

# Finance

## Maximizing the potential for value creation

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01

# Prudent financial framework

# Prudent financial framework

Managing industry cyclicality, driving long-term shareholder value

## Lifting cash flow potential

Improving efficiency, strengthening margins

Improvement efforts

- 5.9 BNOK 2009-2016
- 0.3 BNOK 2017E
- 1.3 BNOK 2018-2019E <sup>1)</sup>

Managing working capital

## Financial strength and flexibility

Investment grade credit rating

Financial ratio targets over the cycle

- FFO/aND <sup>2)</sup> > 40%
- aND/E <sup>3)</sup> < 55%

Strong liquidity

## Disciplined capital allocation

Long-term sustaining capex below depreciation

- 5.5 – 6.0 BNOK per year

Total capex incl. growth

- 2017E BNOK 7.7<sup>4)</sup>

Selective value-add growth

Attractive organic growth prospects and M&A optionality

## Reliable shareholder remuneration policy

Sector competitive TSR

Dividend policy since 2016

- Dividend 1.25 NOK/share (floor)
- 40% payout ratio of Net income over the cycle

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) Funds from operations / adjusted net debt

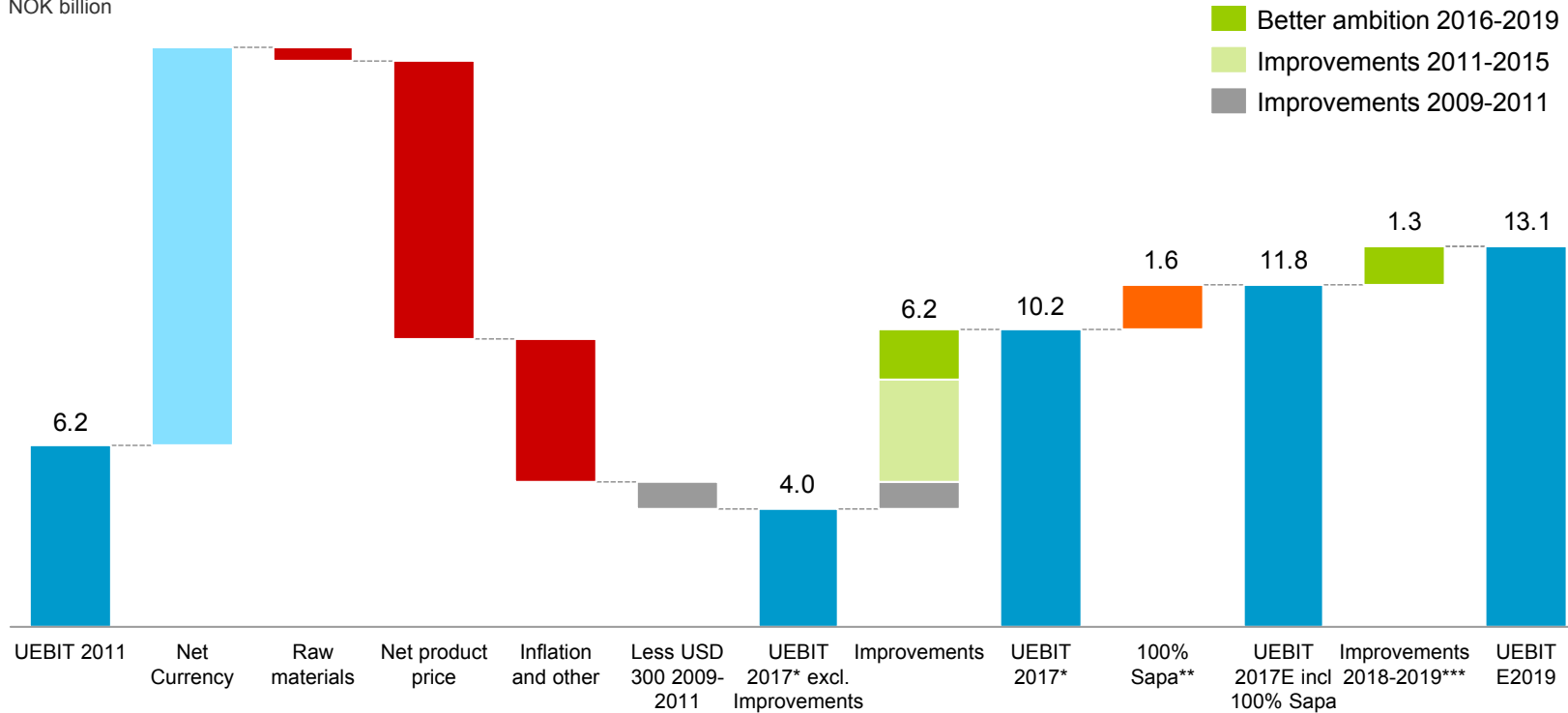
3) Adjusted net debt / Equity

4) With Karmøy Technology Pilot net investment, after ENOVA support and including Extruded Solutions

# Supporting earnings with industry-leading improvement ambitions

## Underlying EBIT development

NOK billion



## Better improvement ambition by category, 3.0 BNOK 2016-2019



- Volume/capacity
- Fixed cost
- Process improvement
- Commercial improvements/high-grading
- Other

Hydro UEBIT including Hydro Extrusions before 2013 and 50% of Sapa Net Income after 2013.

\* YTD Q3-2017 annualized

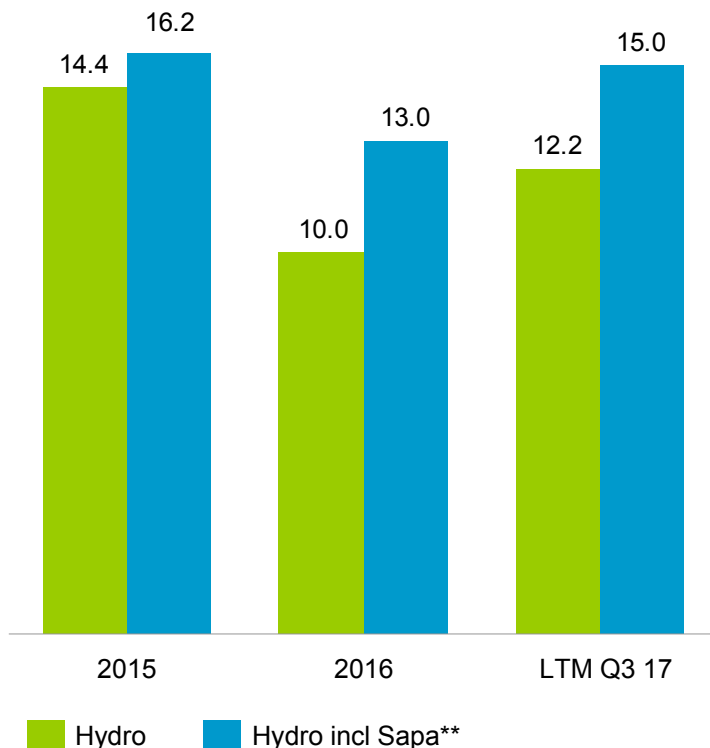
\*\* Sapa 100% Underlying EBIT less 50% underlying net income - Q3 2017 annualized incl. excess value depreciation

\*\*\* Remaining improvement programs in real 2015 terms

# Sapa adds significant operating cash flow from day 1, with further improvement potential and growth opportunities

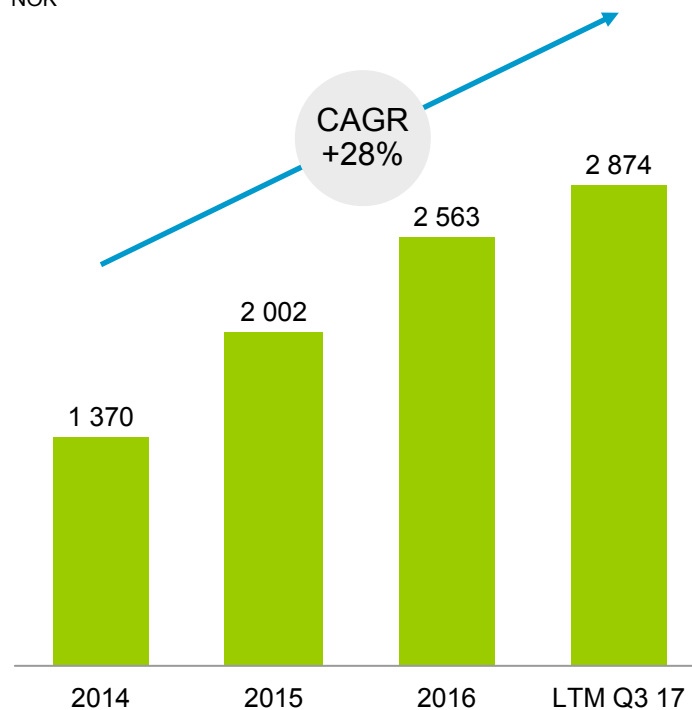
## Cash flow from operations\*

NOK billion



## Sapa (100%) Underlying EBITDA per mt

NOK



- BNOK 1 restructuring on annual basis delivered ahead of plan
- Further potential for value-creation
  - Increasing share of value-added sales
  - Simplification and collaboration drive for continued profitability improvement
  - Selective investments in capabilities and capacity to support value-over-volume strategy
- Estimated synergies 200 MNOK per year

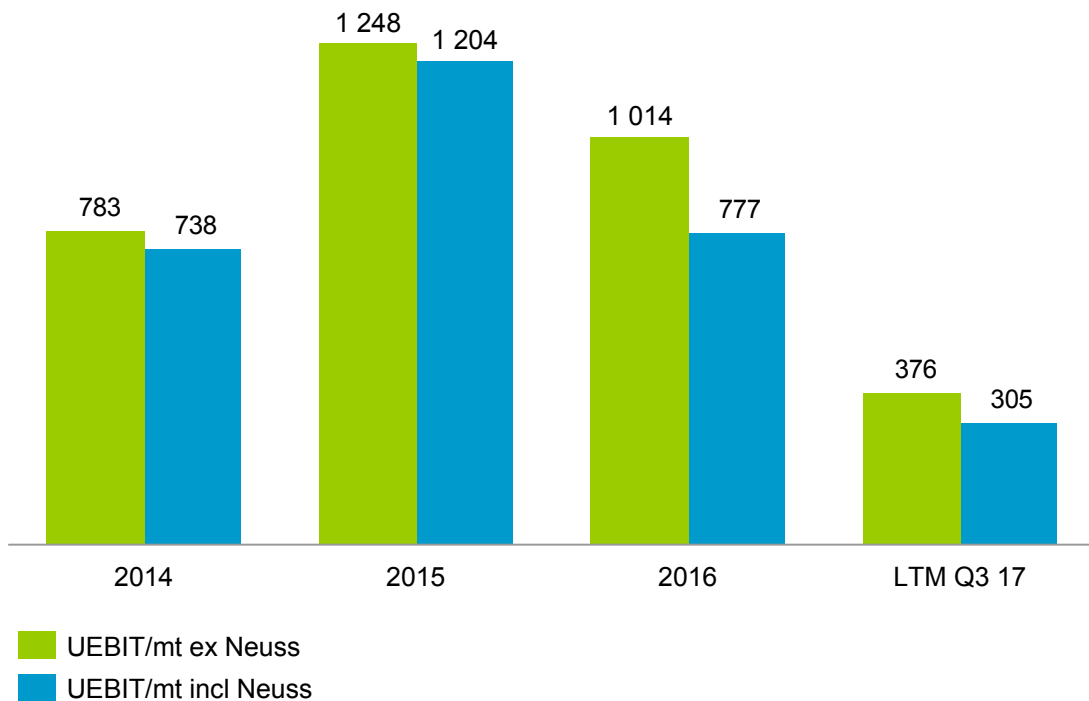
\* From cash flow statements Hydro and Sapa

\*\* Estimate including Sapa

# Rolled Products: Challenging 2017, investing for future growth

Rolled Products Underlying EBIT per mt

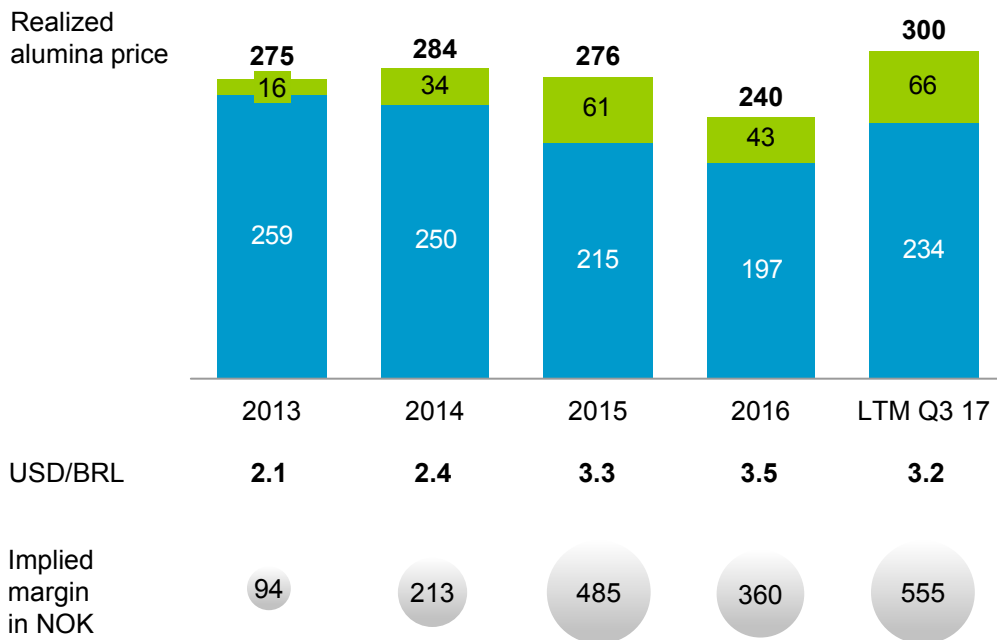
NOK



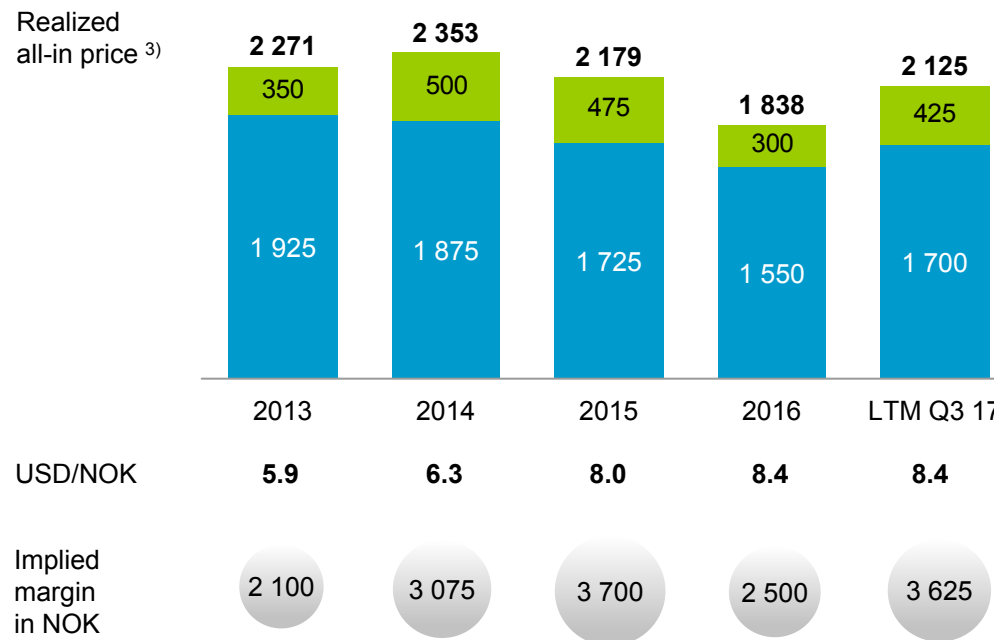
- Operational issues reducing cash flow in 2017
  - Production performance at Alunorf and Hamburg have been stabilized
  - Technical issues related to the UBC line mitigated, full ramp-up to >40 000 mt expected by year-end 2018
  - Qualification process ongoing for the Automotive Line 3, technical issues have been identified and are currently being resolved
  
- Gradual improvement during the next years
  - Negative effect from the Neuss smelter to be mitigated with a more competitive power contract from 2018, positive effect of MNOK 350-400/year
  - Offsetting negative effect of MNOK ~ 250/year in Energy
  - Product mix improvement and further high-grading through ramp-up of UBC and AL3

# Increasing margins upstream, raw material cost push

Implied alumina cost and margin, USD/mt <sup>1)</sup>



All-in implied primary cost and margin, USD/mt <sup>2)</sup>



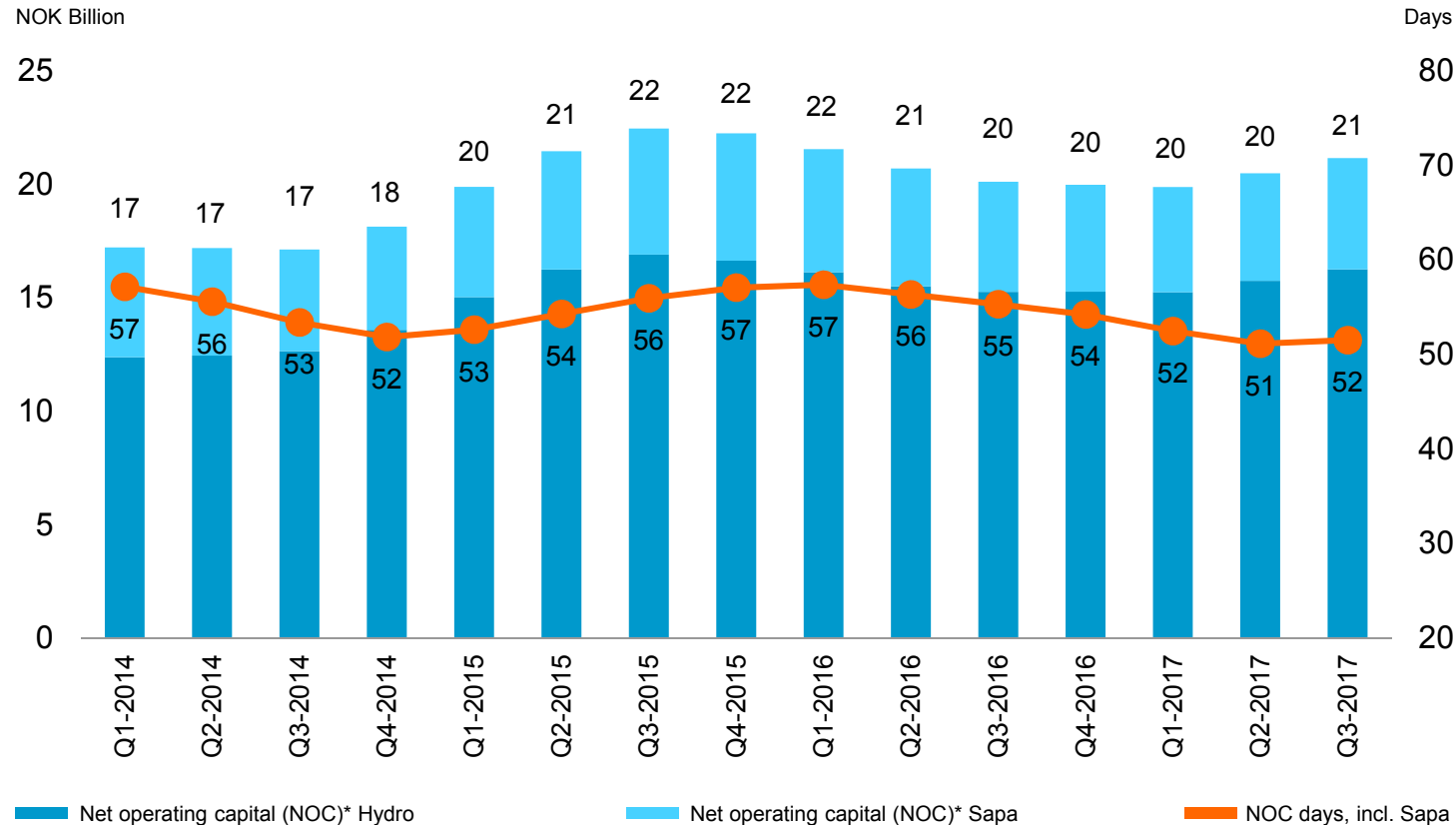
Implied margin Implied cost

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

2) Realized all-in aluminium price minus underlying EBITDA margin, including Qatalum, per mt aluminium sold. Implied primary cost and margin rounded to the nearest "25"

3) Realized LME plus realized premium, including Qatalum

# Optimizing working capital remains key priority



- Net operating capital generally follows LME
- Extruded Solutions average working capital around 5 BNOK
- Extruded Solutions reducing overall net operating capital days due to shorter lead times between suppliers and customers
- Reduced net operating capital days in 2016 and 2017 from the high inventory build-up throughout 2015

\* Last twelve months moving average

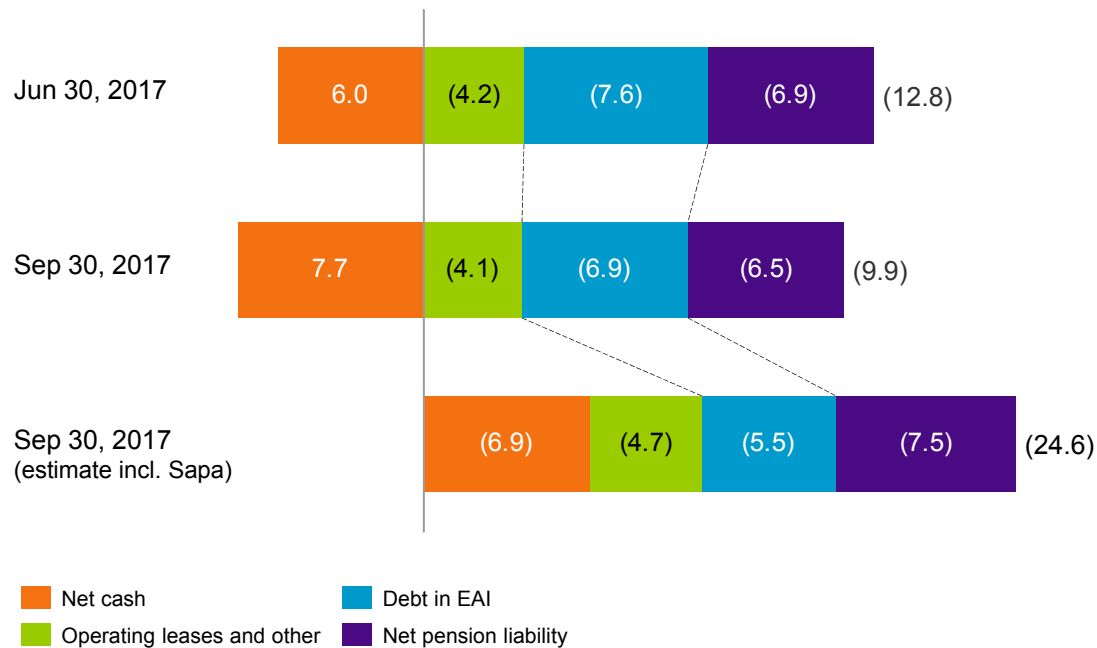


# Maintaining a solid balance sheet and investment-grade credit rating

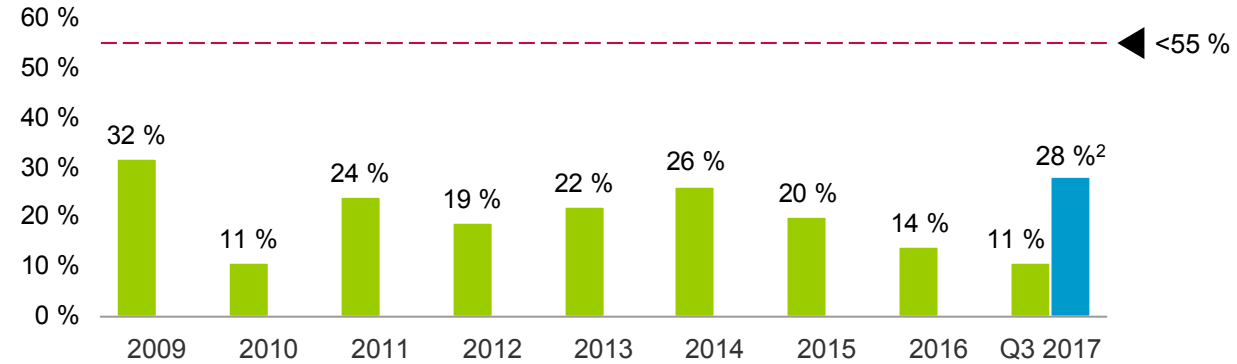
Strong liquidity, also following the Sapa acquisition

## Adjusted net debt

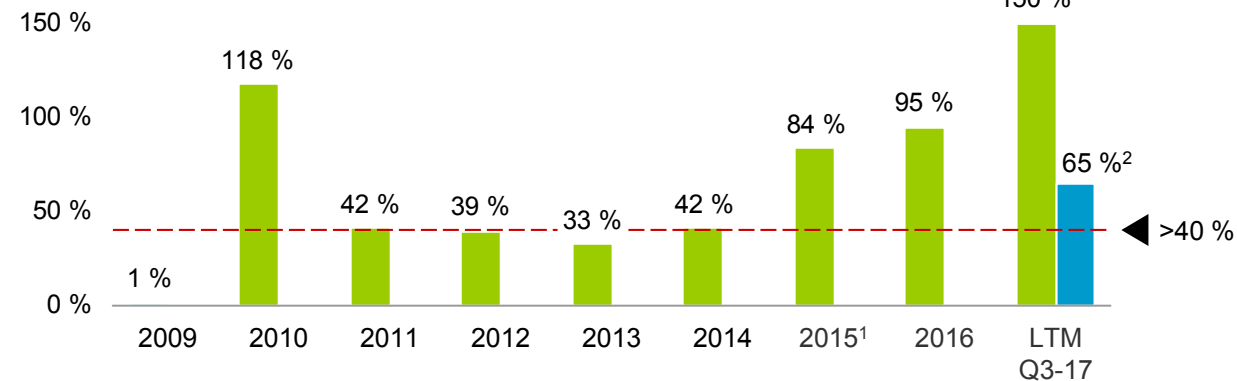
NOK billion



## Adjusted net debt / Equity



## Funds from operations<sup>1</sup> / Adjusted net debt



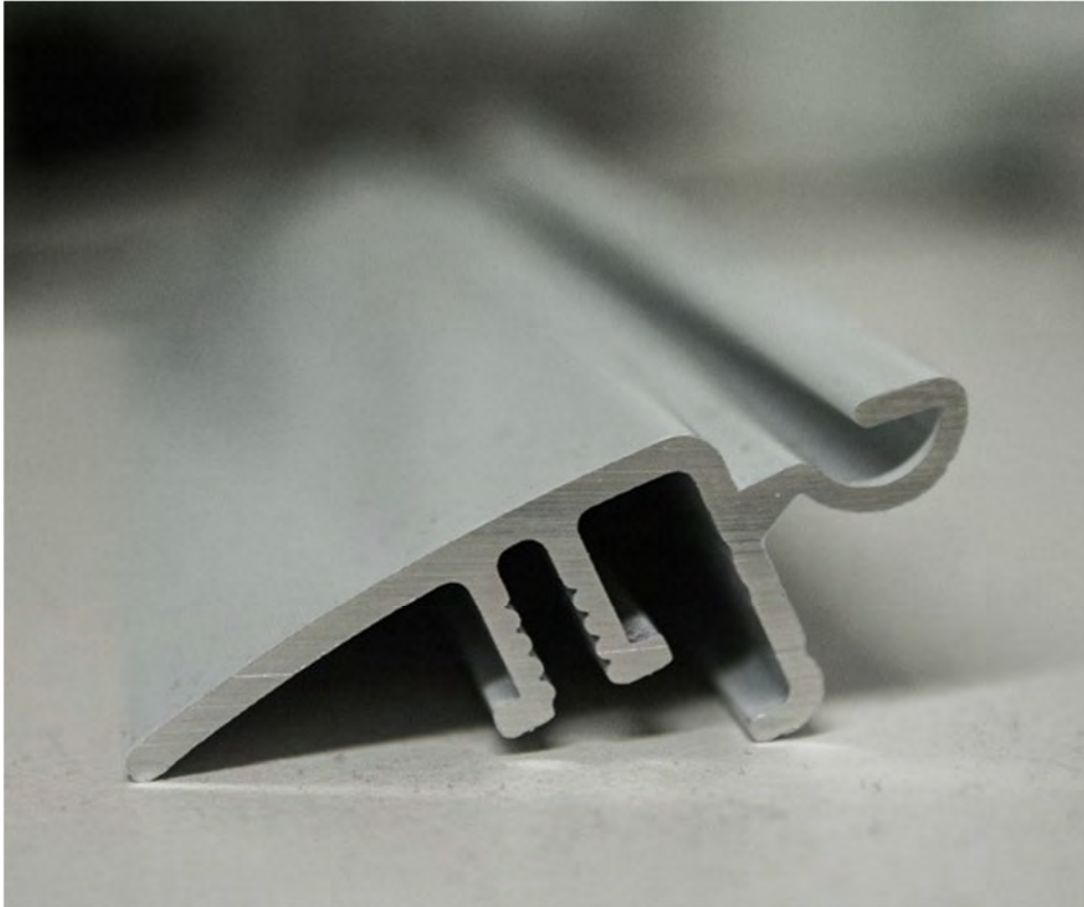
1) 2015 FFO/aND ratio has been restated due to change of definition

2) Estimate including Sapa

Hydro (green) Hydro incl Sapa (blue)



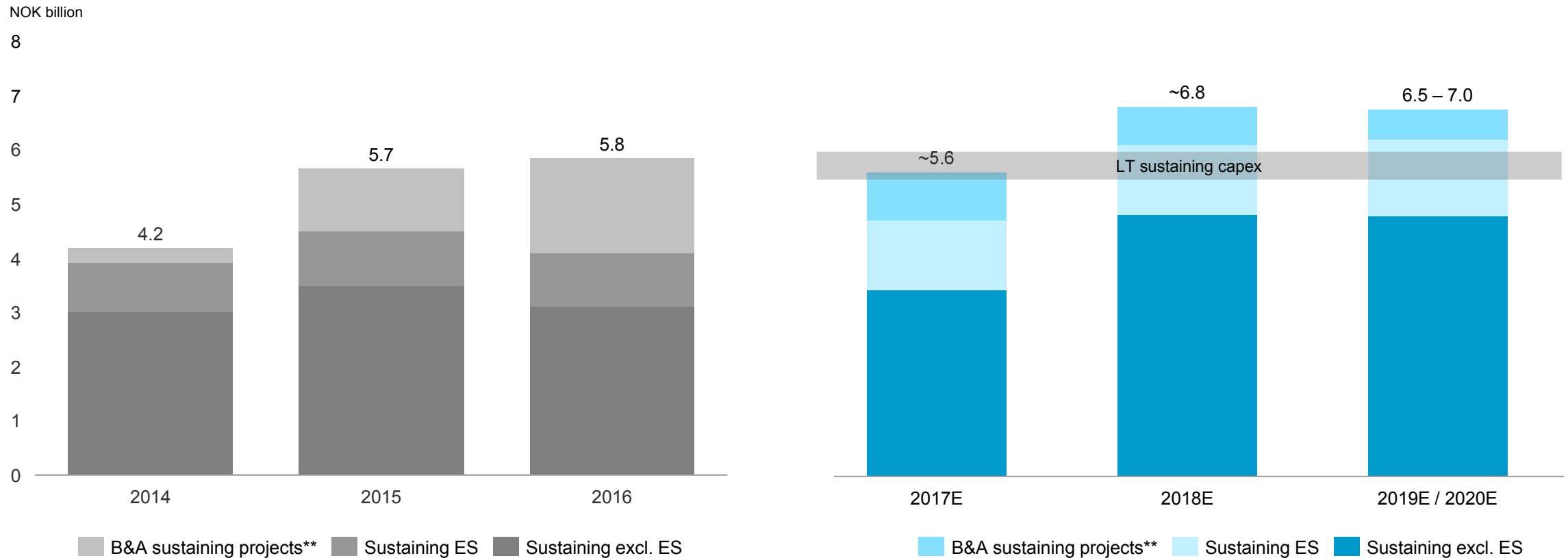
# Successful financing of the Sapa-transaction in the Norwegian and Swedish bond markets



- Successful placement of bonds in Norway and Sweden
- Very strong interest and highly competitive terms achieved
- Total amount: NOK 3 billion and SEK 3 billion
  - 2Y SEK 1 billion fixed rate note with a coupon of 0.125% p.a.
  - 3Y SEK 1 billion floating rate note with a coupon of 3m Stibor + 0.75% p.a.
  - 5Y SEK 1 billion fixed rate note with a coupon of 1.00% p.a.
  - 5Y NOK 2 billion floating rate note with a coupon of 3m Nibor + 0.75% p.a.
  - 7Y NOK 1 billion fixed rate note with a coupon of 2.5% p.a.
- DNB, Nordea and Handelsbanken Joint Lead Managers

# Long-term sustaining capex around NOK 5.5-6.0 billion

Higher than average sustaining capex 2018-2020 mainly driven by sustaining investments in Brazil

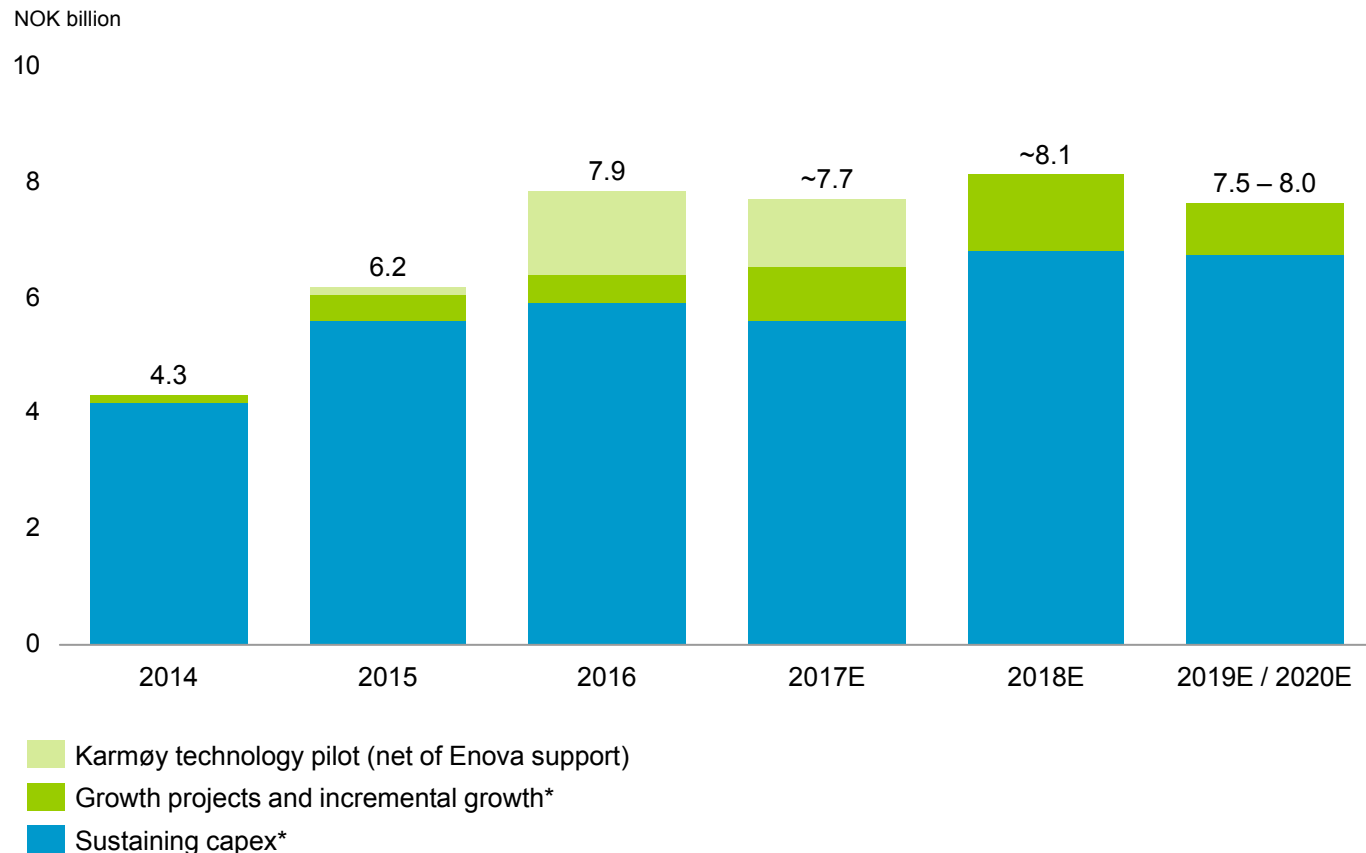


\* Real 2017 figures

\*\* Red mud disposal area at Alunorte, tailing dam investments at Paragominas and opening of a new mining area at Paragominas

# Growth capex focused on high-grading, recycling and technology

Majority of sustaining capex allocated upstream



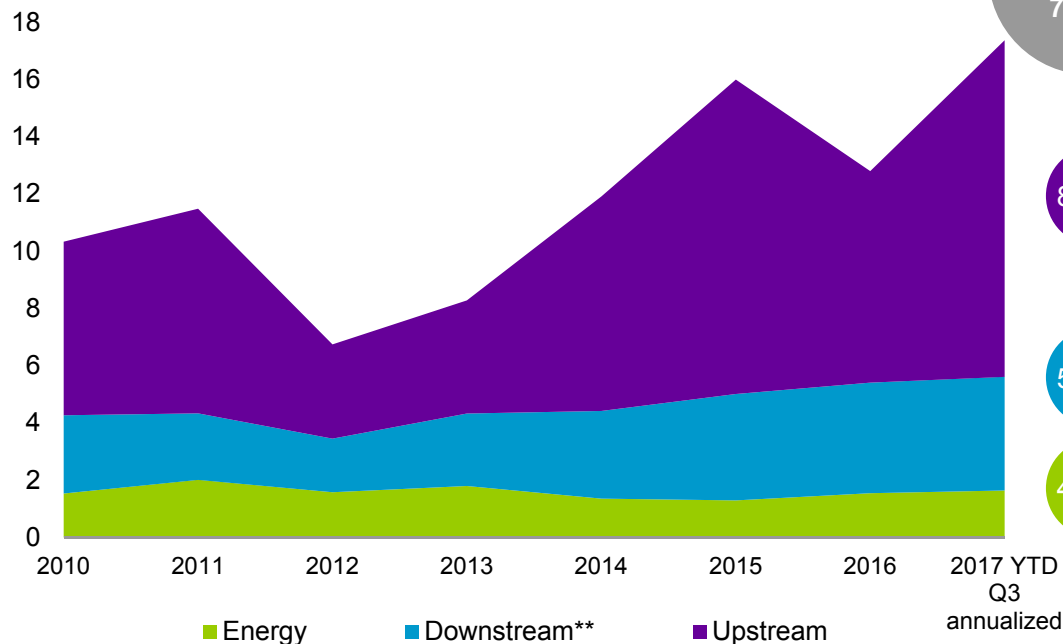
- Sustaining projects for 2018-2020:
  - Bauxite residue disposal area
  - Opening of new bauxite mining area
  - Pipeline replacement
  - Primary rectifiers and asset integrity Albras
  - Smelter relining
- Ongoing organic growth projects:
  - Productivity improvements across the portfolio
- Karmøy technology pilot 2015-2018:
  - Gross investment 4.3 BNOK
  - Of which Enova support 1.6 BNOK
  - Net investment 2.7 BNOK
- Capex related to specific growth projects will be announced when decision is made

\* Includes Extruded Solutions

# Capital allocated across the value chain, based on estimated premium above cost of capital

## Underlying EBITDA

BNOK



Hydro  
Cost of capital  
7.5%\*

8-9%\*

5-6%\*

4-5%\*

- Increased growth opportunities through presence in full value chain and all market segments
- Upstream
  - Cost of capital reflecting higher capital intensity and expected volatility
  - Focus: creep projects, cost efficiency and debottlenecking
- Downstream
  - Lower required cost of capital, more stable margins
  - Focus: high grading portfolio, increasing exposure in higher-margin segments
- Energy
  - Stable cash flows from high-quality hydro power assets in Norway
  - Focus: securing RSK volumes and values, new hydropower projects

Return requirements dependent on project specific risk assessments

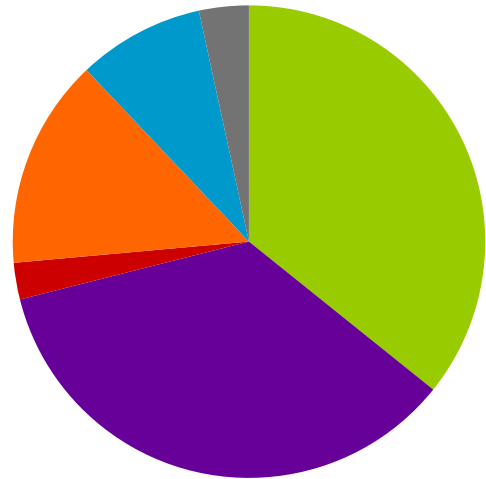
\* Real after tax

\*\* Hydro Extruded Products 2010-2012, 50% of underlying EBITDA Sapa JV 2013-2017 (pro forma figures until closing 2013)

Upstream: Bauxite & Alumina, Primary Metal. Downstream: Extruded Solutions, Rolled Products, Metal Markets

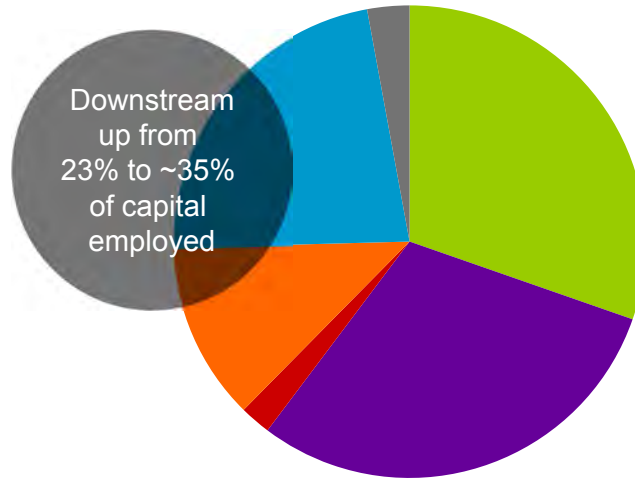
# Increasing relative share of downstream exposure

Hydro before transaction:  
Capital employed by end Q3-17  
BNOK ~80



■ B&A ■ PM ■ MM ■ RP ■ Sapa ■ Energy

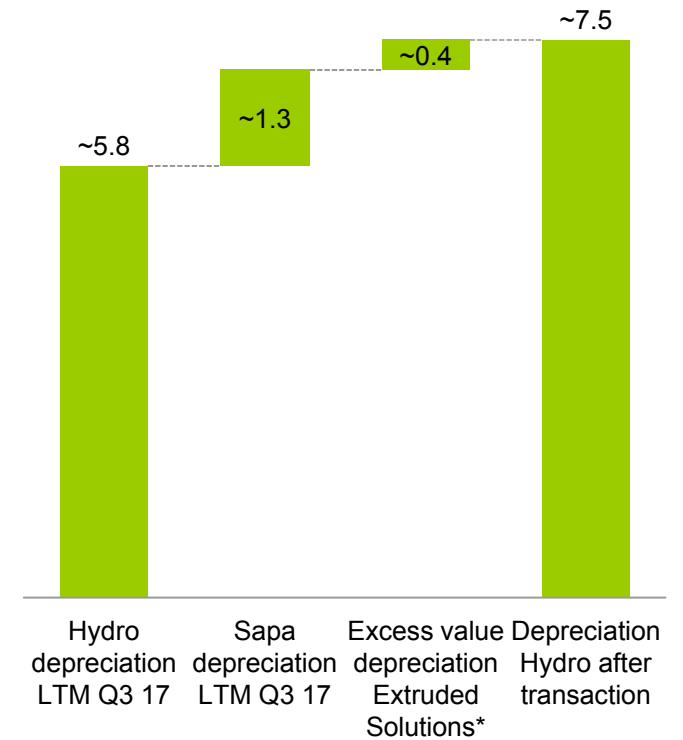
Hydro after transaction:  
Capital employed by end Q3-17  
BNOK ~96



■ B&A ■ PM ■ MM ■ RP ■ Extruded Solutions ■ Energy

Hydro depreciation after transaction:

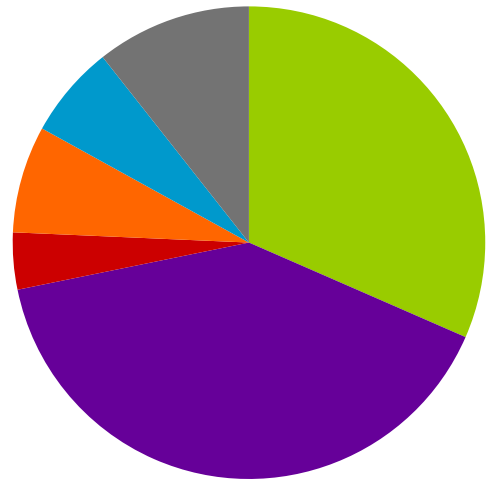
In BNOK



Capital employed pie-charts excludes other & eliminations of negative ~7.7 BNOK  
\* Indicative estimate

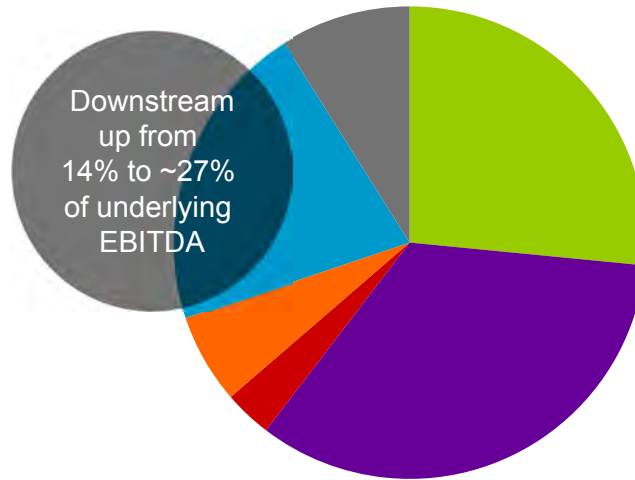
# Increasing relative share of downstream exposure

Hydro before transaction:  
Underlying EBITDA LTM Q3-17  
BNOK 15



■ B&A ■ PM ■ MM ■ RP ■ Sapa ■ Energy

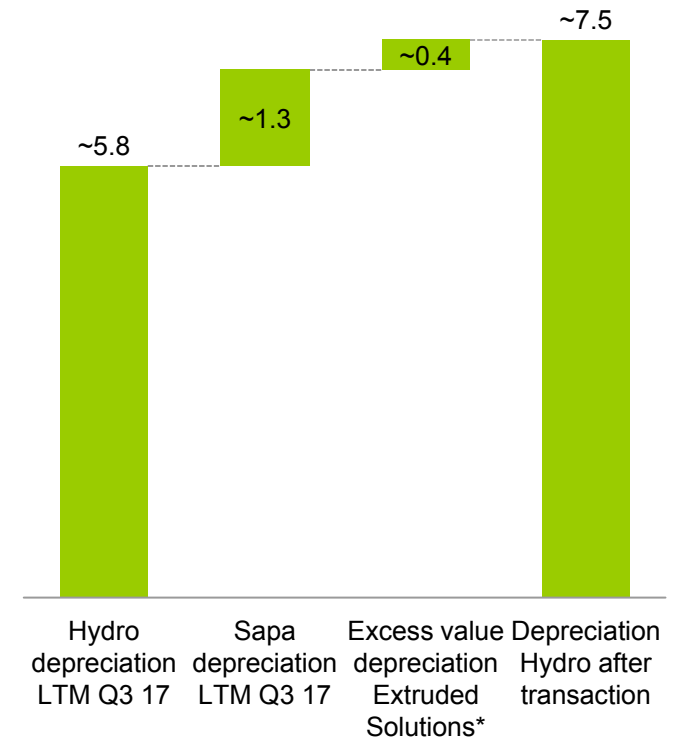
Hydro after transaction:  
Underlying EBITDA LTM Q3-17  
BNOK 18



■ B&A ■ PM ■ MM ■ RP ■ Extruded Solutions ■ Energy

Hydro depreciation after transaction:

In BNOK



Underlying EBITDA pie-charts excludes other & eliminations of negative ~0.5 BNOK  
\* Indicative estimate

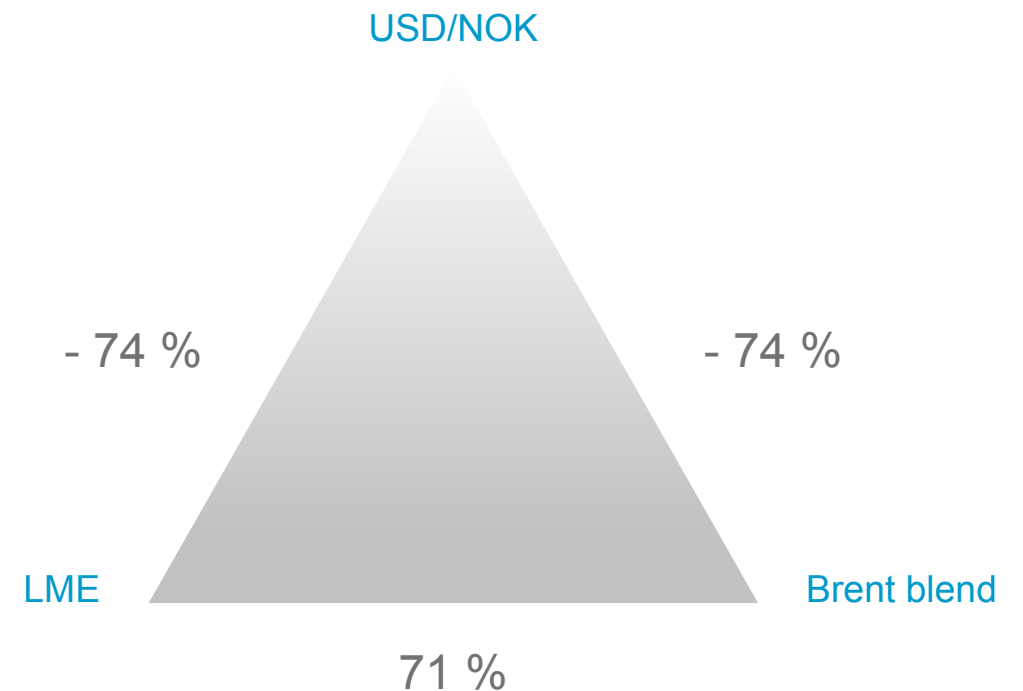
# Limited financial hedging, flexible business model

Historical correlations between commodities and currencies indicate a natural earnings hedge

- Hedging strategy
  - Fluctuating with the market: revenues primarily exposed to LME, PAX and USD
  - Volatility mitigated by strong balance sheet
  - Strengthening relative position to ensure competitiveness
- Diversified business
  - Upstream cyclical 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, Extruded Solutions
  - Operational LME and currency hedging to secure margin
- Flexibility to hedge LME or currency in certain cases
- Long-term debt in currencies reflecting underlying exposures and cash generation, also considering attractiveness in main financial markets

## Cross-correlations between currencies and commodities

Monthly correlations 1994-2016





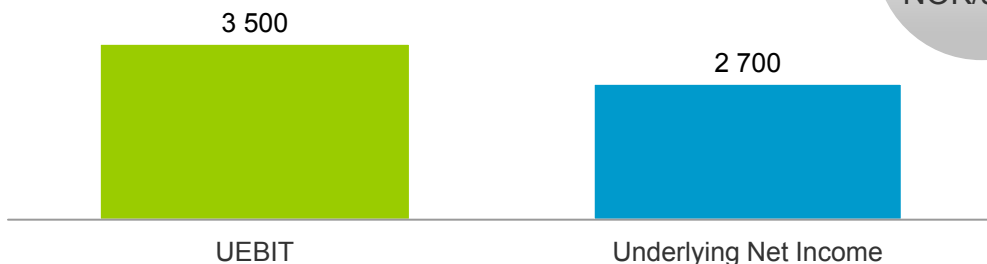
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# Sensitivities and scenarios

# Significant exposure to commodity and currency fluctuations

## Aluminium price sensitivity +10%\*

NOK million



UEPS  
+1.18  
NOK/share

## Currency sensitivities +10%\*

*Sustainable effect:*

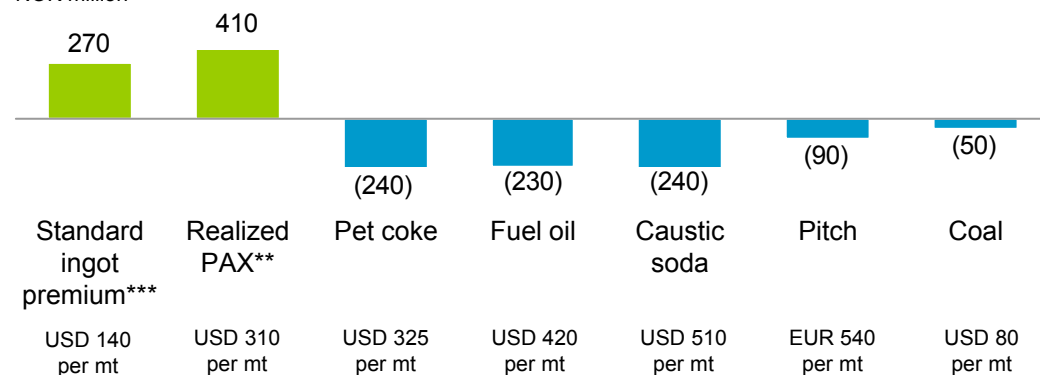
NOK million	USD	BRL	EUR
UEBIT	3 450	(1 210)	(220)
UEBITDA	3 540	(900)	(80)
UEPS	1.17	(0.37)	(0.07)

*One-off reevaluation effect:*

Financial items	USD	BRL	EUR
Financial items	(70)	610	(1 890)

## Other commodity prices, sensitivity +10%\*

NOK million



- Annual sensitivities based on normal annual business volumes, LME USD 1 925 per mt, fuel oil USD 420 per mt, petroleum coke USD 325 per mt, caustic soda USD 510 per mt, coal USD 80 per mt, USD/NOK 8.10, BRL/NOK 2.50, EUR/NOK 9.40
- 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

\* Including Extruded Solutions

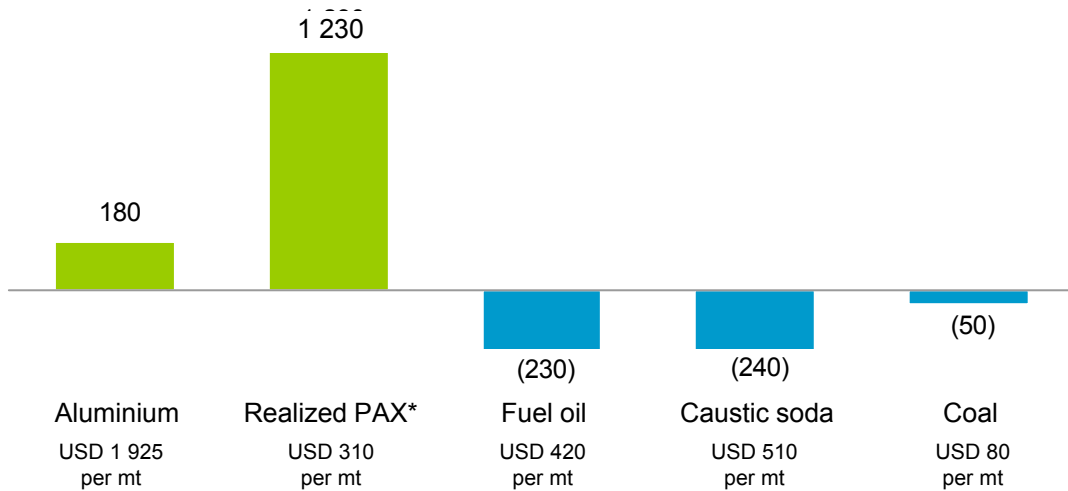
\*\* 2018 Platts alumina index exposure

\*\*\* Europe duty paid standard ingot premium

# Bauxite & Alumina sensitivities

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

NOK million



## Currency sensitivities +10%

NOK million	USD	BRL	EUR
UEBIT	990	(820)	-

## Revenue impact

- ~14.5% of 3-month LME price per tonne alumina
  - ~One month lag
- Realized alumina price lags PAX by one month

## Cost impact

### Bauxite

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

### Caustic soda

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

### Energy

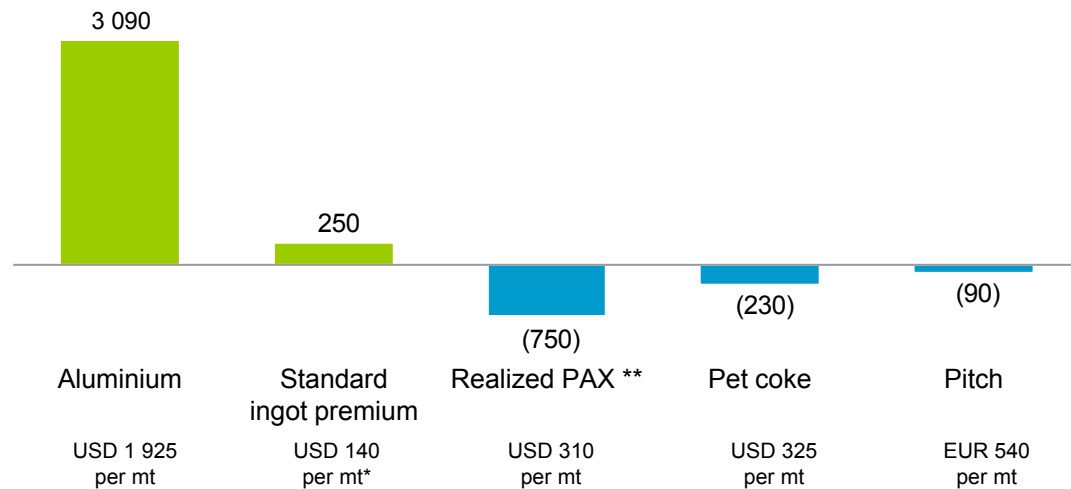
- ~0.11 tonnes coal per tonne alumina, Platts prices, one year volume contracts, weekly per shipment pricing
- ~0.11 tonnes heavy fuel oil per tonne alumina, prices set by ANP/Petrobras in Brazil, weekly pricing (ANP) or anytime (Petrobras)
- Increased use of coal as energy source in Alunorte

\* 2018 Platts alumina index exposure  
 Currency rates used: USD/NOK 8.10, BRL/NOK 2.50, EUR/NOK 9.40

# Primary Metal sensitivities

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

NOK million



## Currency sensitivities +10%

NOK million	USD	BRL	EUR
UEBIT	2 060	(390)	(230)

## Revenue impact

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

### Carbon

- ~0.35 tonnes petroleum coke per tonne aluminium, Pace Jacobs Consultancy, 2-3 year volume contracts, quarterly pricing
- ~0.08 tonnes pitch per tonne aluminium, CRU, 2-3 year volume contracts, quarterly pricing

### Power

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

\* Europe duty paid. Hydro Q3'17 realized premium USD 261 per mt  
 \*\* 2018 Platts alumina index exposure  
 Currency rates used: USD/NOK 8.10, BRL/NOK 2.50, EUR/NOK 9.40

# Commodities and currencies need to be seen in tandem

Spot prices and currency rates indicate earnings upside

Underlying EBIT sensitivity to changes in LME and USD/NOK

Change in USD/NOK	Change in UEBIT (BNOK)	Change in LME price		
		- 10%	0	+ 10%
+10%	(0.4)	3.5	7.3	
0	(3.5)	0	3.5	
-10%	(6.6)	(3.5)	(0.3)	

Key variables “run-rate”\* vs Q3-17 realized

	Q3-17 realized	Run-rate*	% change	Annual effect	
				Impact on UEBIT (BNOK)	Impact on UEPS (NOK/share)
LME	1 925	2 100	9 %	3.2	1.1
PAX	310	450	45 %	1.8	1.0
USD/NOK	8.1	8.1	0 %	0.0	0.0
BRL/NOK	2.5	2.5	0 %	0.0	0.0
<b>Total</b>				<b>5.0</b>	<b>2.1</b>

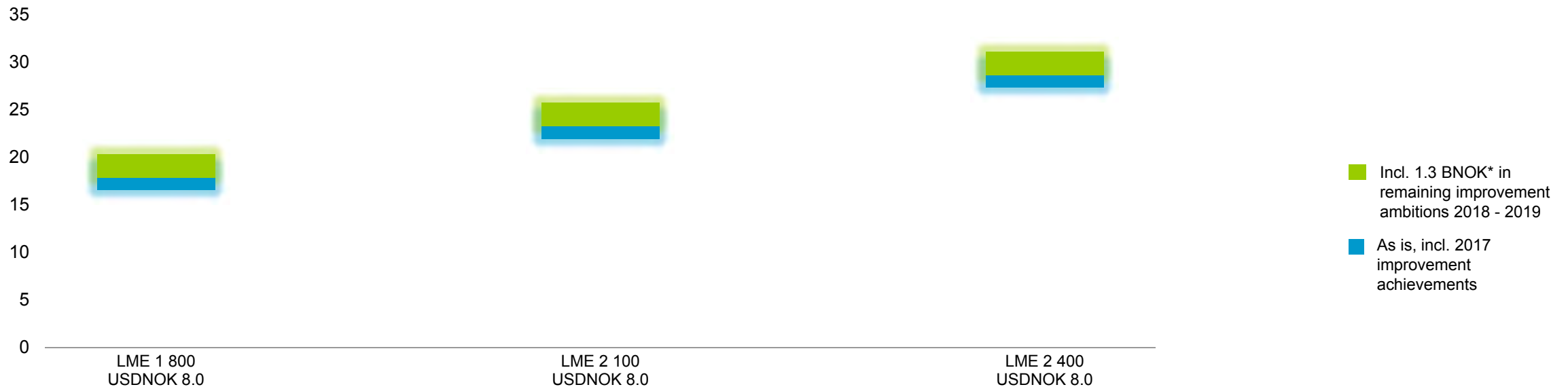
\* Run rate – market rates as of November 23, 2017

# Improvement efforts lift UEBITDA potential

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

## Indicative UEBITDA-range in 3 scenarios

NOK billion



### Additional factors influencing earnings (not included in the scenarios):

Production volumes, alumina sales pricing on PAX, energy prices, downstream margin developments, raw material cost development, premiums, inflation, currency, depreciation, other

Last 4 quarters underlying EBITDA as basis. USD/NOK 8.0, BRL/NOK 2.5, realized premium above LME 260 USD/mt, PAX 350 USD/mt assumed for all scenarios. Other assumptions unchanged.

Improvements used for scenarios exclude Extruded Solutions

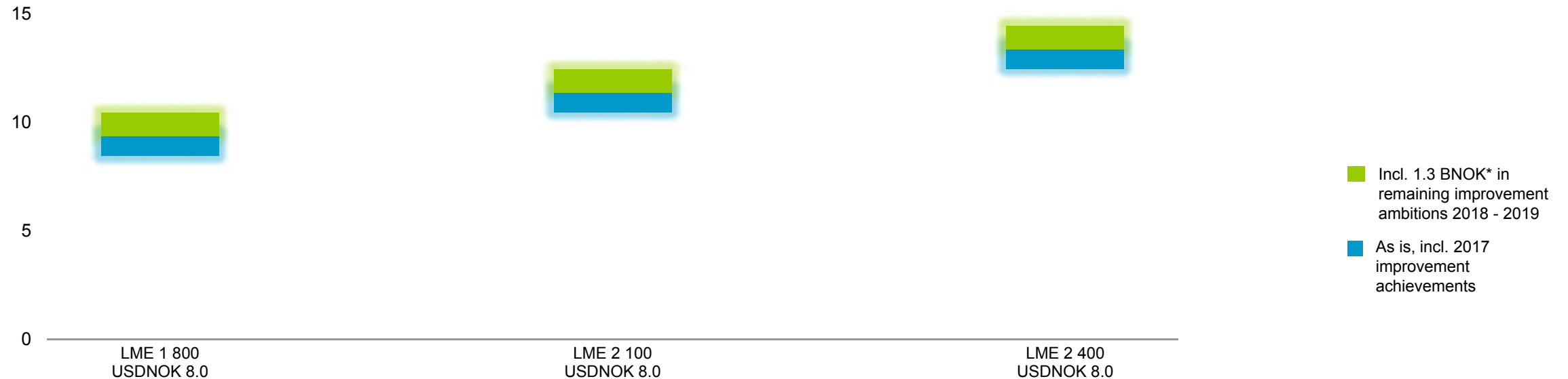
\* Future improvement efforts in real 2015 terms, before depreciation.

# Improvement efforts and capital discipline contribute to FCF growth...

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

## Indicative Free cash flow (FCF) range in 3 scenarios

NOK billion



### Additional factors influencing earnings (not included in the scenarios):

Production volumes, alumina sales pricing on PAX, energy prices, downstream margin developments, raw material cost development, premiums, inflation, currency, taxes, investments, interest expense, depreciation, other

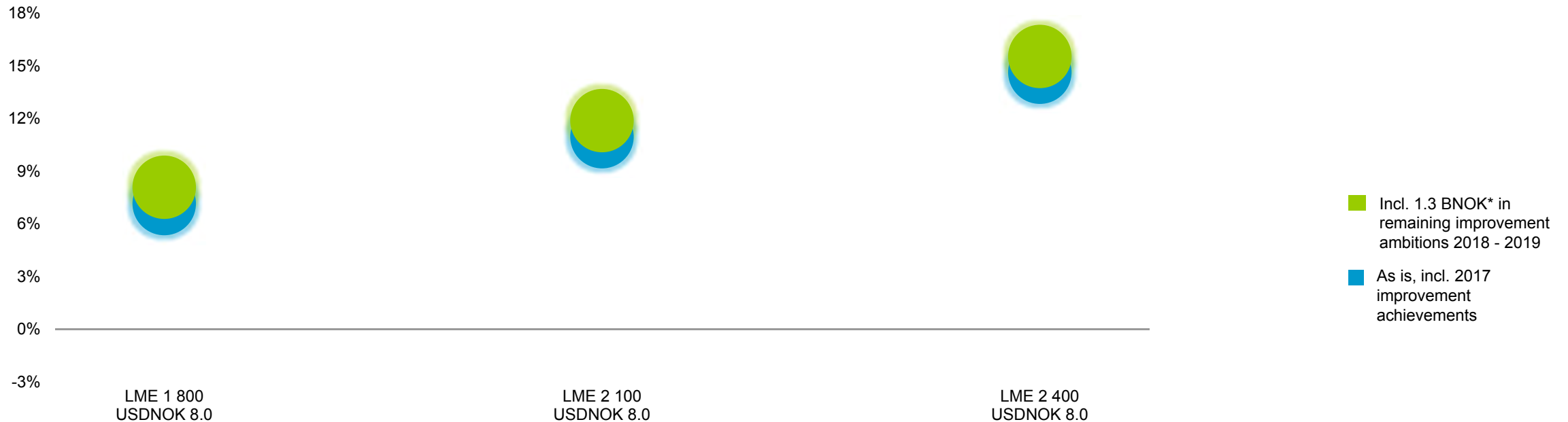
Last 4 quarters underlying EBITDA as basis. USD/NOK 8.0, BRL/NOK 2.5, realized premium above LME 260 USD/mt, PAX 350 USD/mt assumed for all scenarios. Long-term capex 5.5 - 6 BNOK per year  
Other assumptions unchanged. Improvements used for scenarios exclude Extruded Solutions

\* Future improvement efforts in real 2015 terms, before depreciation.

# ...and lift potential for competitive returns

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

Indicative RoaCE range in 3 scenarios



**Additional factors influencing earnings (not included in the scenarios):**

Production volumes, alumina sales pricing on PAX, energy prices, downstream margin developments, raw material cost development, premiums, inflation, currency, taxes, interest expense, other

Last 4 quarters underlying EBITDA as basis. USD/NOK 8.0, BRL/NOK 2.5, realized premium above LME 260 USD/mt, PAX 350 USD/mt assumed for all scenarios. Other assumptions unchanged.

Improvements used for scenarios exclude Extruded Solutions

\* Future improvement efforts in real 2015 terms, before depreciation.



03

## Financial targets and aspiration

# Driving long-term shareholder value

Balancing capital allocation and financial strength

## Solid balance sheet and liquidity

Maintain financial flexibility  
Enable access to capital markets  
Navigate through the cycles  
Manage business risks  
Act on opportunities

## Capital expenditures

Sustaining capex to ensure operational excellence  
Investments to keep market share, reduce costs, strengthen margins

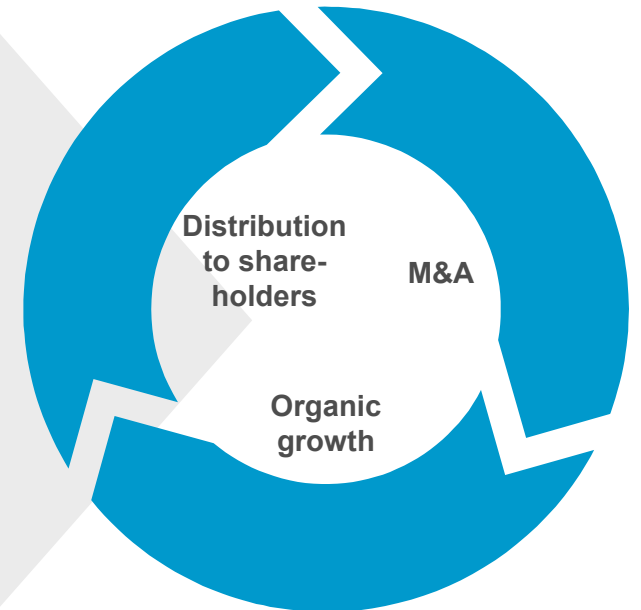
## Predictable dividend

Deliver competitive cash returns to shareholders

## Long-term shareholder value

- Reinvest in profitable growth
- or
- Return to shareholders

Allocation based on best risk-adjusted returns




# Hydro's aspiration underpinned by firm financial targets

Medium and long-term

	Ambition	Timeframe	CMD 2017 status
<i>Better</i> improvement ambition	3.0 BNOK	2016-2019	1.7 BNOK 2017E
Long-term sustaining capex	~ 5.5 - 6.0 BNOK	Over the cycle	5.6 BNOK 2017E
Dividend payout ratio	40% of net income	Over the cycle	~133% <sup>1)</sup> 2012-2016
FFO/adjusted net debt <sup>2)</sup>	> 40%	Over the cycle	65% LTM Q3-17 <sup>3)</sup>
Adjusted net debt/Equity	< 55%	Over the cycle	28% Q3-17 <sup>3)</sup>
RoACE	Competitive <sup>4)</sup>	Over the cycle	7.4% <sup>3,5)</sup> LTM Q3-17

*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) Estimate incl Sapa  
 4) Measured against a relevant peer group  
 5) Underlying return on average capital employed after tax (RoACE)



## Maximizing long-term value creation potential

- Continuous cost and margin improvements
- Financial strength and flexibility
- Disciplined capital allocation
- Reliable shareholder remuneration policy
- Working capital management
- Effective risk management