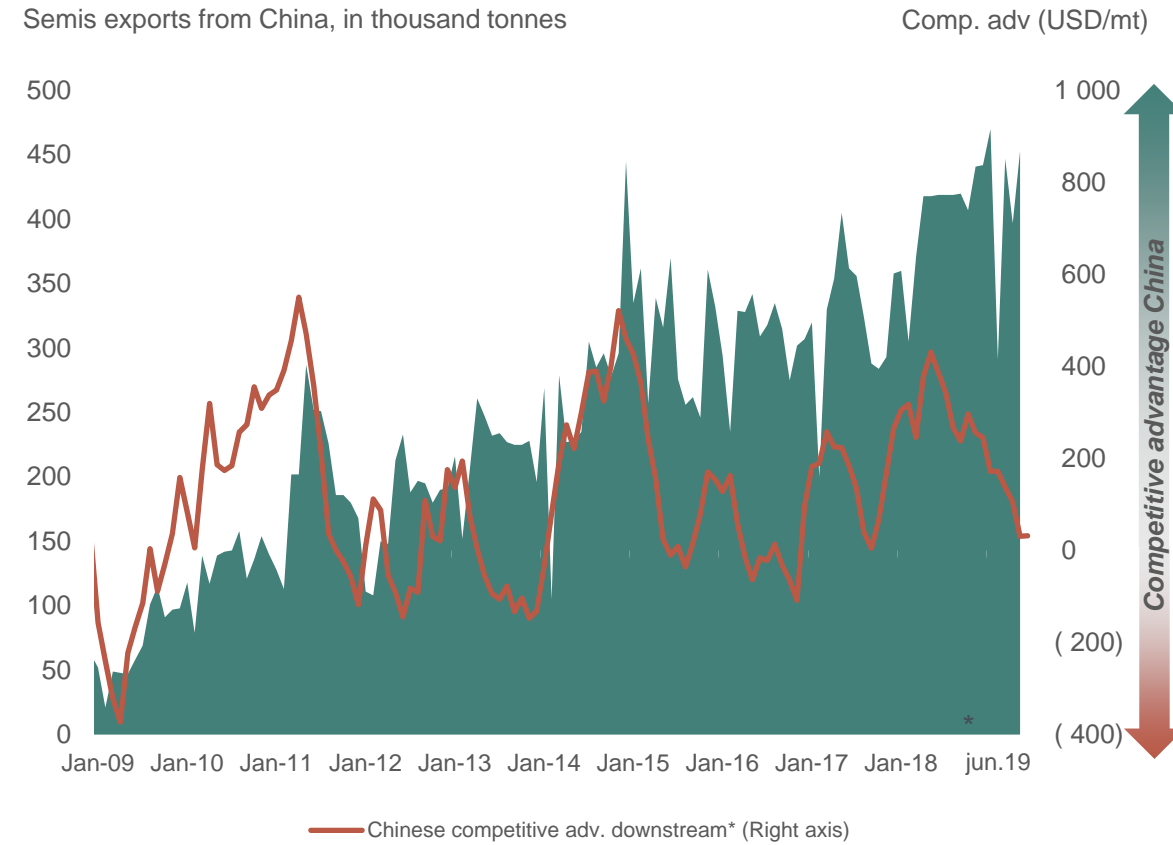
Estimated primary market balance 2019  
('000t)



# 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 down in Q2



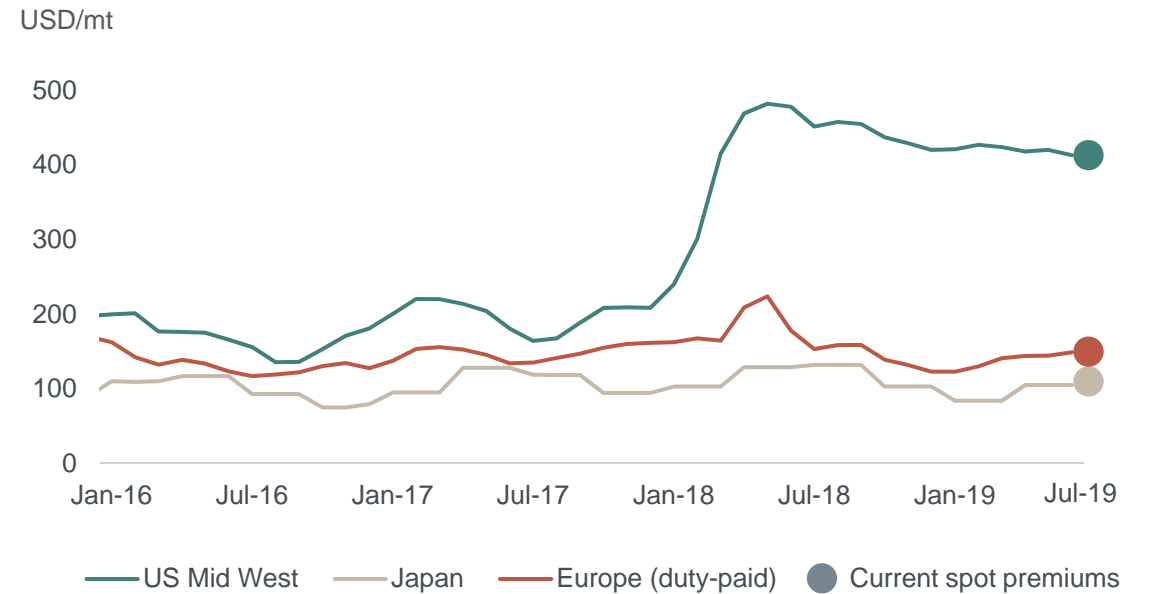
SHFE up in Q2, reducing competitiveness on metal from China

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

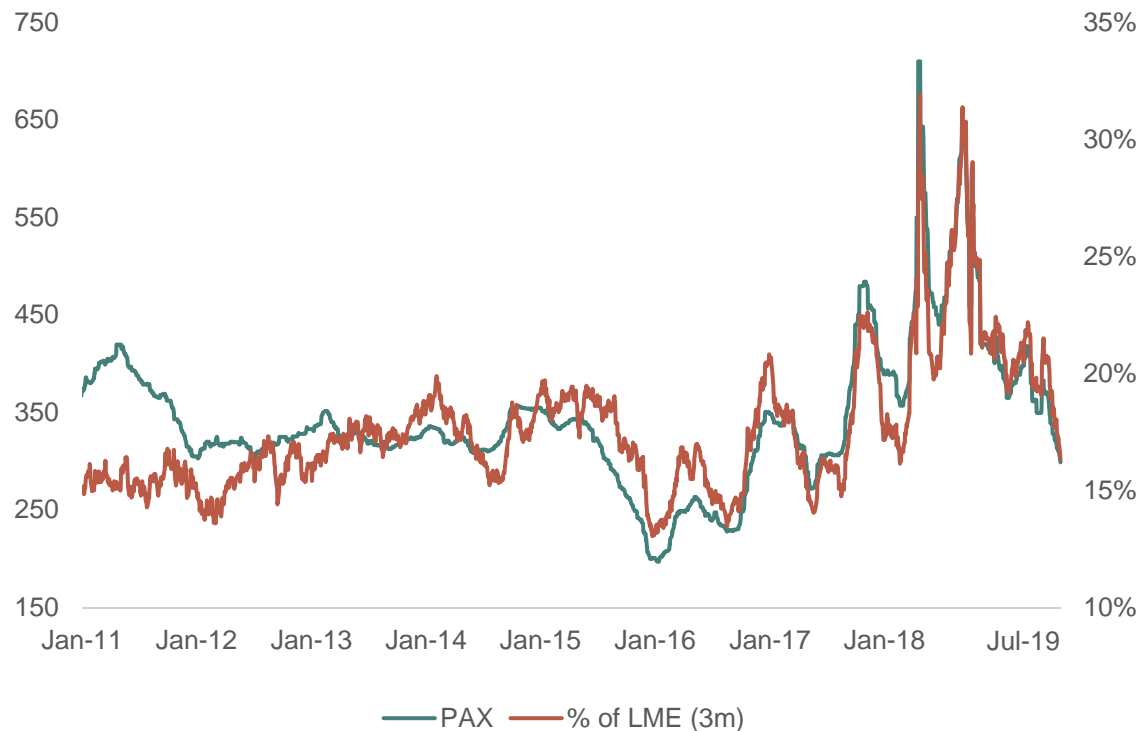
Regional standard ingot premiums



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

# Alumina prices down in Q2, continued volatility

Platts alumina index (PAX)  
USD/t



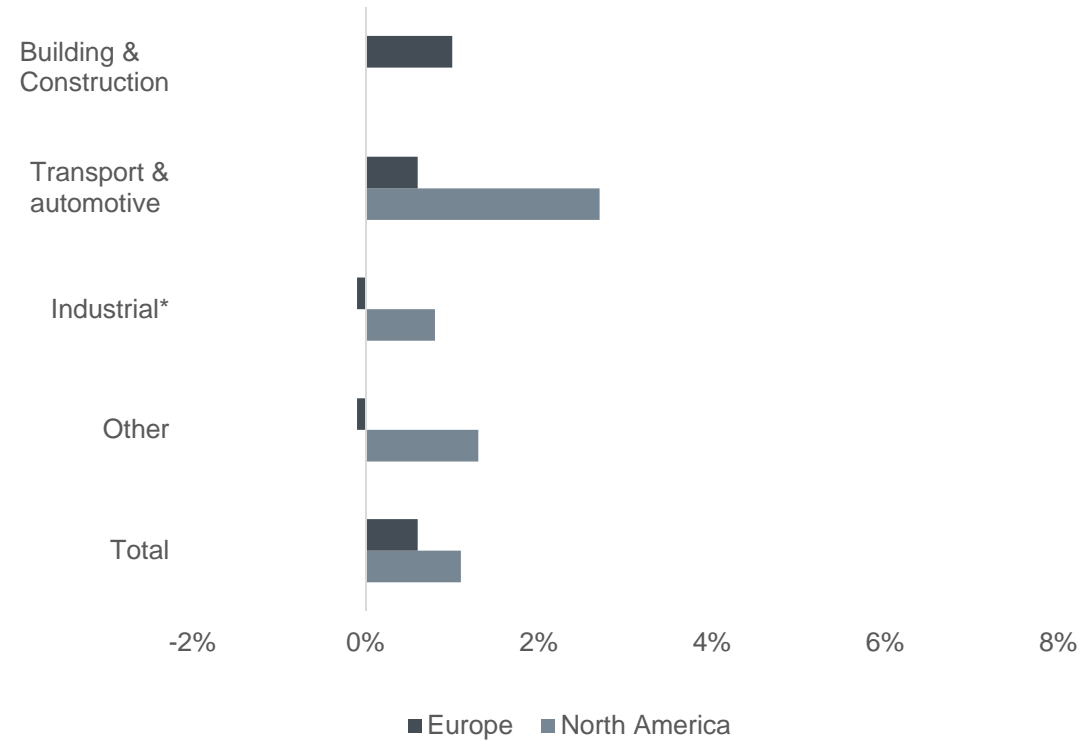
- Alumina prices trending downwards in 1H 2019 and into Q3
- Continued price volatility, impacted in Q2 by Chinese environmental curtailments and Alunorte restart
- Refinery cost in general trending downwards on lower input cost, primarily caustic soda
  - High Chinese domestic bauxite prices impacting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

# Softening downstream demand growth

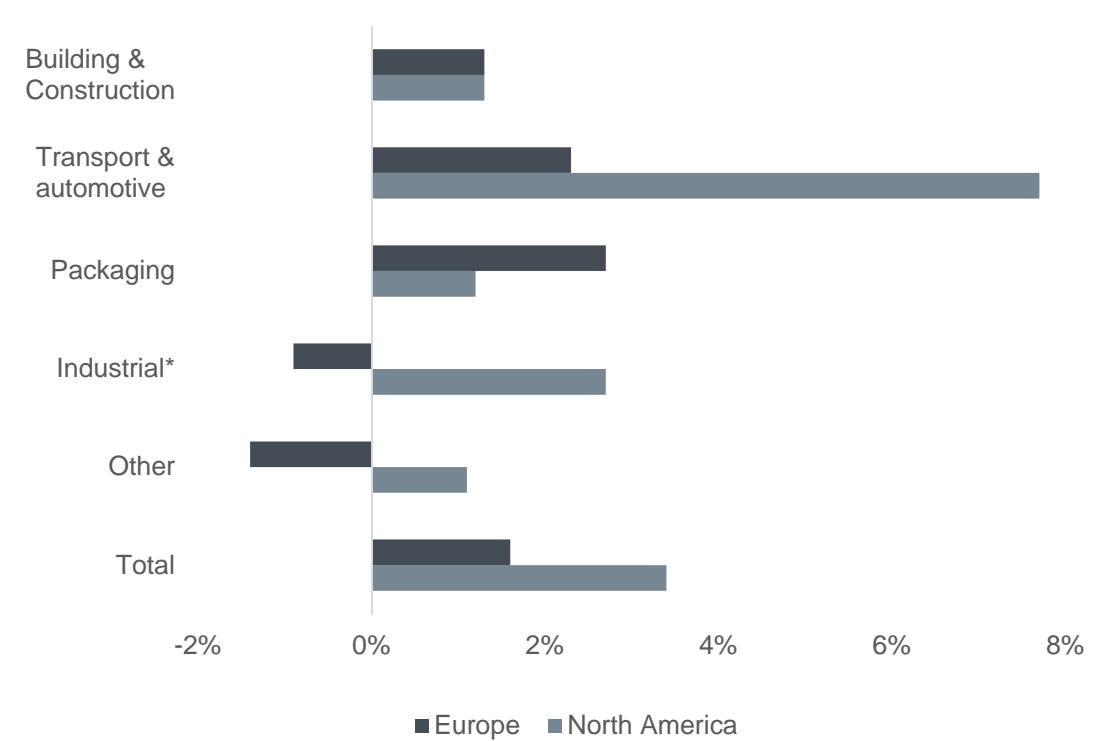


Weak demand in Europe, reduced extrusion growth in North America

Extrusions – estimated market growth 2019 vs 2018 (%)



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



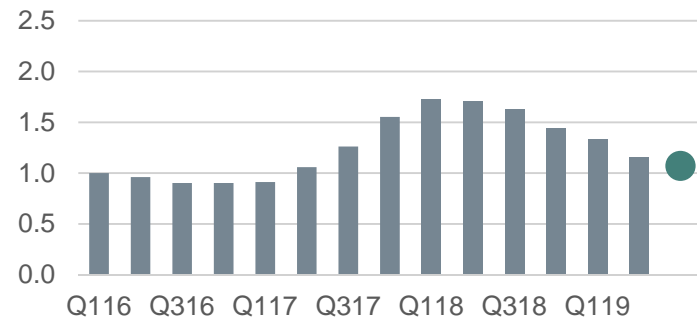
Source: CRU / Hydro analysis

\* Industrial includes consumer durables, electrical and machinery

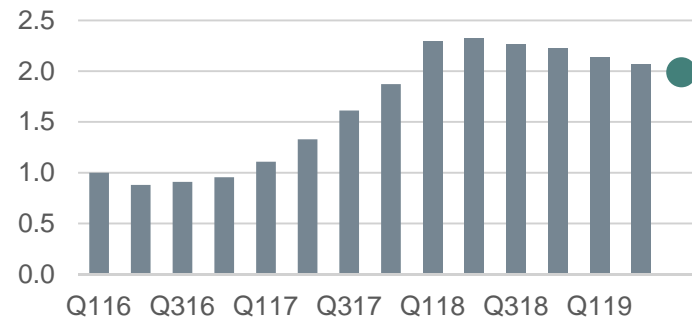
Europe excluding Russia/Turkey

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

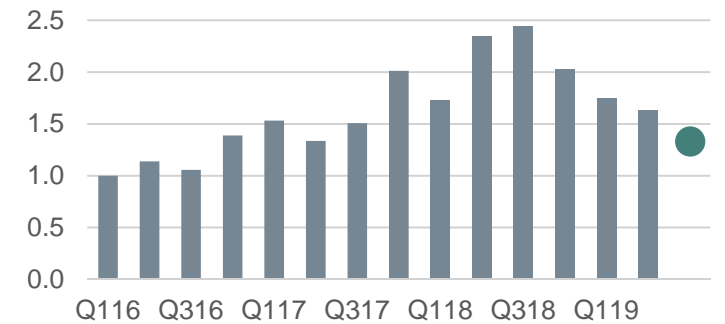
Petroleum coke FOB USG (indexed)



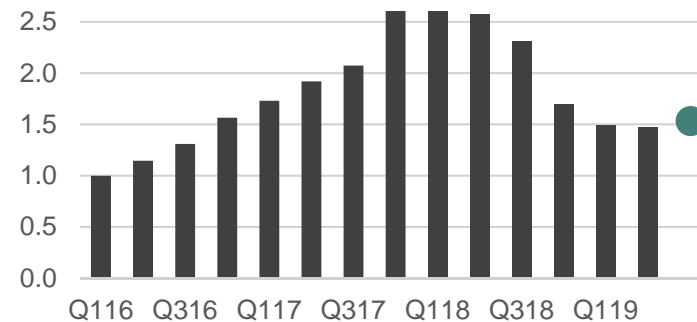
Pitch FOB USG (indexed)



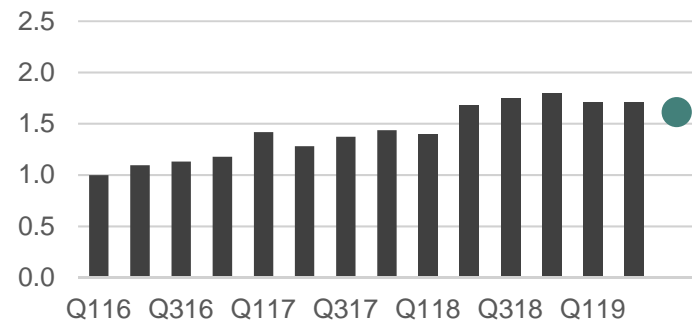
Alumina PAX index (indexed)



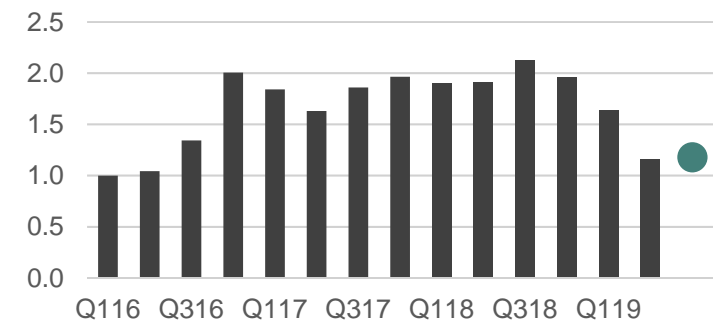
Caustic soda (indexed)



Fuel oil A1 (Indexed)



Steam coal (indexed)



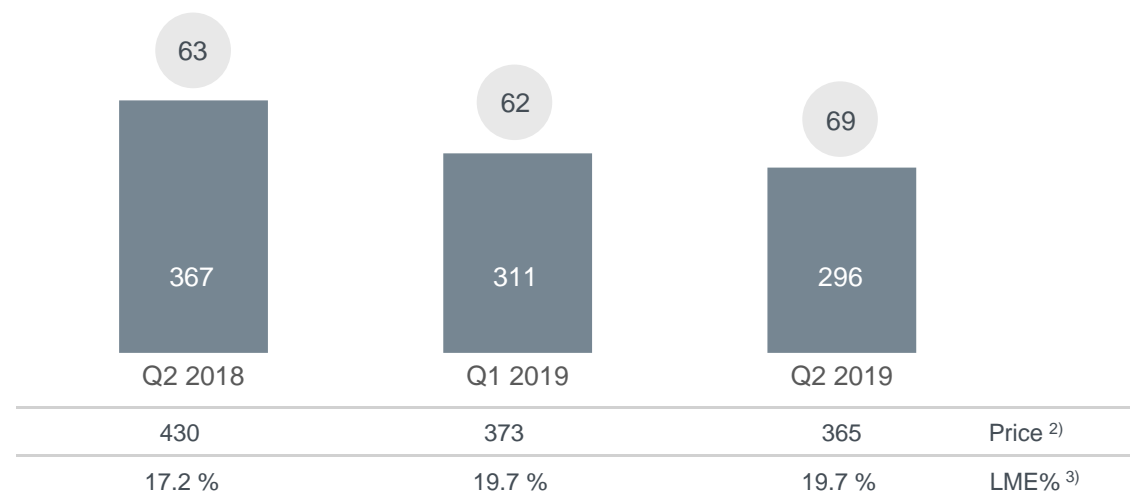
● Indication of current market prices

# Upstream costs trending downwards



## Implied alumina cost and margin

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



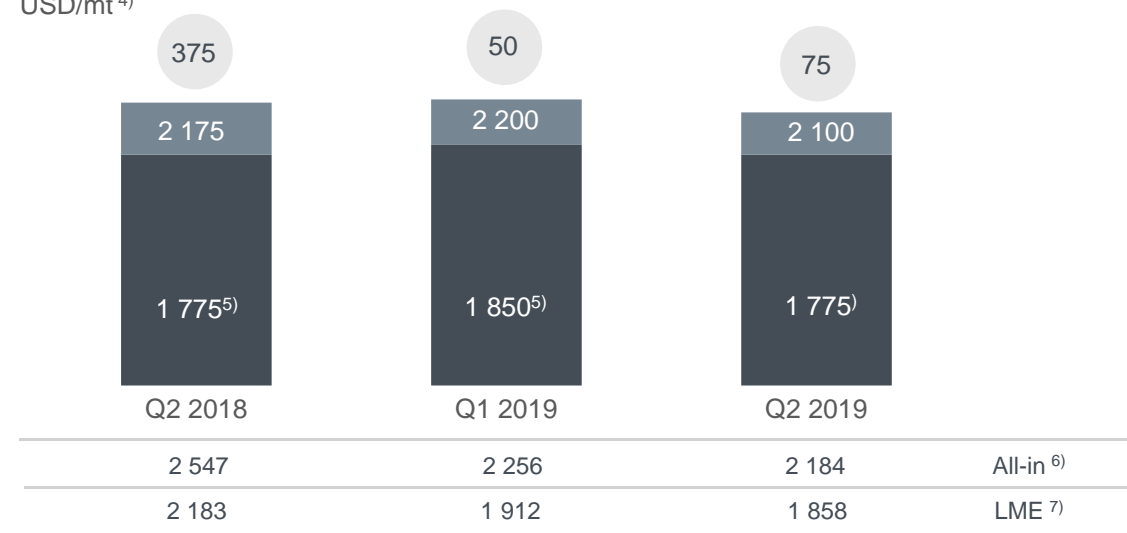
Implied alumina cost down in Q219 vs Q119, mainly increased production and lower raw material costs at Alunorte

■ 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

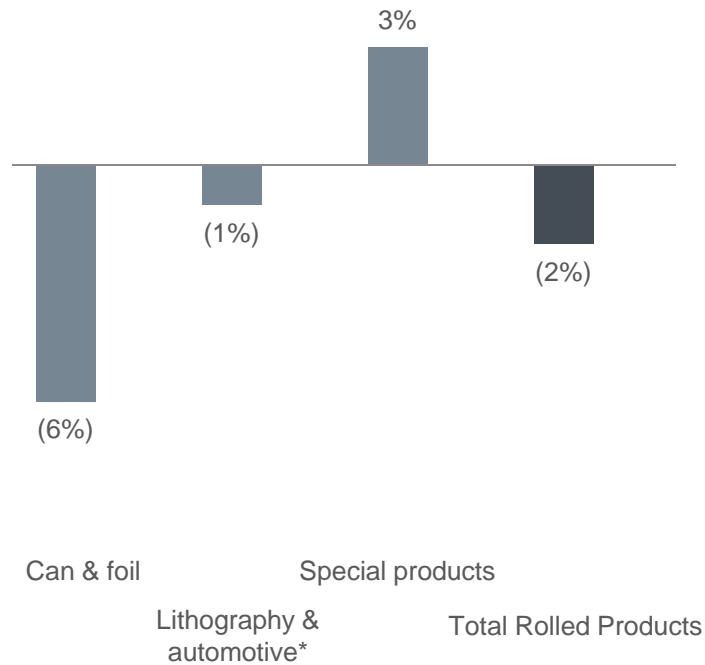
# Rolled Products: Sales reduction driven by softening markets



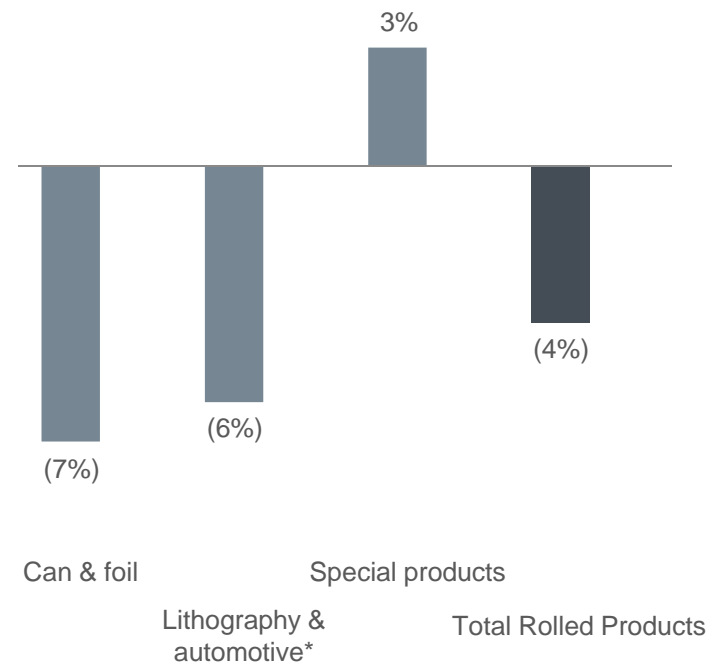
YTD 2019 vs YTD 2018

Sales volume

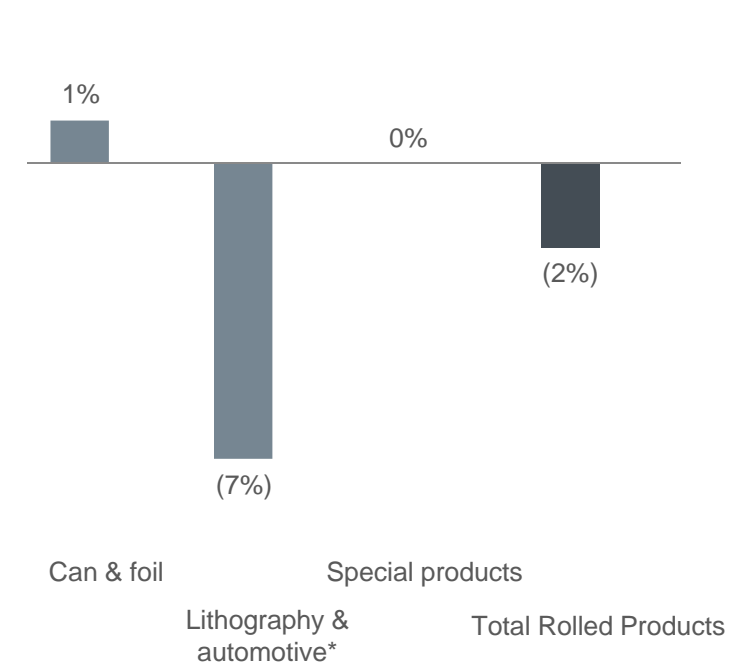
Growth in %



Q2 2019 vs Q2 2018



Q2 2019 vs Q1 2019



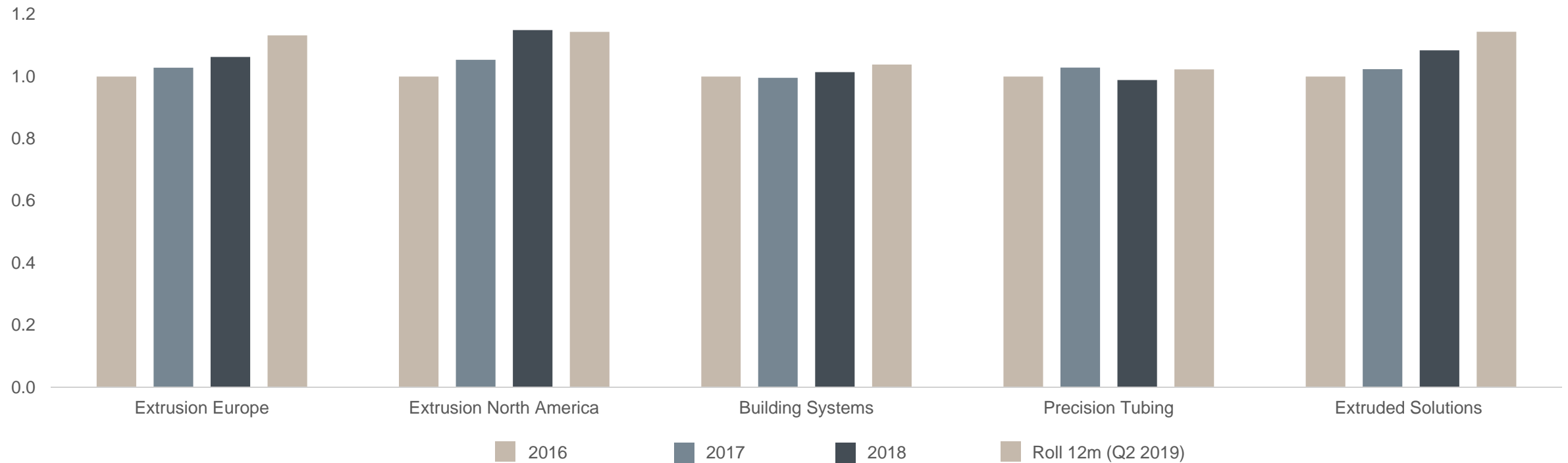
\* Include Body-in-White sales growth of 21% YTD 2019 vs YTD 2018, 9% Q2 2019 vs Q2 2018, -5% Q2 2019 vs Q1 2019



# Extruded Solutions: Continued improvements in net added value



Net added value\* per kg  
(NOK\*\*, indexed to 2016)



\* Net Added Value: calculated as operating revenues less cost of material, including freight costs out  
\*\* Translated to NOK based on 2016 currency rates

# Portfolio optimization in Extruded Solutions

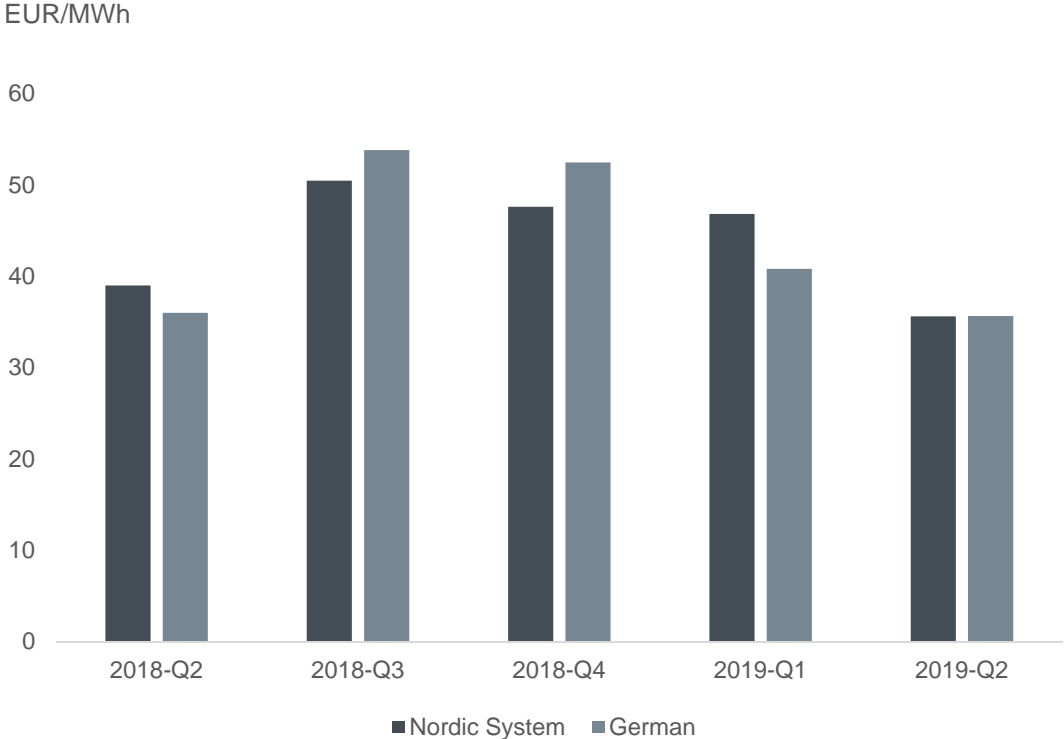
- Constantly reviewing overall portfolio, aiming to optimize and streamline
- Several smaller restructuring efforts ongoing in Europe – simplifying footprint and addressing softening demand in several markets
- The following restructuring efforts are ongoing:
  - **Closure of UK fabrication and automotive site** – transfer of business to other plants in UK
  - **Closure of UK Building Systems warehouse** – transfer of business to other warehouse in UK
  - **Closure of Spanish extrusion plant** – transfer of business to other plants in Iberia
- Positive business case on simplification and reduced costs – business largely kept through other sites
  - Restructuring and impairment cost of MNOK 228 booked in Q2 2019 (items excluded)



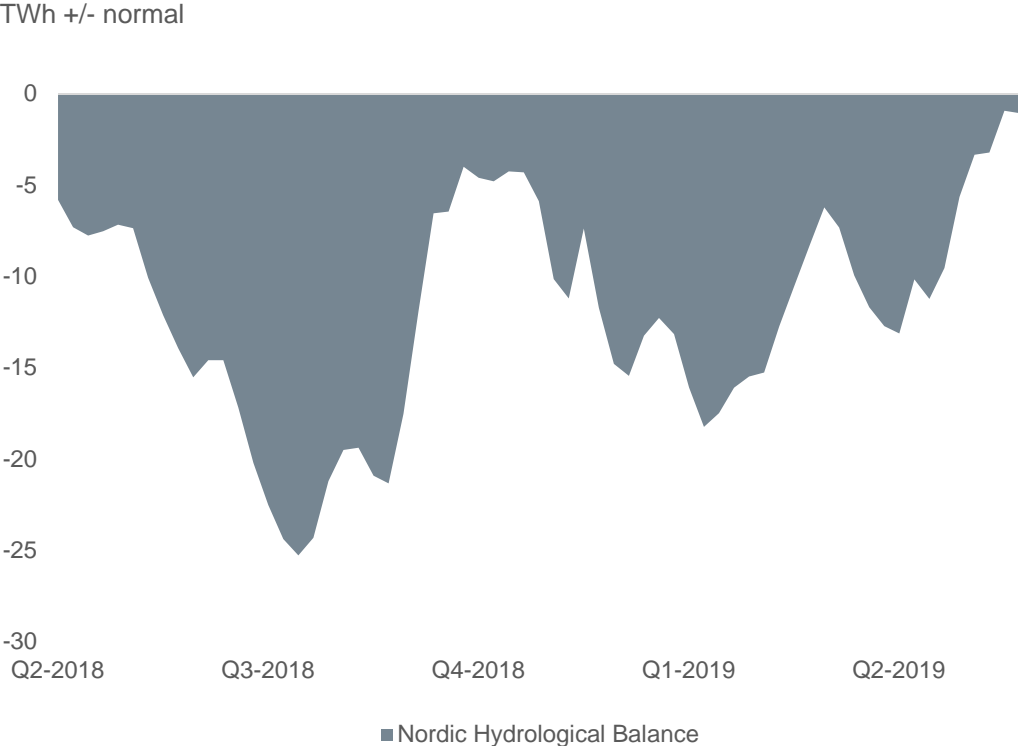
# Nordic power prices down on improved hydrological balance and lower coal and gas prices



Nordic System and German Power Prices (EUR/MWh)



Nordic Hydrological Balance



Source Nordic Hydrological Balance: Wattsight, Hydrological normal based on historical data from 1967-2011 and covers Norway and Sweden (the Nordic countries with significant hydrology resources)  
 Source Prices: NordPool (Nordic system price), Phelix (German price) The system price is the Nordic reference price for trading and clearing of most financial contracts.

# Økern Portal in Oslo chooses aluminium with low carbon footprint

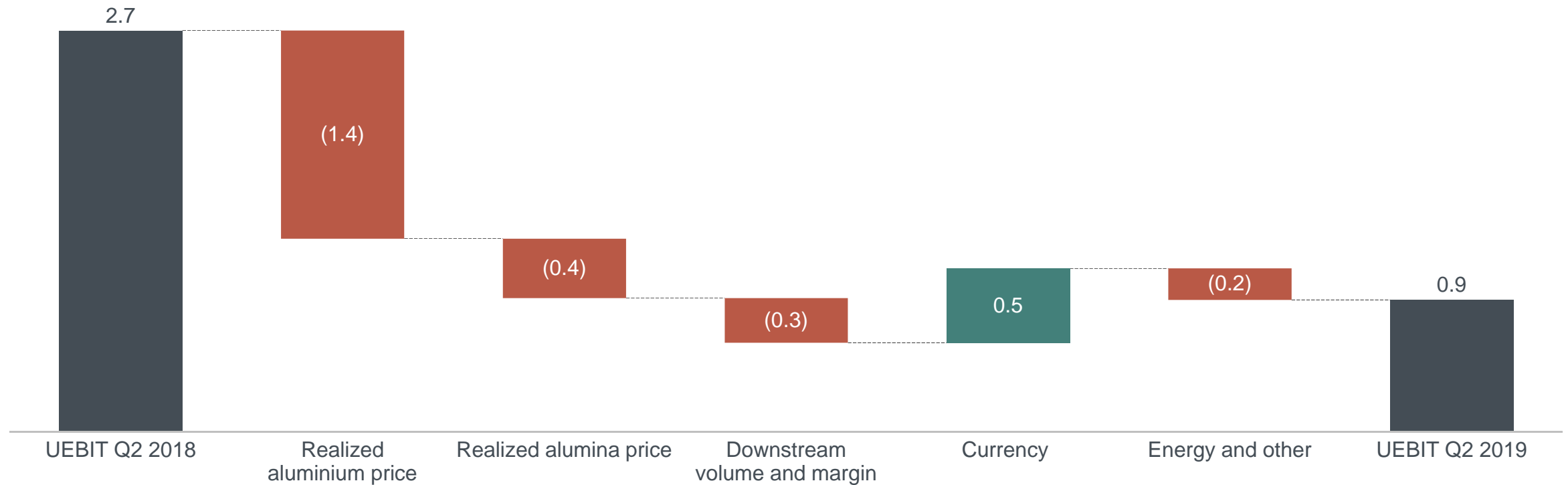
Hydro's Circal75R enabling builders and architects to meet demanding sustainability targets



# Results down on lower realized prices

Q2 2019 vs Q2 2018

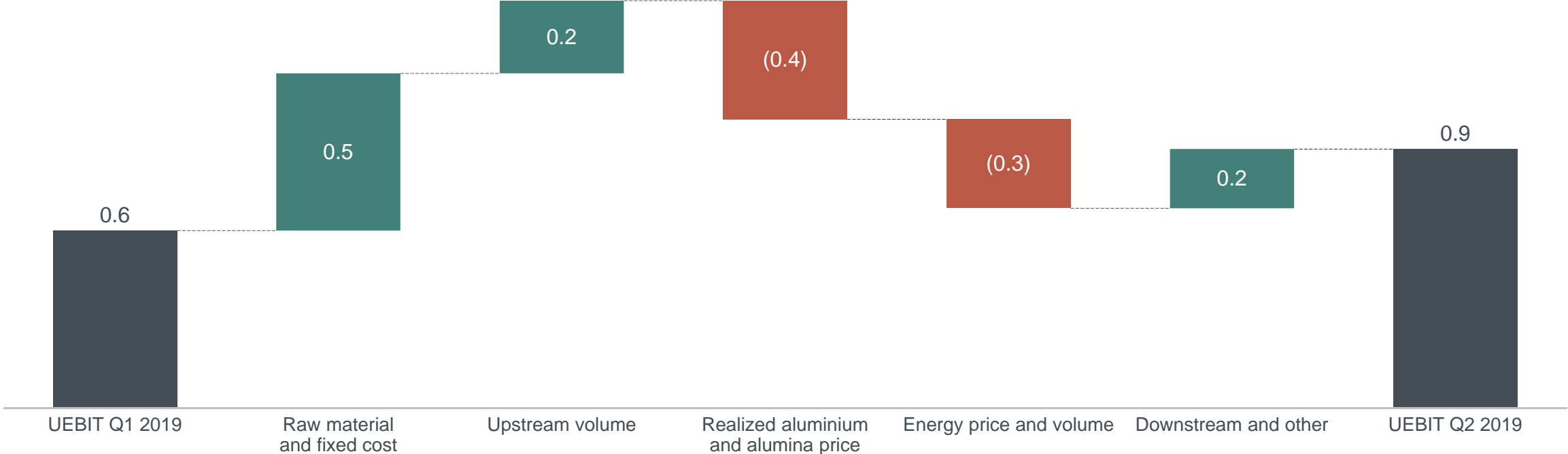
NOK billion



# Improved results on lower costs and higher volumes



Q2 2019 vs Q1 2019  
NOK billion



# Key financials



| NOK million                         | Q2 2019      | Q2 2018      | Q1 2019      | Year 2018    |
|-------------------------------------|--------------|--------------|--------------|--------------|
| Revenue                             | 39 176       | 41 254       | 37 583       | 159 377      |
| <b>Underlying EBIT</b>              | <b>875</b>   | <b>2 713</b> | <b>559</b>   | <b>9 069</b> |
| Items excluded from underlying EBIT | 219          | (274)        | 539          | 547          |
| <b>Reported EBIT</b>                | <b>656</b>   | <b>2 986</b> | <b>20</b>    | <b>8 522</b> |
| Financial income (expense)          | (664)        | (441)        | 6            | (2 060)      |
| <b>Income (loss) before tax</b>     | <b>(8)</b>   | <b>2 545</b> | <b>26</b>    | <b>6 462</b> |
| Income taxes                        | (183)        | (473)        | (150)        | (2 139)      |
| <b>Net income (loss)</b>            | <b>(190)</b> | <b>2 073</b> | <b>(124)</b> | <b>4 323</b> |
| <b>Underlying net income (loss)</b> | <b>281</b>   | <b>2 096</b> | <b>124</b>   | <b>5 819</b> |
| Reported EPS, NOK                   | (0.04)       | 1.03         | 0            | 2.08         |
| Underlying EPS, NOK                 | 0.19         | 1.02         | 0.13         | 2.75         |

# Items excluded from Underlying EBIT



Excluded a loss of 219 MNOK from Underlying EBIT

| NOK million   | Q2 2019    | Q2 2018      | Q1 2019    | Year 2018    |
|---|------------|--------------|------------|--------------|
| <b>Underlying EBIT</b>  | <b>875</b> | <b>2 713</b> | <b>559</b> | <b>9 069</b> |
| Unrealized derivative effects on LME related contracts            | (11)       | 306          | (200)      | (39)         |
| Unrealized derivative effects on power and raw material contracts | 72         | (92)         | (12)       | 260          |
| Metal effect, Rolled Products                                     | (3)        | 60           | (267)      | 73           |
| Significant rationalization charges and closure costs             | (200)      | -            | -          | (79)         |
| Impairment charges  | (28)       | -            | -          | -            |
| Alunorte agreements – provisions                                  | (14)       | -            | (35)       | (519)        |
| Transaction related effects                                       | (35)       | -            | -          | -            |
| Other effects   | -          | -            | (26)       | (203)        |
| Pension   | -          | -            | -          | (40)         |
| <b>Reported EBIT</b>  | <b>656</b> | <b>2 986</b> | <b>20</b>  | <b>8 522</b> |



# Bauxite & Alumina

Results up on ramping-up production and currency tailwinds

| Key figures                    | Q2 2019 | Q2 2018 | Q1 2019 |
|--------------------------------|---------|---------|---------|
| Alumina production, kmt        | 932     | 829     | 805     |
| Total alumina sales, kmt       | 1 668   | 1 842   | 1 423   |
| Realized alumina price, USD/mt | 365     | 430     | 373     |
| Implied alumina cost, USD/mt   | 296     | 367     | 311     |
| Bauxite production, kmt        | 1 624   | 1 348   | 1 361   |
| Underlying EBITDA, NOK million | 1 004   | 937     | 758     |
| Underlying EBIT, NOK million   | 415     | 364     | 153     |

## Underlying EBIT

NOK million



## Results Q2 19 vs Q2 18

- Higher production reflecting ongoing ramp-up
- Positive currency effect
- Lower realized alumina price

## Outlook Q3 19

- Higher production on the continued ramp-up
- Positive scale effects on costs per tonne

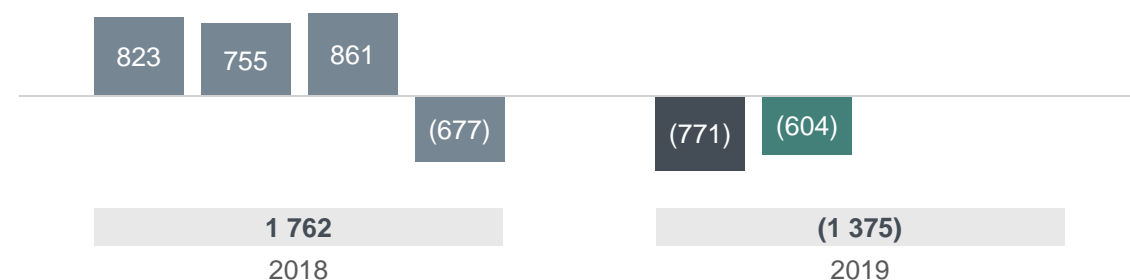
# Primary Metal

Results down on lower realized prices

| Key figures                                       | Q2 2019 | Q2 2018 | Q1 2019 |
|---|---------|---------|---------|
| Primary aluminium production, kmt                 | 486     | 492     | 485     |
| Total sales, kmt                                  | 527     | 549     | 534     |
| Realized LME price, USD/mt                        | 1 858   | 2 183   | 1 912   |
| Realized LME price, NOK/mt                        | 15 959  | 17 292  | 16 291  |
| Realized premium, USD/mt                          | 326     | 364     | 344     |
| Implied all-in primary cost, USD/mt <sup>1)</sup> | 2 100   | 2 175   | 2 200   |
| Underlying EBITDA, NOK million                    | (27)    | 1 309   | (180)   |
| Underlying EBIT, NOK million                      | (604)   | 755     | (771)   |

## Underlying EBIT

NOK million



1) Realized all-in aluminium price minus underlying EBITDA margin, including Qatalum, per mt aluminium sold. Including Qatalum volumes.



## Results Q2 19 vs Q2 18

- Lower realized all-in price
- Lower margins on excess power sales in Brazil
- Positive currency effects

## Outlook Q3 19

- ~ 55% of primary production for Q3 priced at USD ~1 785 per mt <sup>2)</sup>
- ~ 55% of premiums affecting Q3 booked at USD ~350 per mt <sup>2)</sup>
  - Q3 realized premium expected in the range of USD 300-325 per mt
- Raw material costs trending downwards
- Albras ramping up, all electrolysis cells to be restarted by end-Q3

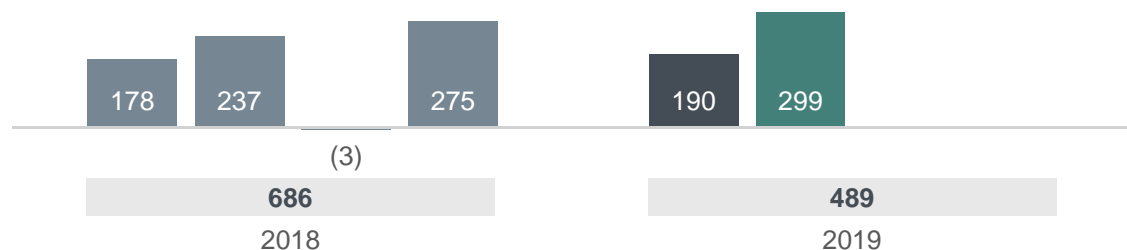
# Metal Markets

Results up on stronger performance from remelters and commercial activities

| Key figures  | Q2 2019 | Q2 2018 | Q1 2019 |
|--|---------|---------|---------|
| Remelt production, kmt   | 139     | 153     | 131     |
| Metal products sales, kmt <sup>1)</sup>                                    | 707     | 746     | 683     |
| Underlying EBITDA, NOK million   | 328     | 262     | 219     |
| Underlying EBIT excl currency and inventory valuation effects, NOK million | 352     | 224     | 230     |
| Underlying EBIT, NOK million   | 299     | 237     | 190     |

## Underlying EBIT

NOK million



## Results Q2 19 vs Q2 18

- Improved results from remelters on higher margins
- Improved contribution from sourcing and trading activities
- Currency and inventory valuation effects negative NOK 52 million in Q2 19 vs NOK 14 million positive in Q2 18

## Outlook Q3 19

- Continued positive market conditions for remelters
- Volatile trading and currency effects

1) Includes external and internal sales from primary casthouse operations, remelters and third-party metal sources.

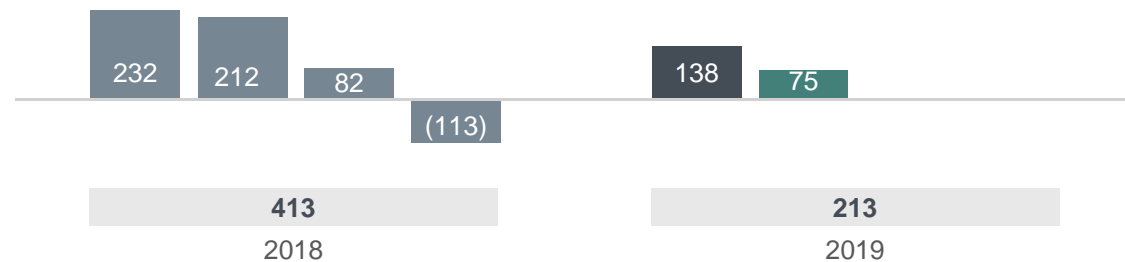
# Rolled Products

Results down on lower volumes and margins, weaker results from Neuss smelter

| Key figures                    | Q2 2019 | Q2 2018 | Q1 2019 |
|--------------------------------|---------|---------|---------|
| External sales volumes, kmt    | 242     | 251     | 246     |
| Underlying EBITDA, NOK million | 326     | 438     | 384     |
| Underlying EBIT, NOK million   | 75      | 212     | 138     |

## Underlying EBIT

NOK million



## Results Q2 19 vs Q2 18

- Lower results from the rolling mills
  - Lower volumes and margins
  - Higher personnel costs
  - Positive currency effect
- Weaker results from Neuss smelter on lower realized aluminium prices

## Outlook Q3 19

- Softening demand growth in some market segments
- Neuss results driven by all-in metal and raw material price development

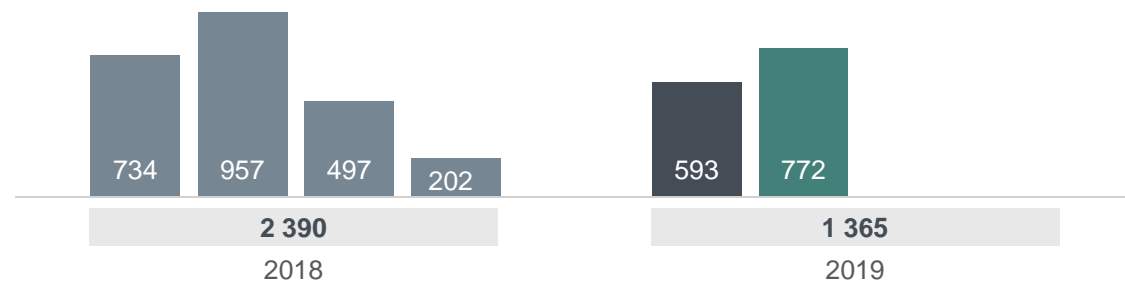
# Extruded Solutions

Results negatively affected by the cyber attack and softer markets

| Key figures                    | Q2 2019 | Q2 2018 | Q1 2019 |
|--------------------------------|---------|---------|---------|
| External sales volumes, kmt    | 348     | 373     | 333     |
| Underlying EBITDA, NOK million | 1 279   | 1 383   | 1 099   |
| Underlying EBIT, NOK million   | 772     | 957     | 593     |

## Underlying EBIT

NOK million



- 1) Net added value calculated as operating revenues less cost of material, incl. freight costs out.



## Results Q2 19 vs Q2 18

- ~ MNOK 150-200 in negative effect from the cyber attack
  - Lower sales volumes, also affected by softer markets
  - Higher costs
- Improved Net added value (NAV) <sup>1)</sup>

## Outlook Q3 19

- Softening demand growth in some market segments
- Limited effects expected from the cyber attack

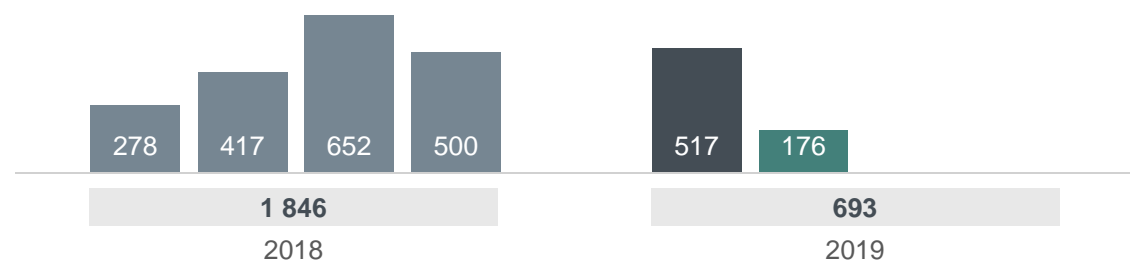
# Energy

## Results down on lower volumes

| Key figures                                | Q2 2019 | Q2 2018 | Q1 2019 |
|--|---------|---------|---------|
| Power production, GWh                      | 1 993   | 2 550   | 2 553   |
| Net spot sales, GWh                        | 289     | 961     | 770     |
| Southwest Norway spot price (NO2), NOK/MWh | 360     | 369     | 468     |
| Underlying EBITDA, NOK million             | 242     | 479     | 583     |
| Underlying EBIT, NOK million               | 176     | 417     | 517     |

## Underlying EBIT

NOK million



## Results Q2 19 vs Q2 18

- Significantly lower volumes
- Lower results from commercial activities

## Outlook Q3 19

- Continued low production levels



## Other and Eliminations

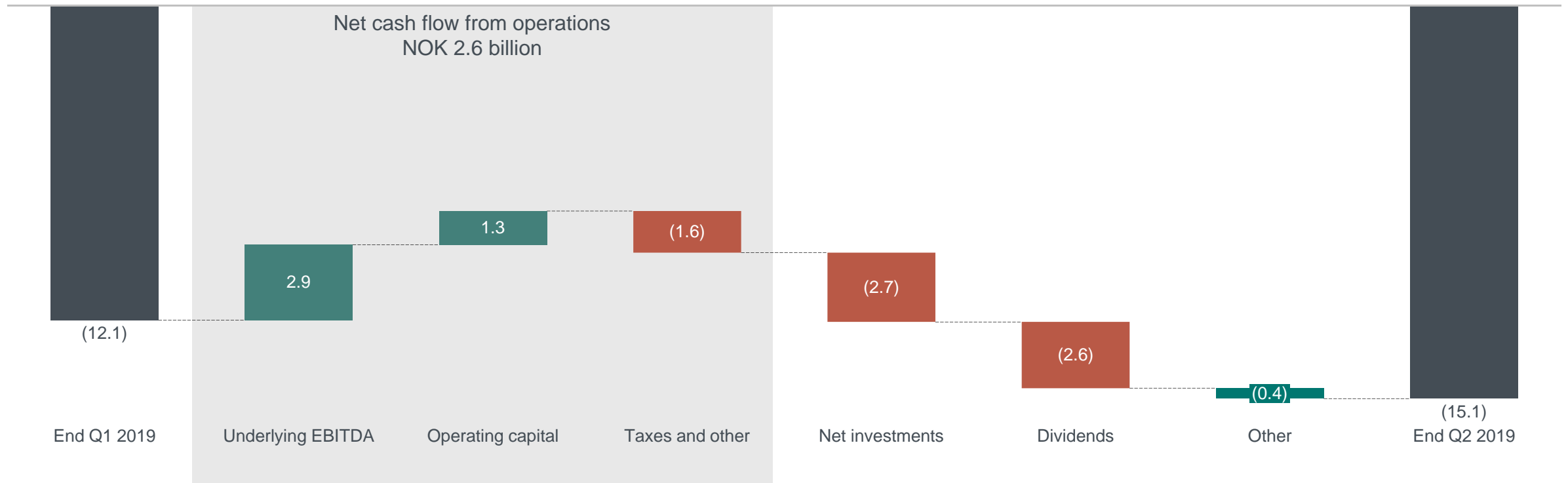
| Underlying EBIT, NOK million  | Q2 2019      | Q2 2018      | Q1 2019      |
|-------------------------------|--------------|--------------|--------------|
| Other                         | (253)        | (156)        | (307)        |
| Eliminations                  | (5)          | (74)         | 46           |
| <b>Other and Eliminations</b> | <b>(258)</b> | <b>(229)</b> | <b>(261)</b> |

# Net debt increased in Q2 2019



Reflecting dividend payment to shareholders

NOK billion





# Adjusted net debt up in Q2

Driven by increased net debt position

| NOK billion  | Jun 30,<br>2019 | Mar 31<br>2019 | Dec 31 2018<br>Restated <sup>1)</sup> |
|--|-----------------|----------------|---------------------------------------|
| Cash and cash equivalents  | 10.6            | 6.1            | 6.0                                   |
| Short-term investments   | 1.1             | 1.3            | 1.0                                   |
| Short-term debt  | (8.2)           | (8.9)          | (9.4)                                 |
| Long-term debt   | (18.6)          | (10.6)         | (9.3)                                 |
| <b>Net cash/(debt)</b>   | <b>(15.1)</b>   | <b>(12.1)</b>  | <b>(11.7)</b>                         |
| Net pension liability at fair value, net of expected tax benefit | (8.8)           | (8.4)          | (8.8)                                 |
| Other adjustments <sup>2)</sup>                                  | (4.0)           | (3.9)          | (4.0)                                 |
| <b>Adjusted net debt ex. EAI</b>                                 | <b>(27.9)</b>   | <b>(24.4)</b>  | <b>(24.5)</b>                         |
| Net debt in EAI  | (5.4)           | (5.7)          | (5.6)                                 |
| <b>Adjusted net debt incl. EAI</b>                               | <b>(33.3)</b>   | <b>(30.1)</b>  | <b>(30.1)</b>                         |

1) Restated with implementation of IFRS16 - Leases

2) "Other adjustments" include, e.g., asset retirement obligations, cash and short-term investments in Industriforsikring.





**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



# Market

Investor presentation, July 2019

# Macro trends and favorable properties drive aluminium demand

Hydro's strategic direction aims to realize full potential of aluminium's strong qualities and versatility



## Aluminium

- ✓ Lightness and strength
- ✓ Durability and formability
- ✓ Corrosion resistance
- ✓ Conductivity
- ✓ Recyclability
- ✗ Energy-intensity



## Steel

- ✓ Strength and durability
- ✓ Recyclability
- ✓ Price
- ✗ Weight
- ✗ Corrosion
- ✗ Energy-intensity



## Copper

- ✓ Conductivity
- ✓ Corrosion resistance
- ✓ Recyclability
- ✗ Price
- ✗ Weight
- ✗ Energy-intensity



## Composites

- ✓ Lightness
- ✓ Strength
- ✗ Price
- ✗ Recyclability
- ✗ Climate footprint
- ✗ Energy-intensity



## PVC

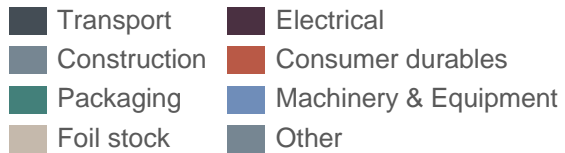
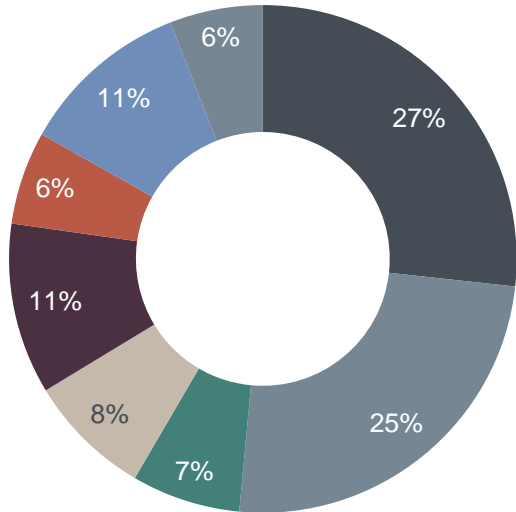
- ✓ Lightness and formability
- ✓ Corrosion resistance
- ✓ Price
- ✗ Climate footprint
- ✗ Recyclability
- ✗ Durability

# Transport & construction key semis demand segments

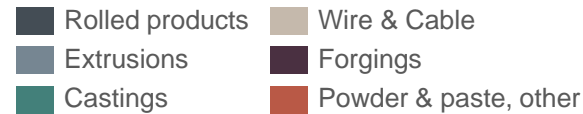
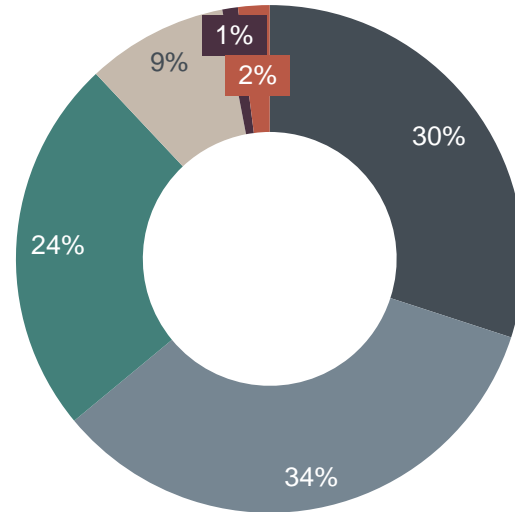


Global semis demand 2018: ~91 million tonnes

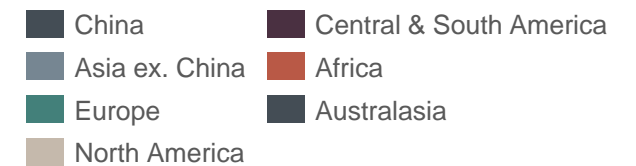
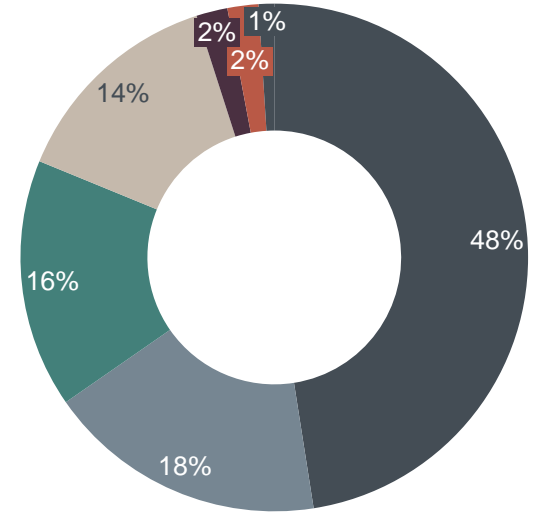
Per segment



Per product form



Per region



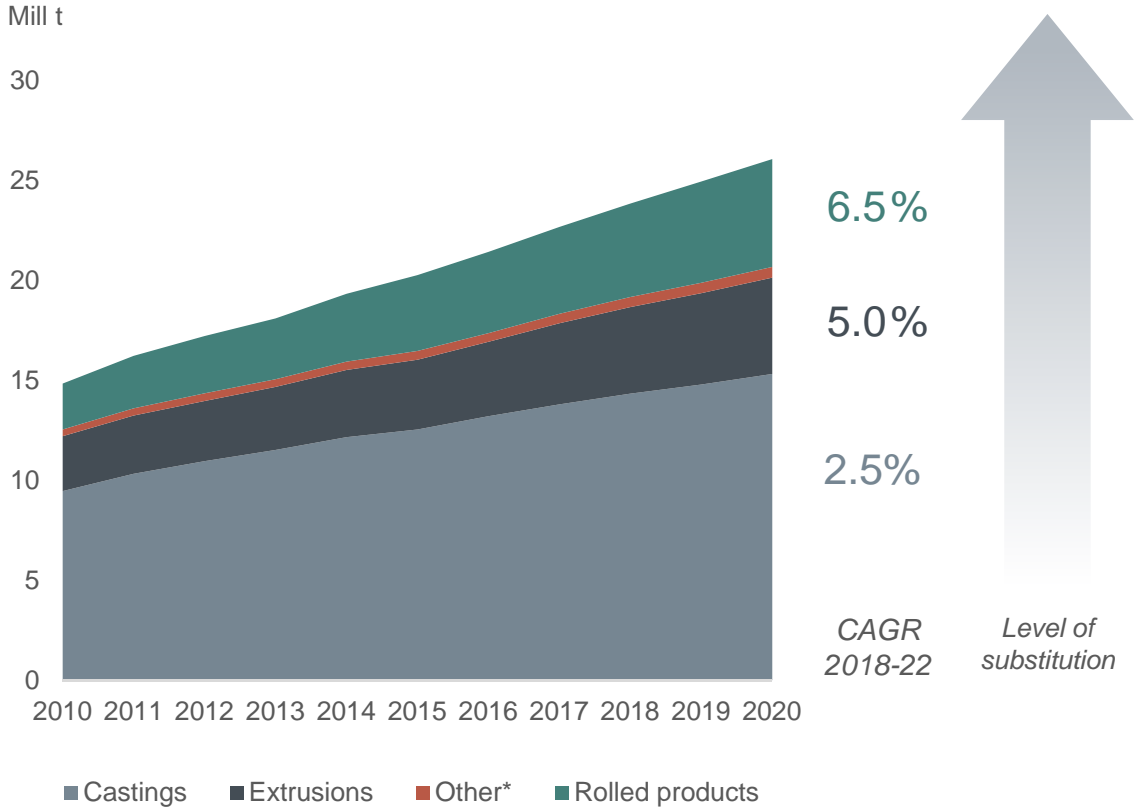
# Automotive demand for aluminium supporting several semis products



Car makers utilizing aluminium to reduce weight and increase fuel-efficiency



Global semis demand for transport sector by product form

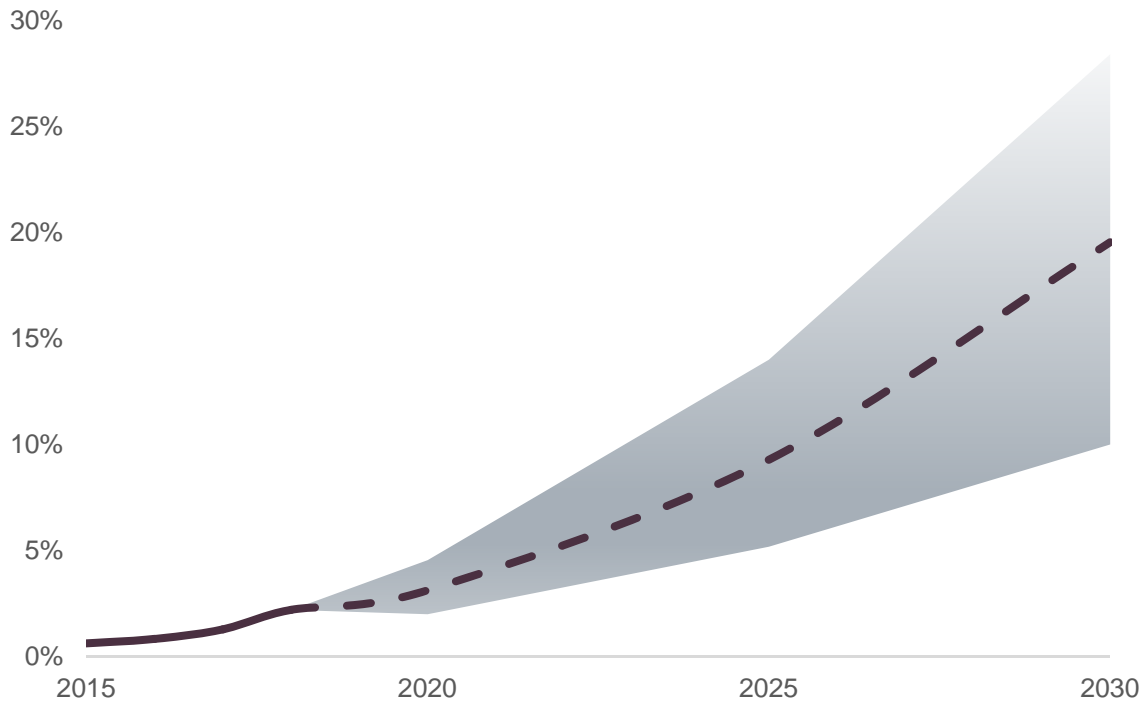


Source: Hydro analysis, Republished under license from CRU International Ltd  
 \*Other includes e.g wire

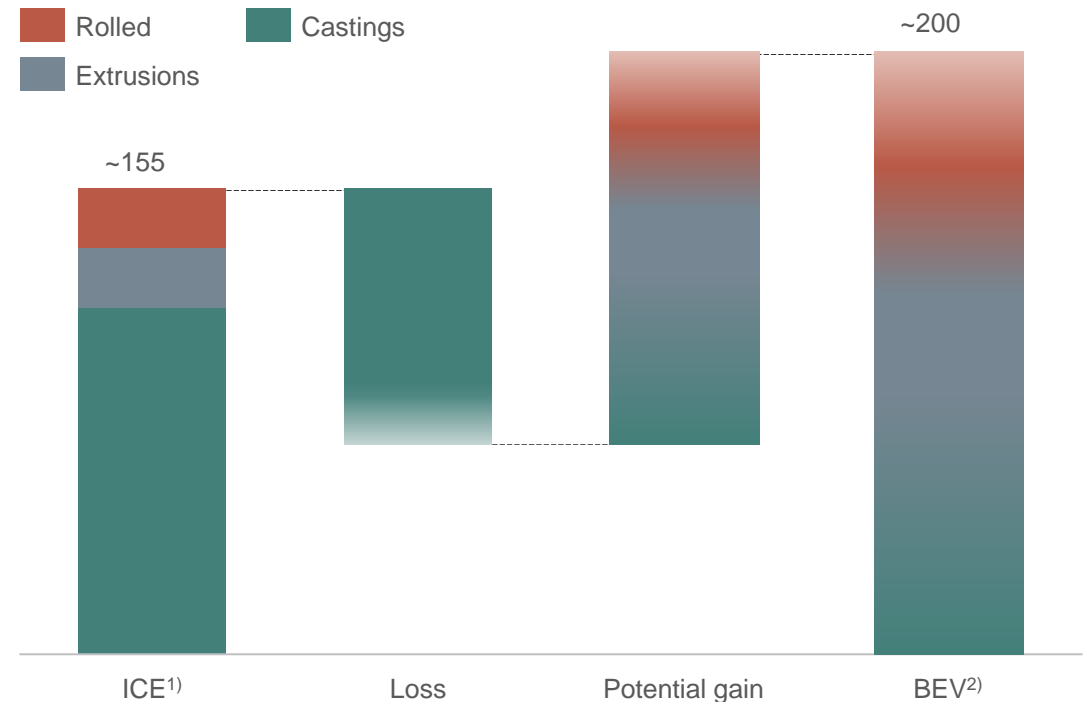
# E-mobility trend favourable for aluminium demand

High aluminium content in BEVs, increasing share of total car sales

Electric vehicle\* share of new car sales (%)



Net increase in aluminium content in electric vehicle's  
Average kg aluminium per vehicle type in 2018



Source: Hydro analysis, Republished under license from CRU International Ltd

\* Battery electric vehicles & plug-in-hybrid vehicles

1) ICE= Internal Combustion Engine, 2) BEV= Battery Electric Vehicle

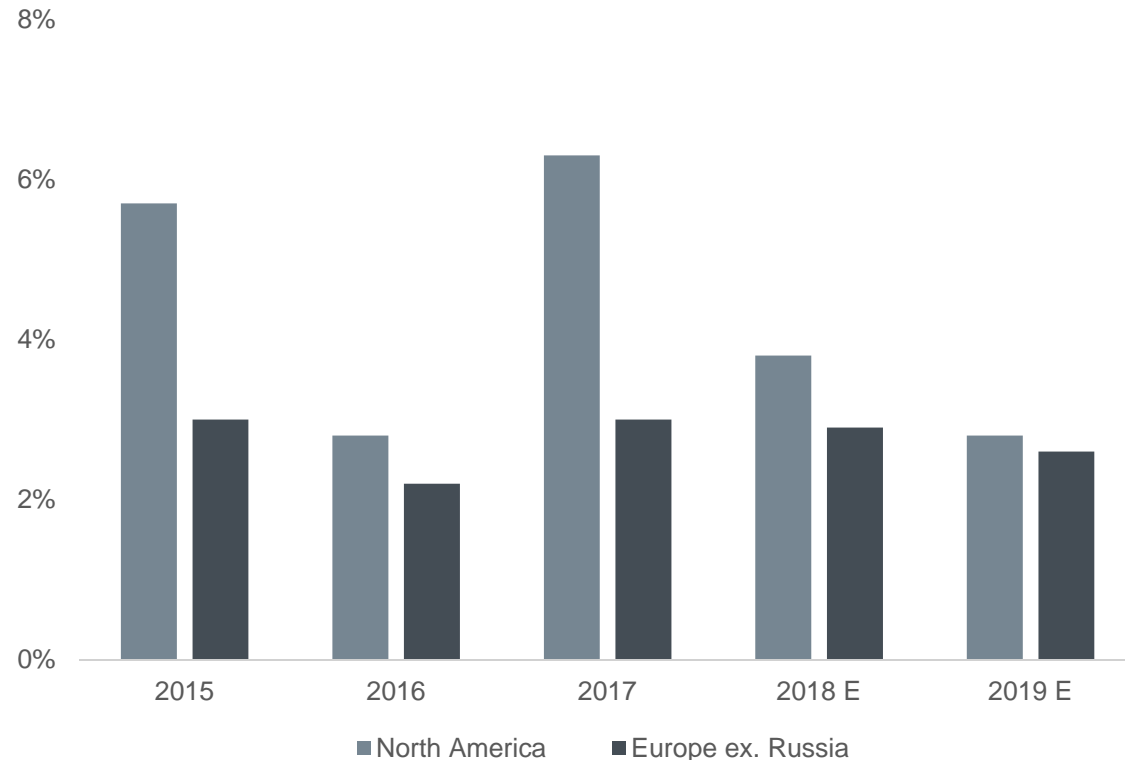
Forecast based on 10 different sources including CRU, Wood MacKenzie, JP Morgan, IEA, Bloomberg New Energy Finance and others

# Rolled products demand driven by transport segment

Transport share increasing in total rolled products demand

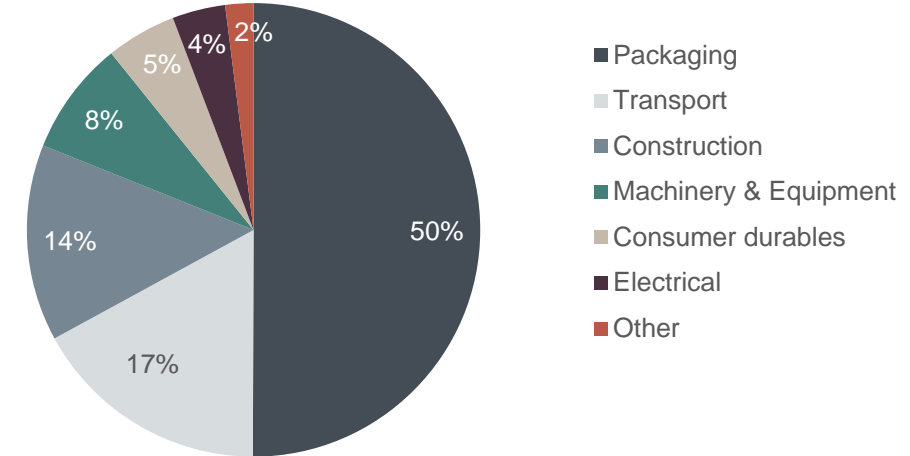
General rolled products demand, selected regions

YoY-growth



Global segment composition, rolled products

(2018)



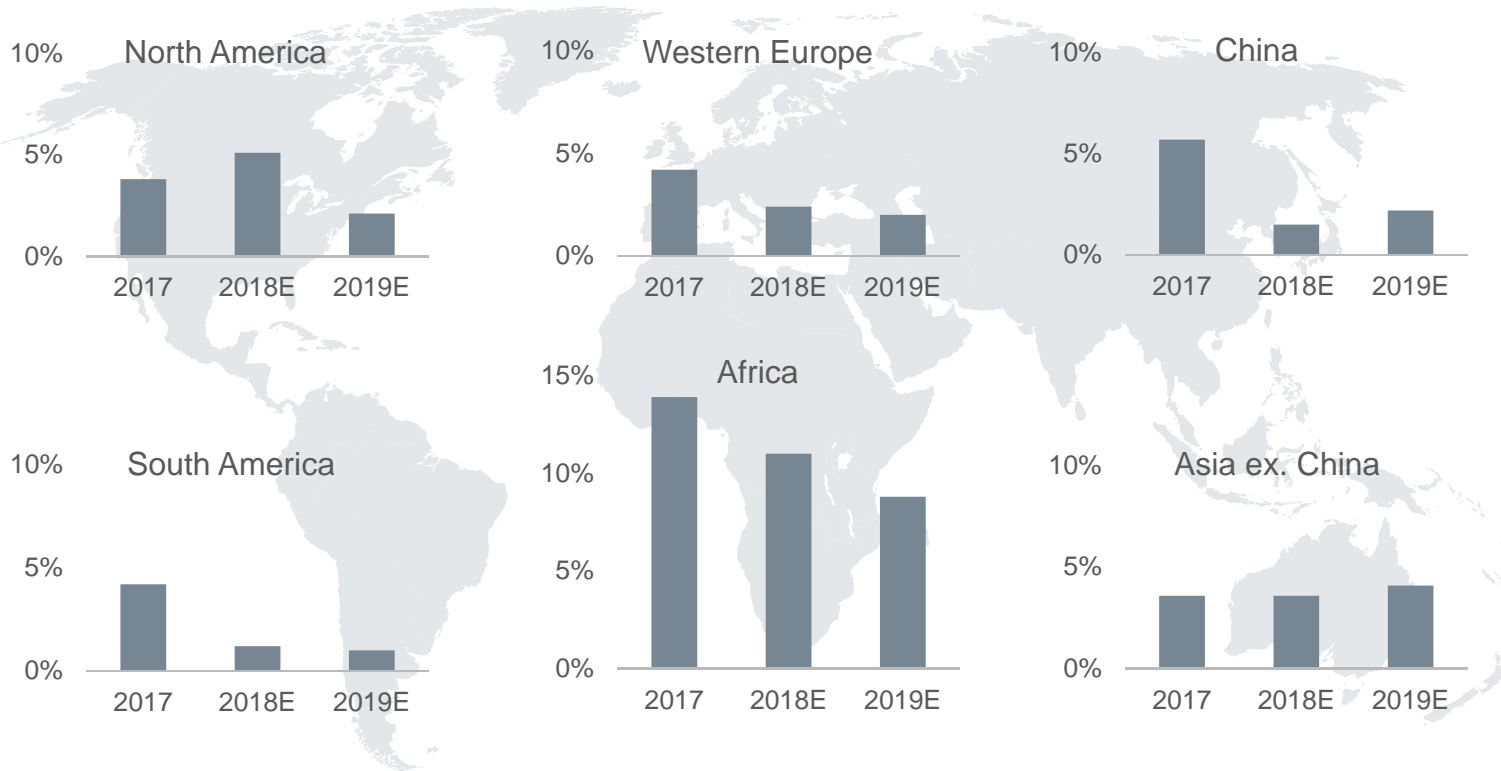
Expected market development

- Continued substitution trend in transport main demand driver
- Growth in packaging driven by can stock and foil in emerging markets

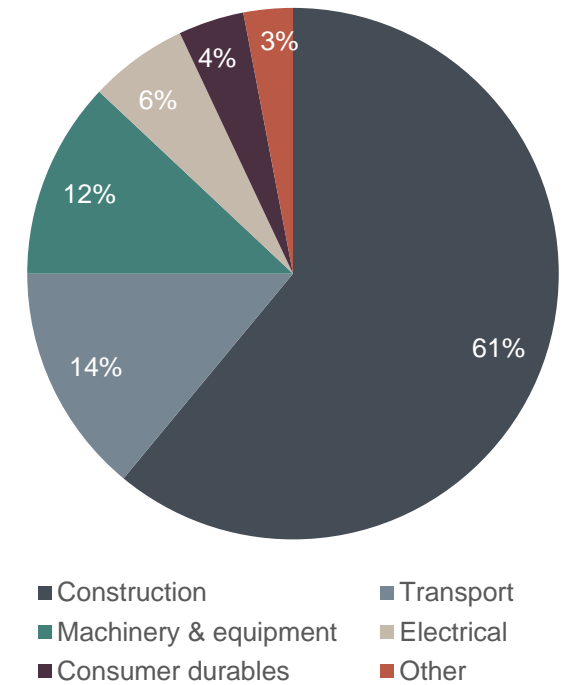


# Moderating extrusion demand growth in Western Europe and North America, improving in Asia

Extrusion demand, selected regions  
YoY-growth



Global segment composition, extrusions  
(2018)



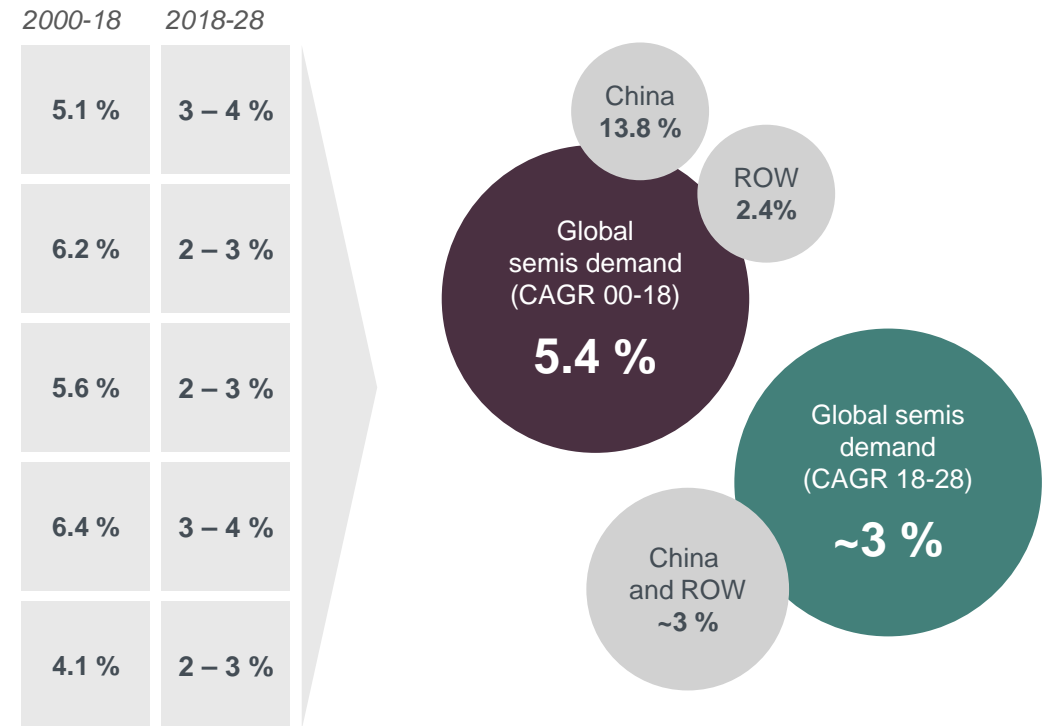
# Strong growth drivers across segments providing solid demand outlook

Still encouraging demand outlook from strong base – converging demand China and outside China

## Strong demand drivers in key aluminium segments

|                       |  |
|-----------------------|--|
| Transport             | Growth in automotive vehicle production<br>Aluminium content in cars increasing<br>Growth in other transport modes, e.g. railway |
| Construction          | Urbanization<br>Housing market recovery in mature regions<br>Energy neutral buildings  |
| Electrical            | Urbanization<br>Copper substitution  |
| Machinery & equipment | Improving industrial sentiment in mature regions<br>Manufacturing activity and industrial growth in emerging countries           |
| Packaging & foil      | Urbanization<br>Environmentally-friendly solutions   |

## Global semis demand per segment, CAGR



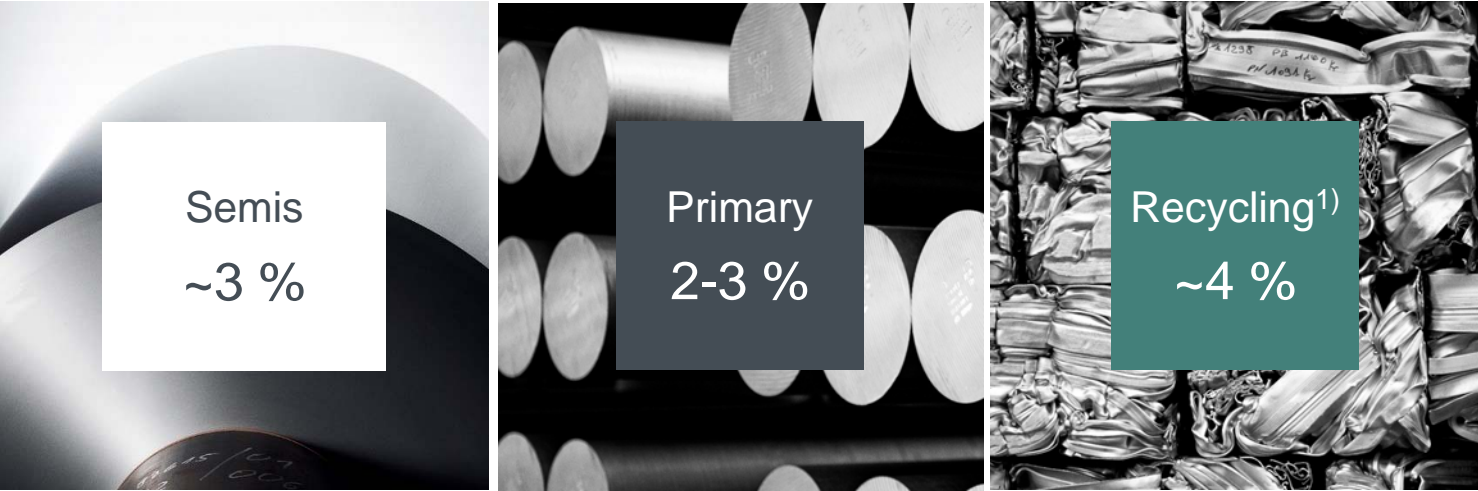
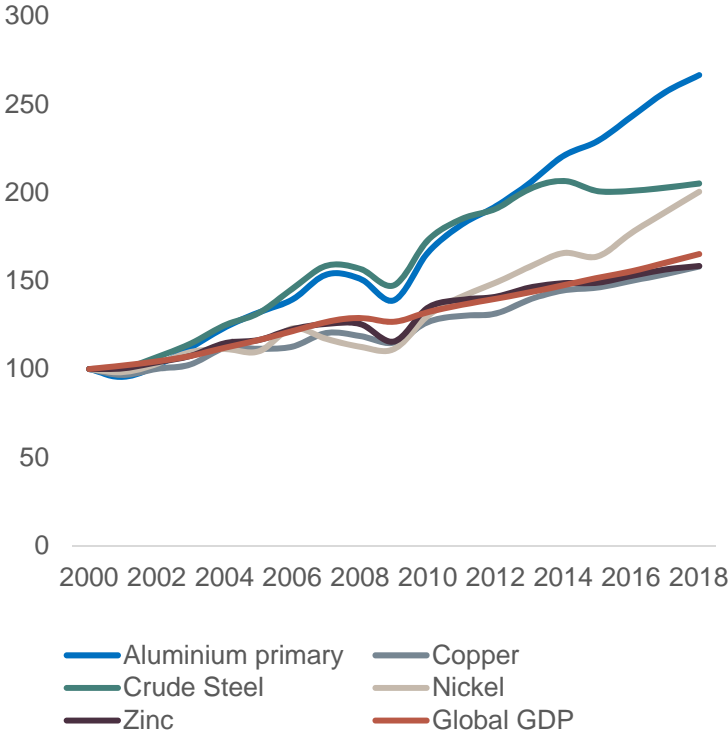
# Aluminium continues to be the fastest growing base metal



Solid growth for semis, primary and recycling 2018-2028

Global metal demand

Index 2000=100

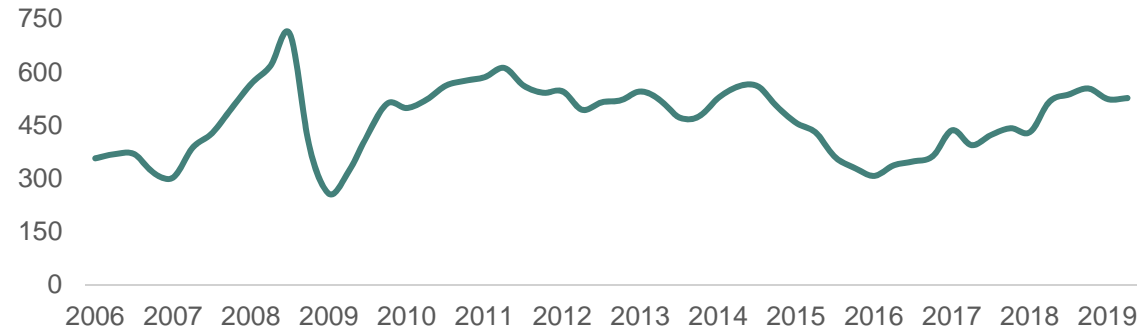


Source: Hydro analysis, Republished under license from CRU International Ltd, Zhongwang, World-aluminium.org

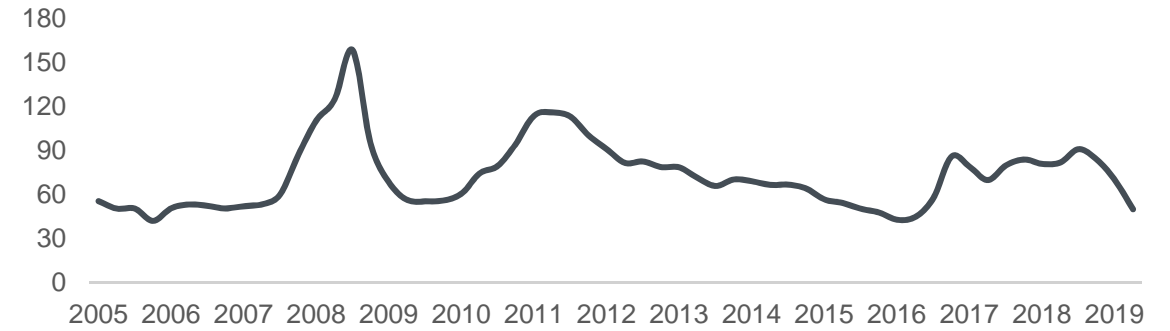
# Commodity prices drive industry costs



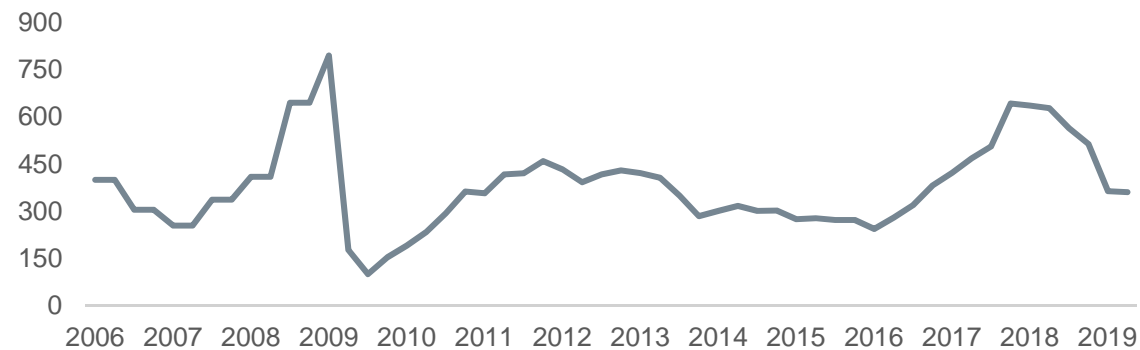
Fuel oil A1 (USD/mt)



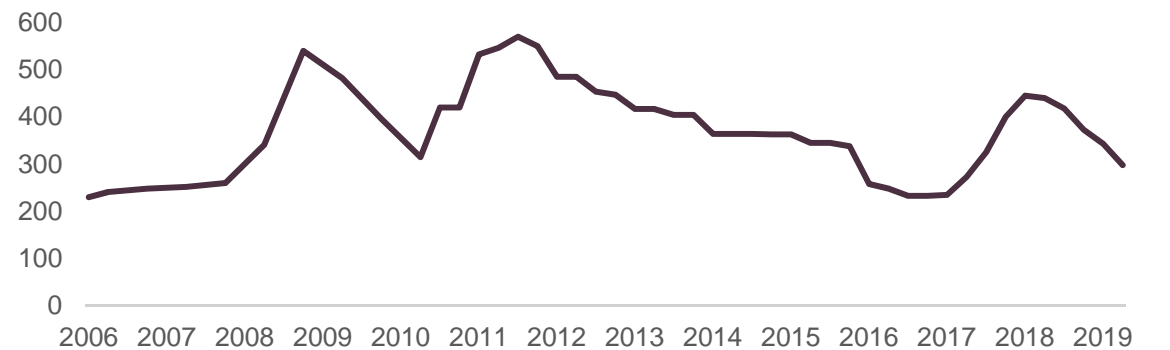
Steam coal (USD/mt)



Caustic soda (USD/mt)



Petroleum coke FOB USG (USD/mt)



# Historical strong correlation between LME and 90th percentile smelters

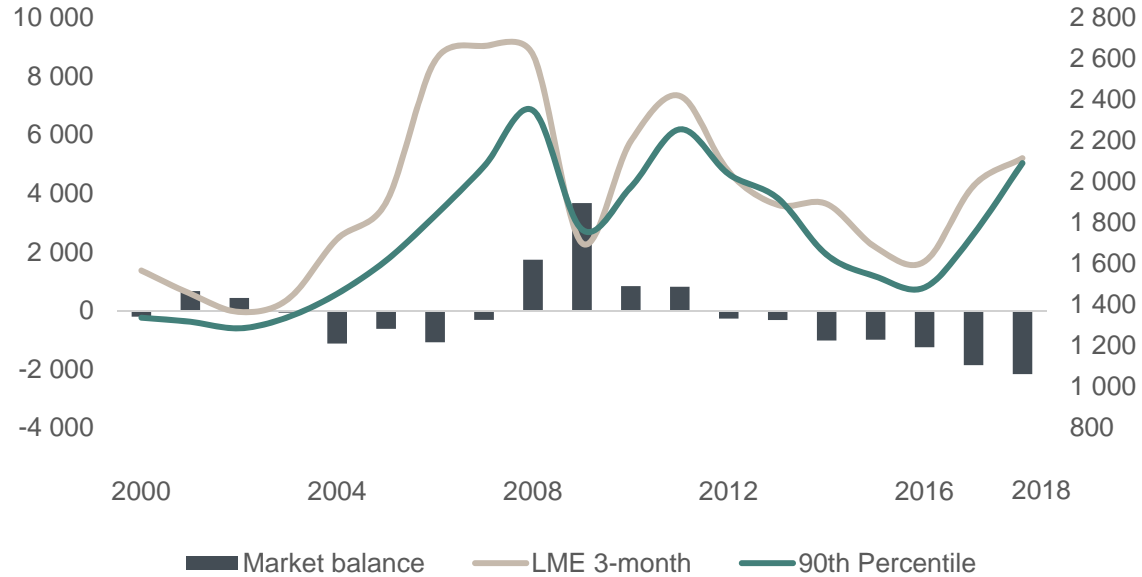


## Primary metal market

### World ex-China

Market balance in thousand tonnes <sup>1)</sup>

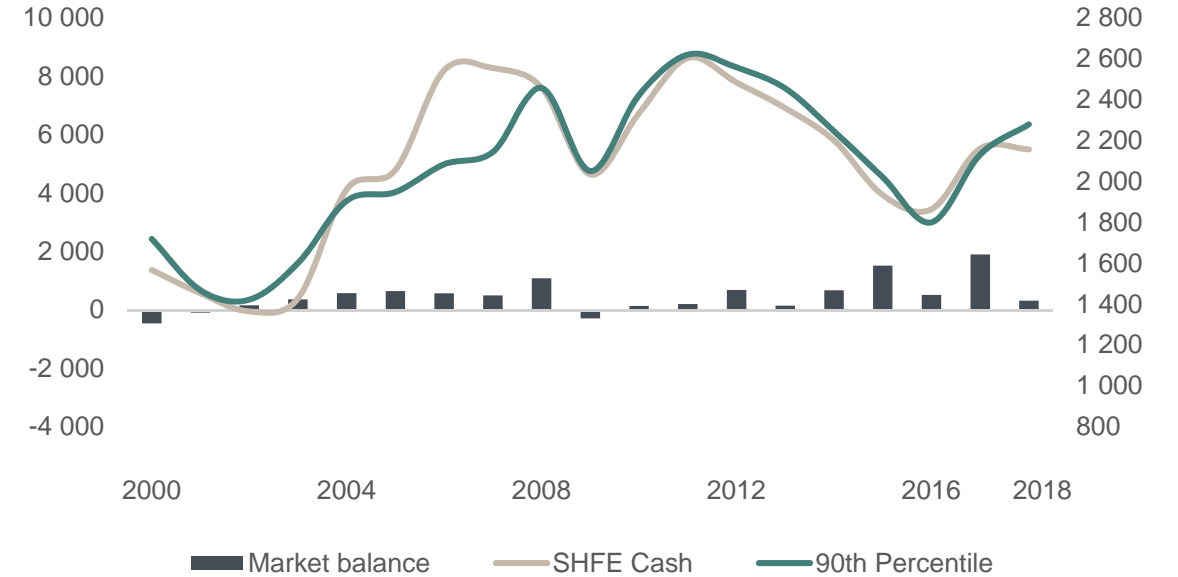
Nominal USD/t



### China

Market balance in thousand tonnes <sup>1)</sup>

Nominal USD/t



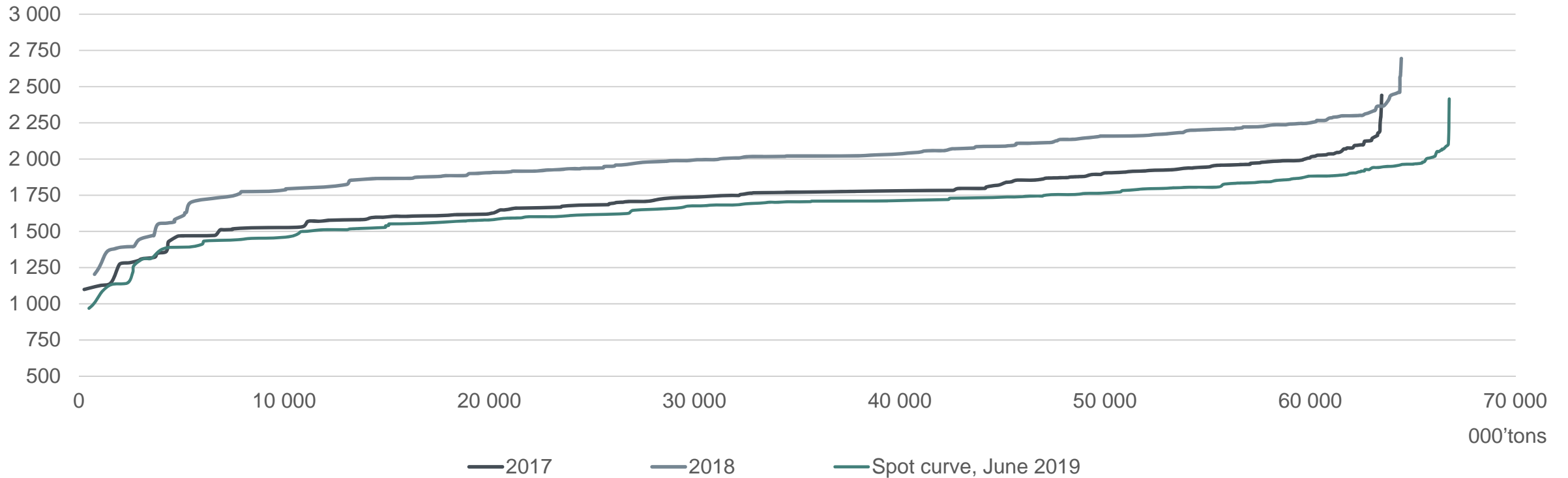
Source: CRU, Hydro Analysis  
 1) Primary production less primary demand

# Global cost curve lower in 2019 as raw materials cost normalize

## Primary metal market

CRU BOC curve by smelter

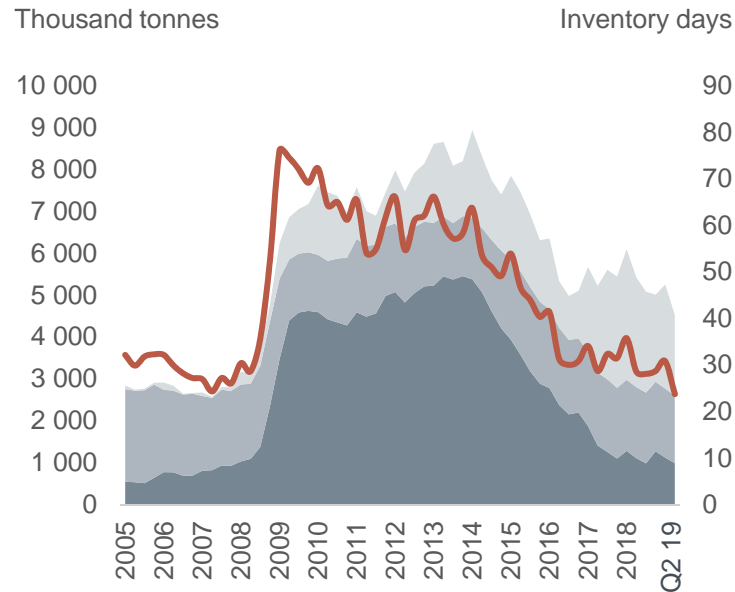
USD/t



# Total global inventory days trending downwards

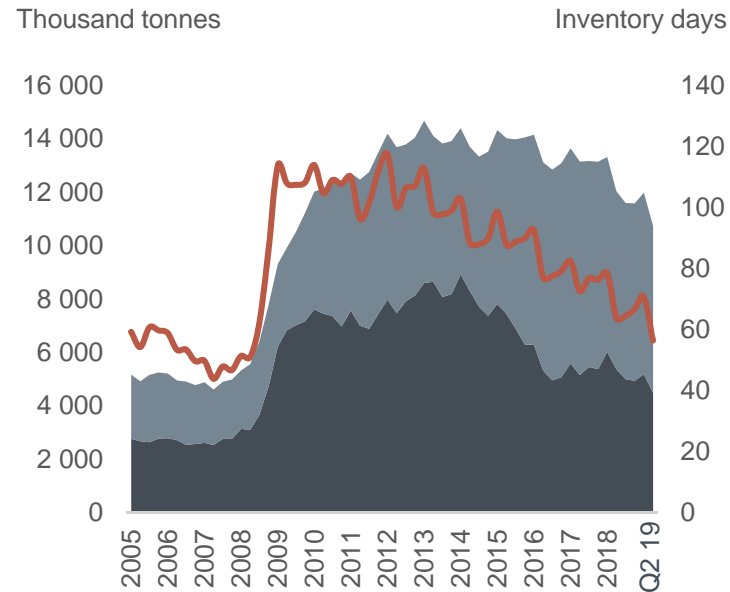
## Primary metal market

### Global reported stocks and inventory days



- Reported China
- Other reported ROW
- LME stocks
- Global reported inventory days

### Total global stocks and inventory days



- Global estimated unreported
- Global reported
- Global total inventory days

- Reported stocks decreasing in Q2-19
  - Reported stocks ex. China slightly decreasing, large drop in reported stocks China due to seasonal effects
- LME stocks at low levels compared to the last years, down in Q2-19
- High uncertainty regarding absolute level of unreported volumes

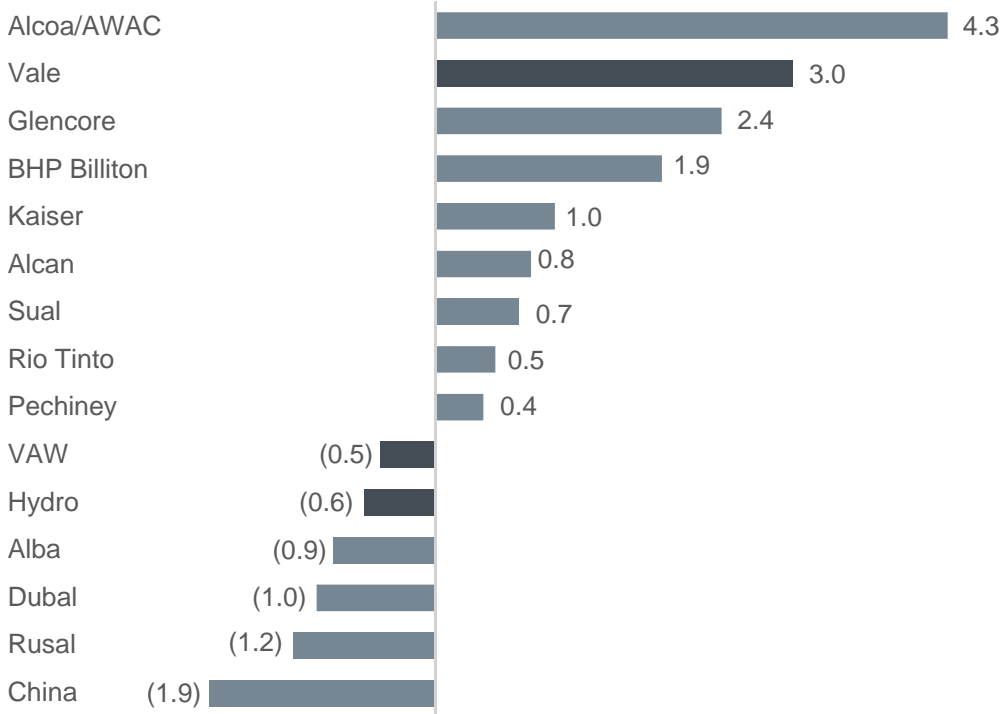
# Alumina market consolidating, becoming more integrated



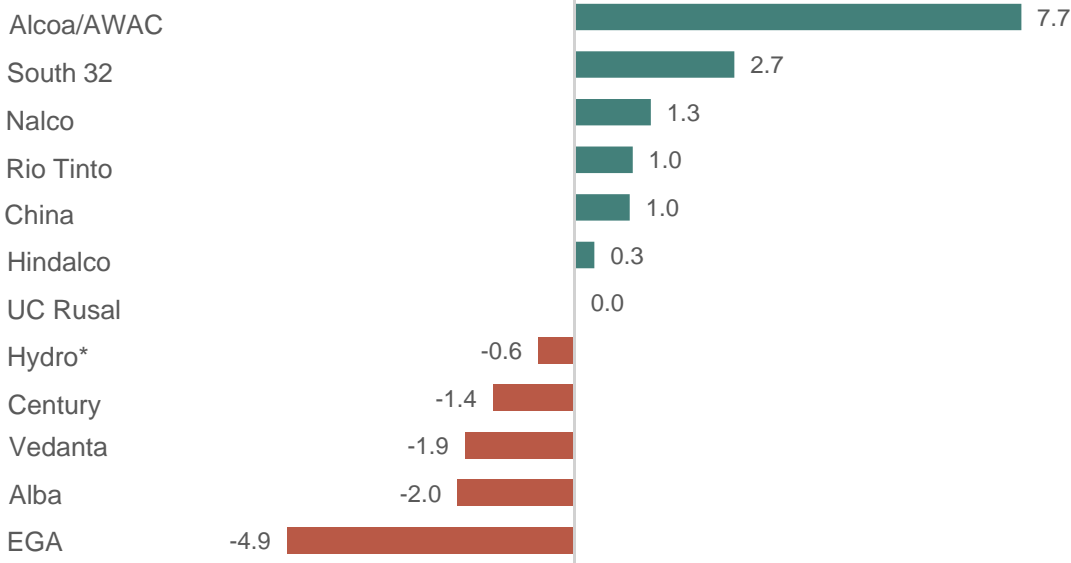
## EGA and Vedanta planning capacity additions

Estimated net equity alumina position, in million tonnes

### 2000



### 2018



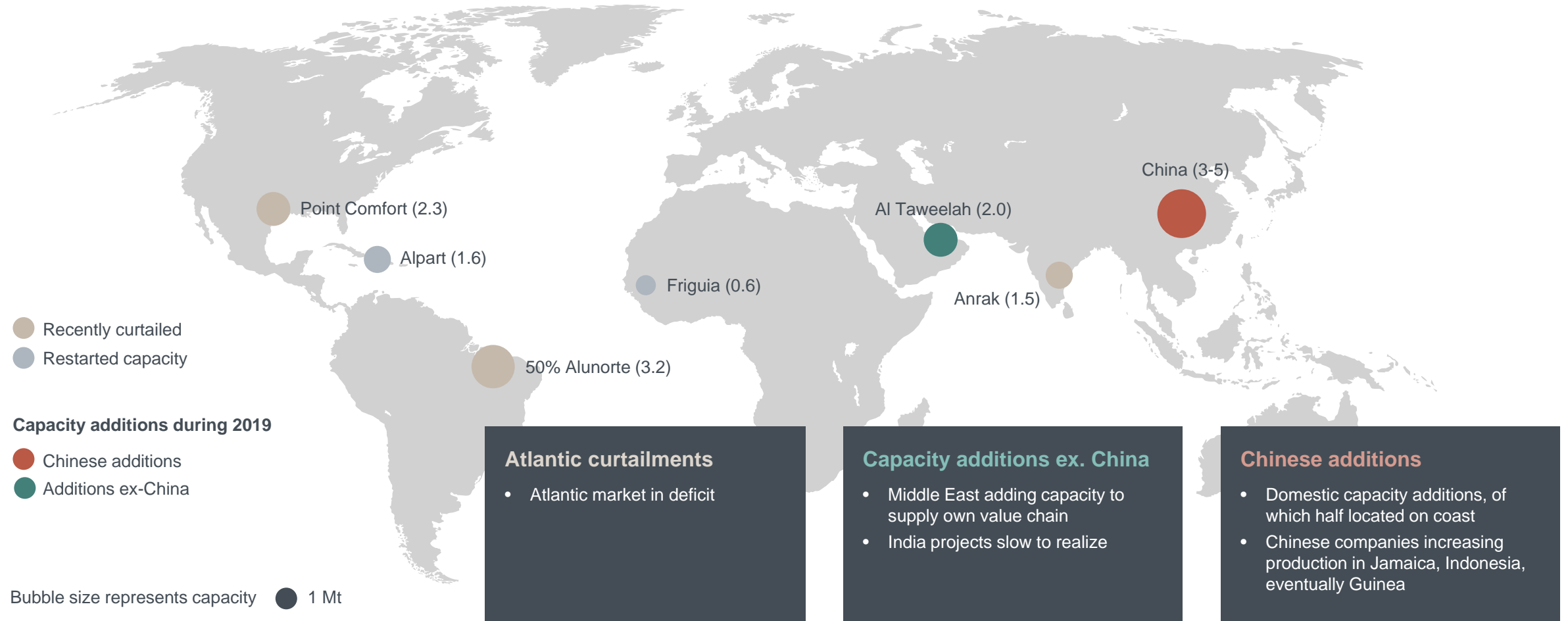
Source: CRU, Hydro

\*Hydro's alumina position was affected by the 50% production embargo at Alunorte from March 2018 to May 2019. Prior to the curtailment Hydro had a long alumina position of 1.7 million tonnes.



# Limited new alumina capacity ex-China expected in 2019

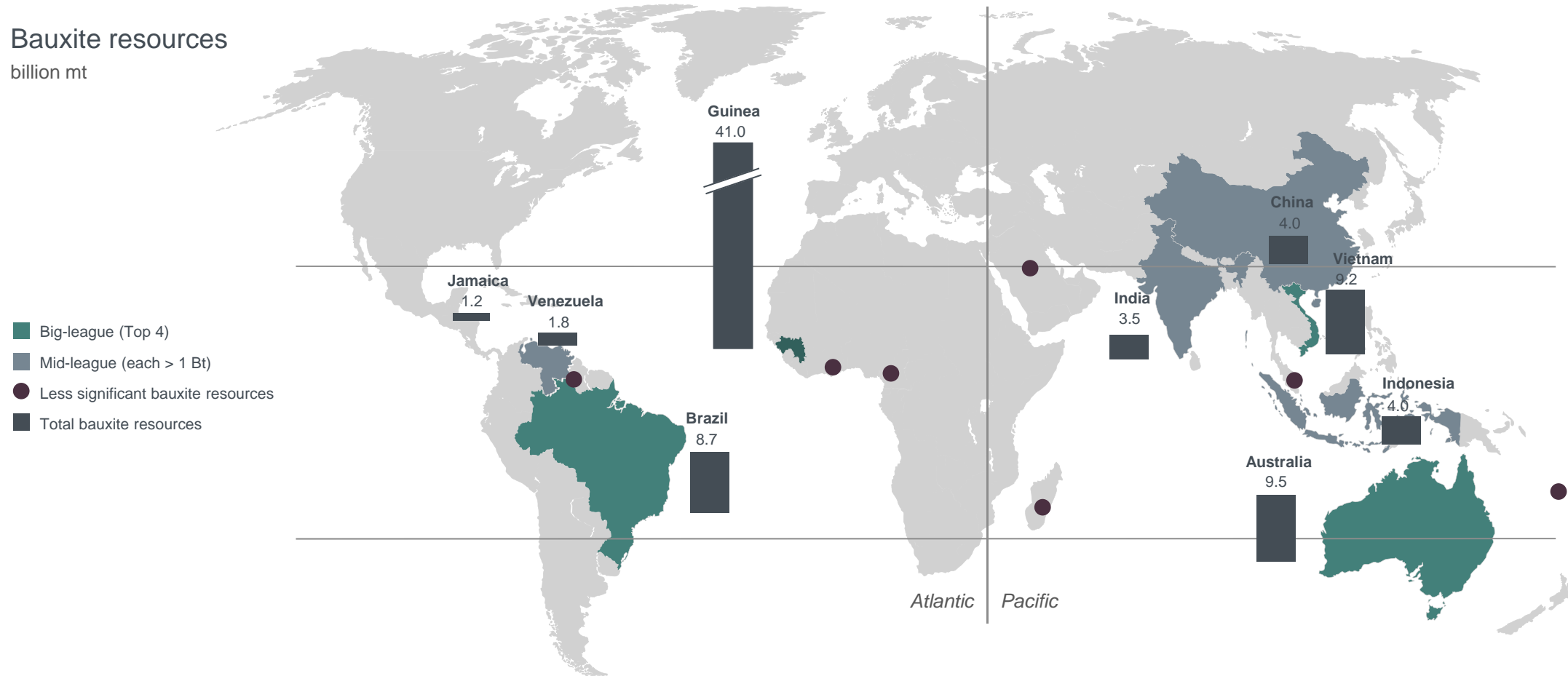
Long lead times to add new capacity



# Large and concentrated bauxite resources

Guinea stands out as a long-term source

Bauxite resources  
billion mt

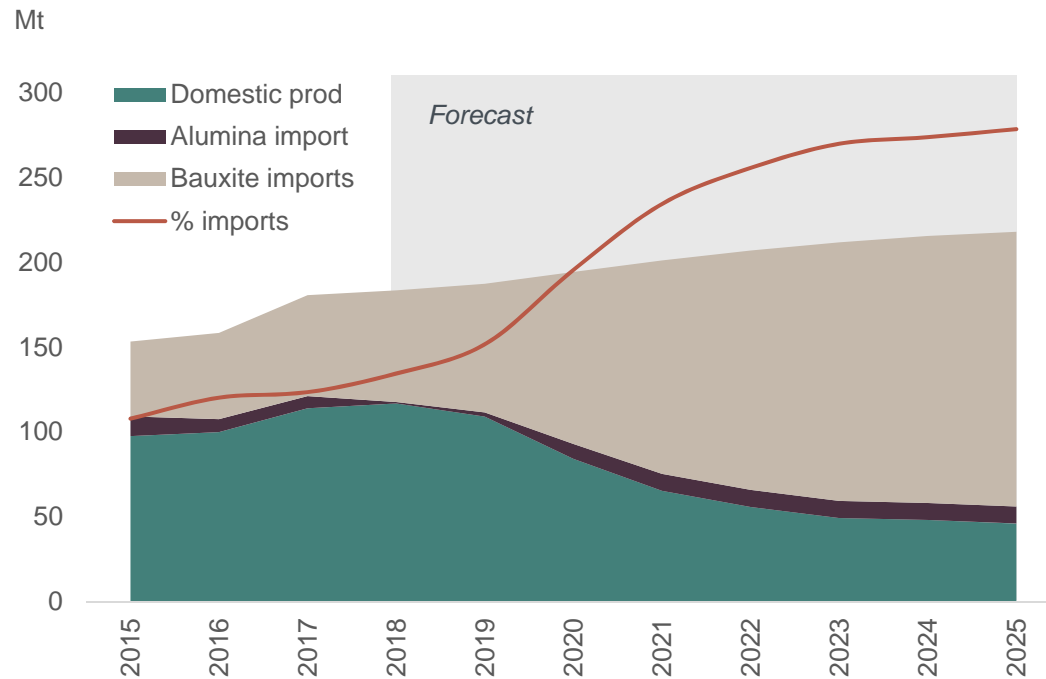


# China increasingly reliant on bauxite imports



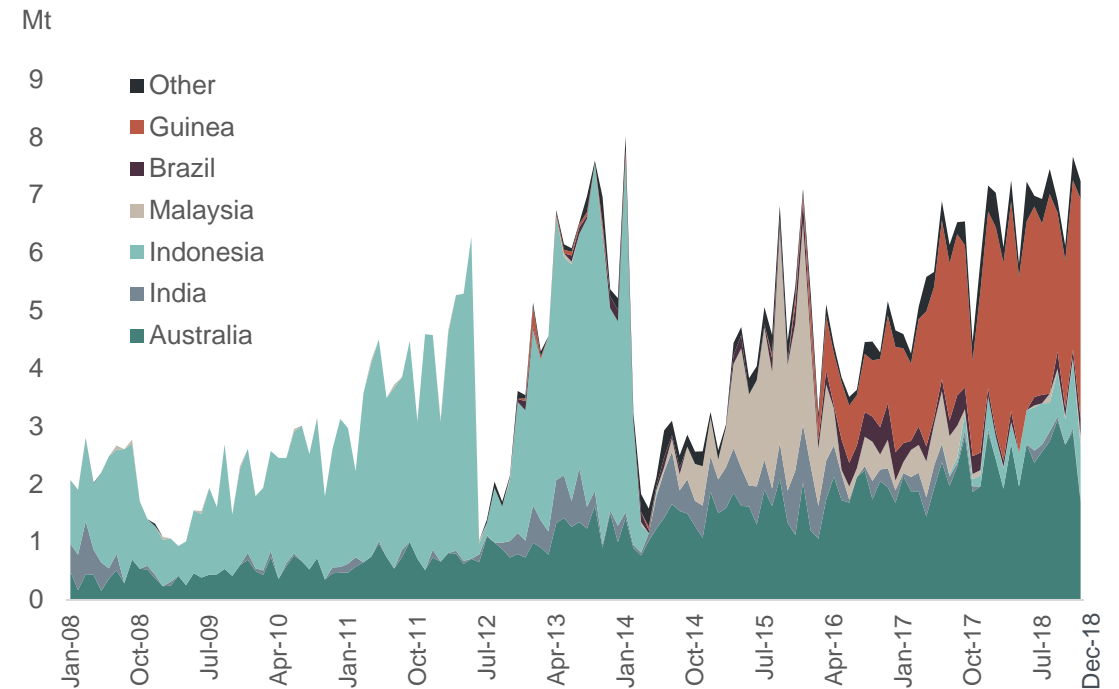
Guinea bauxite increasingly satisfying Chinese demand

Growing need for bauxite imports amid domestic depletion



- Increasing Chinese bauxite prices triggering more bauxite imports
  - Chinese quality deteriorating
  - Unlicensed mines closures

Monthly Chinese bauxite imports by origin



- Guinea bauxite production increasing dramatically
  - Includes non-Chinese players
  - Atlantic-sourced seaborne bauxite continues to grow, adding freight exposure



# Business overview

Investor presentation, July 2019



# Hydro – Group



**Lifting  
profitability**



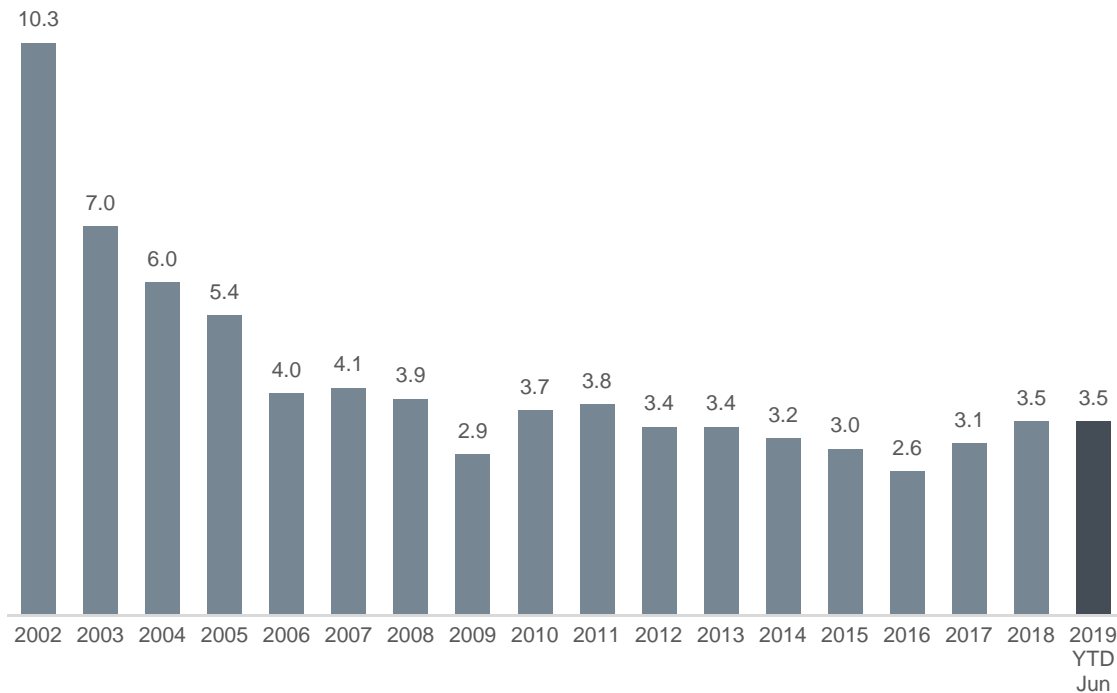
**Driving  
sustainability**

# Safe and responsible operations is a top priority



Leadership in HSE, CSR and compliance as a license to operate

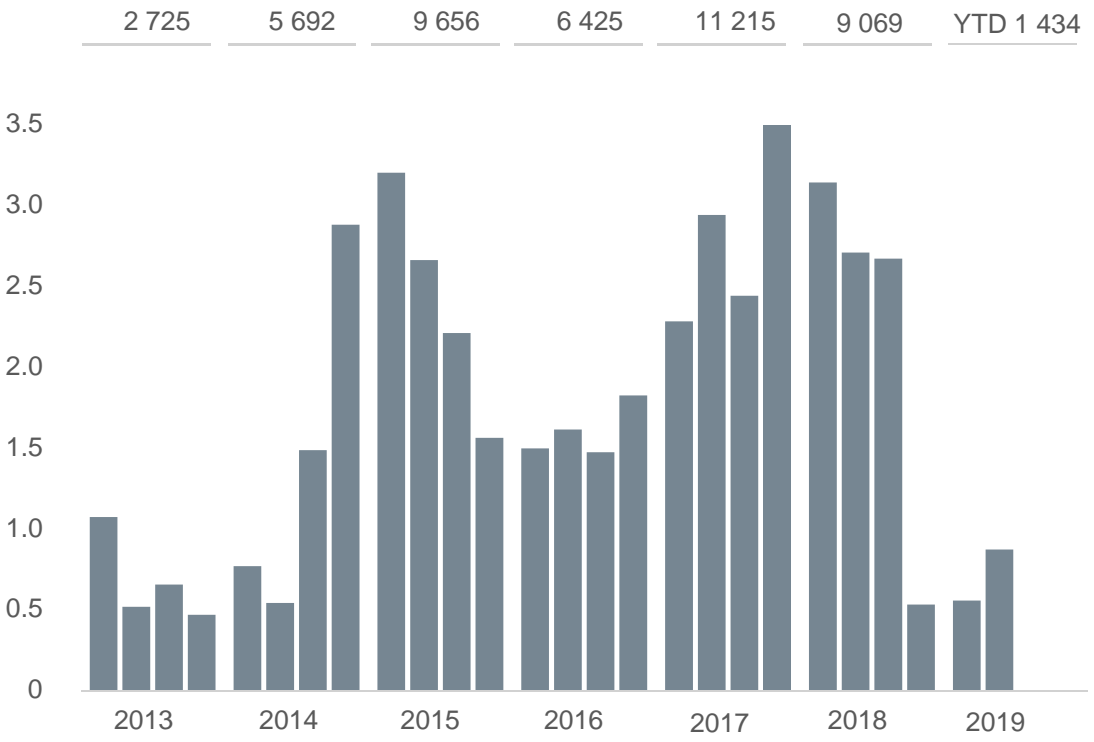
TRI Rate<sup>1)</sup>



1) Total recordable incidents (TRI) rate defined as cases per 1 million hours worked, for own employees

# 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 July 16, 2019

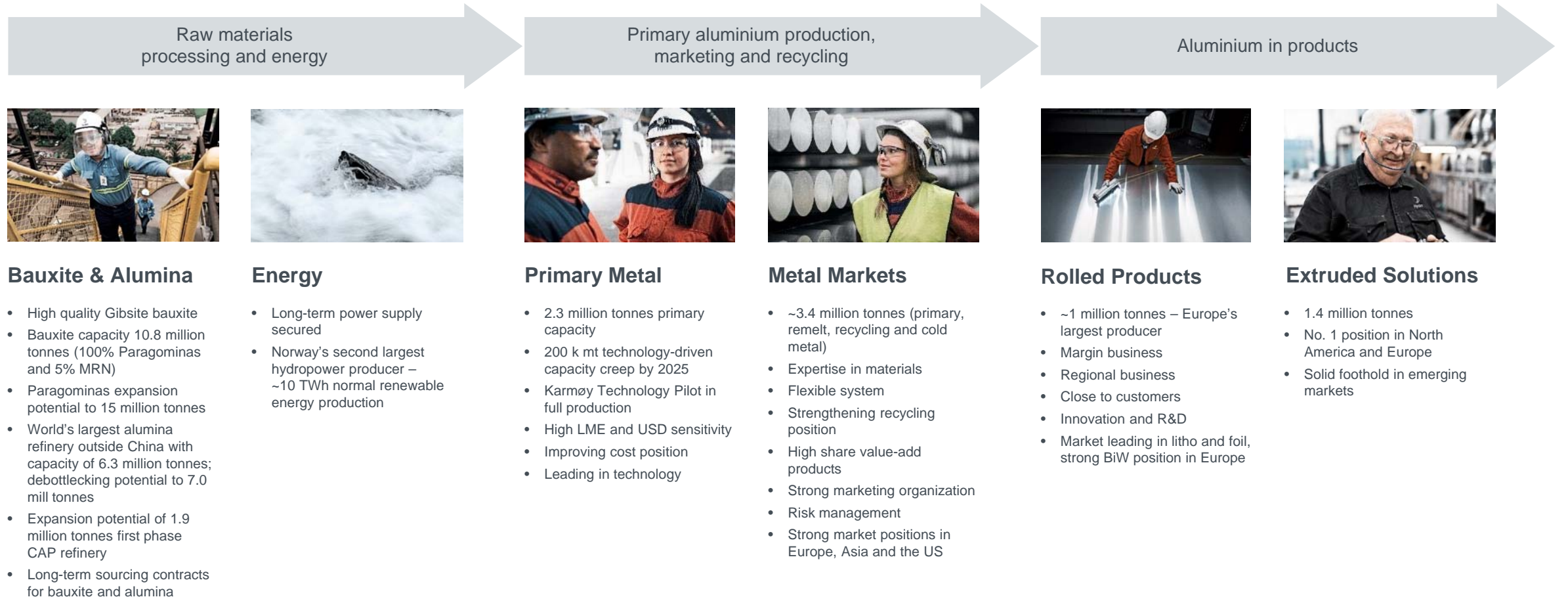


- Based in Norway, involved in activities in more than 40 countries
- Operating revenues
  - 2018: NOK 159 billion
  - 2017: NOK 109 billion
- ~35 000 employees
- Current market capitalization
  - ~NOK 63 billion/ USD 7.4 billion<sup>1)</sup>



# Fully-integrated value chain

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

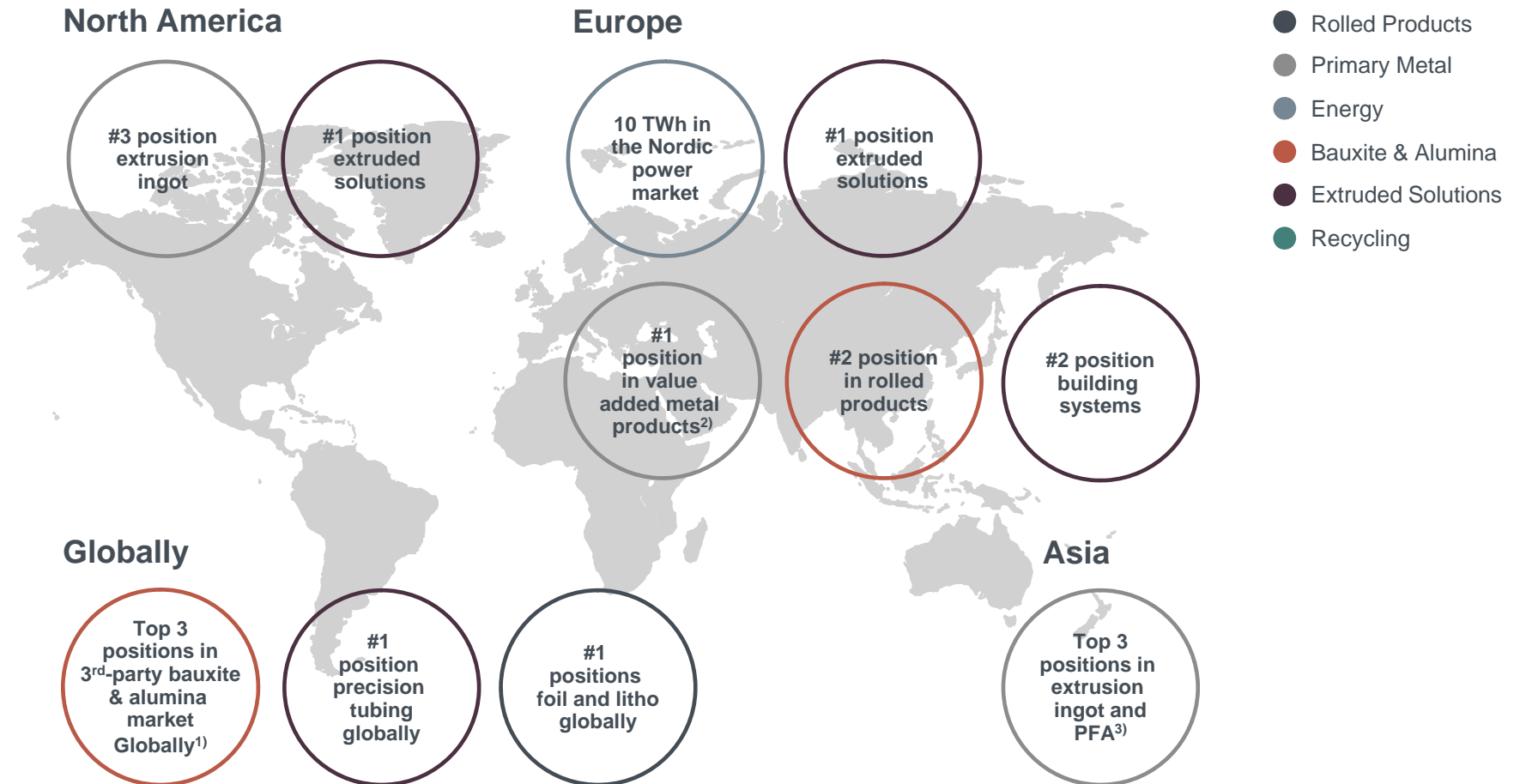


# Strong global presence throughout the aluminium value chain

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

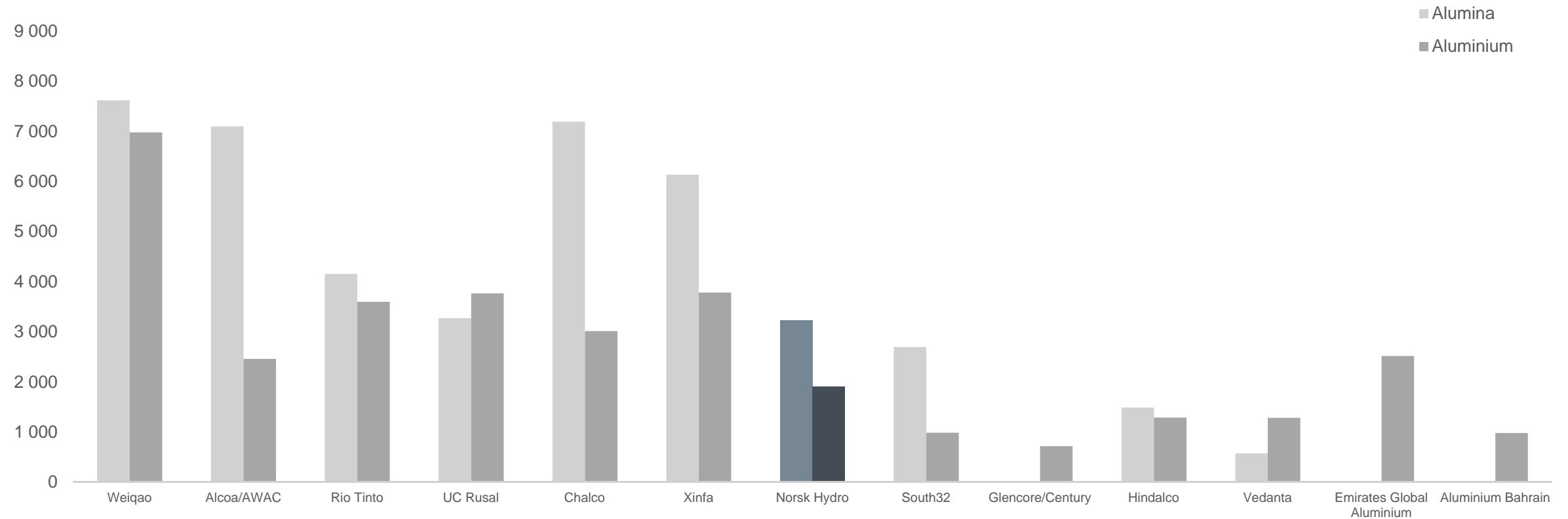


1) Outside China  
 2) Extrusion ingot, sheet ingot, primary foundry alloys and wire rod  
 3) Primary Foundry Alloys

# Hydro - the fourth largest aluminium producer outside China



Equity production in 2017 in aluminium equivalents, thousand mt



# Strong positions across the value chain



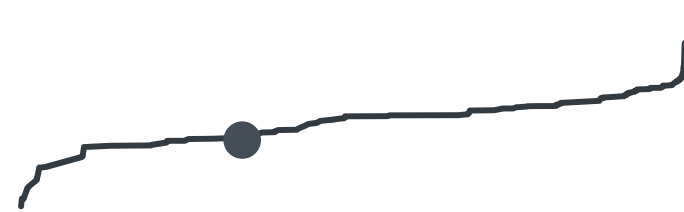
## Upstream

Competitive cash cost position upstream

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



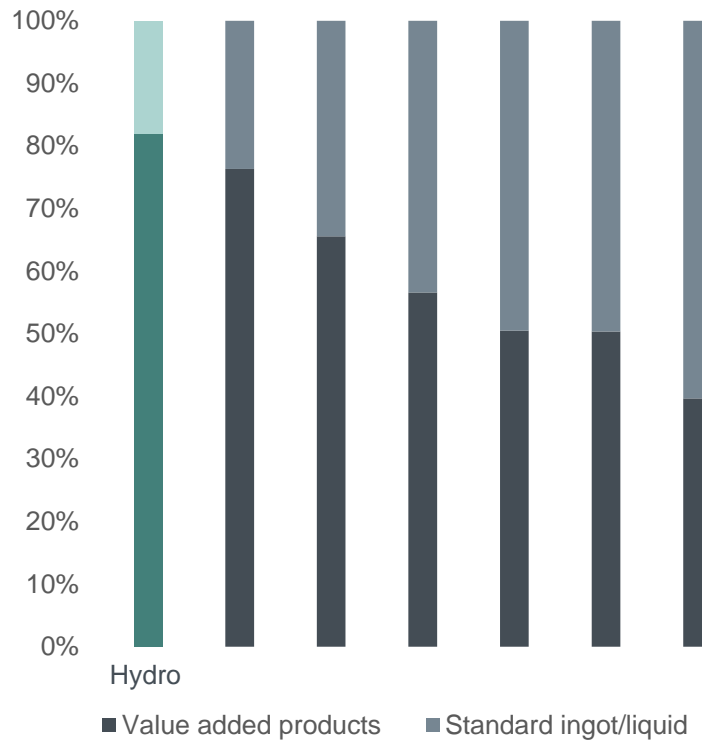
Smelter BOC curve by company<sup>2</sup> (2018)  
USD/mt



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

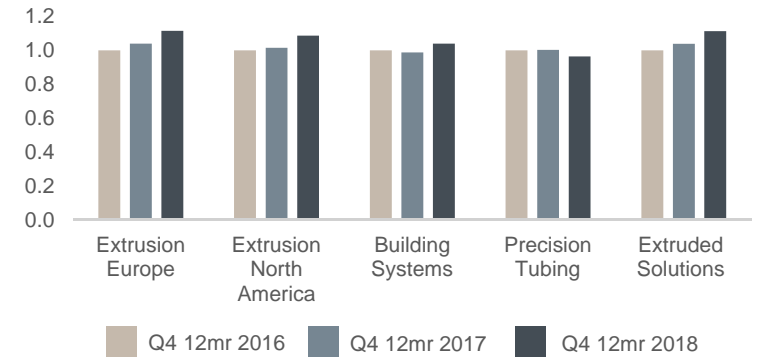
Strong position in value added products<sup>1</sup>



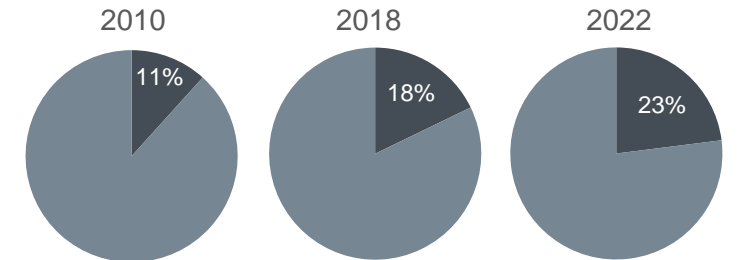
Source: Republished under license from CRU International Ltd  
 Actual figures for Hydro sales 2017  
 1) % of total shares being value added products; extrusion ingot, wire rod, sheet ingot and primary foundry alloy

## 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

# Our mid-term goals strongly affected by Alunorte situation



|                | Ambitions  | Target                 | Timeframe | Progress <sup>1</sup>              | Status |
|----------------|--|------------------------|-----------|------------------------------------|--------|
| <b>Better</b>  | • Improve safety performance, strive for injury free environment | TRI<2                  | 2020      | 3.4 <sup>2</sup>                   | ●      |
|                | • Realize ongoing improvement efforts <i>Better</i>              | BNOK 3.0               | 2019      | (0.5) BNOK                         | ●      |
|                | • Secure new competitive sourcing contracts in Norway post 2020  | 4-6 TWh                | 2020      | 4.8 TWh <sup>3</sup>               | ●      |
|                | • Lift bauxite production at Paragominas                         | 11 mill mt/yr          | 2018      | 6.6 mill mt/yr <sup>4</sup>        | ●      |
|                | • Lift alumina production at Alunorte                            | 7.0 mill t/yr          | 2021      | 3.9 mill mt/yr <sup>4</sup>        | ●      |
|                | • Shift alumina sales to PAX-based pricing                       | ➤ 85% PAX <sup>5</sup> | 2020      | 75-80% PAX <sup>6</sup>            | ●      |
|                | • Extend technology lead with Karmøy technology pilot            | Start production       | 2H 2017   | January 29, 2018                   | ●      |
|                | • Extend technology lead with Karmøy technology pilot            | Full ramp-up           | Q2 2018   | June 27, 2018                      | ●      |
| <b>Bigger</b>  | • Realize technology-driven smelter capacity creep               | 200,000 mt/yr          | 2025      | 43,000 mt                          | ●      |
|                | • Increase nominal automotive Body-in-White capacity             | 200,000 mt/yr          | 2017      | Ramping-up, qualifications ongoing | ●      |
|                | • Complete ramp-up of UBC recycling line                         | >40 000 mt/yr          | 2017      | Delayed to Q4 2019                 | ●      |
| <b>Greener</b> | • Become carbon-neutral from a life-cycle perspective            | Zero                   | 2020      | On track                           | ●      |
|                | • Increase recycling of post-consumer scrap                      | >250,000 mt/yr         | 2020      | 168,000 mt                         | ●      |
|                | • 1:1 rehabilitation target                                      | 1:1                    | 2020      | On track <sup>7</sup>              | ●      |

1) Based on 2018 estimate unless stated otherwise

2) YTD Oct-2018, own employees

3) ~2.2 Twh power sourcing since CMD 2017

4) YTD Q3 2018 annualized

5) Based on sourcing volume of ~ 2-2.5 million tonnes per annum

6) Based on sourcing volume of ~ 3.5 million tonnes for 2018

7) 1:1 rehabilitation of areas available for rehabilitation within two hydrological seasons after release. Revised definition of target takes into account the nature of the mining cycle, and the time lag necessary to ensure quality rehabilitation to restore biodiversity

## Status towards the target

● Ambition on track and on target

● Ambition behind plan, but on target

● Ambition will not meet the target within the timeframe

# Industry-leading improvement drive



*Better* improvement program will not meet NOK 3.0 billion 2019 target due to the Alunorte situation

Hydro's improvement drive until 2015

Hydro's current improvement ambition

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

**Total improvements 2009-2015: BNOK 4.5**

'From B to A'

Sapa JV

'Climb'

'Energy Aspiration'

CCIP II

'USD 300 program'

'JV program'

**Bauxite & Alumina**

*BNOK 1.3 in 2019*

- 50% production at Alunorte and Paragominas with strong negative impact on improvement program
- 2016-17 improvements more than offset by negative 2018 effects
- E2018 accumulated delivery of negative 1.0 BNOK

**Rolled Products**

*BNOK 0.7 in 2019*

- Benefit from AL3, UBC and cost performance
- Operational and ramp-up issues reducing improvement speed
- E2018 accumulated delivery of 0.4 BNOK

**Primary Metal**

*BNOK 1.0 in 2019*

- 50% production at Albras impacting improvement program negatively
- 50% production Alunorte with negative impact due to alumina qualities – challenges on operational parameters
- E2018 accumulated delivery of 0 BNOK

*Better 2016-2018 of (0.6) BNOK*

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

# A solid platform for building an even stronger Hydro



## Bauxite & Alumina



- Move beyond nameplate capacity
- Potential for debottlenecking Alunorte to 7.0 million mt
- Mature CAP project and Paragominas expansion

## Energy



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

## Primary Aluminium



- Enhance position in high-margin segments
- Realize technology-driven capacity creep
- Grow post-consumed scrap recycling to 150,000 mt/yr
- Extend technology lead with Karmøy technology pilot
- Further mature smelter growth options

## Rolled Products



- Expand nominal automotive BiW capacity to 200,000 t/yr
- Increase recycling of post-consumed scrap above 100,000 t/year incl. ramp-up of UBC\* recycling line
- Build positions and lift margins through technology leadership and innovation

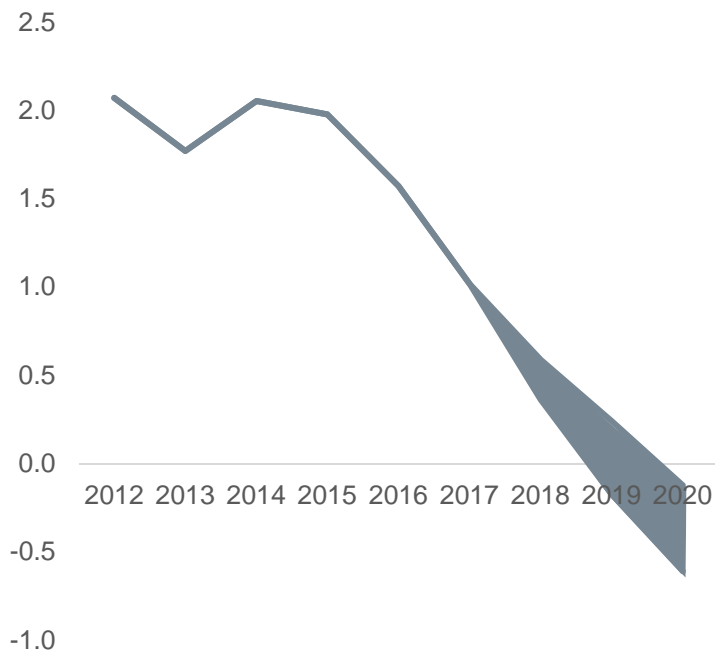
\* Used beverage can (UBC)

# Carbon-neutral from a life-cycle perspective by 2020



Hydro's climate strategy: Carbon-neutral from a life-cycle perspective by 2020

In mill tonnes CO2



## Integrated into business strategy in all business areas

### Climate and energy- efficiency in production

- Increasing energy-efficiency and reducing emissions in production processes in aluminium plants, rolling mills, and alumina refinery
- Increasing production of renewable hydropower, evaluating potential of switching to renewable energy sources or natural gas in production processes

### Use-phase benefits

- Developing products and solutions, establishing partnerships with advanced customers, and identifying new applications for metal and downstream products
- Supporting global energy-efficiency goals by helping customers reduce energy consumption and emissions and by promoting sustainable frameworks

### Recycling

- Reducing waste and saving ~95% of energy by recycling of post-consumed scrap in Primary Metal and Rolled Products
- Utilizing advanced sorting technology and developing recycle-friendly alloys



# Summary of strategic focus areas going forward

On-going initiatives and strategic ambitions

## Bauxite & Alumina



- B&A operations back on track
- Closer collaboration with key stakeholders
- Fuel switch project

## Energy



- RSK solution
- New business
- Competitive sourcing

## Primary Metal



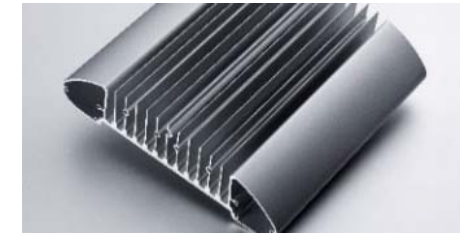
- Pilot spin-offs
- Husnes restart
- Albras back on track
- Recycling

## Rolled Products



- Further growth in automotive
- Recycling
- High-grading product portfolio

## Extruded Solutions



- Selective growth
- Value over volume

Innovation, technology, digitization

Sustainability

Commercial differentiation

Continuous improvements



# Bauxite & Alumina

# Bauxite and alumina cluster in Para, Brazil

## MRN bauxite mine



- Top 3 bauxite mine in the world
- 5% ownership
- Volume off-take agreement for Vale's 40% stake
- Capacity 18 million tonnes

## Paragominas bauxite mine



- 100% ownership
- One of the world's largest bauxite mines
- Nameplate capacity of 9.9 million tonnes
- 2017 production 11.4 million tonnes
- 2018 production 6.2 million tonnes\*
- Possible expansion to 15 million tonnes
- Long-life resource

## Alunorte alumina refinery



- 92% ownership
- World's largest alumina refinery outside China
- Nameplate capacity of 6.3 million tonnes
- 2017 production 6.4 million tonnes
- 2018 production 3.7 million tonnes\*
- Potential for debottlenecking to 7.0 mill mt/yr
- Bauxite supplied from Paragominas and MRN
- World-class conversion cost position
- Utilizing state-of-the-art press filter technology to process bauxite residue
- Enhancing plant robustness to prepare for extreme weather events

## CAP alumina refinery project



- Long-term greenfield opportunity
- 81% ownership
- Paragominas expansion to be developed in parallel

**Bauxite licenses**

**Refining and mining competencies**

**External supply contracts**

**Sales contract portfolio**

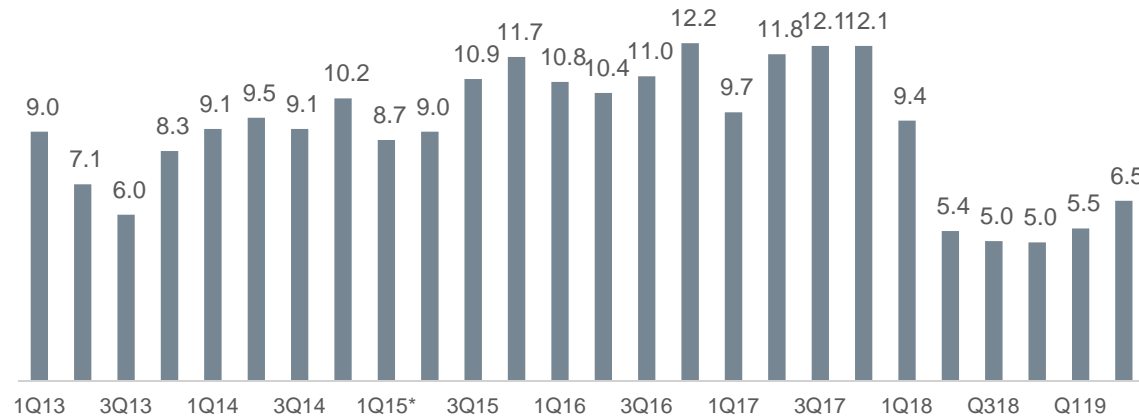
\* Alunorte and Paragominas produced at 50% capacity from March 2018 to May 2019 due to a 50% production embargo on the Alunorte refinery. The production embargo was lifted in May 2019.

# Reduced production at Alunorte and Paragominas, following Alunorte embargo



## Bauxite production in Paragominas

Annualized million tonnes

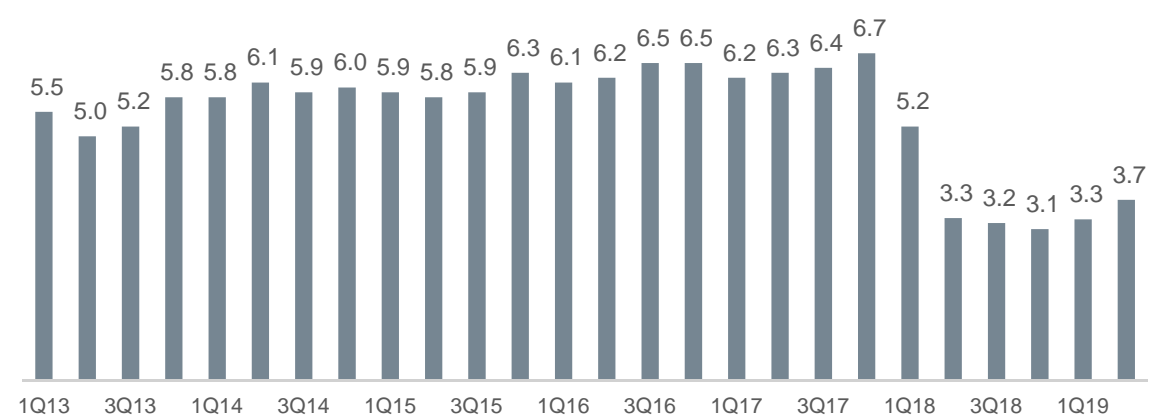


### Paragominas bauxite mine

- Production affected by Alunorte embargo from March 2018 – May 2019, currently ramping-up

## Alumina production at Alunorte

Annualized million tonnes



### Alunorte alumina refinery

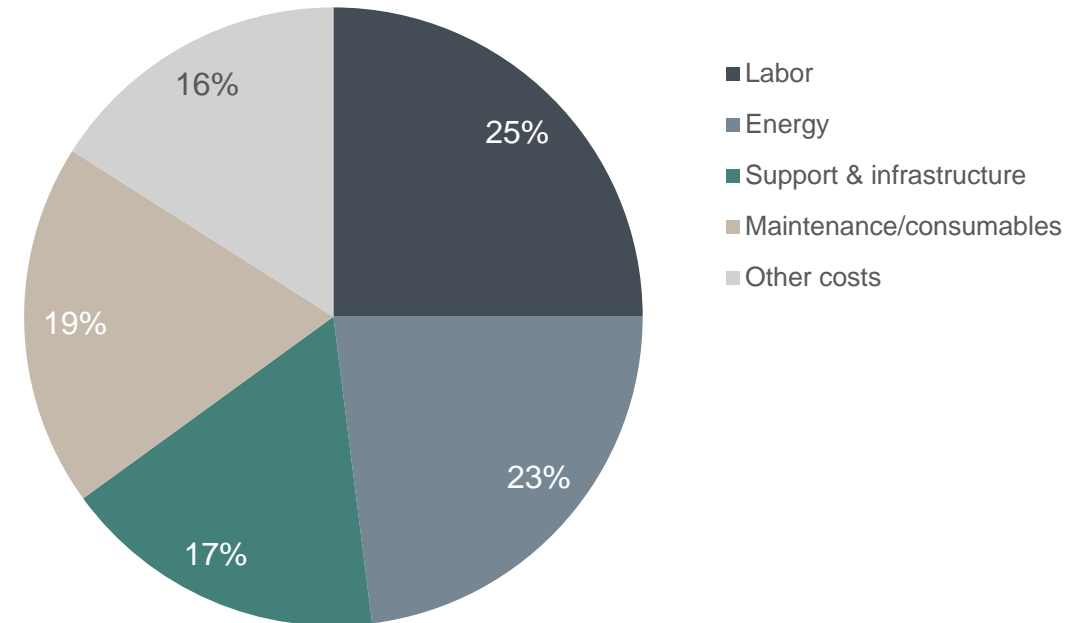
- Production affected by 50% Alunorte embargo from March 2018 – May 2019, currently ramping-up

\* Extended maintenance period in March / April 2015 resulted in lower bauxite production

# Bauxite operational mining costs in Paragominas

- Energy cost - Power and fuel
- Large fixed cost base
- Labor cost
  - Influenced by Brazilian wage level
  - Productivity improvements
- Maintenance and consumables
  - Mainly influenced by Brazilian inflation

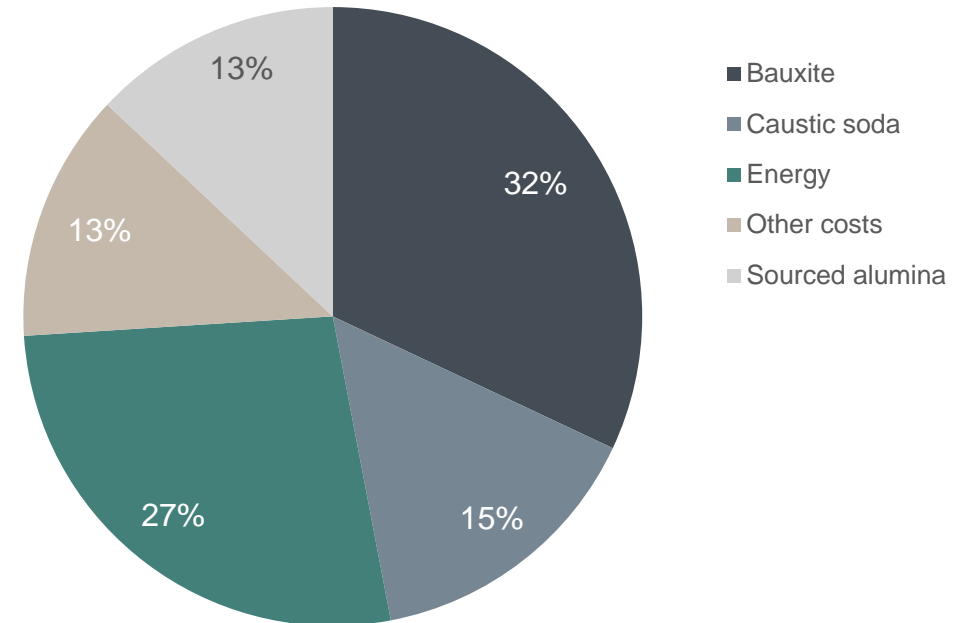
Paragominas bauxite mining costs 2017



# Favorable integrated alumina cost position

- Implied alumina cost 2017 - USD 242 per mt
  - Alunorte, Paragominas and external alumina sourcing for resale
- Implied alumina cost 2018 – USD 358 per mt
  - Short alumina position, additional external sourcing to compensate for the 50% production embargo
- Bauxite
  - Internal bauxite from Paragominas at cost, sourced bauxite from MRN
  - External bauxite sales
- Energy
  - First-quartile energy consumption – 8 GJ/mt
  - Energy mix of heavy fuel oil, coal and electric power
- Caustic soda
  - Competitive caustic soda consumption due to bauxite quality
  - Competitive caustic soda sourcing contracts
- Other costs
  - Maintenance, labor and services

Implied alumina cost<sup>1)</sup> position 2017  
USD 242 per mt

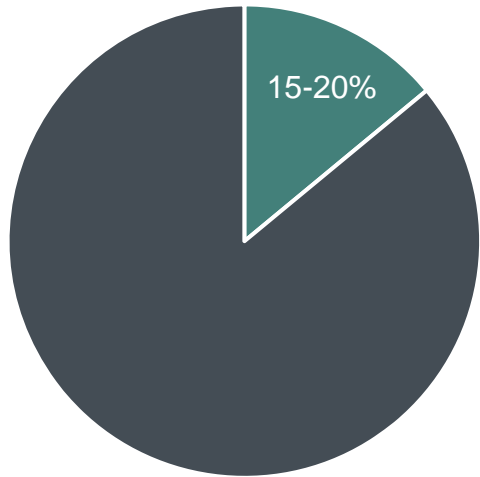


1) Realized alumina price minus Underlying EBITDA for B&A, per mt alumina sales

# Impact on Alunorte and Paragominas cost profiles following 50% curtailment

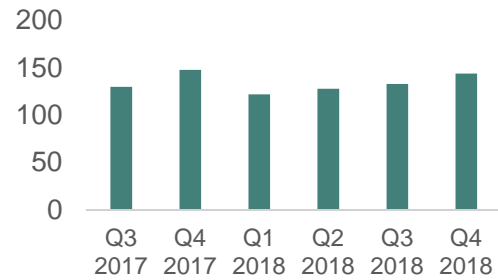
## Alunorte

Alunorte cost split

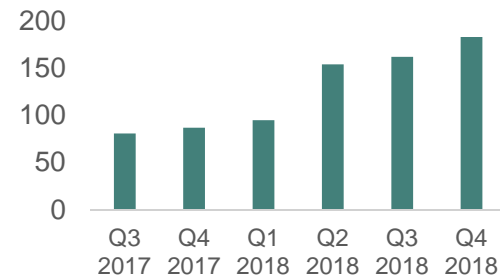


- Fixed costs
- Variable costs

Fixed cost in BRL

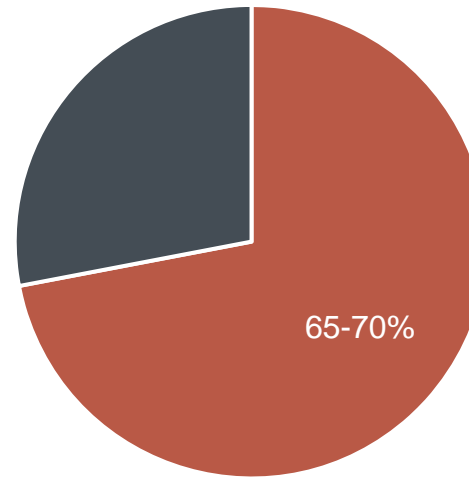


Fixed cost per mt in BRL



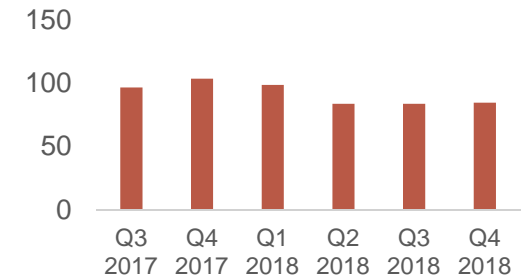
## Paragominas

Paragominas cost split

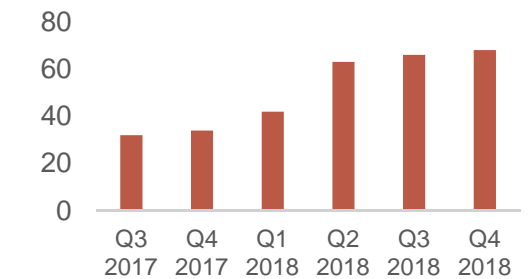


- Fixed costs
- Variable costs

Fixed cost in BRL



Fixed cost per mt in BRL



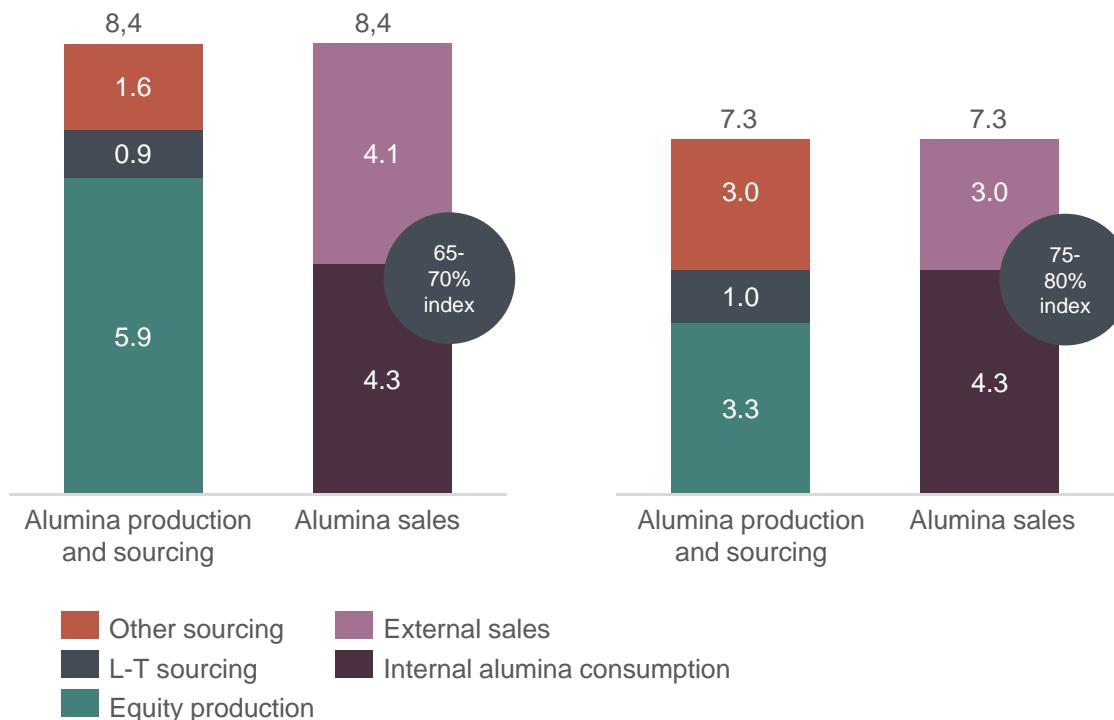
# Strong commercial organization maximizing the value of B&A assets

## Hydro alumina portfolio before and after the Alunorte curtailment<sup>1)</sup>

Million tonnes

### Full Alunorte production (2017)

### After Alunorte curtailment (2018)



## External alumina sourcing

- 2.0-2.5 million mt of external alumina sourced annually
  - 4.0 million mt sourced in 2018 to compensate for the 50% production embargo at Alunorte
  - Additional sourcing mainly on PAX
- Long term off-take agreement with Rio Tinto
  - ~900 000 mt annually from Yarwun refinery
- Short- and medium term contracts
  - To balance and optimize position geographically
  - Various pricing mechanisms
    - Older contracts linked to LME
    - New medium to long term contracts mostly index
    - Fixed USD per mt for spot contracts on index

## From long to short alumina position due to the embargo

- Pricing should reflect bauxite and alumina market fundamentals
- Selling 2.5-3.5 million mt annually of MRN bauxite externally
  - Premium for high bauxite product quality
  - Majority sold to customers in the Atlantic basin
  - Mostly term contracts based on % of PAX and/or fixed USD/mt element
- Selling 3.0-4.0 million mt/yr of alumina externally in a “normal” year
  - In 2018 sold 3.0 million mt externally affected by the production embargo and force majeure clauses
  - Index pricing and short to medium-term contracts
  - New contracts: 100% sold on index, except Hydrate and short-term contracts, normal terms 2-7 years
  - Legacy LME-linked contracts: priced at ~14% of LME 3M

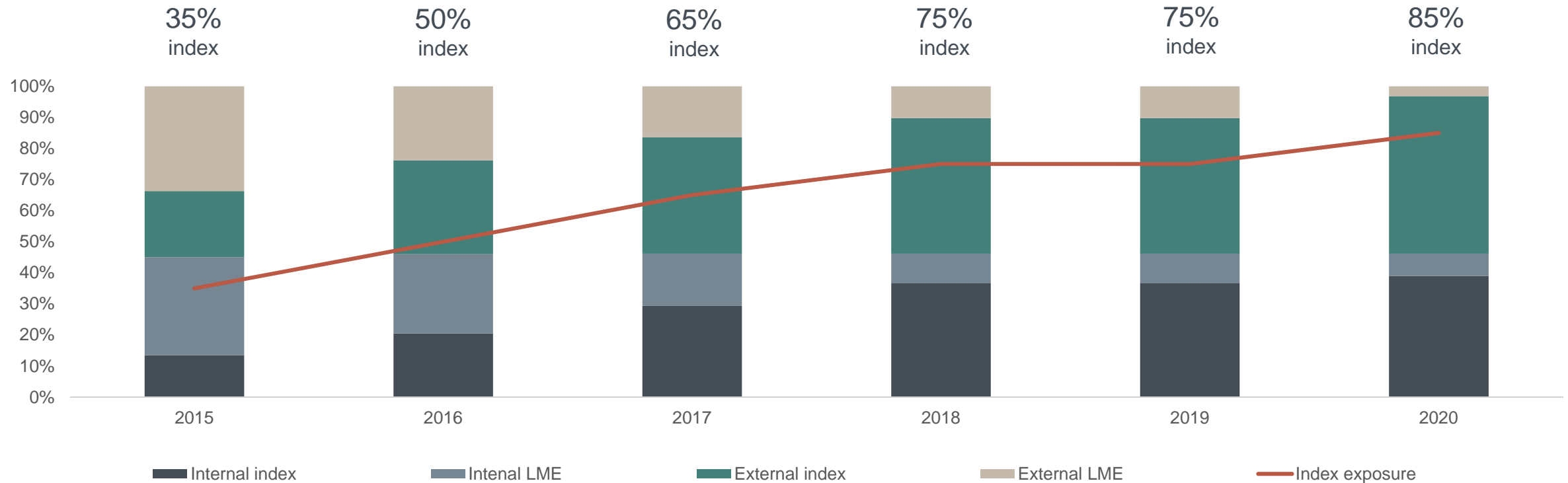
<sup>1)</sup> Alunorte was curtailed in March, Albras in April 2018. Alunorte equity production (92% share). Internal alumina consumption calculated on consolidated basis – including 100% Albras and Svalco, and with 50% Qatalum share.



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

Index pricing the new norm for the industry

Sales exposure to index and short term pricing<sup>1)</sup>



1) Rounded figures. Indicating volumes available for index pricing. Includes minority sales priced at % of LME with floor. Based on annual sourced volumes of around 2.5 mill t, assuming normal production at Alunorte.



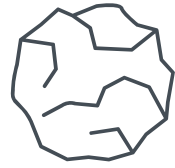
Hydro

Energy

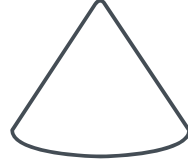
# Energy is a key differentiator in the aluminium industry



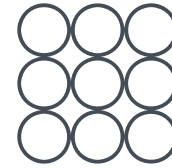
Center of energy excellence in Hydro



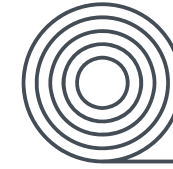
Bauxite



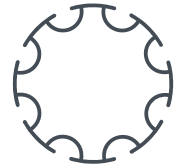
Alumina



Primary



Rolling



Extrusion

|  |  |  |   |  |  |
|--|--|--|---|--|--|
| Energy cost*                                 | ~25%   | ~35%   | ~35%  | ~10%   | ~8%  |
|  | ~50%   |  |   |  |  |
| Energy business area's contribution to Hydro | <ul style="list-style-type: none"> <li>• Power sourcing</li> </ul> | <ul style="list-style-type: none"> <li>• Power sourcing</li> <li>• Fuel switch project (LNG)</li> <li>• Energy mix long term, renewables, storage</li> </ul> | <ul style="list-style-type: none"> <li>• Power sourcing and production</li> <li>• Gas sourcing</li> </ul> | <ul style="list-style-type: none"> <li>• Power sourcing</li> <li>• Gas sourcing</li> </ul> | <ul style="list-style-type: none"> <li>• Power sourcing</li> <li>• Gas sourcing</li> </ul> |

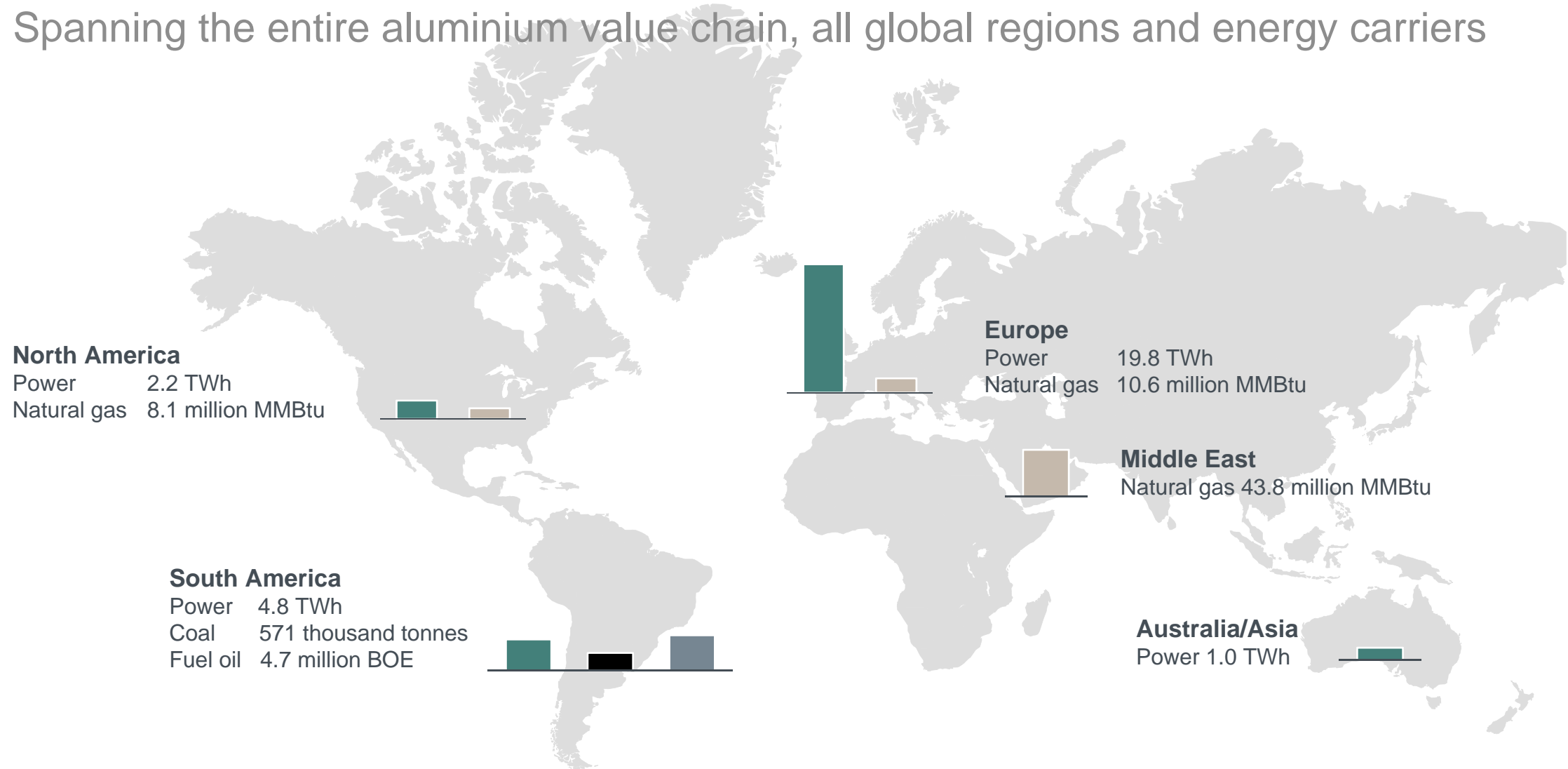
Market understanding. Framework advocacy. «Greener» support & energy efficiency support. Security of supply

\*Share of Business Operating Cash Cost

# Hydro's global primary energy demand



Spanning the entire aluminium value chain, all global regions and energy carriers



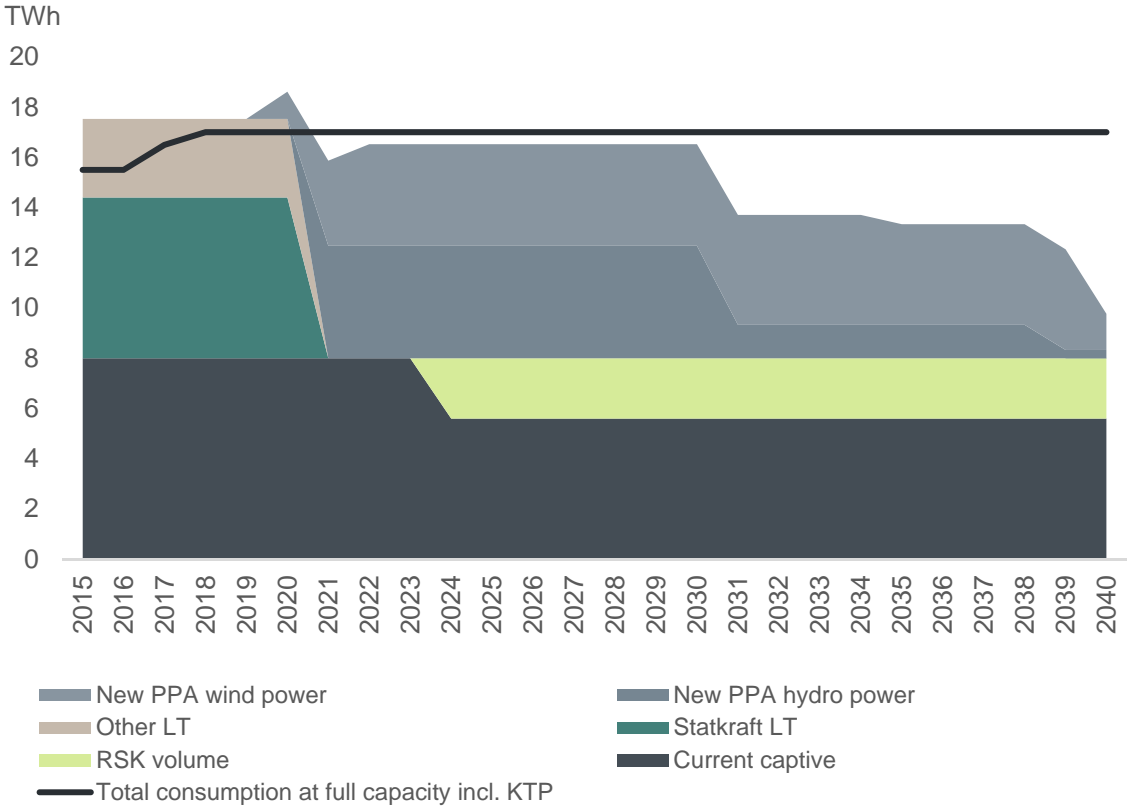
Values are listed in its conventional trading unit. MMBtu= Million British thermal units, ton=metric ton thermal coal, BOE= Barrel of Oil Equivalent.  
Bar charts are represented in the equivalent primary energy size for each category. Primary energy follows IEA's definition.  
Based on equity-adjusted 2017 values for Norsk Hydro's bauxite mines, alumina refineries, smelters, remelters, rolling mills and 2018 estimate for extrusion plants.

# Securing long-term competitive power sourcing for smelters

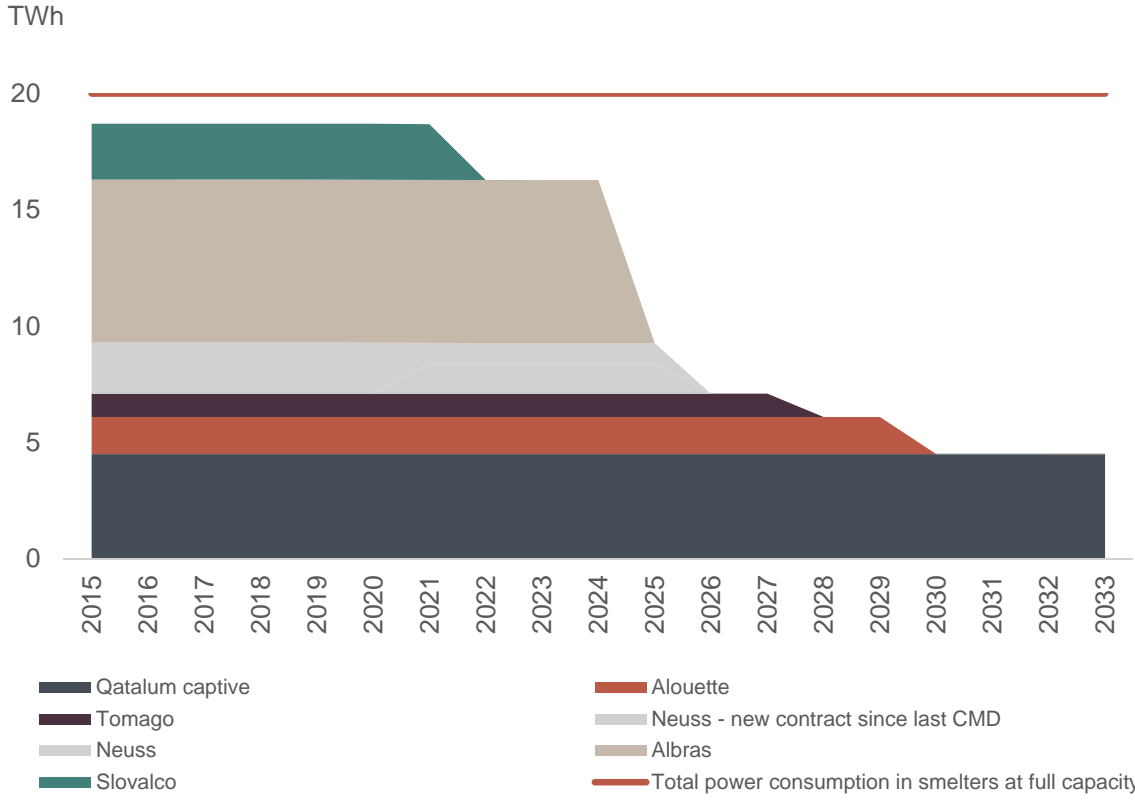


Unique combination of hydro- and windpower

Sourcing platform for fully-owned smelters, Norway<sup>1)</sup>



Sourcing platform for JVs and Neuss smelter<sup>1)</sup>



1) Net 8 TWh captive assumed available for smelters  
 2) Albras and Slovalco on 100% basis

# 10 TWh normal annual power production

## Development in power assets last five years

- 2012: Holsbru and Vasstøl power plants in operation
- 2013: Vigeland acquisition completed, exemption from concession requirement granted
- 2016: Midtlæger and Mannsberg power plants in operation
- Turbine runner projects improving plant efficiency
- Focus: maintain cost control in operations and projects

## New growth projects

- Mature new equity growth options

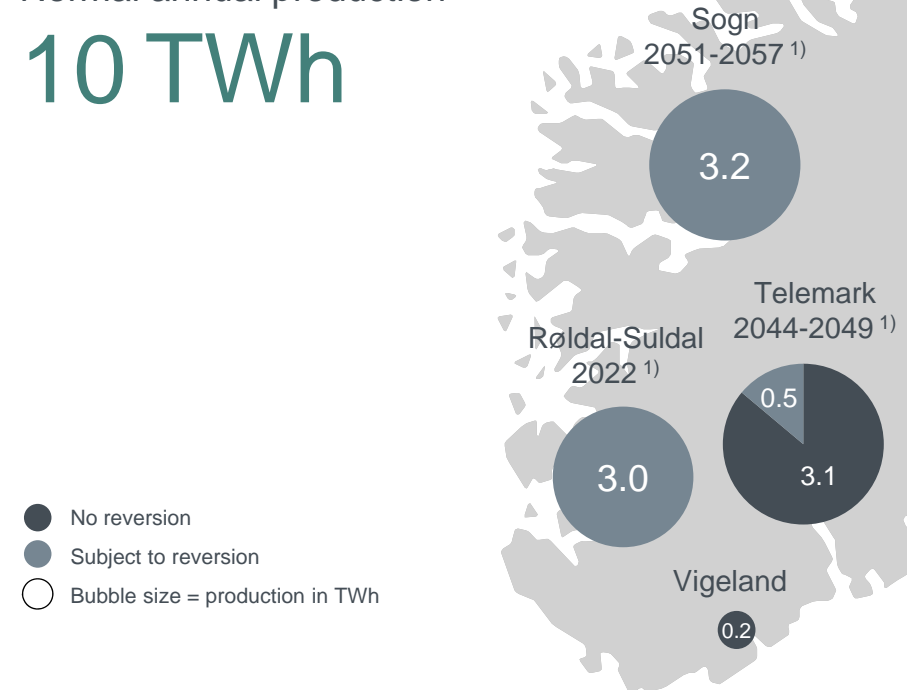
## Framework conditions

- Reversion regime secures full value of energy assets:
  - Prevents further licensing to non-public entities, but allows for everlasting minority private ownership of up to 1/3
  - Law proposal from government on industrial ownership approved by Parliament in June 2016
  - Broad optionality to maintain asset value within the reversion regime

## Power production capacity (TWh), per region and reversion year

Normal annual production

10 TWh



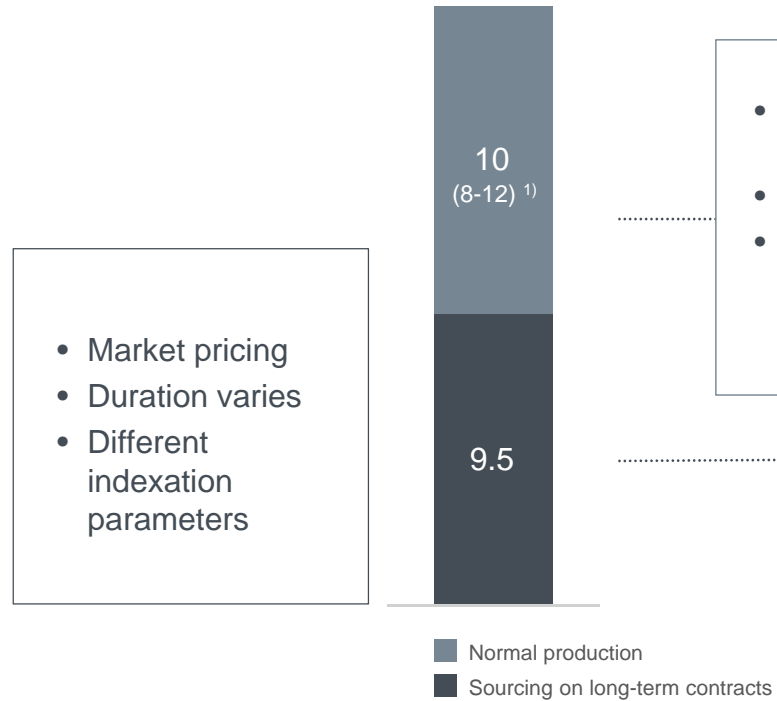
1) Reversion year

# Market pricing principle applied to internal contracts

Based on external price references

Sourcing side

TWh



Revenue side

TWh

- Long-term contract
- Market pricing
- Fixed annual pricing adjustments

Back-to-back

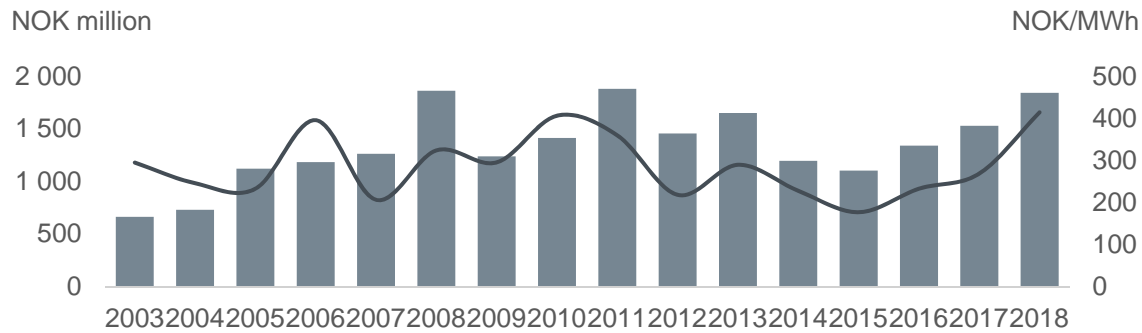


Norway up to 2020

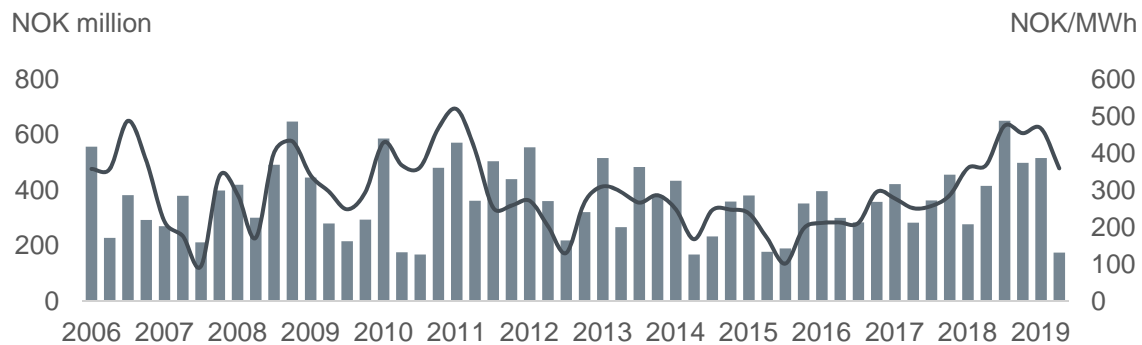
1) Depending on the precipitation level, hydropower production may vary from 8 TWh in a dry year to 12 TWh in a wet year  
 2) Consumption in PM at current production levels and at full installed capacity (incl. Karmøy pilot plant)  
 3) Net spot sales vary depending on the power production level and internal consumption in PM  
 \* Includes legacy external contracts

# Energy earnings drivers

Underlying EBIT<sup>1)</sup> and spot price



Underlying EBIT and spot price



■ Underlying EBIT — Spot price

- Production and market prices strongly linked to hydrological conditions
- Fairly stable annual EBIT contribution
- Seasonal market variations in demand and supply
- Occasional delink between area prices
- Power portfolio optimized versus market
- Stable and competitive cost base:
  - Mainly fixed costs
  - Volume-related transmission costs
- Expiry of legacy supply contract entered in 2008 will have positive effect of NOK 400-500 million from 2021
- New 8 TWh internal contract for power sales to Primary Metal in Norway effective from 2021-30
  - Positive EBIT effect to Energy approximately NOK 300 million
  - Net power sourcing cost, internal and external, for Primary Metal largely unchanged

1) Underlying EBIT 2003–2006 based on USGAAP



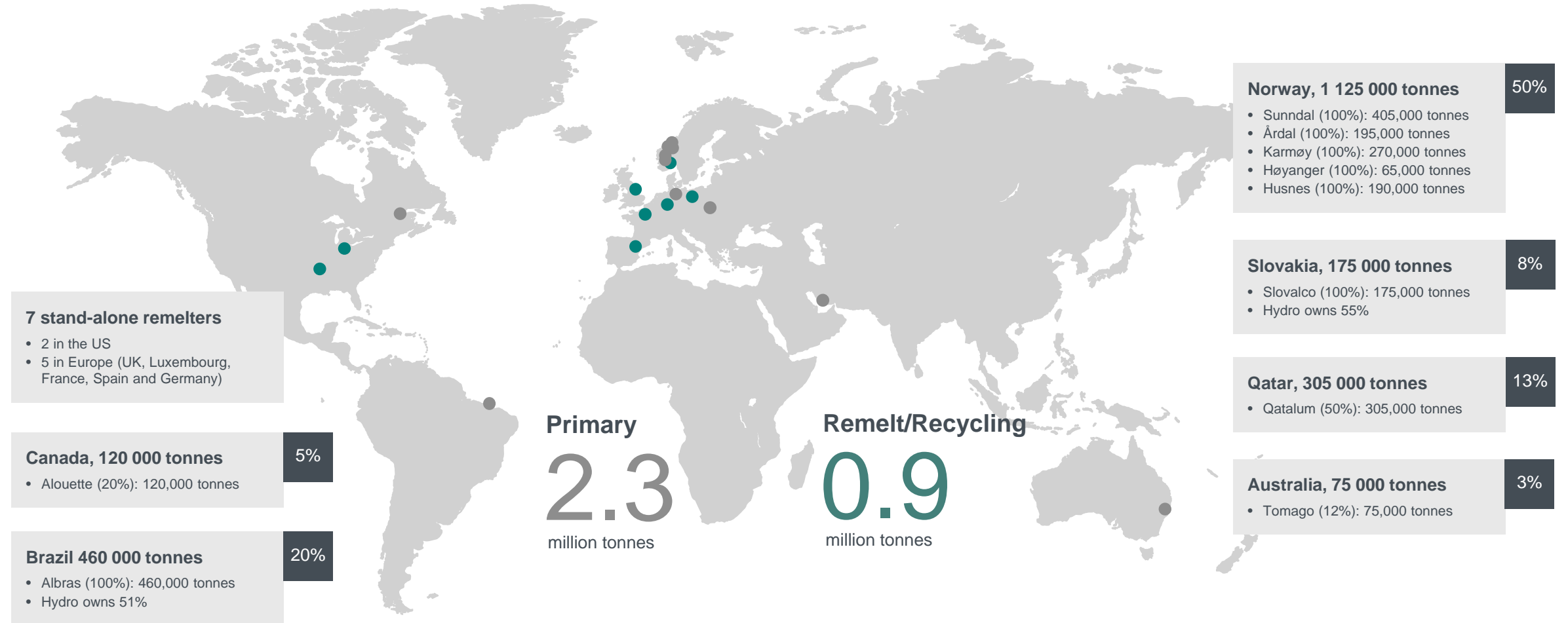


# Primary Metal

# World-wide primary aluminium production network



## Primary Metal and Metal Markets



2.3 million mt is consolidated capacity. Slovalco and Albras are fully consolidated, Tomago and Alouette are proportionally consolidated and Qatalum is equity accounted. Neuss, which is a part of Rolled Products, is not included. 0.9 million mt includes stand-alone remelters, recycling facilities and additional casthouse capacity at primary plants.

# On track with verifying world's most climate and energy efficient electrolysis technology



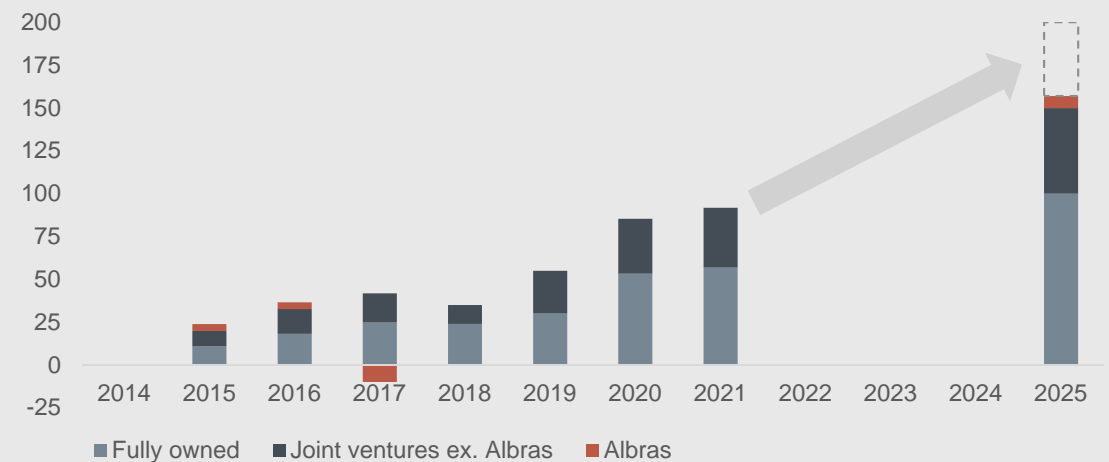
- Karmøy technology pilot
  - 48 HAL4e cells, 12.3 kWh/kg
  - 12 HAL4e Ultra cells, < 11.8 kWh/kg
- All 60 cells in normal operation
- Fine tuning of process parameters, pot tending equipment, and operational practice
- Performance according to plan, but slightly affected by off-grade alumina in Q4 2018
- Performance tests scheduled for 2020

# Spin-off implementation from Karmøy technology pilot started

- Spin off elements are an integral part of improvement programs at all plants
- Business cases carefully considered for each improvement step
  - Volume vs. energy consumption improvements part of the business case evaluations
- Energy consumption and current efficiency improvement potentials are strengthened
  - Spin offs from Karmøy Technology Pilot control platform
  - Digital twin for process control in the electrolysis being rolled out, starting in Sunndal



Creep ambition, in 1000 tonnes



Volumetric increases dependent on positive business cases

# Unlocking new improvements through Industry 4.0 initiatives



40 ongoing projects



Robotics & Automation projects



Trusted Data Layer Casthouse



Soft Sensor incl. Trusted Data Layer



Mobile Maintenance Worker



Trusted Data Layer Carbon + Analytics workbench improvements



Bring Your Own Device

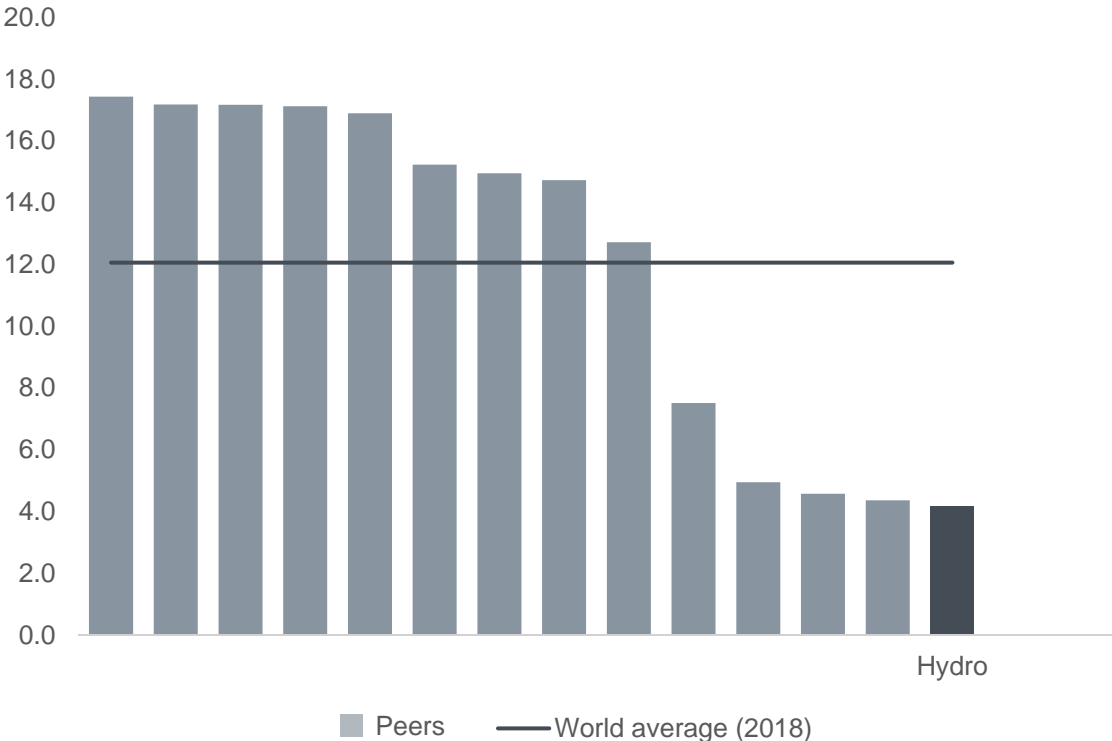
Digital Foundation including Cyber Security

Organization Foundation including Primary Metal Digital Academy

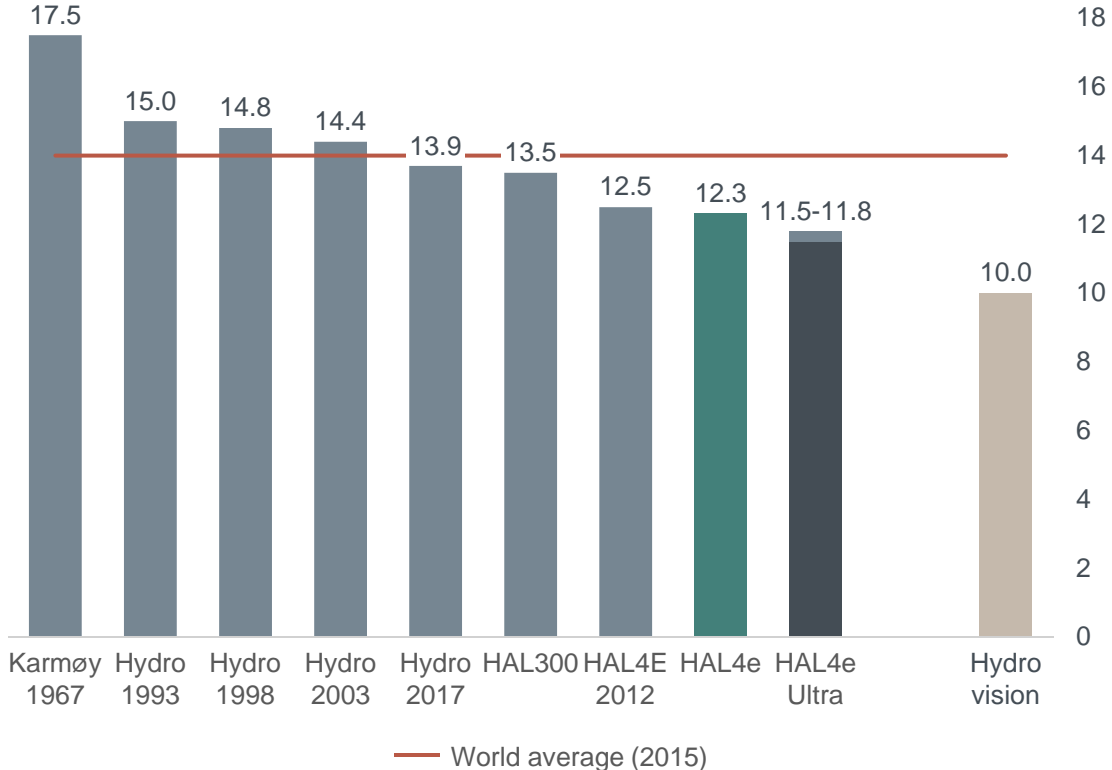
# Low carbon footprint due to renewable energy base and industry lowest energy consumption



Total emissions, in tonne CO2/t al



Energy consumption in Hydro smelters<sup>1)</sup>, kwh/kg al

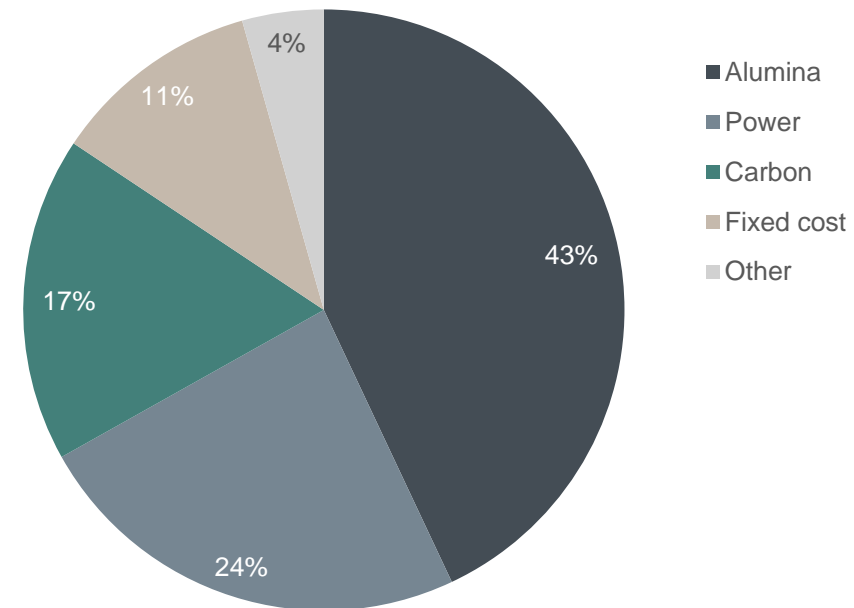


Source: CRU and Hydro analysis  
1) Hydro's consolidated share

# Competitive primary aluminium cash cost

- Primary aluminium cash cost 2018
  - All-in implied primary aluminium cash cost<sup>1)</sup> USD 2 175 per mt
  - LME implied primary aluminium cash cost<sup>2)</sup> USD 1 825 per mt
- Alumina
  - Alumina prices for 2018 heavily affected by Alunorte curtailment
  - Alumina from both internal and external sources
  - Purchases based on alumina index ~80%<sup>4)</sup>
  - Purchased based on LME link ~20%
- Power
  - Long-term contracts
  - 2/3 of power need from renewable power
  - Contracts with a mix of indexations; inflation, LME, coal, fixed
- Carbon
  - 2-3 year contracts for petroleum coke and pitch, quarterly pricing
- Fixed costs
  - Maintenance, labor, services and other
- Other
  - Other direct costs and relining

Liquid aluminium cash cost 2018<sup>3)</sup>



1) Realized LME aluminium price minus underlying EBITDA margin, including Qatalum, per mt primary aluminium sold  
2) Realized LME aluminium price minus underlying EBITDA margin, including Qatalum, per mt primary aluminium produced  
3) Pie chart based on cost of producing liquid aluminium, not directly comparable to the LME or All-in implied primary aluminium cash cost  
4) More alumina purchases on indexes due to Alunorte curtailment



# Metal Markets

10Mg min



# Strong position in value-added casthouse products



- Capitalizing on value-added casthouse products portfolio
- Extensive multi-sourcing system including fully- and part-owned primary casthouses and stand-alone remelters
- Flexible sourcing system enabling rapid and cost effective volume adjustments
- Value creation from margin management based on commercial expertise and risk management competence
- Strong market positions in Europe, US and Asia



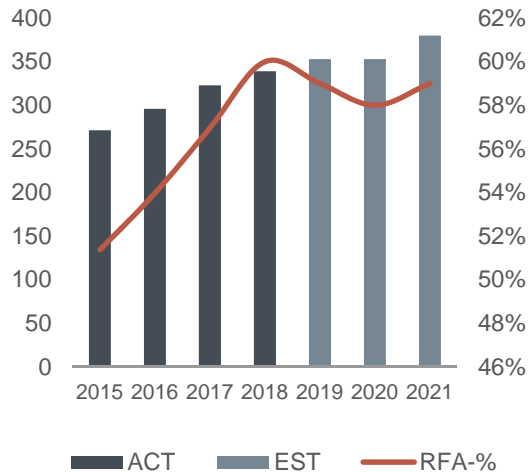
|  |  |  |
|--|--|--|
| <b>Extrusion ingot</b><br>1.6 million mt |  | <b>Leading global position</b><br>Unique primary and recycling capacity network          |
| <b>Foundry alloys</b><br>0.5 million mt  |  | <b>Leading global position</b><br>Strong capabilities in all automotive segments         |
| <b>Sheet ingot</b><br>0.3 million mt     |  | <b>Leading European position</b><br>Well positioned to capture automotive growth         |
| <b>Wire rod</b><br>0.1 million mt        |  | <b>Leading European position</b><br>Market attractively supported by copper substitution |
| <b>Standard ingot</b><br>0.4 million mt  |  | <b>Leading global position</b><br>Global flow optimization through key positions         |

# Market-driven expansion in recycling

Developing and investing in capacity and solutions

## Targeting 40% increase in RFA Sales

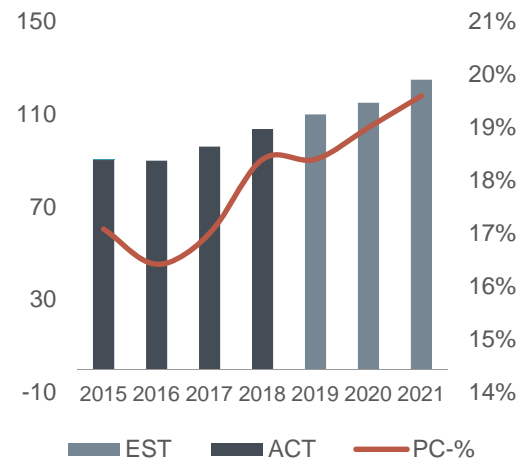
RFA sales for EI remelters, in mt



Sales of Recycling Friendly Alloys (RFA) from remelters to increase by more than 100 000 mt from 2015 to 2021 (around 60% of total)

## Targeting 40% increase in post-consumer scrap usage

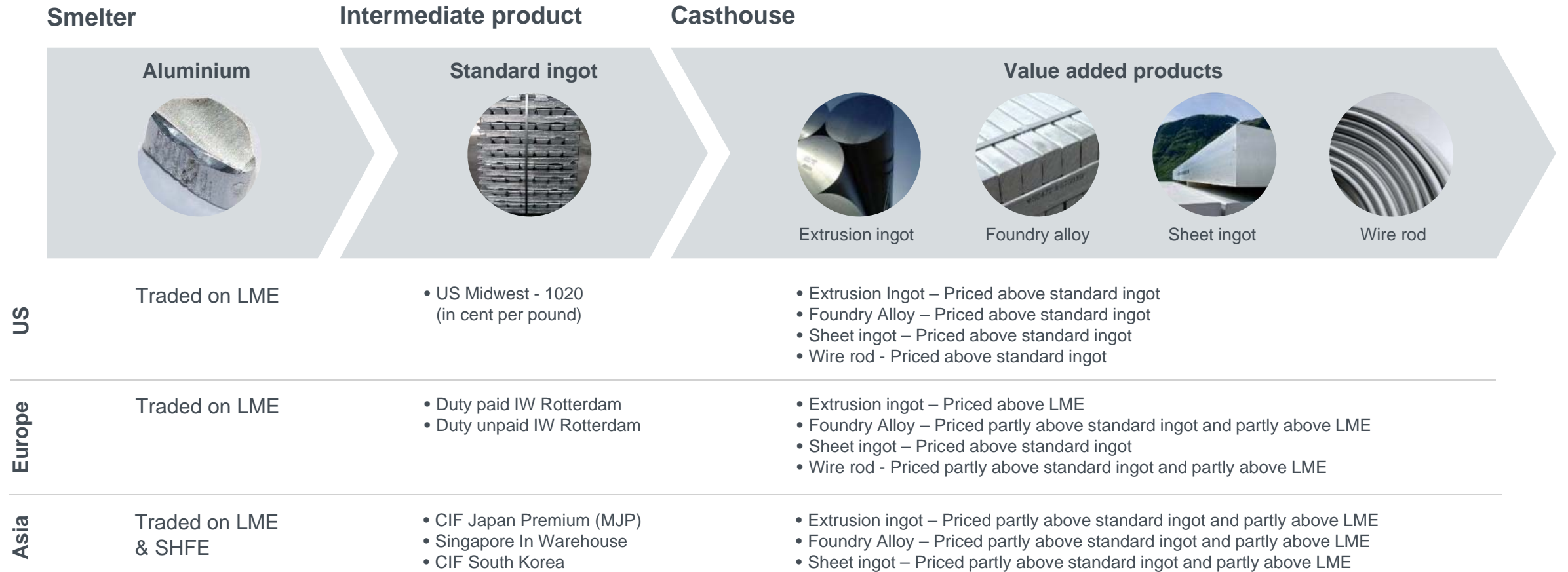
Post-consumer scrap usage, in mt



Usage of post-consumer scrap to increase from ~90 000 mt in 2015 to ~125 000 mt in 2021



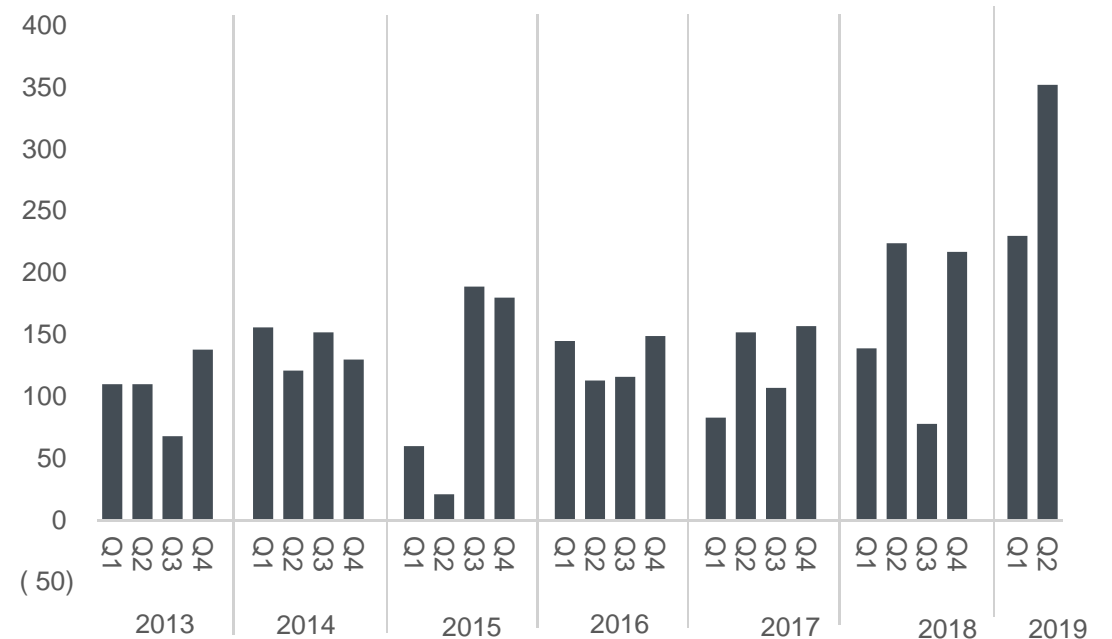
# Pricing of value-added products



# Metal Markets earnings drivers

- Remelters
  - Revenue impact – volume and product premiums above LME
  - Cost impact
    - Scrap and standard ingot premiums above LME
    - Raw material mix
    - Freight cost – proximity to market
    - Energy consumption and prices
- Other main businesses
  - Physical and LME trading
  - Third-party products
- Results influenced by currency fluctuations and inventory valuation effects
- Underlying EBIT ex. currency and inventory valuation effects at around 500 MNOK per year

Underlying EBIT excluding currency effects and inventory valuation effect, NOK million<sup>1)</sup>



1) Underlying EBIT ex. currency and ingot inventory valuation effect have been restated for 2013 and 2014



# Rolled Products

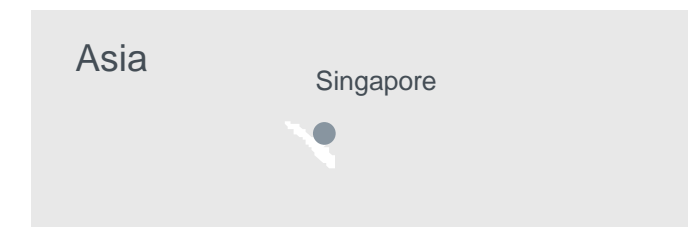
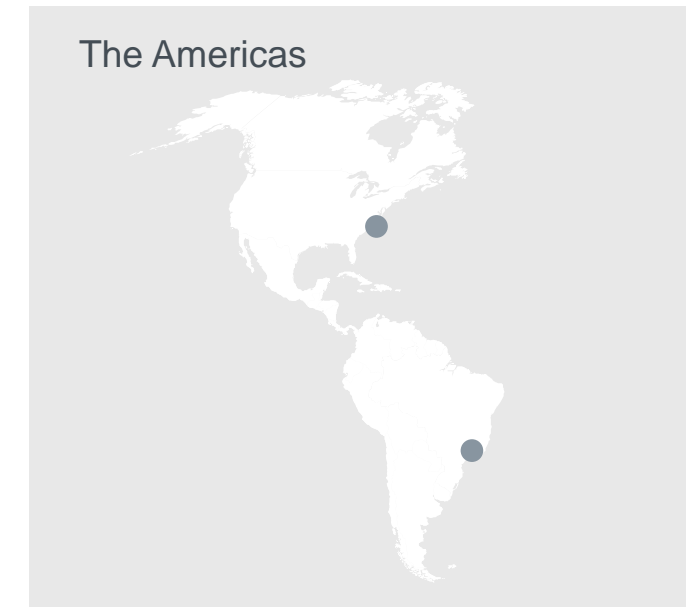
# Hydro Rolled Products



Strong European production base and global sales force

**~1 million tonnes of flat rolled products per year**

- Unique integrated aluminium cluster
  - Dedicated smelter
  - World's largest rolling mill
  - Dedicated conversion mills
- Casthouse network and integrated recycling capacity
- Industry-leading R&D facility



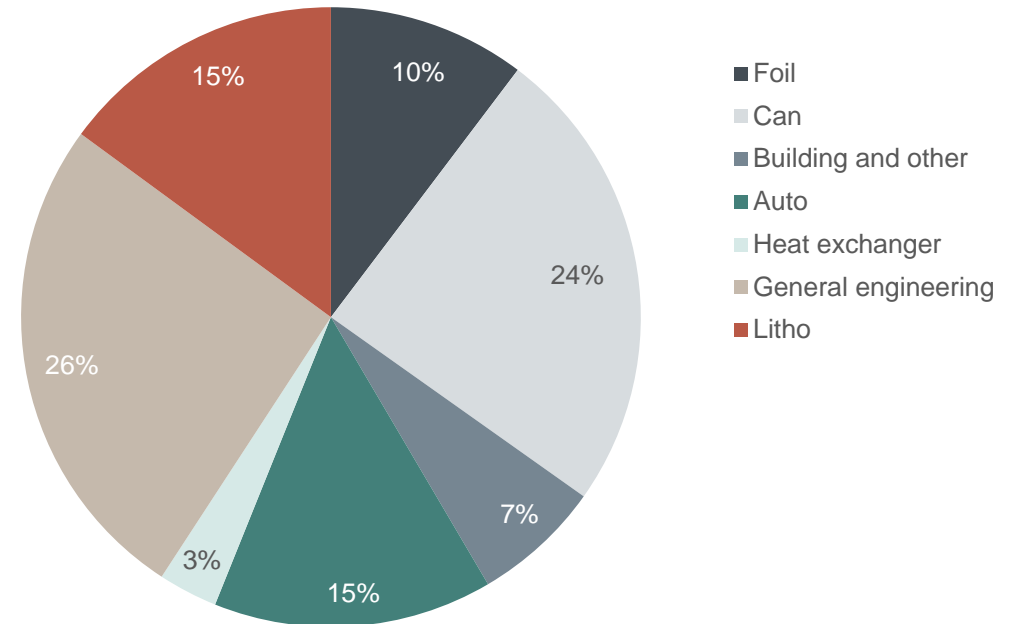
● Rolling mill ● Sales Office ● Smelter ● R&D centre

# Major flat rolled products producer in Europe

- World leader in high-end products foil and litho
  - Alunorf (JV 50%) – world's largest rolling mill
  - Grevenbroich plant – world's largest multi-product finishing mill
- High-grading product portfolio
  - Margin management and cash generation
  - Portfolio adjustment towards higher margins
- Capitalize on automotive market growth
  - Investment in new automotive body-in-white capacity
  - Ramp-up ongoing
- Strengthen recycling position
  - Investment in new Used Beverage Can (UBC) recycling line
  - Production started beginning of 2016, ramp-up ongoing
  - Targeting stable output at 40 000 mt run-rate by end 2019

External sales in tonnages 2018

Total 951 kT



# Strong positions in rolled products market segments



Portfolio high-grading and strong focus on quality and service as key elements for success

|                       |   |  |   |   |   |
|-----------------------|---|--|---|---|---|
|                       |  |  |  |  |  |
| <b>Ambition</b>       | <b>Automotive</b><br>Gain No.2 position in European BiW <sup>1)</sup>             | <b>Foil</b><br>Strengthen global No. 1 in high-end plain foil                      | <b>Beverage can</b><br>Grow into No.2 position in Europe                            | <b>Lithography</b><br>Strengthen global No.1 position                               | <b>Special products</b><br>Strengthen No.1 positions in Europe                      |
| <b>Main customers</b> |  |  |  |  |  |
| <b>Focus/ Status</b>  | Growing more than the market  | Focusing product portfolio   | Shift to attractive european market   | Competitors stepping out  | >10% growth in strategic products   |

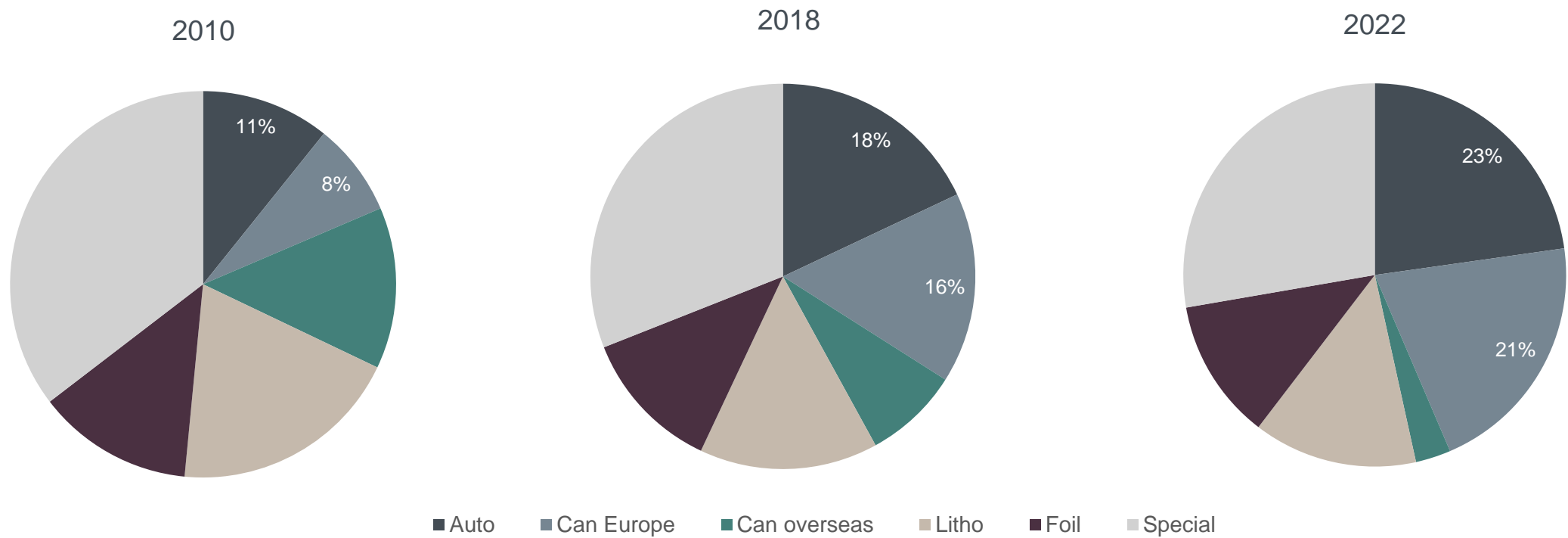
1) Body-in-White



# Doubling of automotive share with ramp-up of Automotive line 3

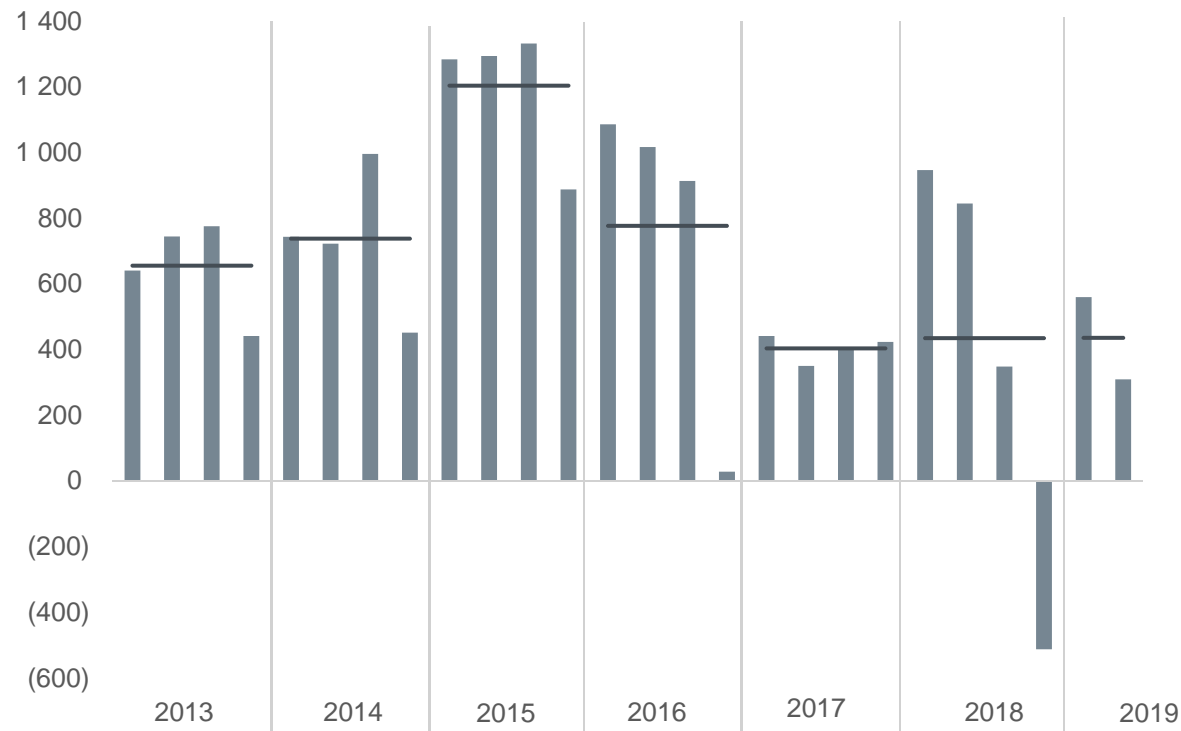
Automotive to support high-grading ambitions

Sales by segment



# Rolled Products earnings drivers

Underlying EBIT per tonne, NOK



- Contract structure
  - Margin business based on conversion price
    - LME element passed on to customers
  - Range from spot contracts to multi-year contracts
- High share of fixed costs - volume sensitive
- Annual seasonality driven by maintenance and customer activity
  - Q4 typically the weakest quarter of the year
- Preferred supplier market position in high-end products



# Extruded Solutions

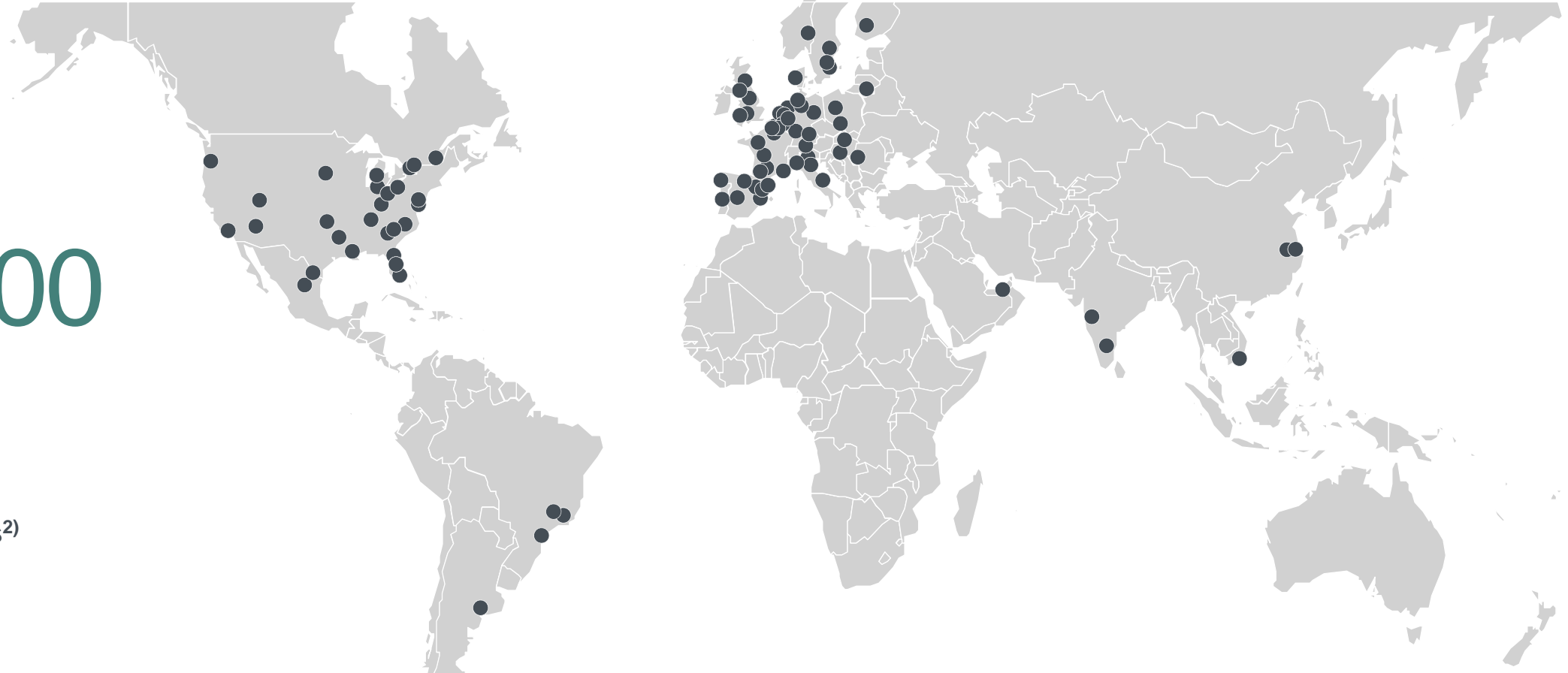
# Extruded Solutions – #1 in the global aluminium extrusion industry



Present in  
**~40**  
countries

**22 400**  
people <sup>1)</sup>

**1.4**  
Million mt sales<sup>2)</sup>



1) As of end-2016  
2) 2018

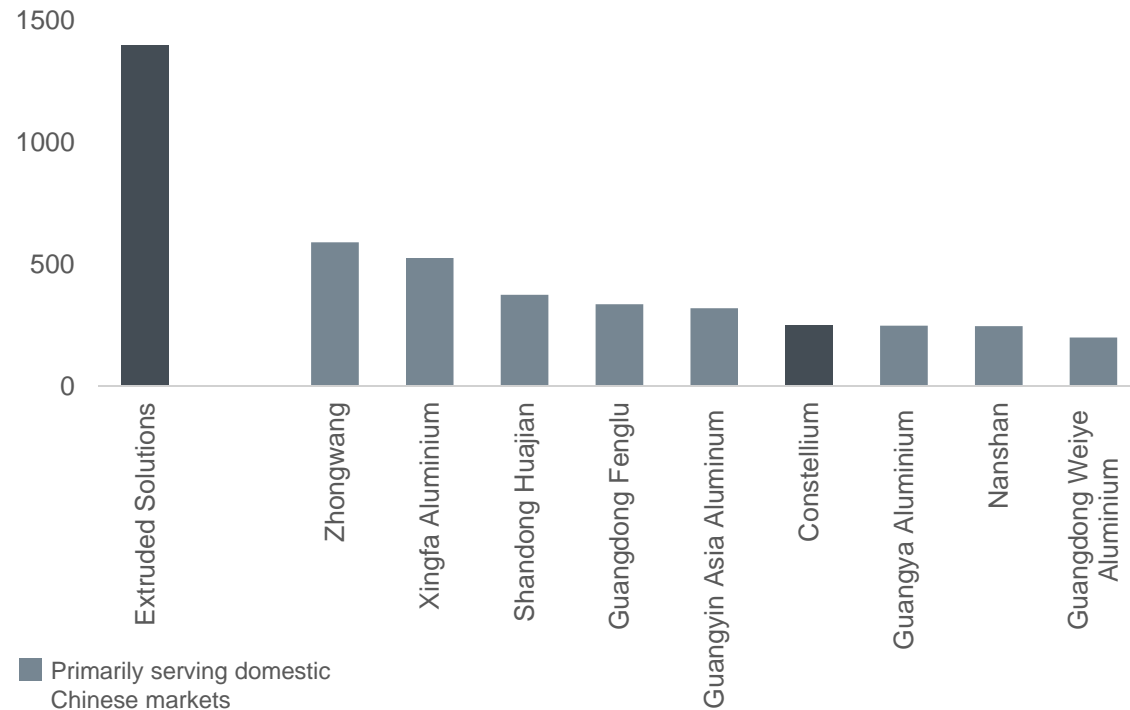
# The global extrusion champion – worldwide reach, local presence



Clear leader in a fragmented industry where closeness to customers and markets are key success factors

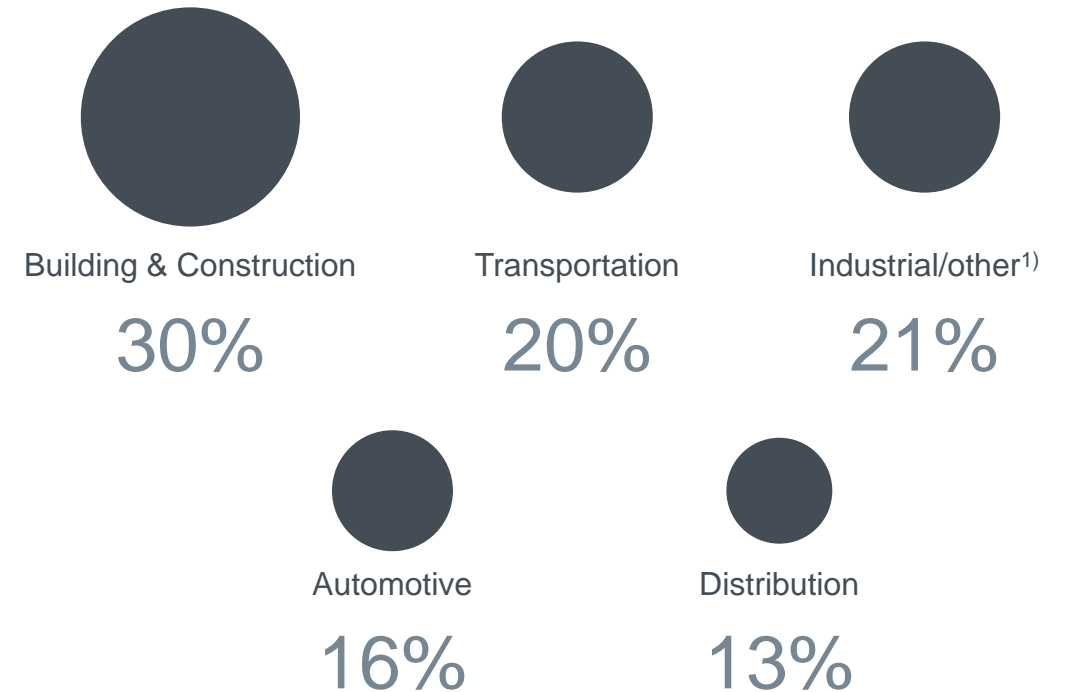
## Unrivalled position as #1 extrusions provider globally

Extrusion sales volume (2018), in thousand mt



## Customers in diversified end-markets

(Share of Extruded Solutions sales volumes in 2018)



Source: CRU  
\* Including HVAC&R, Heating, ventilation, air conditioning and refrigeration

# Organized in four business units to maximize synergies across units

22,700 highly competent people across the world, total turnover of BNOK 64

## Extrusion Europe



- Market leader focusing on value-added products
- 20% market share
- 40 locations, 9,700 people

|                  |                 |
|------------------|-----------------|
| Revenue          | EBIT            |
| <b>BNOK 24.9</b> | <b>BNOK 0.7</b> |

## Extrusion North America



- Uniquely positioned as the only coast-to-coast supplier
- 24% market share
- 23 locations, 6,400 people

|                  |                 |
|------------------|-----------------|
| Revenue          | EBIT            |
| <b>BNOK 25.0</b> | <b>BNOK 1.3</b> |

## Precision Tubing



- Technology leader in selected market niches
- 35% market share globally
- 17 locations, 3,500 people

|                 |                 |
|-----------------|-----------------|
| Revenue         | EBIT            |
| <b>BNOK 7.2</b> | <b>BNOK 0.2</b> |

## Building Systems

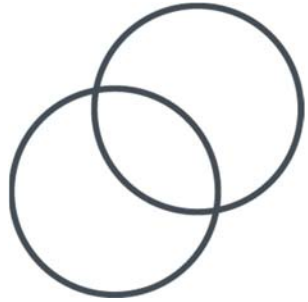


- Leading European player with multi-brand portfolio
- 20% market share in Europe
- Presence in 29 countries, 2,900 people

|                 |                 |
|-----------------|-----------------|
| Revenue         | EBIT            |
| <b>BNOK 8.1</b> | <b>BNOK 0.4</b> |

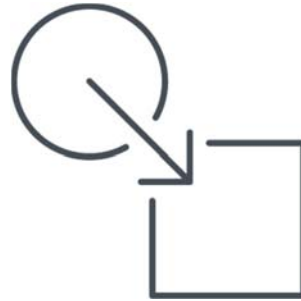
# Successful value-over-volume strategy

Targeting the high-tech, high-competence segments of extrusion



**Simplify and collaborate**

Simplification drive to increase focus, reduce complexity and cost



**Deliver value-added to our customers**

Higher share of value-added solutions to customers through commercial excellence and innovation



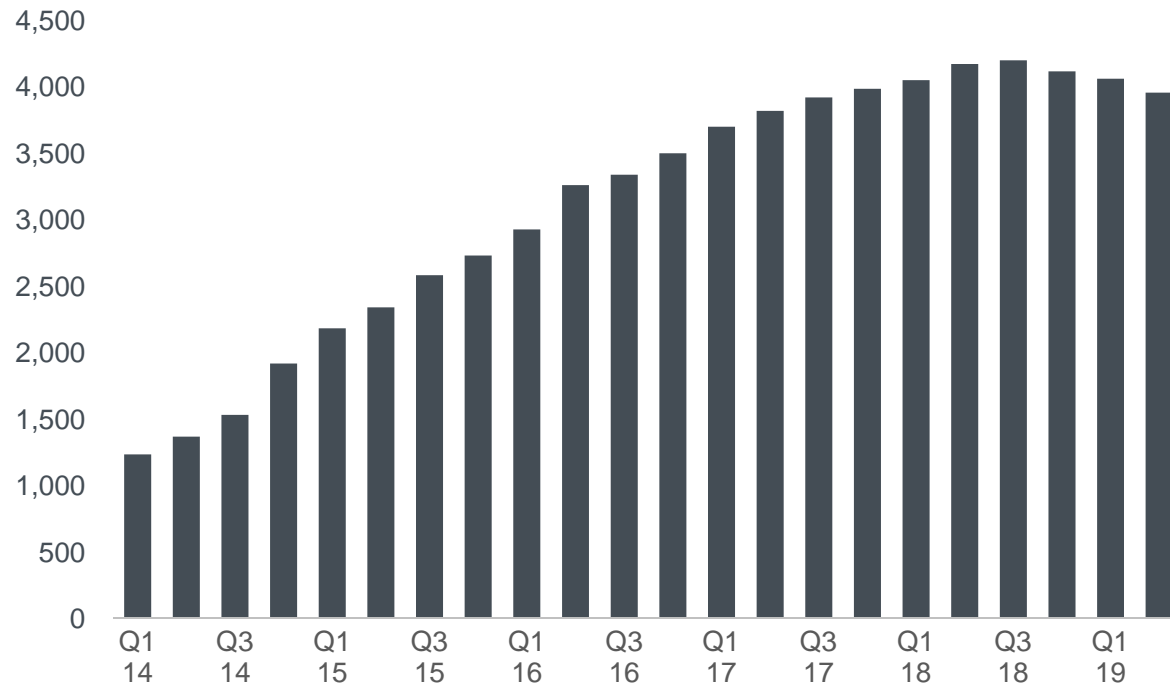
**Grow to lift margins and profitability**

Lifting margins and creating more customer value through selective growth

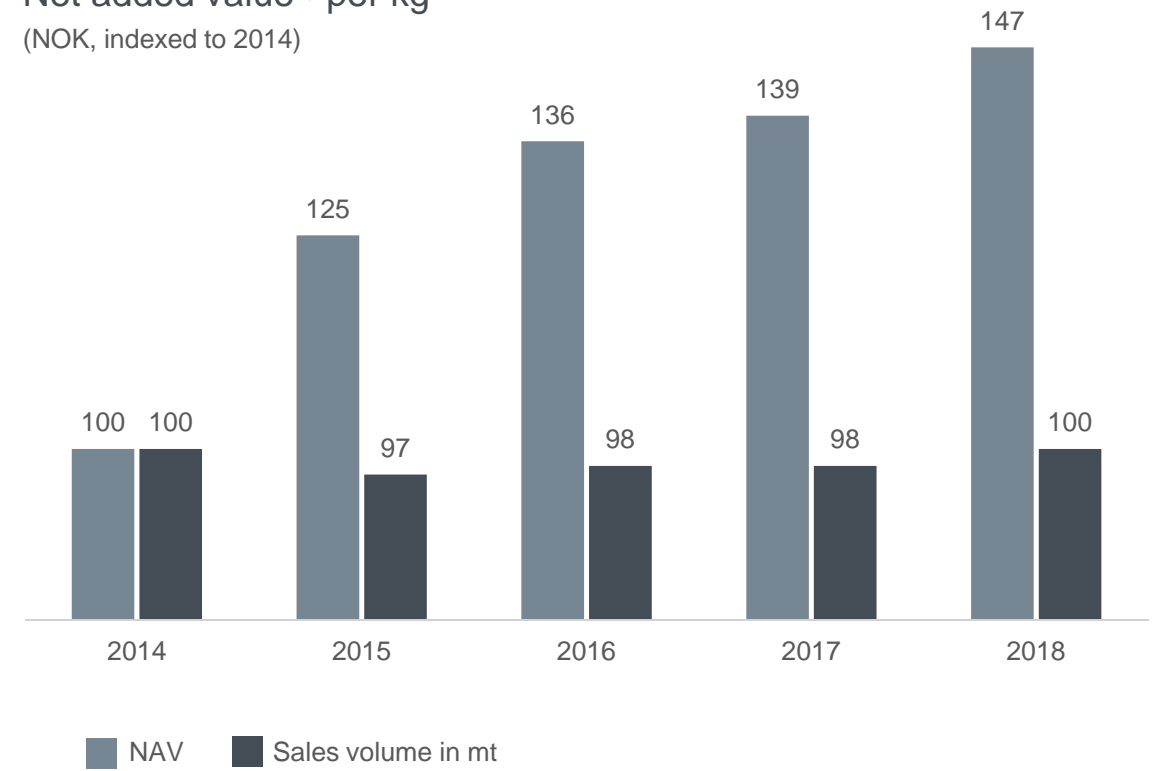
# Proven track-record of value creation with further potential



Last 12 months underlying EBITDA  
in MNOK



Net added value<sup>1)</sup> per kg  
(NOK, indexed to 2014)

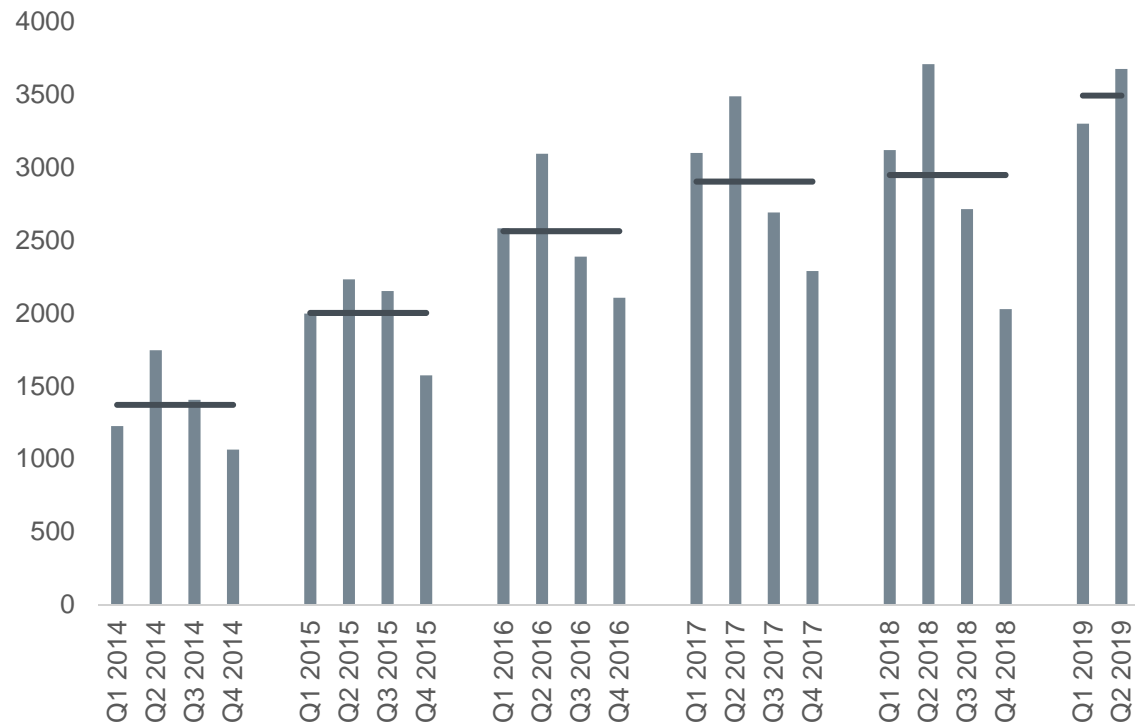


1) Net Added Value: calculated as operating revenues less cost of material, including freight costs out



# Extruded Solutions earnings drivers

Underlying EBITDA per tonne<sup>1)</sup>, NOK



- Extruded Solutions aims to deliver minimum 10% average annual underlying EBIT growth over the next three years<sup>2)</sup>
- Contract structure
  - Margin business based on conversion price
    - LME element passed on to customers
  - Mostly short-term contract, typically ranging from spot to 12 months, few longer term contracts with floating price or hedging in place
- High share of variable costs – high level of flexibility
- Annual seasonality driven by maintenance and customer activity
  - Stronger Q1 and Q2, weaker Q3 and Q4
- Strong focus on increasing value add to customers
- Preferred supplier market position in high-end products

1) Pro-forma figures

2) Ambition includes smaller bolt-on acquisitions with capex frames for the coming years in line with 2018



# Additional information

# Prudent financial framework



Managing industry cyclicality, driving long-term shareholder value

## Lifting cash flow potential

Improving efficiency, strengthening margins

Improvement efforts

- 4.5 BNOK 2009-2015
- 3.0 BNOK target 2016-2019<sup>1)</sup>
- 1.8 BNOK 2016-2017
- (0.6) BNOK 2016-2018<sup>2)</sup>

Optimizing Net operating capital

## Financial strength and flexibility

Investment grade credit rating

Financial ratio targets over the cycle

- FFO/aND <sup>3)</sup> > 40%
- aND/E <sup>4)</sup> < 55%

Strong liquidity

## Disciplined capital allocation

Long-term sustaining capex below depreciation

- ~6.5-7.0 BNOK average 2019E-2021E

Total capex incl. growth

- 2018 ~7.8 BNOK<sup>5)</sup>

Selective value-add growth

Attractive organic growth prospects and M&A optionality

## Predictable dividend policy

Sector competitive TSR

1.25 NOK/share dividend for 2018

Dividend policy

- 40% payout ratio of Net income over the cycle
- Dividend 1.25 NOK/share to be considered as floor

Special dividends and share buybacks in the toolbox

## Effective risk management

Volatility mitigated by strong balance sheet and relative positioning

Hedging policy

- Operational LME and currency hedging
- Limited financial hedging

Diversified business

1) Real 2015 terms

2) The Better improvement ambition in 2018 was 2.9 BNOK behind the 2018 cumulative target of 2.3 BNOK due to the Alunorte situation. 3 BNOK 2019 target will not be reached.

3) Funds from operations / adjusted net debt

4) Adjusted net debt / Equity

5) In the fourth quarter of 2018, investments were reduced with certain indirect tax charges in Brazil not completely deducted and claimed at the time of investment. A review of deductibility resulted in reduction of asset costs for Bauxite & Alumina and Primary Metal of ~0.8 BNOK. Including the adjustment, 2018 capex amounted to BNOK 7.0

# Hydro's aspiration underpinned by firm financial targets



Medium and long-term

|                                     | Ambition                  | Timeframe      | 2018 status                     |
|-------------------------------------|---------------------------|----------------|---------------------------------|
| <i>Better</i> improvement ambition  | 3.0 BNOK                  | 2016-2019      | (0.6) BNOK<br>2018              |
| Dividend payout ratio               | 40% of net income         | Over the cycle | ~57% <sup>1)</sup><br>2014-2018 |
| FFO/adjusted net debt <sup>2)</sup> | > 40%                     | Over the cycle | 44%<br>2018 <sup>5)</sup>       |
| Adjusted net debt/Equity            | < 55%                     | Over the cycle | 33%<br>2018 <sup>5)</sup>       |
| URoACE                              | Competitive <sup>3)</sup> | Over the cycle | 6.4 % <sup>3,4)</sup><br>2018   |

*Better Bigger Greener*

1) Payout ratio 5 year average – dividend per share divided by earnings per share from continuing operations for the last 5 years

2) FFO – funds from operations

3) Measured against a relevant peer group

4) Underlying return on average capital employed after tax (URoACE)

5) The figures per December 31, 2018 were restated due to the implementation of IFRS16.

# Shareholder and financial policy

- Hydro aims to give its shareholders competitive returns compared to alternative investments in comparable companies
- Dividend policy
  - Average ordinary payout ratio: 40% of reported net income over the cycle
  - 1.25 NOK/share to be considered as a floor, as of Q4 2016
  - Share buybacks and extraordinary dividends as supplement in periods with strong financials and outlook
  - 2018 dividend 1.25 NOK/share, vs. 1.75 NOK/share in 2017
  - Five-year average ordinary pay-out ratio 2014-2018 of ~57%
- Maintain investment-grade credit rating
  - Currently: BBB stable (S&P) & Baa2 stable (Moody's)
  - Competitive access to capital is important for Hydro's business model (counterparty risk and partnerships)
- Financial ratios over the business cycle
  - Funds from operations to adjusted net debt > 40%
  - Adjusted net debt to equity < 55%
- Strong liquidity
  - NOK 10.6 billion in cash and cash equivalents, end-Q2 2019
  - USD 1.7 billion in multi-currency revolving credit facility maturing in 2020

# Hedging policy



- Hedging strategy
  - Fluctuating with the market: primarily exposed to LME and USD
  - Volatility mitigated by strong balance sheet
  - Strengthening relative position to ensure competitiveness
- Diversified business
  - Upstream cyclicalities balanced with more stable earnings downstream
  - Exposed to different markets and cycles
- Bauxite & Alumina
  - Currency exposure, mainly USD and BRL
  - Exposed to LME and Platts alumina index prices
- Primary Metal
  - Operational LME hedging - one-month forward sales
  - Currency exposure, mainly USD, NOK and BRL
- Metal Markets, Rolled Products
  - Operational LME and currency hedging to secure margin
- Flexibility to hedge LME or currency in certain cases

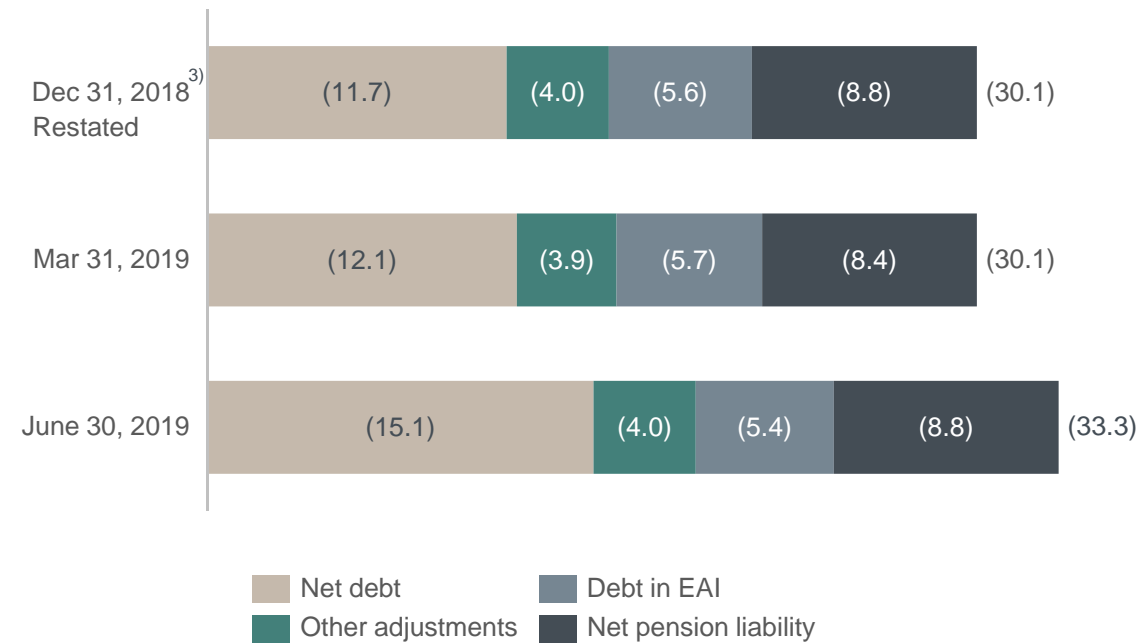
# Maintaining a solid balance sheet and investment-grade credit rating



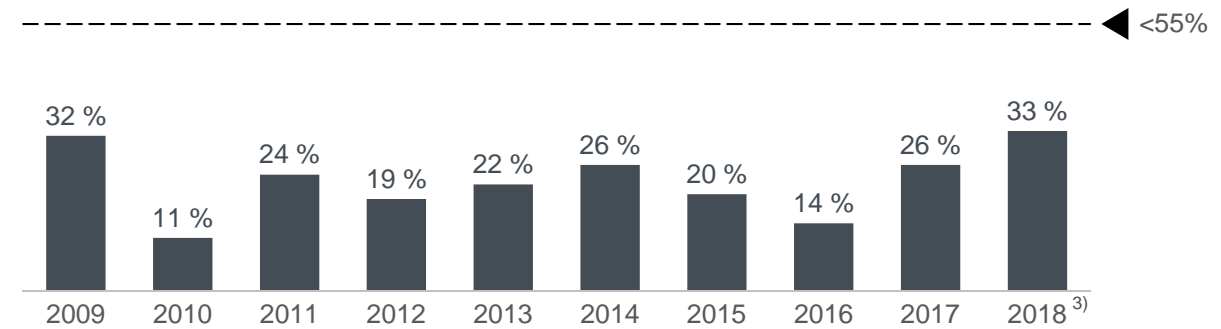
Funds from operations determine the balance sheet structure

## Adjusted net debt

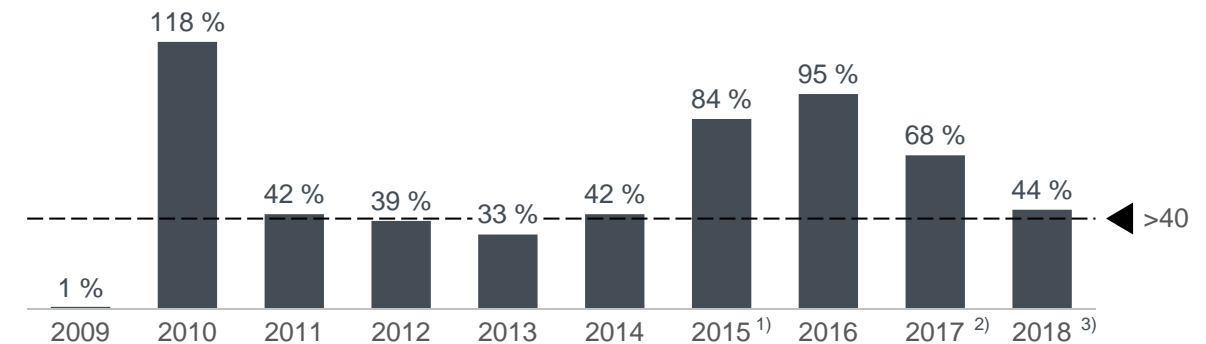
BNOK



## Adjusted net debt / Equity



## Funds from operations / Adjusted net debt

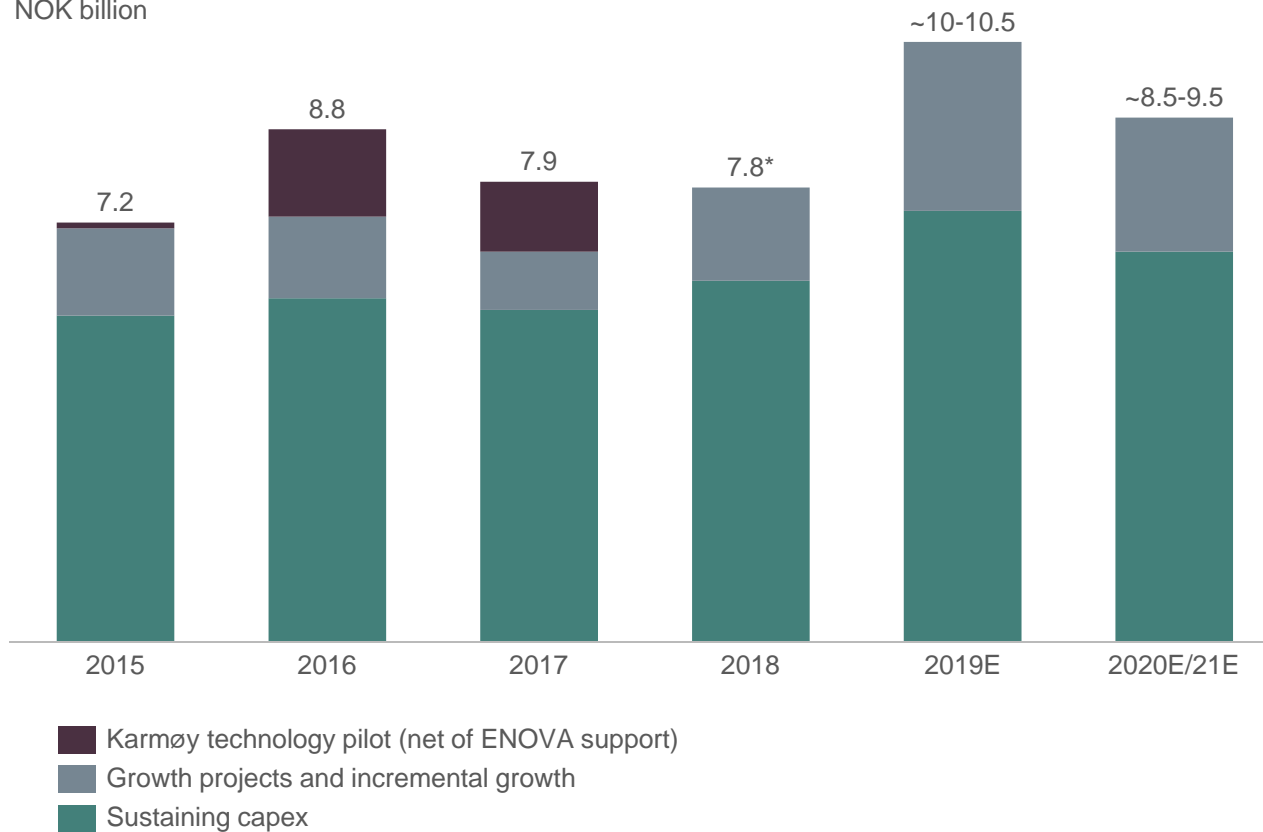


1) 2015 FFO/aND ratio has been restated due to change of definition  
 2) Extruded Solutions reflected as 50% equity accounted investment Q1-Q3 2017 and fully consolidated in Q4 2017  
 3) The figures per December 31, 2018 were restated due to the implementation of IFRS16.

# Growth capex focused on incremental growth and productivity improvements

Majority of sustaining capex allocated upstream

NOK billion



- Sustaining projects for 2018-2021:
  - Pipeline replacement in B&A
  - PM rectifiers and asset integrity Albras
  - Smelter relining
  - Alunorte robustness
- Ongoing growth projects:
  - Husnes upgrade and restart
  - Capacity creep and Industry 4.0 in PM
  - Selected customer-driven growth in ES
  - Productivity improvements across the portfolio
- Capex related to specific growth projects will be announced when decision is made

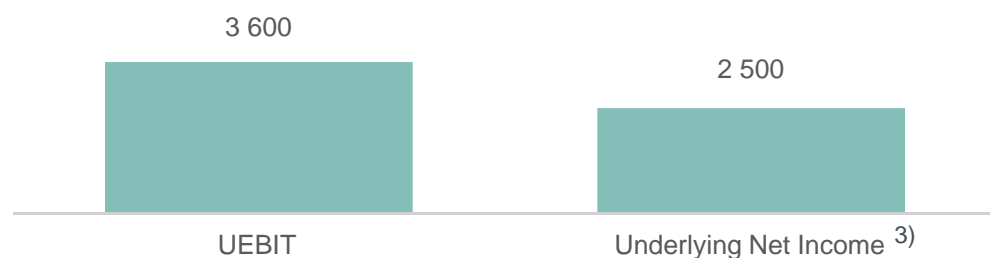
\*In the fourth quarter of 2018, investments were reduced with certain indirect tax charges in Brazil not completely deducted and claimed at the time of investment. A review of deductibility resulted in reduction of asset costs for Bauxite & Alumina and Primary Metal of ~0.8 BNOK. Including the adjustment, 2018 capex amounted to BNOK 7.0 Capex including Extruded Solutions

# Significant exposure to commodity and currency fluctuations



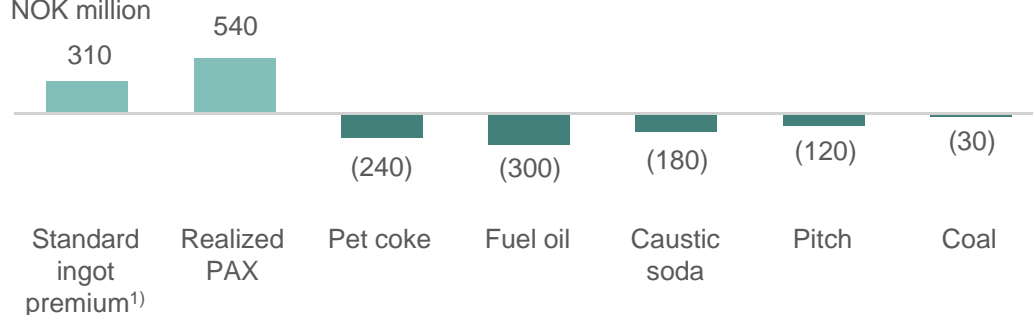
## Aluminium price sensitivity +10%

NOK million



## Other commodity prices, sensitivity +10% <sup>1)</sup>

NOK million



## Currency sensitivities +10%

Sustainable effect:

| NOK million | USD   | BRL     | EUR   |
|-------------|-------|---------|-------|
| UEBIT       | 3 680 | (1 110) | (240) |

One-off reevaluation effect:

|                 |    |     |         |
|-----------------|----|-----|---------|
| Financial items | 40 | 800 | (3 200) |
|-----------------|----|-----|---------|

- Annual sensitivities based on normal annual business volumes (incl. 100% production at Alunorte, Paragominas and Albras) and Q219 realized prices as a starting point LME USD 1 860 per mt, standard ingot premium 150 USD/mt, PAX 380 USD/mt, fuel oil USD 530 per mt, petroleum coke USD 300 per mt, pitch 700 USD/t, caustic soda USD 360 per mt, coal USD 50 per mt, USD/NOK 8.6, BRL/NOK 2.3, EUR/NOK 9.7
- Aluminium price sensitivity is net of aluminium price indexed costs and excluding unrealized effects related to operational hedging
- BRL sensitivity calculated on a long-term basis with fuel oil assumed in USD. In the short-term, fuel oil is BRL-denominated
- Excludes effects of priced contracts in currencies different from underlying currency exposure (transaction exposure)
- Currency sensitivity on financial items includes effects from intercompany positions
- 2018 Platts alumina index (PAX) exposure used
- U NI sensitivity calculated as U EBIT sensitivity after 30% tax

1) Europe duty paid

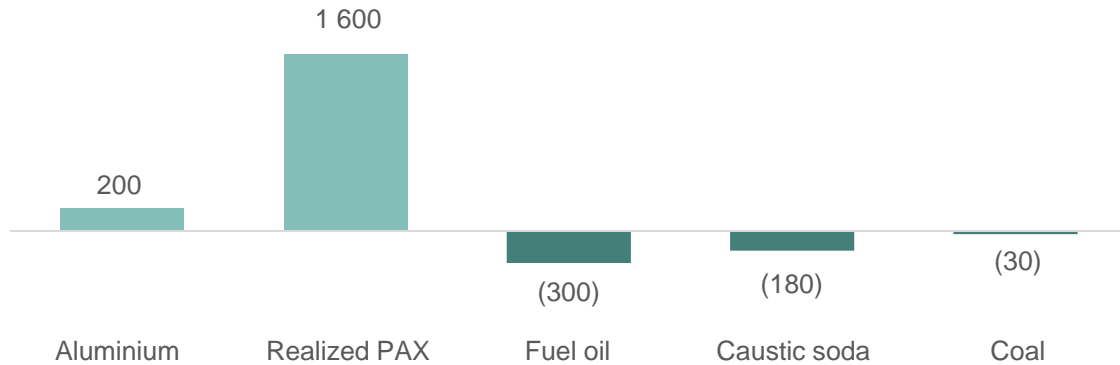


# Bauxite & Alumina sensitivities



## Annual sensitivities on underlying EBIT if +10% in price

NOK million



## Currency sensitivities +10%

| NOK million | USD   | BRL   | EUR |
|-------------|-------|-------|-----|
| UEBIT       | 1 380 | (750) | -   |

## Revenue impact

- ~14% of 3-month LME price per tonne alumina with 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

### Caustic soda

- ~0.1 tonnes per tonne alumina
- Prices based on IHS Chemical, pricing mainly monthly per shipment

### Energy

- ~0.12 tonnes coal per tonne alumina, Platts prices, one year volume contracts, weekly per shipment pricing
- ~0.11 tonnes heavy fuel oil per tonne alumina, prices set by ANP/Petrobras in Brazil, weekly pricing (ANP) or anytime (Petrobras)
- Increased use of coal as energy source in Alunorte

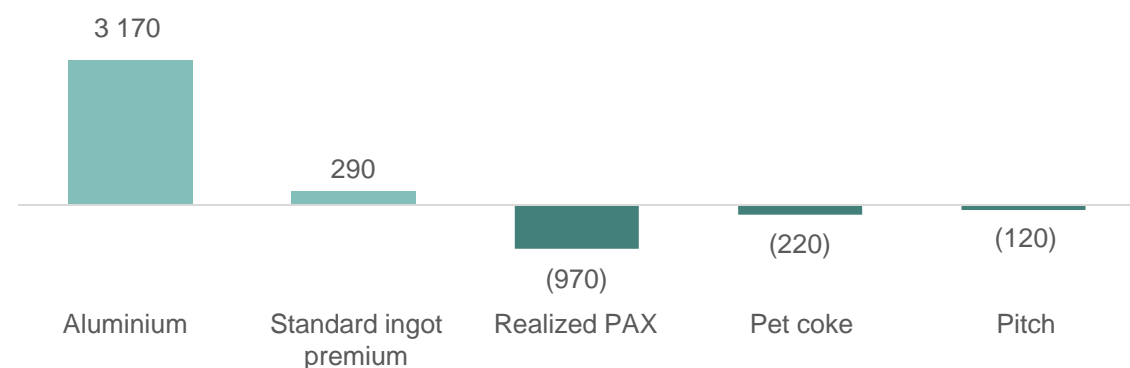
Annual sensitivities based on normal annual business volumes (incl. 100% production at Alunorte, Paragominas and Albras) and Q219 realized prices as a starting point LME USD 1 860 per mt, standard ingot premium 150 USD/mt, PAX 380 USD/mt, fuel oil USD 530 per mt, petroleum coke USD 300 per mt, pitch 700 USD/t, caustic soda USD 360 per mt, coal USD 50 per mt, USD/NOK 8.6, BRL/NOK 2.3, EUR/NOK 9.7  
BRL sensitivity calculated on a long-term basis with fuel oil assumed in USD. In the short-term, fuel oil is BRL-denominated. 2018 Platts alumina index (PAX) exposure used

# Primary Metal sensitivities



## Annual sensitivities on underlying EBIT if +10% in price

NOK million



## Currency sensitivities +10%

| NOK million | USD   | BRL   | EUR   |
|-------------|-------|-------|-------|
| UEBIT       | 1 900 | (360) | (250) |

## Revenue impact

- Realized price lags LME spot by ~1-2 months
- Realized premium lags market premium by ~2-3 months

## Cost impact

### Alumina

- ~1.9 tonnes per tonne aluminium
- ~14.5% of 3-month LME price per tonne alumina, increasing volumes priced on Platts index
- ~ 2-3 months lag

### Carbon

- ~0.40 tonnes petroleum coke per tonne aluminium, Pace Jacobs Consultancy, 2-3 year volume contracts, quarterly or half yearly pricing
- ~0.08 tonnes pitch per tonne aluminium, CRU, 2-3 year volume contracts, quarterly pricing

### Power

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

# Items excluded from underlying results - 2019



| NOK million (+=loss/)=gain)                                    |                               | Q1 2019     | Q2 2019     |
|--|-------------------------------|-------------|-------------|
| Alunorte agreements - provision                                | Bauxite & Alumina             | 35          | 14          |
| <b>Total impact</b>  | <b>Bauxite &amp; Alumina</b>  | <b>35</b>   | <b>14</b>   |
| Unrealized derivative effects on LME related contracts         | Primary Metal                 | 122         | (15)        |
| Unrealized effects on power contracts                          | Primary Metal                 | 27          | (35)        |
| <b>Total impact</b>  | <b>Primary Metal</b>          | <b>149</b>  | <b>(50)</b> |
| Unrealized derivative effects on LME related contracts         | Metal Markets                 | 222         | (62)        |
| <b>Total impact</b>  | <b>Metal Markets</b>          | <b>222</b>  | <b>(62)</b> |
| Unrealized derivative effects on LME related contracts         | Rolled Products               | (77)        | 60          |
| Metal effect   | Rolled Products               | 267         | 3           |
| <b>Total impact</b>  | <b>Rolled Products</b>        | <b>191</b>  | <b>63</b>   |
| Unrealized derivative effects on LME related contracts         | Extruded Solutions            | (77)        | 27          |
| Impairment charges   | Extruded Solutions            | -           | 28          |
| Significant rationalization charges and closure costs          | Extruded Solutions            | -           | 200         |
| Transaction related effects                                    | Extruded Solutions            | -           | 35          |
| Other effects  | Extruded Solutions            | 26          | -           |
| <b>Total impact</b>  | <b>Extruded Solutions</b>     | <b>(51)</b> | <b>289</b>  |
| Unrealized derivative effects on power contracts               | Energy                        | 6           | 2           |
| <b>Total impact</b>  | <b>Energy</b>                 | <b>6</b>    | <b>2</b>    |
| Unrealized derivative effects on power contracts               | Other and eliminations        | (21)        | (39)        |
| Unrealized derivative effects on LME related contracts         | Other and eliminations        | 10          | 1           |
| <b>Total impact</b>  | <b>Other and eliminations</b> | <b>(11)</b> | <b>(39)</b> |
| <b>Items excluded from underlying EBIT</b>                     | <b>Hydro</b>                  | <b>539</b>  | <b>219</b>  |
| Net foreign exchange (gain)/loss                               | Hydro                         | (208)       | 451         |
| <b>Items excluded from underlying income (loss) before tax</b> | <b>Hydro</b>                  | <b>331</b>  | <b>670</b>  |
| Calculated income tax effect                                   | Hydro                         | (83)        | (198)       |
| <b>Items excluded from underlying net income (loss)</b>        | <b>Hydro</b>                  | <b>248</b>  | <b>472</b>  |

# Items excluded from underlying results - 2018



| NOK million (+=loss/)=gain)                                    |                               | Q1 2018      | Q2 2018      | Q3 2018      | Q4 2018      | Year 2018    |
|--|-------------------------------|--------------|--------------|--------------|--------------|--------------|
| Alunorte agreements - provision                                | Bauxite & Alumina             | -            | -            | 519          | -            | 519          |
| <b>Total impact</b>  | <b>Bauxite &amp; Alumina</b>  | <b>-</b>     | <b>-</b>     | <b>519</b>   | <b>-</b>     | <b>519</b>   |
| Unrealized derivative effects on LME related contracts         | Primary Metal                 | (114)        | (41)         | 101          | (89)         | (143)        |
| Unrealized effects on power contracts                          | Primary Metal                 | 20           | 20           | (194)        | (64)         | (218)        |
| <b>Total impact</b>  | <b>Primary Metal</b>          | <b>(94)</b>  | <b>(21)</b>  | <b>(93)</b>  | <b>(153)</b> | <b>(361)</b> |
| Unrealized derivative effects on LME related contracts         | Metal Markets                 | (128)        | (32)         | 104          | (144)        | (200)        |
| <b>Total impact</b>  | <b>Metal Markets</b>          | <b>(128)</b> | <b>(32)</b>  | <b>104</b>   | <b>(144)</b> | <b>(200)</b> |
| Unrealized derivative effects on LME related contracts         | Rolled Products               | 108          | (82)         | 11           | 74           | 111          |
| Metal effect   | Rolled Products               | 47           | (60)         | (153)        | 93           | (73)         |
| Significant rationalization charges and closure costs          | Rolled Products               | -            | -            | -            | 39           | 39           |
| <b>Total impact</b>  | <b>Rolled Products</b>        | <b>154</b>   | <b>(142)</b> | <b>(141)</b> | <b>206</b>   | <b>77</b>    |
| Unrealized derivative effects on LME related contracts         | Extruded Solutions            | 47           | (151)        | 211          | 192          | 299          |
| Significant rationalization charges and closure costs          | Extruded Solutions            | -            | -            | -            | 40           | 40           |
| Pension  | Extruded Solutions            | -            | -            | -            | 40           | 40           |
| Other effects  | Extruded Solutions            | -            | -            | -            | 237          | 237          |
| <b>Total impact</b>  | <b>Extruded Solutions</b>     | <b>47</b>    | <b>(151)</b> | <b>211</b>   | <b>509</b>   | <b>616</b>   |
| Unrealized derivative effects on power contracts               | Energy                        | -            | -            | -            | (7)          | (7)          |
| <b>Total impact</b>  | <b>Energy</b>                 | <b>-</b>     | <b>-</b>     | <b>-</b>     | <b>(7)</b>   | <b>(7)</b>   |
| Unrealized derivative effects on power contracts               | Other and eliminations        | (107)        | 72           | 11           | (11)         | (36)         |
| Unrealized derivative effects on LME related contracts         | Other and eliminations        | (26)         | 1            | 8            | (11)         | (27)         |
| Other effects  | Other and eliminations        | -            | -            | -            | (34)         | (34)         |
| <b>Total impact</b>  | <b>Other and eliminations</b> | <b>(134)</b> | <b>73</b>    | <b>19</b>    | <b>(56)</b>  | <b>(97)</b>  |
| <b>Items excluded from underlying EBIT</b>                     | <b>Hydro</b>                  | <b>(155)</b> | <b>(274)</b> | <b>620</b>   | <b>356</b>   | <b>547</b>   |
| Net foreign exchange (gain)/loss                               | Hydro                         | 333          | 306          | 257          | 408          | 1 303        |
| <b>Items excluded from underlying income (loss) before tax</b> | <b>Hydro</b>                  | <b>178</b>   | <b>32</b>    | <b>877</b>   | <b>764</b>   | <b>1 851</b> |
| Calculated income tax effect                                   | Hydro                         | (54)         | (8)          | (105)        | (188)        | (355)        |
| <b>Items excluded from underlying net income (loss)</b>        | <b>Hydro</b>                  | <b>125</b>   | <b>24</b>    | <b>772</b>   | <b>575</b>   | <b>1 495</b> |

# Operating segment information



## Underlying EBIT

| NOK million            | Q1 2017      | Q2 2017      | Q3 2017      | Q4 2017      | Q1 2018      | Q2 2018      | Q3 2018      | Q4 2018    | Q1 2019    | Q2 2019    | Year 2017     | Year 2018    |
|------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|------------|------------|------------|---------------|--------------|
| Bauxite & Alumina      | 756          | 662          | 413          | 1 872        | 741          | 364          | 685          | 493        | 153        | 415        | 3 704         | 2 282        |
| Primary Metal          | 900          | 1 486        | 1 298        | 1 377        | 823          | 755          | 861          | (677)      | (771)      | (604)      | 5 061         | 1 762        |
| Metal Markets          | 24           | 244          | 91           | 185          | 178          | 237          | (3)          | 275        | 190        | 299        | 544           | 686          |
| Rolled Products        | 106          | 84           | 95           | 95           | 232          | 212          | 82           | (113)      | 138        | 75         | 380           | 413          |
| Extruded Solutions     | 281          | 329          | 209          | 284          | 734          | 957          | 497          | 202        | 593        | 772        | 1 103         | 2 390        |
| Energy                 | 423          | 284          | 368          | 457          | 278          | 417          | 652          | 500        | 517        | 176        | 1 531         | 1 846        |
| Other and Eliminations | (207)        | (159)        | (28)         | (715)        | 161          | (229)        | (97)         | (145)      | (261)      | (258)      | (1 108)       | (310)        |
| <b>Total</b>           | <b>2 284</b> | <b>2 930</b> | <b>2 446</b> | <b>3 555</b> | <b>3 147</b> | <b>2 713</b> | <b>2 676</b> | <b>534</b> | <b>559</b> | <b>875</b> | <b>11 215</b> | <b>9 069</b> |

## Underlying EBITDA

| NOK million            | Q1 2017      | Q2 2017      | Q3 2017      | Q4 2017      | Q1 2018      | Q2 2018      | Q3 2018      | Q4 2018      | Q1 2019      | Q2 2019      | Year 2017     | Year 2018     |
|------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|---------------|
| Bauxite & Alumina      | 1 334        | 1 248        | 1 057        | 2 551        | 1 370        | 937          | 1 193        | 877          | 758          | 1 004        | 6 190         | 4 377         |
| Primary Metal          | 1 392        | 1 991        | 1 795        | 1 900        | 1 349        | 1 309        | 1 424        | (176)        | (180)        | (27)         | 7 078         | 3 906         |
| Metal Markets          | 47           | 268          | 114          | 209          | 201          | 262          | 22           | 301          | 219          | 328          | 638           | 786           |
| Rolled Products        | 307          | 297          | 312          | 325          | 456          | 438          | 314          | 133          | 384          | 326          | 1 240         | 1 340         |
| Extruded Solutions     | 281          | 329          | 209          | 728          | 1 155        | 1 383        | 931          | 645          | 1 099        | 1 279        | 1 547         | 4 114         |
| Energy                 | 476          | 337          | 424          | 519          | 339          | 479          | 716          | 566          | 583          | 242          | 1 757         | 2 100         |
| Other and Eliminations | (200)        | (151)        | (21)         | (708)        | 169          | (223)        | (90)         | (135)        | (231)        | (224)        | (1 081)       | (280)         |
| <b>Total</b>           | <b>3 637</b> | <b>4 319</b> | <b>3 889</b> | <b>5 524</b> | <b>5 038</b> | <b>4 586</b> | <b>4 510</b> | <b>2 210</b> | <b>2 633</b> | <b>2 928</b> | <b>17 369</b> | <b>16 344</b> |

# Operating segment information



## EBIT

| NOK million            | Q1 2017      | Q2 2017      | Q3 2017      | Q4 2017      | Q1 2018      | Q2 2018      | Q3 2018      | Q4 2018    | Q1 2019   | Q2 2019    | Year 2017     | Year 2018    |
|------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|------------|-----------|------------|---------------|--------------|
| Bauxite & Alumina      | 756          | 662          | 413          | 1 872        | 741          | 364          | 166          | 493        | 118       | 401        | 3 704         | 1 763        |
| Primary Metal          | 797          | 1 538        | 1 282        | 1 112        | 917          | 776          | 954          | (524)      | (919)     | (554)      | 4 729         | 2 123        |
| Metal Markets          | (13)         | 282          | 59           | 158          | 305          | 270          | (107)        | 419        | (31)      | 361        | 485           | 886          |
| Rolled Products        | 450          | 84           | (22)         | -            | 78           | 353          | 223          | (319)      | (53)      | 12         | 512           | 336          |
| Extruded Solutions     | 313          | 273          | 215          | 1 722        | 687          | 1 109        | 286          | (307)      | 644       | 483        | 2 522         | 1 774        |
| Energy                 | 423          | 284          | 368          | 457          | 278          | 417          | 652          | 507        | 510       | 174        | 1 531         | 1 853        |
| Other and Eliminations | (316)        | (176)        | 7            | (810)        | 295          | (303)        | (117)        | (89)       | (249)     | (220)      | (1 295)       | (214)        |
| <b>Total</b>           | <b>2 410</b> | <b>2 946</b> | <b>2 323</b> | <b>4 511</b> | <b>3 301</b> | <b>2 986</b> | <b>2 057</b> | <b>178</b> | <b>20</b> | <b>656</b> | <b>12 189</b> | <b>8 522</b> |

## EBITDA

| NOK million            | Q1 2017      | Q2 2017      | Q3 2017      | Q4 2017      | Q1 2018      | Q2 2018      | Q3 2018      | Q4 2018      | Q1 2019      | Q2 2019      | Year 2017     | Year 2018     |
|------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|---------------|
| Bauxite & Alumina      | 1 334        | 1 248        | 1 057        | 2 551        | 1 370        | 937          | 674          | 877          | 724          | 989          | 6 190         | 3 858         |
| Primary Metal          | 1 289        | 2 043        | 1 779        | 1 635        | 1 443        | 1 330        | 1 517        | (23)         | (328)        | 23           | 6 747         | 4 267         |
| Metal Markets          | 9            | 306          | 82           | 182          | 329          | 295          | (82)         | 445          | (2)          | 390          | 579           | 986           |
| Rolled Products        | 651          | 296          | 196          | 230          | 302          | 580          | 455          | (73)         | 194          | 263          | 1 372         | 1 263         |
| Extruded Solutions     | 313          | 273          | 215          | 2 166        | 1 108        | 1 534        | 720          | 136          | 1 150        | 1 017        | 2 966         | 3 498         |
| Energy                 | 476          | 337          | 424          | 519          | 339          | 479          | 716          | 573          | 576          | 240          | 1 757         | 2 107         |
| Other and Eliminations | (310)        | (168)        | 13           | (803)        | 302          | (296)        | (110)        | (80)         | (219)        | (186)        | (1 268)       | (183)         |
| <b>Total</b>           | <b>3 762</b> | <b>4 335</b> | <b>3 766</b> | <b>6 481</b> | <b>5 193</b> | <b>4 860</b> | <b>3 890</b> | <b>1 854</b> | <b>2 094</b> | <b>2 737</b> | <b>18 344</b> | <b>15 796</b> |

# Operating segment information



## Total revenue

| NOK million            | Q1 2017       | Q2 2017       | Q3 2017       | Q4 2017       | Q1 2018       | Q2 2018       | Q3 2018       | Q4 2018       | Q1 2019       | Q2 2019       | Year 2017      | Year 2018      |
|------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|
| Bauxite & Alumina      | 5 911         | 5 858         | 5 612         | 8 040         | 6 309         | 6 877         | 6 749         | 8 613         | 4 866         | 5 745         | 25 421         | 28 548         |
| Primary Metal          | 8 641         | 9 575         | 8 958         | 9 291         | 10 170        | 10 083        | 9 984         | 9 196         | 9 023         | 8 937         | 36 466         | 39 434         |
| Metal Markets          | 12 149        | 13 604        | 11 862        | 12 991        | 13 898        | 14 205        | 13 230        | 12 903        | 12 959        | 13 301        | 50 606         | 54 237         |
| Rolled Products        | 6 277         | 6 569         | 6 435         | 6 434         | 6 797         | 7 145         | 6 791         | 6 223         | 6 844         | 6 623         | 25 715         | 26 955         |
| Extruded Solutions     |               |               |               | 14 153        | 15 911        | 16 980        | 15 976        | 15 218        | 16 013        | 17 270        | 14 153         | 64 085         |
| Energy                 | 1 955         | 1 750         | 1 831         | 2 169         | 1 762         | 2 163         | 2 488         | 2 267         | 2 261         | 1 815         | 7 705          | 8 681          |
| Other and Eliminations | (11 906)      | (12 765)      | (11 900)      | (14 276)      | (14 877)      | (16 198)      | (15 452)      | (16 034)      | (14 382)      | (14 515)      | (50 847)       | (62 562)       |
| <b>Total</b>           | <b>23 026</b> | <b>24 591</b> | <b>22 799</b> | <b>38 803</b> | <b>39 971</b> | <b>41 254</b> | <b>39 766</b> | <b>38 386</b> | <b>37 583</b> | <b>39 176</b> | <b>109 220</b> | <b>159 377</b> |

## External revenue

| NOK million            | Q1 2017       | Q2 2017       | Q3 2017       | Q4 2017       | Q1 2018       | Q2 2018       | Q3 2018       | Q4 2018       | Q1 2019       | Q2 2019       | Year 2017      | Year 2018      |
|------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|
| Bauxite & Alumina      | 3 382         | 3 417         | 3 293         | 5 095         | 3 509         | 3 640         | 3 016         | 4 232         | 2 370         | 2 692         | 15 188         | 14 396         |
| Primary Metal          | 1 700         | 1 944         | 1 865         | 2 068         | 2 018         | 1 993         | 2 312         | 1 505         | 1 390         | 1 457         | 7 578          | 7 829          |
| Metal Markets          | 11 094        | 12 080        | 10 675        | 10 414        | 10 901        | 10 905        | 10 575        | 10 121        | 10 139        | 10 577        | 44 264         | 42 502         |
| Rolled Products        | 6 153         | 6 629         | 6 380         | 6 375         | 6 870         | 7 011         | 6 773         | 6 287         | 6 777         | 6 654         | 25 538         | 26 940         |
| Extruded Solutions     |               |               |               | 14 083        | 15 932        | 16 877        | 15 934        | 15 280        | 15 924        | 17 271        | 14 083         | 64 023         |
| Energy                 | 687           | 514           | 582           | 767           | 738           | 823           | 1 151         | 961           | 983           | 519           | 2 550          | 3 673          |
| Other and Eliminations | 9             | 6             | 3             | -             | 4             | 6             | 5             | (1)           | -             | 5             | 18             | 14             |
| <b>Total</b>           | <b>23 026</b> | <b>24 591</b> | <b>22 799</b> | <b>38 803</b> | <b>39 971</b> | <b>41 254</b> | <b>39 766</b> | <b>38 386</b> | <b>37 583</b> | <b>39 176</b> | <b>109 220</b> | <b>159 377</b> |

# Operating segment information



## Internal revenue

| NOK million            | Q1 2017  | Q2 2017  | Q3 2017  | Q4 2017  | Q1 2018  | Q2 2018  | Q3 2018  | Q4 2018  | Q1 2019  | Q2 2019  | Year 2017 | Year 2018 |
|------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|
| Bauxite & Alumina      | 2 528    | 2 441    | 2 320    | 2 944    | 2 800    | 3 237    | 3 733    | 4 381    | 2 496    | 3 052    | 10 234    | 14 152    |
| Primary Metal          | 6 941    | 7 631    | 7 093    | 7 223    | 8 152    | 8 090    | 7 672    | 7 691    | 7 633    | 7 480    | 28 888    | 31 605    |
| Metal Markets          | 1 054    | 1 523    | 1 187    | 2 577    | 2 997    | 3 301    | 2 656    | 2 781    | 2 820    | 2 724    | 6 341     | 11 735    |
| Rolled Products        | 124      | (61)     | 55       | 59       | (72)     | 134      | 18       | (64)     | 66       | (31)     | 178       | 15        |
| Extruded Solutions     |          |          |          | 70       | (21)     | 103      | 42       | (62)     | 89       | (1)      | 70        | 61        |
| Energy                 | 1 267    | 1 236    | 1 249    | 1 403    | 1 024    | 1 340    | 1 337    | 1 306    | 1 278    | 1 296    | 5 155     | 5 007     |
| Other and Eliminations | (11 915) | (12 772) | (11 903) | (14 276) | (14 881) | (16 204) | (15 457) | (16 033) | (14 382) | (14 520) | (50 865)  | (62 576)  |
| <b>Total</b>           | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b>  | <b>-</b>  |

## Share of profit /(loss) in equity accounted investments

| NOK million            | Q1 2017    | Q2 2017    | Q3 2017    | Q4 2017    | Q1 2018    | Q2 2018    | Q3 2018    | Q4 2018   | Q1 2019  | Q2 2019   | Year 2017    | Year 2018  |
|------------------------|------------|------------|------------|------------|------------|------------|------------|-----------|----------|-----------|--------------|------------|
| Bauxite & Alumina      | -          | -          | -          | -          | -          | -          | -          | -         | -        | -         | -            | -          |
| Primary Metal          | 98         | 231        | 159        | 258        | 210        | 280        | 238        | (5)       | 32       | 24        | 745          | 722        |
| Metal Markets          | -          | -          | -          | -          | -          | -          | -          | -         | -        | -         | -            | -          |
| Rolled Products        | -          | -          | -          | -          | -          | -          | -          | -         | -        | -         | -            | -          |
| Extruded Solutions     | 313        | 273        | 215        | 12         | 17         | 11         | 14         | 10        | 12       | 5         | 812          | 53         |
| Energy                 | -          | -          | -          | (7)        | (10)       | (11)       | (4)        | (11)      | (9)      | (9)       | (7)          | (35)       |
| Other and Eliminations | (1)        | (13)       | (3)        | (7)        | 3          | 5          | (20)       | 35        | (32)     | 27        | (24)         | 24         |
| <b>Total</b>           | <b>409</b> | <b>491</b> | <b>371</b> | <b>256</b> | <b>221</b> | <b>286</b> | <b>229</b> | <b>30</b> | <b>3</b> | <b>47</b> | <b>1 527</b> | <b>765</b> |



# Operating segment information

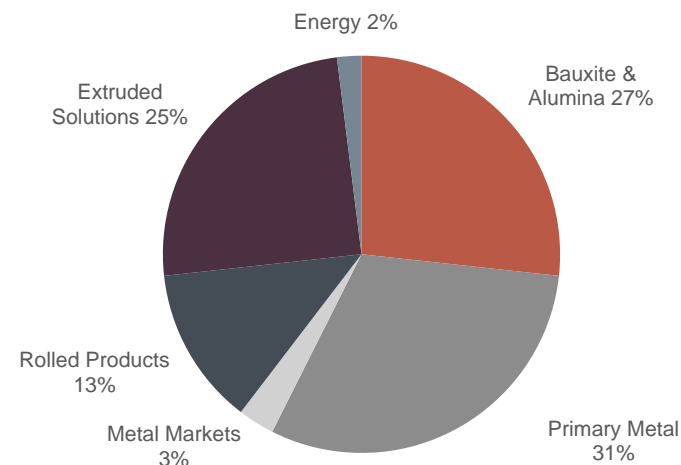


Return on average capital employed <sup>1)</sup> (RoaCE)

|                                  | Reported RoaCE |              |              |              |              |              |                | Underlying RoaCE |             |              |              |              |              |              |
|----------------------------------|----------------|--------------|--------------|--------------|--------------|--------------|----------------|------------------|-------------|--------------|--------------|--------------|--------------|--------------|
|                                  | 2018           | 2017         | 2016         | 2015         | 2014         | 2013         | 2012           | 2018             | 2017        | 2016         | 2015         | 2014         | 2013         | 2012         |
| Bauxite & Alumina                | 4.3%           | 8.5%         | 2.7 %        | 5.3 %        | (0.1) %      | (2.5) %      | (1.5) %        | 5.5%             | 8.5%        | 2.8 %        | 5.3 %        | (0.1) %      | (2.2) %      | (1.6) %      |
| Primary Metal                    | 5.4%           | 11.8%        | 5.2 %        | 10.7 %       | 10.4 %       | 2.3 %        | (3.1) %        | 4.6%             | 12.6%       | 5.2 %        | 11.0 %       | 10.4 %       | 3.9 %        | 0.4 %        |
| Metal Markets                    | 26.6%          | 18.6%        | 19.6 %       | 5.4 %        | 21.9 %       | 22.3 %       | 4.3 %          | 20.6%            | 20.9%       | 15.9 %       | 11.4 %       | 19.4 %       | 19.9 %       | 6.6 %        |
| Rolled Products                  | 1.9%           | 3.2%         | 6.2 %        | 1.1 %        | 8.6 %        | 0.7 %        | 6.7 %          | 2.4%             | 2.4%        | 4.6 %        | 7.8 %        | 5.3 %        | 5.2 %        | 5.3 %        |
| Extruded Solutions <sup>2)</sup> | 5.4%           | 13.4%        |              |              |              |              |                | 7.2%             | 6.6%        |              |              |              |              |              |
| Energy                           | 20.6%          | 17.5%        | 18.1 %       | 17.2 %       | 17.4 %       | 36.1 %       | 23.0 %         | 20.5%            | 17.5%       | 18.1 %       | 17.3 %       | 17.4 %       | 36.1 %       | 23.2 %       |
| <b>Hydro Group</b>               | <b>5.8%</b>    | <b>11.2%</b> | <b>6.5 %</b> | <b>7.5 %</b> | <b>4.9 %</b> | <b>1.1 %</b> | <b>(0.5) %</b> | <b>6.4%</b>      | <b>9.6%</b> | <b>5.1 %</b> | <b>9.2 %</b> | <b>5.2 %</b> | <b>2.3 %</b> | <b>0.9 %</b> |

## Capital employed – upstream focus

| NOK million            | Jun 30, 2019   |
|------------------------|----------------|
| Bauxite & Alumina      | 29 006         |
| Primary Metal          | 33 049         |
| Metal Markets          | 2 720          |
| Rolled Products        | 13 484         |
| Extruded Solutions     | 27 016         |
| Energy                 | 1 981          |
| Other and Eliminations | (6 544)        |
| <b>Total</b>           | <b>100 713</b> |



Graph excludes BNOK (6.5) in capital employed in Other and Eliminations

1) RoaCE at business area level is calculated using 25% tax rate (30% tax rate applied for years prior to 2017). For Energy, 70% tax rate is used for 2018, 65% for 2017, 60% for 2016 and 55% for prior years. 2018 RoaCE has been restated due to the implementation of IFRS16 Leases.

2) Extruded Solutions reflected as 50% equity accounted investment Q1-Q3 2017 and fully consolidated from Q4 2017

# Operating segment information



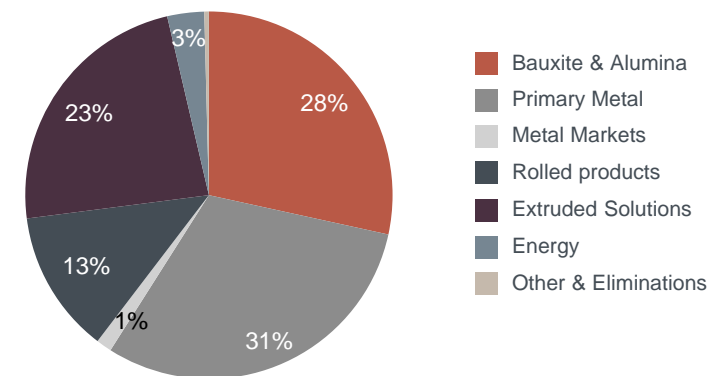
## Depreciation, amortization and impairment

| NOK million            | Q1 2017      | Q2 2017      | Q3 2017      | Q4 2017      | Q1 2018      | Q2 2018      | Q3 2018      | Q4 2018      | Q1 2019      | Q2 2019     | Year 2017    | Year 2018    |
|------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|--------------|--------------|
| Bauxite & Alumina      | 577          | 586          | 644          | 679          | 630          | 573          | 509          | 384          | 605          | 589         | 2 486        | 2 095        |
| Primary Metal          | 492          | 505          | 504          | 526          | 546          | 575          | 583          | 548          | 619          | 605         | 2 026        | 2 253        |
| Metal Markets          | 23           | 24           | 24           | 24           | 24           | 25           | 25           | 26           | 29           | 29          | 95           | 101          |
| Rolled Products        | 201          | 212          | 217          | 230          | 223          | 227          | 231          | 246          | 247          | 251         | 860          | 927          |
| Extruded Solutions     |              |              |              | 444          | 421          | 425          | 434          | 443          | 506          | 535         | 444          | 1 723        |
| Energy                 | 53           | 54           | 56           | 60           | 58           | 59           | 61           | 63           | 62           | 62          | 223          | 239          |
| Other and Eliminations | 6            | 7            | 7            | 7            | 7            | 7            | 7            | 10           | 30           | 34          | 28           | 30           |
| <b>Total</b>           | <b>1 352</b> | <b>1 389</b> | <b>1 450</b> | <b>1 970</b> | <b>1 909</b> | <b>1 891</b> | <b>1 851</b> | <b>1 719</b> | <b>2 098</b> | <b>2105</b> | <b>6 162</b> | <b>7 369</b> |

## Indicative depreciation currency exposure by business area

| Percent              | USD | EUR | BRL  | NOK & Other |
|----------------------|-----|-----|------|-------------|
| Bauxite & Alumina    |     |     | 100% |             |
| Primary Metal        | 20% |     | 20%  | 60%         |
| Metal Markets        | 30% | 50% |      | 20%         |
| Rolled Products      |     | 90% |      | 10%         |
| Extruded Solutions   | 30% | 40% |      | 30%         |
| Energy               |     |     |      | 100%        |
| Other & Eliminations |     | 10% |      | 90%         |

## Depreciation by business area 2018, 7.4 BNOK



# Income statements



| NOK million  | Q2 2019       | Q2 2018       | Q1 2019       | First half 2019 | First Half 2018 | Year 2018      |
|--|---------------|---------------|---------------|-----------------|-----------------|----------------|
| Revenue  | 39 176        | 41 254        | 37 583        | 76 759          | 81 225          | 159 377        |
| Share of the profit (loss) in equity accounted investments   | 47            | 286           | 3             | 50              | 506             | 765            |
| Other income, net  | 139           | 184           | 183           | 322             | 339             | 772            |
| <b>Total revenue and income</b>                              | <b>39 362</b> | <b>41 724</b> | <b>37 769</b> | <b>77 132</b>   | <b>82 070</b>   | <b>160 913</b> |
| Raw material and energy expense                              | 25 920        | 26 496        | 25 136        | 51 056          | 51 692          | 102 523        |
| Employee benefit expense                                     | 6 192         | 5 828         | 6 023         | 12 215          | 11 600          | 23 176         |
| Depreciation, amortization and impairment                    | 2 105         | 1 891         | 2 098         | 4 204           | 3 799           | 7 369          |
| Other expenses   | 4 488         | 4 524         | 4 493         | 8 981           | 8 692           | 19 324         |
| <b>Earnings before financial items and tax (EBIT)</b>        | <b>656</b>    | <b>2 986</b>  | <b>20</b>     | <b>676</b>      | <b>6 287</b>    | <b>8 522</b>   |
| Financial income   | 90            | 89            | 63            | 153             | 147             | 255            |
| Financial expense  | (754)         | (530)         | (57)          | (811)           | (1 063)         | (2 315)        |
| Income (loss) before tax                                     | (8)           | 2 545         | 26            | 18              | 5 371           | 6 462          |
| Income taxes   | (183)         | (473)         | (150)         | (333)           | (1 222)         | (2 139)        |
| <b>Net income (loss)</b>                                     | <b>(190)</b>  | <b>2 073</b>  | <b>(124)</b>  | <b>(315)</b>    | <b>4 149</b>    | <b>4 323</b>   |
| Net income (loss) attributable to non-controlling interests  | (105)         | (35)          | (134)         | (239)           | (49)            | 67             |
| Net income (loss) attributable to Hydro shareholders         | (85)          | 2 108         | 9             | (76)            | 4 199           | 4 256          |
| <b>Earnings per share attributable to Hydro shareholders</b> | <b>(0.04)</b> | <b>1.03</b>   | <b>0</b>      | <b>(0.04)</b>   | <b>2.05</b>     | <b>2.08</b>    |

| NOK million                          | Q1 2017      | Q2 2017      | Q3 2017      | Q4 2017      | Q1 2018      | Q2 2018      | Q3 2018      | Q4 2018       | Q1 2019     | Q2 2019     | Year 2017    | Year 2018    |
|--------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|-------------|-------------|--------------|--------------|
| Net income (loss)                    | 1 838        | 1 562        | 2 184        | 3 600        | 2 076        | 2 073        | 925          | (750)         | (124)       | (190)       | 9 184        | 4 323        |
| <b>Underlying net income (loss)</b>  | <b>1 580</b> | <b>2 214</b> | <b>1 785</b> | <b>2 816</b> | <b>2 201</b> | <b>2 096</b> | <b>1 696</b> | <b>(175)</b>  | <b>124</b>  | <b>281</b>  | <b>8 396</b> | <b>5 819</b> |
| Earnings per share                   | 0.86         | 0.73         | 1.00         | 1.71         | 1.02         | 1.03         | 0.37         | (0.34)        | 0           | (0.04)      | 4.30         | 2.08         |
| <b>Underlying earnings per share</b> | <b>0.75</b>  | <b>1.04</b>  | <b>0.82</b>  | <b>1.33</b>  | <b>1.06</b>  | <b>1.02</b>  | <b>0.74</b>  | <b>(0.06)</b> | <b>0.13</b> | <b>0.19</b> | <b>3.95</b>  | <b>2.75</b>  |

# Balance sheets



| NOK million   | Jun 30, 2019   | Mar 31, 2019   | Dec 31 2018 <sup>1)</sup> | Sep 30 2018    | Jun 30 2018    | Mar 31 2018    |
|---|----------------|----------------|---------------------------|----------------|----------------|----------------|
| Cash and cash equivalents                             | 10 590         | 6 099          | 5 995                     | 6 846          | 5 682          | 9 371          |
| Short-term investments                                | 1 090          | 1 274          | 975                       | 1 176          | 1 136          | 1 031          |
| Accounts receivable                                   | 23 186         | 23 542         | 20 744                    | 21 727         | 23 442         | 22 785         |
| Inventories   | 22 718         | 25 004         | 26 483                    | 23 916         | 22 337         | 20 626         |
| Other current assets                                  | 471            | 349            | 801                       | 738            | 978            | 818            |
| Property, plant and equipment                         | 73 193         | 72 882         | 74 369                    | 66 251         | 66 683         | 69 945         |
| Intangible assets                                     | 11 485         | 11 133         | 11 443                    | 10 695         | 11 660         | 12 133         |
| Investments accounted for using the equity method     | 10 936         | 11 349         | 11 570                    | 11 094         | 11 140         | 10 551         |
| Prepaid pension                                       | 5 986          | 5 854          | 5 162                     | 6 857          | 6 322          | 5 933          |
| Other non-current assets                              | 7 322          | 7 157          | 7 385                     | 5 962          | 5 780          | 5 588          |
| <b>Total assets</b>                                   | <b>166 978</b> | <b>164 644</b> | <b>164 928</b>            | <b>155 261</b> | <b>155 159</b> | <b>158 781</b> |
| Bank-loans and other interest-bearing short-term debt | 8 177          | 8 913          | 9 373                     | 6 607          | 4 969          | 5 269          |
| Trade and other payables                              | 21 014         | 22 146         | 20 381                    | 19 906         | 21 351         | 20 621         |
| Other current liabilities                             | 3 688          | 4 674          | 6 062                     | 5 897          | 4 976          | 4 852          |
| Long-term debt  | 18 620         | 10 559         | 9 342                     | 7 886          | 9 377          | 8 746          |
| Provisions  | 5 577          | 5 673          | 5 588                     | 5 358          | 5 532          | 5 652          |
| Pension liabilities                                   | 16 646         | 15 981         | 15 648                    | 14 416         | 14 665         | 14 911         |
| Deferred tax liabilities                              | 3 123          | 3 052          | 3 031                     | 3 952          | 3 456          | 3 522          |
| Other non-current liabilities                         | 4 536          | 4 252          | 4 746                     | 3 756          | 3 673          | 4 084          |
| Equity attributable to Hydro shareholders             | 81 143         | 84 692         | 85 820                    | 83 012         | 82 676         | 86 233         |
| Non-controlling interests                             | 4 452          | 4 703          | 4 936                     | 4 472          | 4 486          | 4 891          |
| <b>Total liabilities and equity</b>                   | <b>166 978</b> | <b>164 644</b> | <b>164 928</b>            | <b>155 261</b> | <b>155 159</b> | <b>158 781</b> |

1) Restated

# Operational data



| Bauxite & Alumina                          | Q1 2017 | Q2 2017 | Q3 2017 | Q4 2017 | Q1 2018 | Q2 2018 | Q3 2018 | Q4 2018 | Q1 2019 | Q2 2019 | Year 2017 | Year 2018 |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|-----------|
| Alumina production (kmt)                   | 1 523   | 1 576   | 1 605   | 1 693   | 1 277   | 829     | 821     | 786     | 805     | 932     | 6 397     | 3 712     |
| Sourced alumina (kmt)                      | 600     | 645     | 667     | 610     | 900     | 985     | 907     | 1 163   | 711     | 704     | 2 522     | 3 954     |
| Total alumina sales (kmt)                  | 2 129   | 2 196   | 2 251   | 2 344   | 2 071   | 1 842   | 1 711   | 1 983   | 1 423   | 1 668   | 8 920     | 7 607     |
| Realized alumina price (USD) <sup>1)</sup> | 309     | 295     | 297     | 398     | 371     | 430     | 460     | 463     | 373     | 365     | 326       | 429       |
| Implied alumina cost (USD) <sup>2)</sup>   | 235     | 228     | 237     | 265     | 287     | 367     | 376     | 409     | 311     | 296     | 242       | 358       |
| Bauxite production (kmt) <sup>3)</sup>     | 2 400   | 2 943   | 3 043   | 3 049   | 2 326   | 1 348   | 1 286   | 1 254   | 1 361   | 1 624   | 11 435    | 6 214     |
| Sourced bauxite (kmt) <sup>4)</sup>        | 1 675   | 1 809   | 2 013   | 2 103   | 1 317   | 1 250   | 905     | 1 730   | 1 029   | 1 315   | 7 601     | 5 202     |
| Underlying EBITDA margin <sup>11)</sup>    | 22.6%   | 21.3%   | 18.8%   | 31.7%   | 21.7%   | 13.6%   | 17.7%   | 10.2%   | 15.6%   | 17.5%   | 24.3%     | 15.3%     |

| Primary Metal <sup>5)</sup>                        | Q1 2017 | Q2 2017 | Q3 2017 | Q4 2017 | Q1 2018 | Q2 2018 | Q3 2018 | Q4 2018 | Q1 2019 | Q2 2019 | Year 2017 | Year 2018 |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|-----------|
| Realized aluminium price LME, USD/mt               | 1 757   | 1 902   | 1 921   | 2 092   | 2 140   | 2 183   | 2 194   | 2 041   | 1 912   | 1 858   | 1 915     | 2 140     |
| Realized aluminium price LME, NOK/mt <sup>7)</sup> | 14 798  | 16 265  | 15 496  | 17 066  | 16 929  | 17 292  | 17 905  | 17 038  | 16 291  | 15 959  | 15 888    | 17 282    |
| Realized premium above LME, USD/mt <sup>6)</sup>   | 266     | 273     | 261     | 259     | 295     | 364     | 367     | 362     | 344     | 326     | 265       | 346       |
| Realized premium above LME, NOK/mt <sup>6)7)</sup> | 2 236   | 2 330   | 2 106   | 2 116   | 2 335   | 2 881   | 2 999   | 3 025   | 2 935   | 2 802   | 2 197     | 2 791     |
| Realized NOK/USD exchange rate <sup>7)</sup>       | 8.42    | 8.55    | 8.07    | 8.16    | 7.91    | 7.92    | 8.16    | 8.35    | 8.52    | 8.59    | 8.30      | 8.08      |
| Implied primary cost (USD) <sup>8)</sup>           | 1 350   | 1 375   | 1 425   | 1 575   | 1 725   | 1 775   | 1 750   | 2 000   | 1 850   | 1 775   | 1 425     | 1 825     |
| Implied all-in primary cost (USD) <sup>9)</sup>    | 1 675   | 1 700   | 1 725   | 1 850   | 2 075   | 2 175   | 2 150   | 2 350   | 2 200   | 2 100   | 1 725     | 2 175     |
| Primary aluminium production, kmt                  | 516     | 523     | 527     | 528     | 514     | 492     | 497     | 490     | 485     | 486     | 2 094     | 1 993     |
| Casthouse production, kmt                          | 521     | 551     | 548     | 550     | 531     | 523     | 507     | 496     | 473     | 477     | 2 169     | 2 058     |
| Total sales, kmt <sup>10)</sup>                    | 577     | 579     | 568     | 554     | 578     | 549     | 516     | 503     | 534     | 527     | 2 278     | 2 145     |
| Underlying EBITDA margin <sup>11)</sup>            | 16.1%   | 20.8%   | 20.0%   | 20.4%   | 13.3%   | 13.0%   | 14.3%   | (1.9)%  | (2.0)%  | (0.3)%  | 19.4%     | 9.9%      |

1) Weighted average of own production and third party contracts, excluding hedge results. The majority of the alumina is sold linked to either the LME prices or alumina index with a one month delay. Sourced alumina volumes have been re-calculated, with Q1 2018 being adjusted accordingly.

2) Implied alumina cost (based on EBITDA and sales volume) replaces previous apparent alumina cash cost

3) Paragominas production, on wet basis

4) 40 percent MRN offtake from Vale and 5 percent Hydro share on wet basis

5) Operating and financial information includes Hydro's proportionate share of production and sales volumes in equity accounted investments. Realized prices, premiums and exchange rates exclude equity accounted investments

6) Average realized premium above LME for casthouse sales from Primary Metal.

7) Including strategic hedges /hedge accounting applied

8) Realized LME price minus Underlying EBITDA margin (incl. Qatalum) per mt primary aluminium produced. Includes net earnings from primary casthouses

9) Realized all-in price minus Underlying EBITDA margin (incl. Qatalum) per mt primary aluminium sold. Includes net earnings from primary casthouses

10) Total sales replaces previous casthouse sales due to change of definition

11) Underlying EBITDA divided by total revenues

# Operational data



| <b>Metal Markets</b>  | <b>Q1 2017</b> | <b>Q2 2017</b> | <b>Q3 2017</b> | <b>Q4 2017</b> | <b>Q1 2018</b> | <b>Q2 2018</b> | <b>Q3 2018</b> | <b>Q4 2018</b> | <b>Q1 2019</b> | <b>Q2 2019</b> | <b>Year 2017</b> | <b>Year 2018</b> |
|---|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------------------|------------------|
| Remelt production (1 000 mt)                                      | 143            | 152            | 136            | 137            | 150            | 153            | 126            | 135            | 131            | 139            | 568              | 563              |
| Third-party Metal Products sales (1 000 mt)                       | 79             | 80             | 74             | 86             | 70             | 77             | 83             | 73             | 70             | 83             | 319              | 304              |
| Metal Products sales excl. ingot trading (1 000 mt) <sup>1)</sup> | 735            | 759            | 707            | 720            | 745            | 746            | 685            | 682            | 683            | 707            | 2 921            | 2 859            |
| Hereof external sales excl. ingot trading (1 000 mt)              | 672            | 675            | 639            | 589            | 580            | 563            | 543            | 532            | 539            | 556            | 2 575            | 2 217            |
| External revenue (NOK million)                                    | 11 094         | 12 080         | 10 675         | 10 414         | 10 901         | 10 905         | 10 575         | 10 121         | 10 139         | 10 577         | 44 264           | 42 502           |
| <b>Rolled Products</b>  | <b>Q1 2017</b> | <b>Q2 2017</b> | <b>Q3 2017</b> | <b>Q4 2017</b> | <b>Q1 2018</b> | <b>Q2 2018</b> | <b>Q3 2018</b> | <b>Q4 2018</b> | <b>Q1 2019</b> | <b>Q2 2019</b> | <b>Year 2017</b> | <b>Year 2018</b> |
| Rolled Products external shipments (1 000 mt)                     | 241            | 239            | 236            | 224            | 245            | 251            | 235            | 220            | 246            | 242            | 940              | 951              |
| Rolled Products – Underlying EBIT per mt, NOK                     | 442            | 351            | 400            | 424            | 949            | 844            | 349            | (512)          | 560            | 309            | 404              | 435              |
| Underlying EBITDA margin <sup>2)</sup>                            | 4.9%           | 4.5%           | 4.8%           | 5.0%           | 6.7%           | 6.1%           | 4.6%           | 2.1%           | 5.6%           | 4.9%           | 4.8 %            | 5.0%             |
| <b>Extruded Solutions<sup>3)</sup></b>                            | <b>Q1 2017</b> | <b>Q2 2017</b> | <b>Q3 2017</b> | <b>Q4 2017</b> | <b>Q1 2018</b> | <b>Q2 2018</b> | <b>Q3 2018</b> | <b>Q4 2018</b> | <b>Q1 2019</b> | <b>Q2 2019</b> | <b>Year 2017</b> | <b>Year 2018</b> |
| Extruded Solutions external shipments (1 000 mt)                  | 355            | 359            | 339            | 318            | 362            | 373            | 343            | 318            | 333            | 348            | 1 372            | 1 396            |
| Extruded Solutions – Pro-forma underlying EBIT per mt, NOK        | 1 973          | 2 328          | 1 505          | 893            | 2 028          | 2 566          | 1 449          | 635            | 1 781          | 2 219          | 1 699            | 1 712            |
| Underlying EBITDA margin <sup>2)</sup>                            | 7.7%           | 8.2%           | 6.5%           | 5.2%           | 7.3%           | 8.1%           | 5.8%           | 4.2%           | 6.9%           | 7.4%           | 6.9%             | 6.4%             |
| <b>Energy</b>   | <b>Q1 2017</b> | <b>Q2 2017</b> | <b>Q3 2017</b> | <b>Q4 2017</b> | <b>Q1 2018</b> | <b>Q2 2018</b> | <b>Q3 2018</b> | <b>Q4 2018</b> | <b>Q1 2019</b> | <b>Q2 2019</b> | <b>Year 2017</b> | <b>Year 2018</b> |
| Power production, GWh   | 2 869          | 2 369          | 2 509          | 3 089          | 2 433          | 2 550          | 2 888          | 2 822          | 2 553          | 1 993          | 10 835           | 10 693           |
| Net spot sales, GWh   | 1 409          | 996            | 1 168          | 1 633          | 763            | 961            | 1 315          | 1 166          | 770            | 289            | 5 206            | 4 204            |
| Nordic spot electricity price, NOK/MWh                            | 280            | 257            | 266            | 294            | 372            | 373            | 484            | 460            | 457            | 346            | 274              | 423              |
| Southern Norway spot electricity price (NO2), NOK/MWh             | 278            | 252            | 258            | 287            | 361            | 369            | 475            | 455            | 468            | 360            | 269              | 415              |
| Underlying EBITDA margin <sup>2)</sup>                            | 24.4%          | 19.3%          | 23.1%          | 23.9 %         | 19.2%          | 22.2%          | 28.8%          | 24.9%          | 25.8%          | 13.4%          | 22.8%            | 24.2%            |

1) Includes external and internal sales from primary casthouse operations, remelters and third party Metal sources

2) Underlying EBITDA divided by total revenues

3) FY 2017 and historical operational data based on pro forma figures

# Extruded Solutions, information by business area



Historical Sapa information (100% basis) Q1 2017 – Q3 2017

Extruded Solutions, fully consolidated in Hydro since Q4 2017 <sup>1)</sup>

| Precision Tubing          | Q1 2017 | Q2 2017 | Q3 2017 | Q4 2017 | Q1 2018 | Q2 2018 | Q3 2018 | Q4 2018 | 2018  | Q1 2019 | Q2 2019 |
|---------------------------|---------|---------|---------|---------|---------|---------|---------|---------|-------|---------|---------|
| Volume (kmt)              | 36      | 38      | 36      | 35      | 37      | 41      | 41      | 38      | 157   | 34      | 36      |
| Operating revenues (NOKm) | 1 651   | 1 734   | 1 601   | 1 645   | 1 700   | 1 910   | 1 873   | 1 722   | 7 205 | 1 623   | 1 788   |
| Underlying EBITDA (NOKm)  | 180     | 193     | 157     | 138     | 168     | 120     | 121     | 98      | 507   | 86      | 146     |
| Underlying EBIT (NOKm)    | 123     | 136     | 97      | 66      | 103     | 55      | 50      | 30      | 237   | 18      | 87      |

| Building Systems          | Q1 2017 | Q2 2017 | Q3 2017 | Q4 2017 | Q1 2018 | Q2 2018 | Q3 2018 | Q4 2018 | 2018  | Q1 2019 | Q2 2019 |
|---------------------------|---------|---------|---------|---------|---------|---------|---------|---------|-------|---------|---------|
| Volume (kmt)              | 20      | 21      | 19      | 19      | 20      | 21      | 18      | 19      | 78    | 18      | 22      |
| Operating revenues (NOKm) | 1 830   | 2 044   | 1 765   | 1 960   | 2 057   | 2 124   | 1 919   | 2 045   | 8 145 | 1 973   | 2 328   |
| Underlying EBITDA (NOKm)  | 155     | 219     | 118     | 137     | 167     | 198     | 130     | 155     | 650   | 104     | 233     |
| Underlying EBIT (NOKm)    | 119     | 183     | 85      | 85      | 116     | 146     | 70      | 99      | 430   | 22      | 143     |

| Other and eliminations   | Q1 2017 | Q2 2017 | Q3 2017 | Q4 2017 | Q1 2018 | Q2 2018 | Q3 2018 | Q4 2018 | 2018  | Q1 2019 | Q2 2019 |
|--------------------------|---------|---------|---------|---------|---------|---------|---------|---------|-------|---------|---------|
| Underlying EBITDA (NOKm) | (63)    | (43)    | (41)    | (35)    | (45)    | (46)    | (21)    | (118)   | (230) | (56)    | (96)    |
| Underlying EBIT (NOKm)   | (69)    | (49)    | (42)    | (45)    | (55)    | (58)    | (35)    | (130)   | (278) | (58)    | (99)    |

| Extrusion Europe          | Q1 2017 | Q2 2017 | Q3 2017 | Q4 2017 | Q1 2018 | Q2 2018 | Q3 2018 | Q4 2018 | 2018   | Q1 2019 | Q2 2019 |
|---------------------------|---------|---------|---------|---------|---------|---------|---------|---------|--------|---------|---------|
| Volume (kmt)              | 154     | 155     | 142     | 134     | 159     | 160     | 138     | 129     | 586    | 139     | 142     |
| Operating revenues (NOKm) | 5 553   | 5 999   | 5 460   | 5 541   | 6 600   | 6 664   | 5 867   | 5 719   | 24 850 | 6 328   | 6 461   |
| Underlying EBITDA (NOKm)  | 390     | 416     | 290     | 240     | 417     | 504     | 263     | 201     | 1 385  | 346     | 348     |
| Underlying EBIT (NOKm)    | 274     | 292     | 164     | 59      | 246     | 333     | 98      | 27      | 705    | 141     | 144     |

| Extrusion North America   | Q1 2017 | Q2 2017 | Q3 2017 | Q4 2017 | Q1 2018 | Q2 2018 | Q3 2018 | Q4 2018 | 2018   | Q1 2019 | Q2 2019 |
|---------------------------|---------|---------|---------|---------|---------|---------|---------|---------|--------|---------|---------|
| Volume (kmt)              | 150     | 151     | 148     | 134     | 152     | 157     | 152     | 137     | 598    | 146     | 148     |
| Operating revenues (NOKm) | 5 514   | 5 753   | 5 369   | 5 211   | 5 882   | 6 519   | 6 541   | 6 091   | 25 033 | 6 306   | 7 053   |
| Underlying EBITDA (NOKm)  | 437     | 466     | 390     | 248     | 448     | 606     | 439     | 310     | 1 802  | 619     | 648     |
| Underlying EBIT (NOKm)    | 330     | 353     | 284     | 119     | 325     | 481     | 314     | 176     | 1 295  | 469     | 498     |

1) Includes certain effects of the acquisition such as increased depreciation and amortization following fair value adjustments related to long-lived assets. Estimate increased depreciation of around MNOK 300 per annum for Extruded Solutions vs "old Sapa".

Next events

**Investor Day**  
**September 24, 2019**

**Third quarter results**  
**October 23, 2019**

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

## Investor Relations in Hydro



**Stian Hasle**

*Head of Investor Relations*

t: +47 97736022

e: [stian.hasle@hydro.com](mailto:stian.hasle@hydro.com)



**Olena Lepikhina**

*Investor Relations Officer*

t: +47 96853035

e: [olena.lepikhina@hydro.com](mailto:olena.lepikhina@hydro.com)



**Aud Helen Halvorsen**

*Investor Relations Assistant*

t: +47 95182741

e: [aud.helen.halvorsen@hydro.com](mailto:aud.helen.halvorsen@hydro.com)





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