



# Operational and market update Q1 2019



## Q1 2019 reporting delayed to June 5 due the cyber attack

- The original Q1 2019 reporting date (April 30, 2019) has been delayed to June 5, 2019, due to the cyber attack impacting the availability of certain systems and data
  - The revised date is conditional upon the planned timeline for restoring operational and reporting systems
- This update contains certain operational and market information available so far for Q1 2019
- Further key financial and operational data will be released on June 5, together with the first quarter report

## First quarter highlights

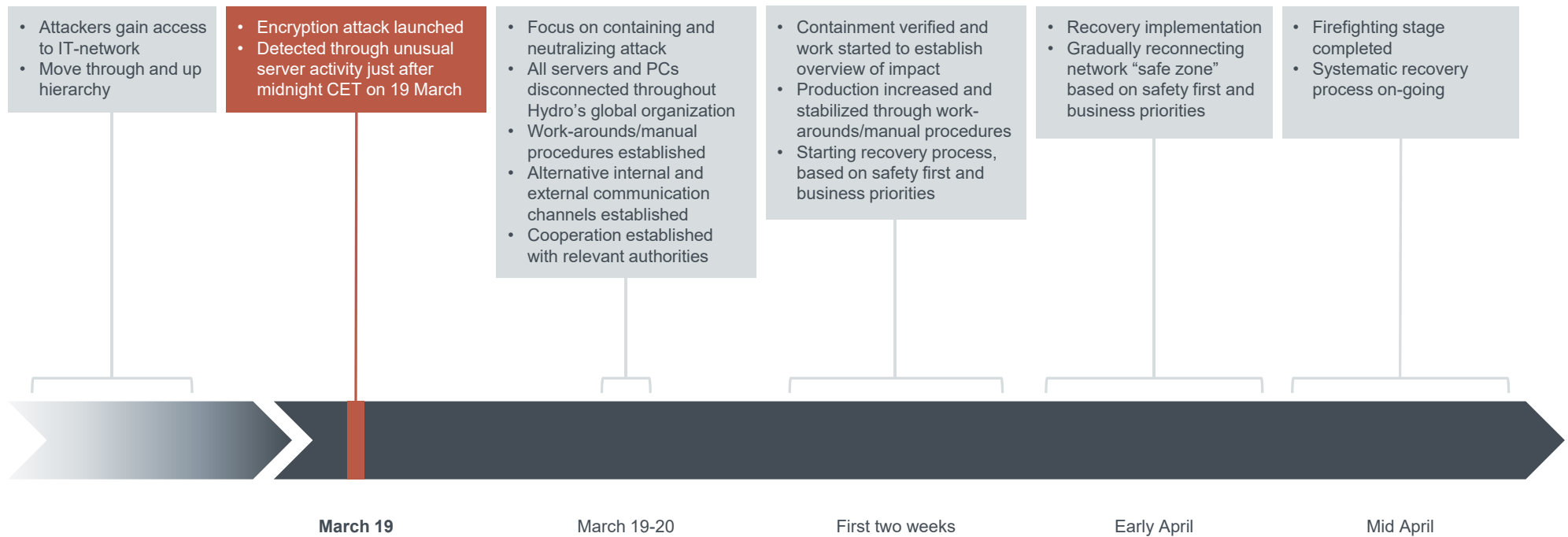
- Hilde Merete Aasheim appointed new CEO, effective May 8
- Financial impact of cyber attack estimated to be NOK 400-450 million in the first quarter
- Alunorte and Ministerio Publico with joint petition to lift production embargo
- Successful placement of EUR 800 million in eurobonds
- Agreement reached with DoJ in an investigation of events dating back prior to 2015, into an Extruded Solutions plant in the U.S.
- Extruded Solutions acquires two companies within building systems segment
- 2019 global primary market expected in deficit, continued macro uncertainty



# Cyber attack on Hydro's worldwide organization



## High-level timeline of events



# Status update cyber attack

- Overall impact for Q1 estimated at NOK 400-450 million
  - Extruded Solutions NOK 300-350 million
- Operational status business areas
  - Energy: Production running as normal
  - Bauxite & Alumina: Production running as normal
  - Primary Metal: Production running as normal, with higher degree of manual operations
  - Rolled Products: Production running as normal, with higher degree of manual operations
  - Extruded Solutions: Average value creation increased now to above 90% of normal levels. Still a high degree of workarounds and local variations from plant to plant
- Hydro has a robust cyber insurance policy in place with recognized insurers



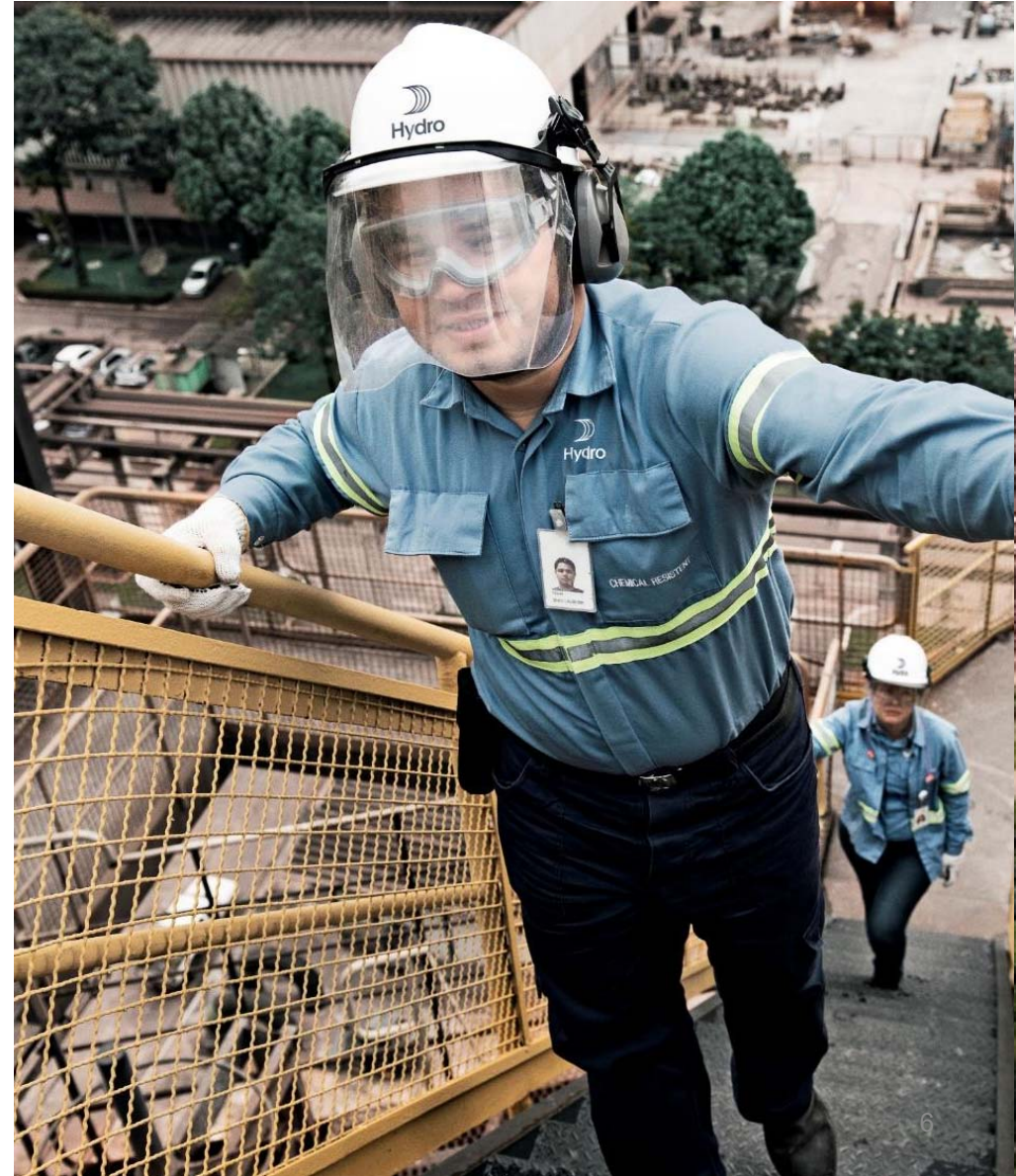
# Alunorte status

- **Status**

- Alunorte, Paragominas and Albras running at 50%, as embargos on Alunorte production and DRS2 remain in force
- Ministerio Publico and Hydro with joint petition in federal court hearing on April 12 to lift production embargo
- Petition currently under review by the court
- Water basin capacity increased by 350%, in process to expand water treatment capacity by 50%

- **Going forward**

- Timing for ruling by federal court on joint petition to lift production embargo remains uncertain
- Remaining lifetime of DRS1 estimated to be 8-18 months, depending on Alunorte production volume. Alunorte working to lift DRS2 embargo in parallel
- Once the embargos are lifted, production is expected to reach 75-85% of nameplate capacity within two months
  - The timing of a return to full capacity is dependent on the commissioning process of DRS2 and the press filters, as well as planned installation of 9<sup>th</sup> press filter



# Highly successful bond issue

EUR 800 million in total

- Placement of two tranches at attractive terms
  - EUR 500 million, 6-year, fixed rate bonds with a coupon of 1.125% p.a.
  - EUR 300 million, 10-year, fixed rate bonds with a coupon of 2.00% p.a.
- Proceeds intended for general corporate purposes
  - Including debt refinancing
- Application made for the bonds to be listed
  - At the Irish Stock Exchange (Euronext Dublin)



# Extruded Solutions acquisitions

Strengthening position in building systems

- Acquisition of remaining 50 % of Technal Middle East (TME) in Bahrain from local partner Balexco
  - Established as a 50/50 JV in 2000
  - Agreed enterprise value for 50 % share EUR 35 million
  - Delivers tailor-made building systems solutions throughout the Middle East region
  - Transaction is expected to close during Q2 2019, pending regulatory approvals
- Acquisition of MBG in Germany
  - Powder coating company established in 1998
  - Close to Hydro's logistics center in Gerstungen and a key partner for Building Systems unit
  - Completes Hydro's range of aluminium construction services in the DACH region (Germany, Austria, Switzerland)





# Market update Q1 2019

Operational and market update Q1 2019

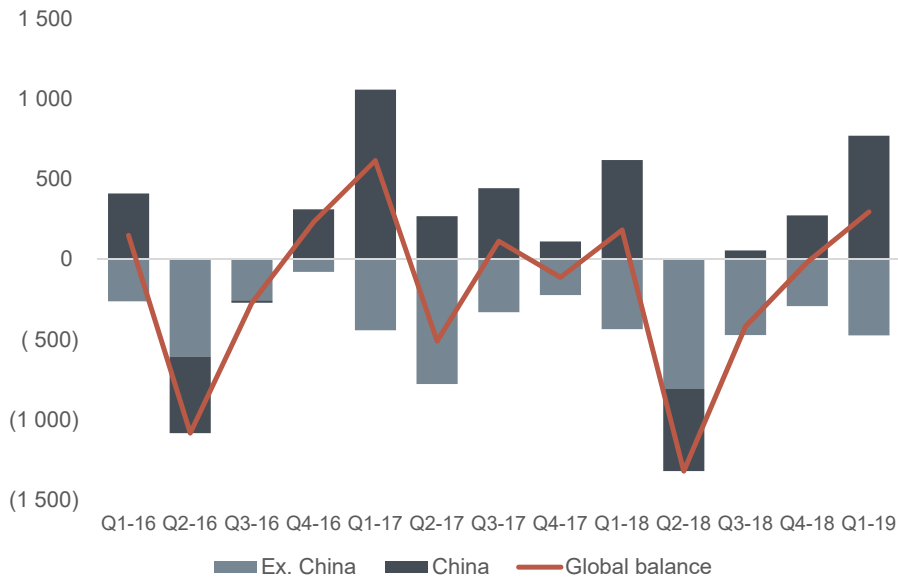
# Global aluminium market in surplus in Q1 2019



Continued deficit in world outside China, surplus in China

Quarterly market balances, world ex. China and China

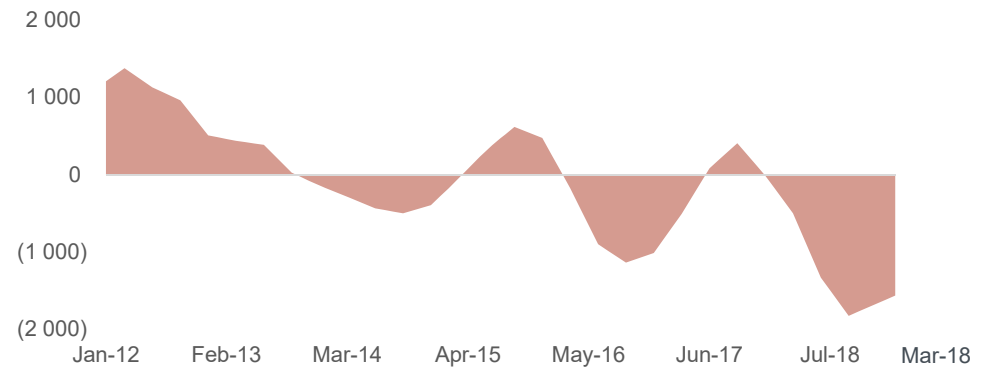
1 000 mt primary aluminium



Source: CRU/Hydro  
 \* Yearly rolling average of quarterly annualized production less demand

Production less demand\*)

1 000 mt primary aluminium

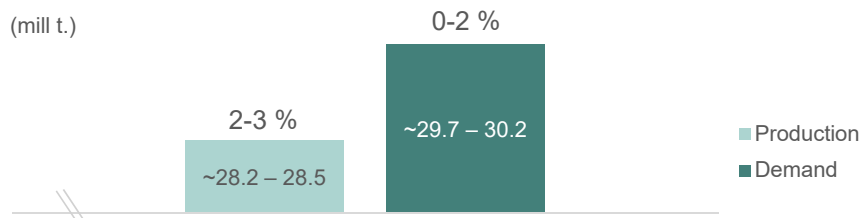


- ~0.3% demand growth Q1-19 vs Q1-18
- ~ -0.2% China
- ~0.8% World ex. China
- 2019 demand growth expected at 1-3%

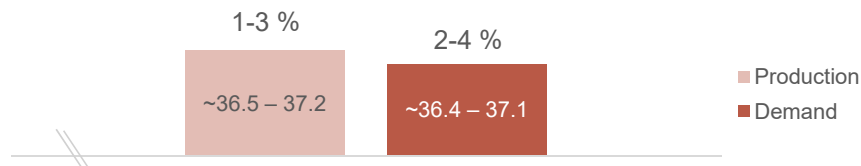
# Global market expected in deficit for 2019

China largely balanced, world outside China in deficit

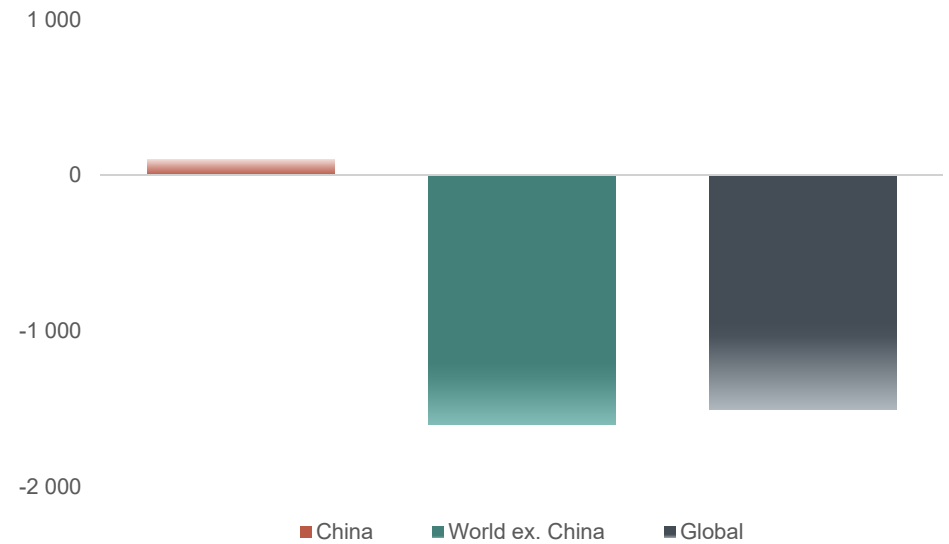
World ex. China 2019  
(mill t.)



China 2019  
(mill t.)



Estimated primary market balance 2019  
('000t)



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

# Aluminium prices range bound in Q1



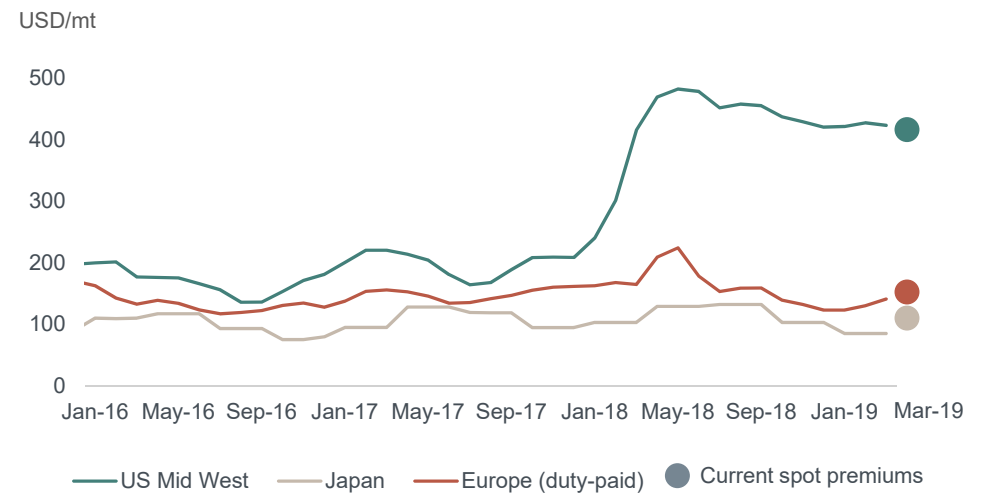
SHFE trending upwards, European standard ingot premium improving

LME and SHFE aluminium prices



- LME mostly range bound around 1 850 -1 950 USD/t so far in 2019
- SHFE trending upwards, decreasing price differential between LME and SHFE

Regional standard ingot premiums



- US premium relatively flat in Q1
- European premium improving
- Japan quarterly premium lower in Q1, but increasing to 105 USD/t for Q2

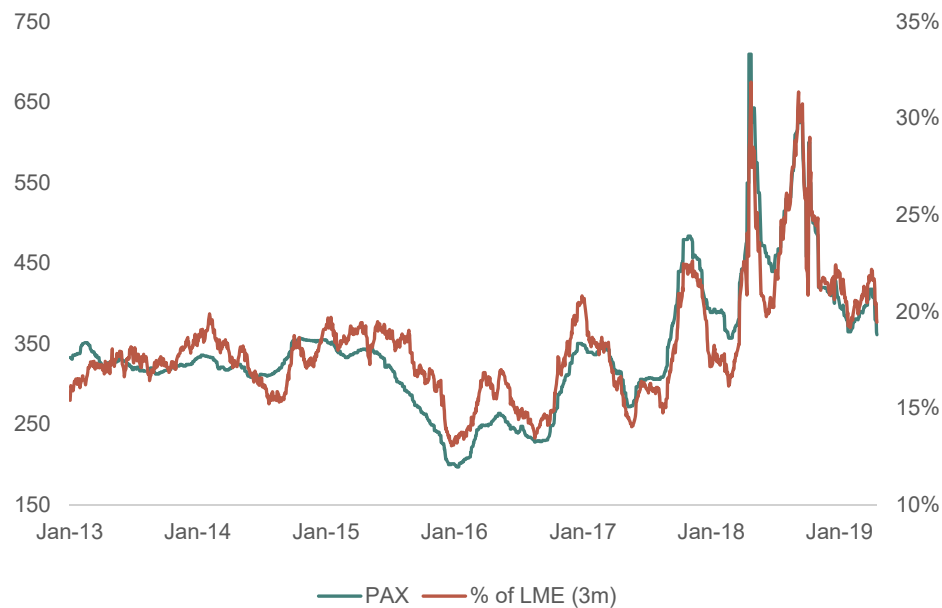
Source: Metal Bulletin, Platts, Reuters Ecowin, Hydro analysis  
\* Shanghai Futures Exchange

# Alumina prices more stable in Q1



Market remains tight outside China due to continued Alunorte 50% supply disruption

Platts alumina index (PAX)  
(mill t.)

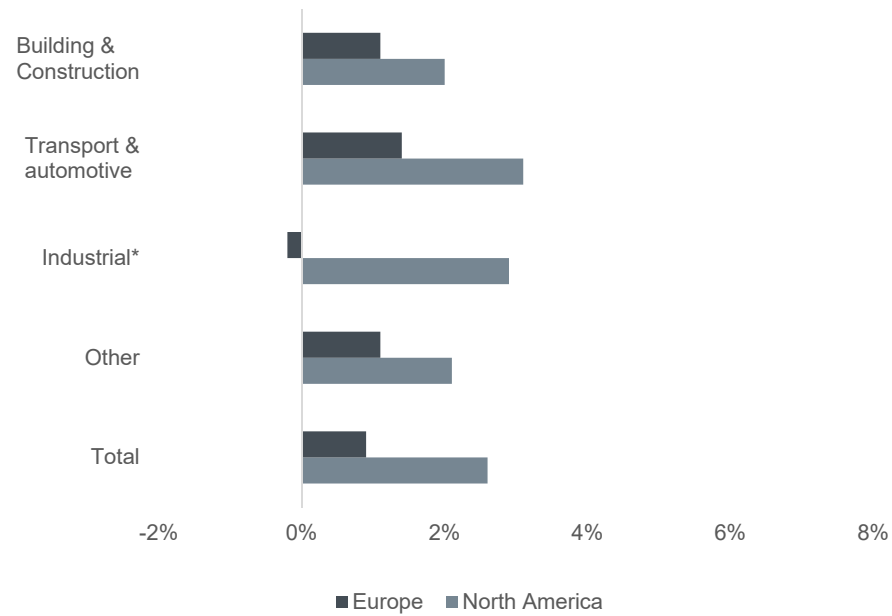


- Continued price volatility following uncertainty on alumina availability due to Alunorte curtailment
- Alumina market outside China largely balanced in Q1
- Limited Chinese alumina exports in Q1, arbitrage currently closed
- Alumina secured through Q2 2019 for Hydro's current primary production

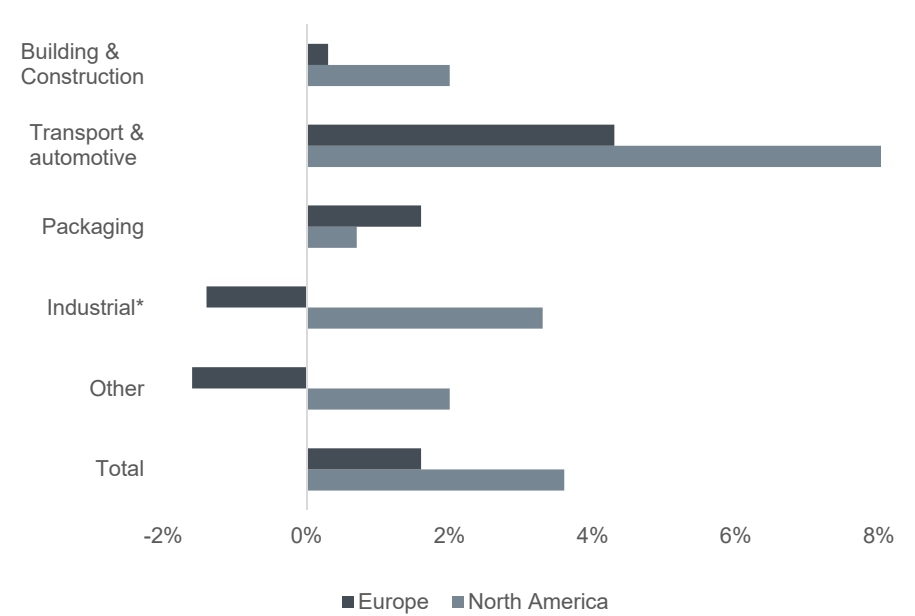
# Downstream demand slowing in Europe, continued steady growth in North America



Extrusions – estimated market growth 2019 vs 2018 (%)



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

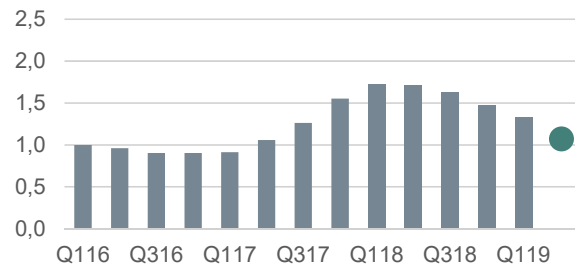


Source: CRU / Hydro analysis  
 \* Industrial includes consumer durables, electrical and machinery  
 Europe excluding Russia/Turkey

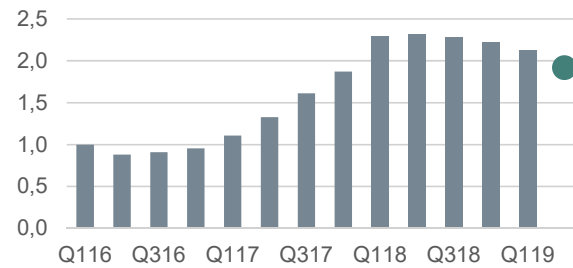
# Raw material costs for the aluminium industry continue to trend downwards



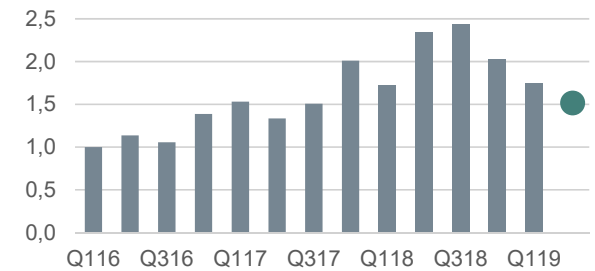
Petroleum coke FOB USG (indexed)



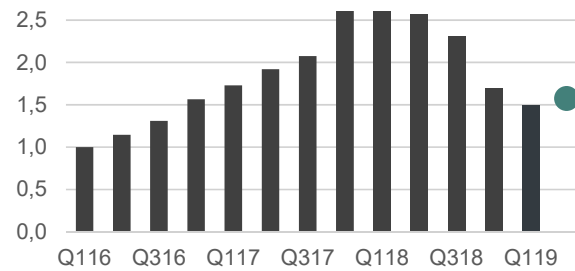
Pitch FOB USG (indexed)



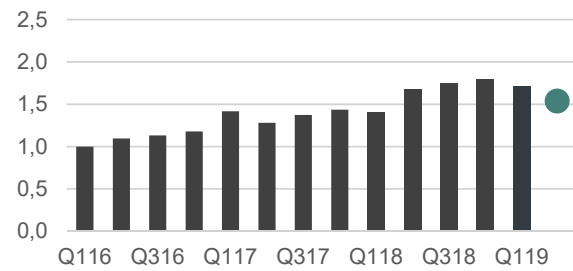
Alumina PAX index (indexed)



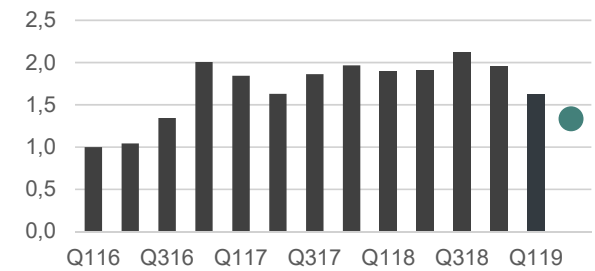
Caustic soda (indexed)



Fuel oil A1 (Indexed)



Steam coal (indexed)



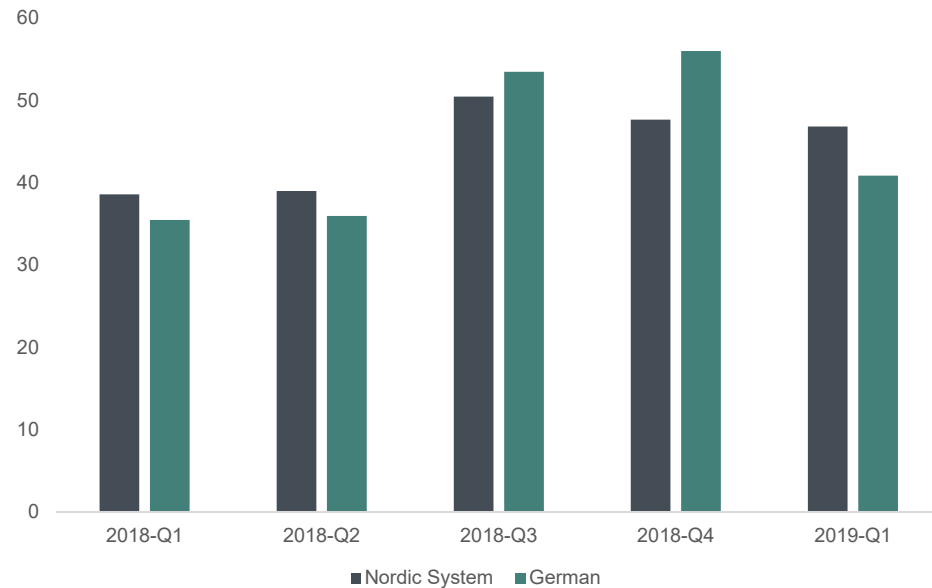
● Indication of current market prices

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

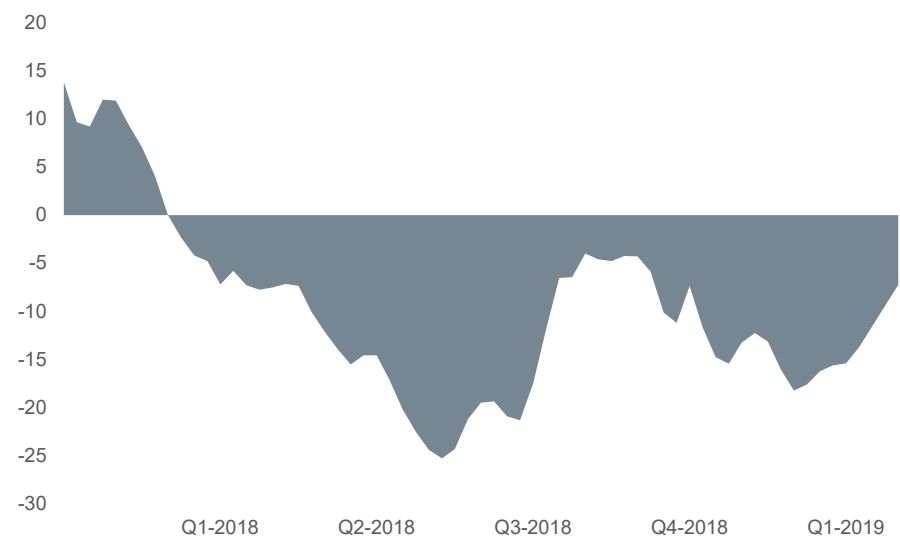
# Higher power prices compared to last year on hydrological deficit and high CO<sub>2</sub> prices



Nordic System and German Power Price  
EUR/MWh



Nordic Hydrological Balance  
TWh +/- normal



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.



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Bauxite & Alumina	Q1 2019	Q4 2018	Q1 2018
Alumina production, kmt	805	786	1277
Total alumina sales, kmt	1 423	1 983	2 071
Realized alumina price, USD/mt	373	463	371
Bauxite production, kmt	1 361	1 254	2 326

Primary Metal	Q1 2019	Q4 2018	Q1 2018
Primary aluminium production, kmt	485	490	514
Total sales, kmt	532	503	578
Realized LME price, USD/mt	1 912	2 041	2 140
Realized LME price, NOK/mt	16 292	17 038	16 929
Realized premium, USD/mt	340	362	295

Metal Markets	Q1 2019	Q4 2018	Q1 2018
Remelt production, kmt	131	135	150
Metal products sales, kmt <sup>1)</sup>	681	682	745

Rolled Products	Q1 2019	Q4 2018	Q1 2018
External sales volumes, kmt	246	220	245

Extruded Solutions	Q1 2019	Q4 2018	Q1 2018
External sales volumes, kmt	333	318	362

Energy	Q1 2019	Q4 2018	Q1 2018
Power production, GWh	2 553	2 822	2 433
Net spot sales, GWh	770	1 166	763
Southwest Norway spot price (NO2), NOK/MWh	468	455	361

\*) Further key financial and operational data will be released on June 5, together with the first quarter report

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



## Next event

- The original Q1 2019 reporting date (April 30, 2019) has been delayed to June 5, 2019, due to the cyber attack impacting the availability of certain systems and data