

# Capital Markets Day 2023

Vækerø, Norway

November 29, 2023

### 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.

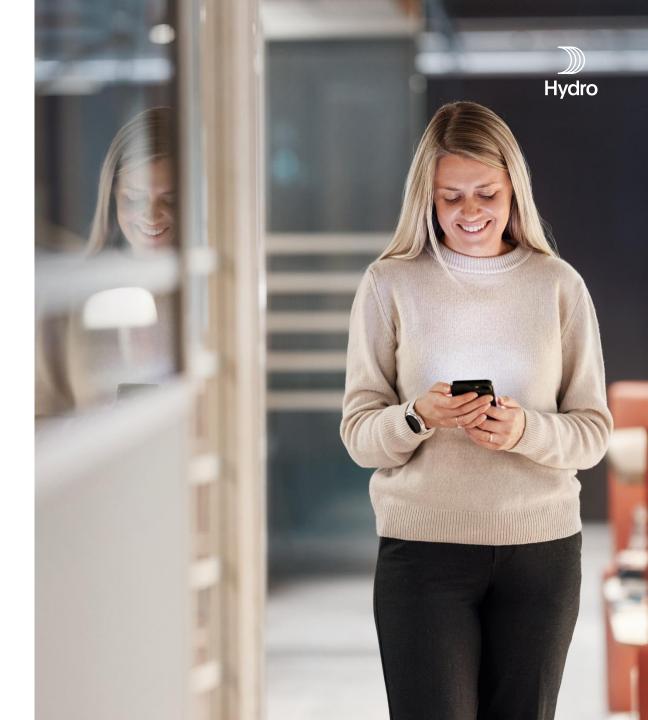
Although we believe that the expectations reflected in such forward-looking statements are reasonable, these forward-looking statements are based on a number of assumptions and forecasts that, by their nature, involve risk and uncertainty. Various factors could cause our actual results to differ materially 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.

# Agenda, November 29

All times CET

09:00-09:05	Welcome
09:00-09:50	Pioneering the green aluminium transition, powered by renewable energy
09:50-10:10	Hydro going to market
10:10-10:40	Q&A and break
10:40-12:00	Business area presentations
12:00-13:00	Q&A and lunch
13:00-13:40	Strengthened resilience and greener value creation
13:40-14:00	Q&A
14:15-15:00	Sustainability roundtable
15:15-16:00	Finance roundtable



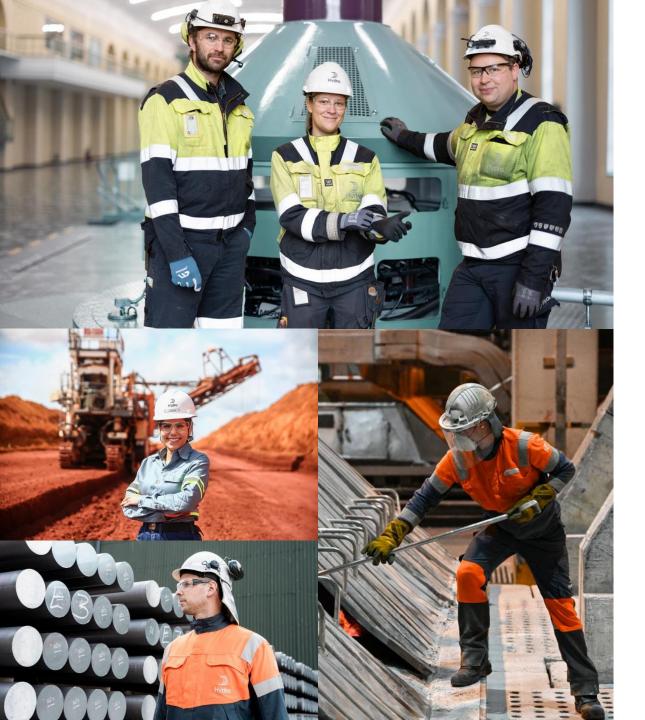


Pioneering the green aluminium transition, powered by renewable energy

Capital Markets Day 2023

Hilde Merete Aasheim

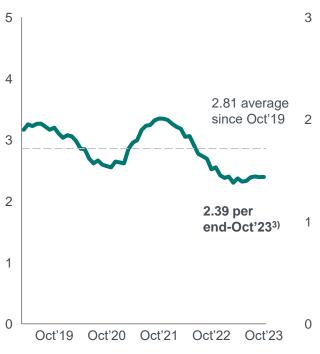
President and Chief Executive Officer

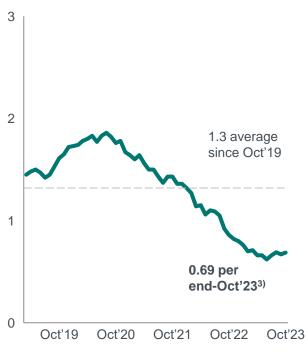


# Health and safety #1 priority



#### HRI<sup>2)</sup> per million hours worked 12 months rolling average





<sup>1)</sup> Total Recordable Injuries includes own employees and contractors

<sup>2)</sup> High Risk Incidents included own employees and contractors

<sup>3)</sup> Average over period

# 2020: Set out a forceful agenda towards 2025



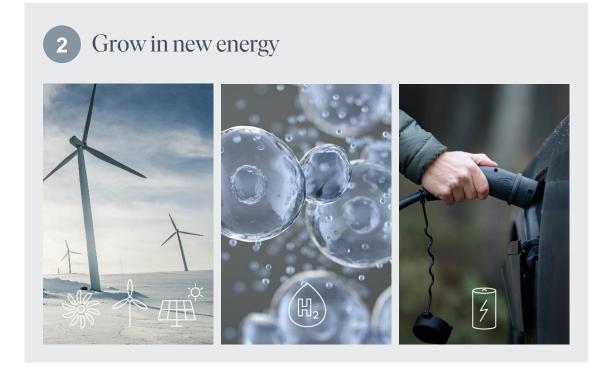


Profitability & Sustainability

1 Strengthen position in low-carbon aluminium

\*\*The strengthen position in low-carbon aluminium\*\*

\*\*The strengthen position in low-carbo



Develop a more robust, higher earnings and more sustainable company

### Improved earnings

EBITDA margin podium positions in all business areas compared to our peers



### Improved portfolio

Reducing risks and freeing up cash towards areas with higher profitability



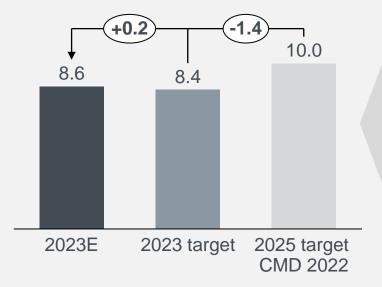
### Improved sustainability

Low-carbon aluminium getting a lot of traction on track to decarbonize portfolio



#### Improvement program

NOK billion



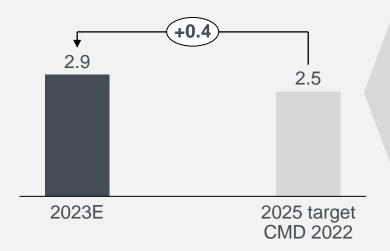
Operational excellence

Fixed cost

Procurement

#### Commercial initiatives

NOK billion



Green premiums

Product mix and margins

Market share growth

### Improved earnings

EBITDA margin podium positions in all business areas compared to our peers



### Improved portfolio

Reducing risks and freeing up cash towards areas with higher profitability

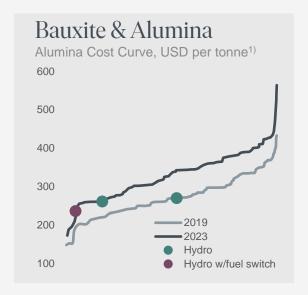


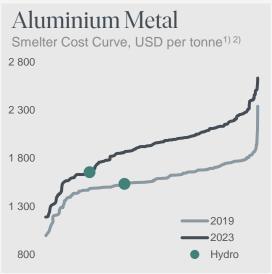
### Improved sustainability

Low-carbon aluminium getting a lot of traction, on track to decarbonize portfolio

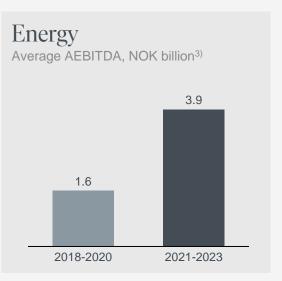


#### Podium positions in all business areas









<sup>1)</sup> Source: CRU, global cost curves. 2) Hydro position: 50% Qatalum, 20% Alouette, 12.4% Tomago, 100% Albras, Slovalco and Norwegian smelters. 3) Excluding Aluminium Metal repurchase / internal buy-back contract, 2023 Q3 YTD annualized

### Improved earnings

EBITDA margin podium positions in all business areas compared to our peers



### Improved portfolio

Reducing risks and freeing up cash towards areas with higher profitability



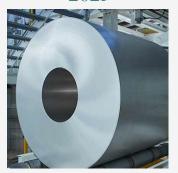
### Improved sustainability

Low-carbon aluminium getting a lot of traction, on track to decarbonize portfolio



#### Reallocating capital

2021



Sale of rolling business

2023



Sell down at Alunorte

#### Deliver on strategic priorities

Grow in recycling



Grow in Extrusions



Grow in Hydro Rein capital light



### Improved earnings

EBITDA margin podium positions in all business areas compared to our peers



### Improved portfolio

Reducing risks and freeing up cash towards areas with higher profitability



### Improved sustainability

Low-carbon aluminium getting a lot of traction, on track to decarbonize portfolio





On track to achieve 10% GHG emissions reduction by 2025



Pursuing
HalZero & CCS
For new capacity and existing smelters



Deliver on our
1:1 rehabilitation
target



On track to
eliminate
landfilling
of recoverable waste
by 2040



Social

Progressing on education goal targeting 500,000 people

YTD 180,000 by 2030



Just transition framework implemented in 2023

# 2025: Strategic resilience in a world in transition

### Improved earnings

EBITDA margin podium positions in all business areas compared to our peers



### Improved portfolio

Reducing risks and freeing up cash towards areas with higher profitability

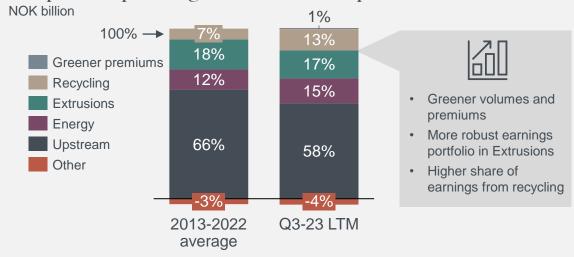


### Improved sustainability

Low-carbon aluminium getting a lot of traction, on track to decarbonize portfolio



#### Simplified operating cash flow development



#### Stock price index (incl. dividend) / TSR<sup>1)</sup>



TSR calculated including reinvesting dividends and Hydro and all peers shown in same currency (USD).
 Peer group includes Nalco, Rusal, Alcoa, Century Aluminium, Hindalco, Chalco, Grupa Kety, Constellium, Kaiser, ProfilGruppen, Tredegar Corporation.
 Source: Refinitiv Workspace

# The world around us has changed since 2020



Megatrends of geopolitical tensions and sustainability converge, driving new risks and opportunities



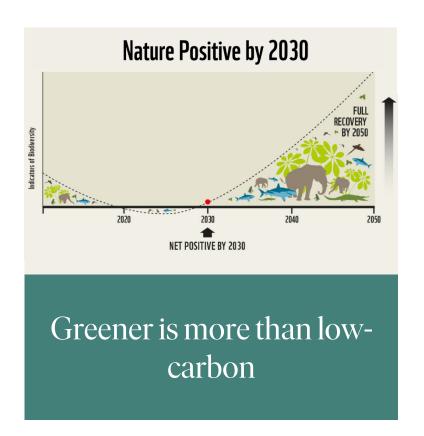


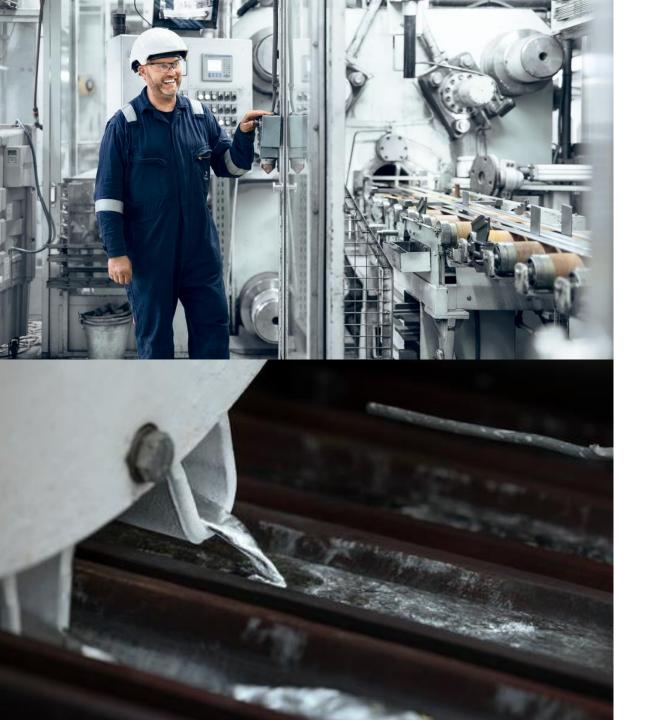
### The future of aluminium in the green transition











# Hydro has a unique position to succeed in this new reality

118 years of industrial experience, solving global challenges through innovation, technological advances and strong commercial mindset

- Market leading position in low-carbon aluminium with a concrete roadmap towards zero
- Unique position with captive renewable energy resources and competence
- Low and robust cost position and strong track record on shareholder value creation
- Preferred supplier and sustainability partner on the way to zero, integrated value chain enables traceability "under one roof"
- Strong positions within the main markets in the EU and North America

# Shifting gear to capture opportunities in a new reality



Key steps for Hydro to lead the green aluminium transition towards 2030



Step up growth investments in Recycling and Extrusions to take lead in the market opportunities emerging from the green transition



Step up ambitions within renewable power generation



Execute on ambitious decarbonization and technology road map and step up to contribute to nature positive and a just transition



# Step up growth investments in Extrusions

1 2 3 4



 Increase market share in high-growth, noncommoditized segments leveraging innovation and solution offerings



 Develop and grow capacity and capabilities through investments in new presses, fabrication, value added services and recycling



 Commercial opportunities from sustainability, through segmentation and greener offerings



 Increase digitalization and standardization to drive procurement excellence and reduce energy consumption



#### **Extrusions EBITDA**

NOK billion (real 2023)



<sup>1)</sup> Target 2025 in nominal terms as communicated in 2021. Range target for 2030 in real terms

# Step up growth investments in Recycling

1 2 3 4



Strengthen scrap sorting capabilities; secure feedstock



Expand global asset base across the value chain

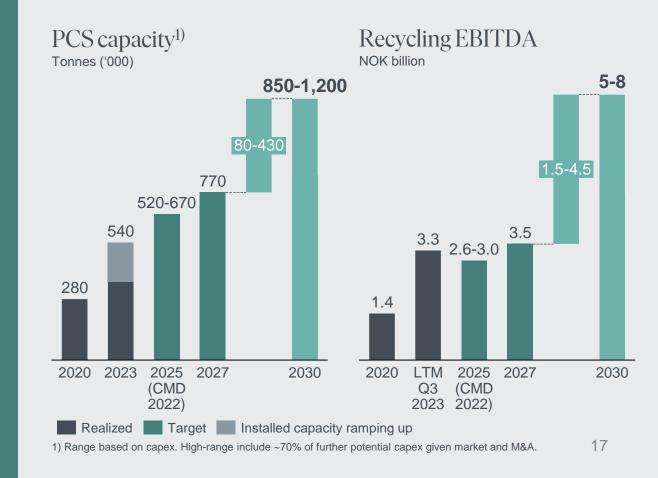


Diversify product portfolio, develop innovative solutions



Shape market for recycled products in partnership with customers





# Step up our ambitions and efforts in renewable power generation

1 2 3 4

Secure access to renewable power through hydropower system upgrades and expansions



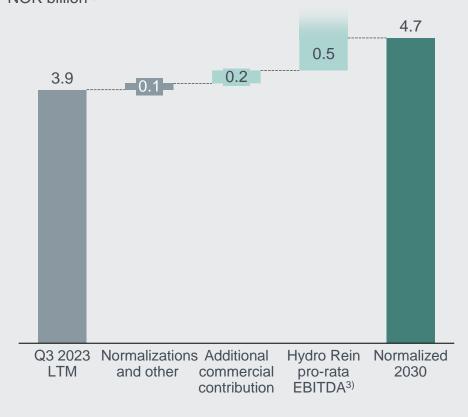
- Grow and upgrade existing hydropower plants to capture peak prices, increasing value of flexibility
- Expand market operations and commercial ambitions based on hydropower reservoir capacity, balancing power from wind and solar and commercial positions

Hydro Rein to deliver onshore wind and solar projects, main focus in the Nordics and Europe



- Pursue profitable projects through JV owned by Hydro and Macquarie Asset Management
- Current portfolio<sup>1)</sup> add 2.4 TWh to Rein's captive power and 5.3 TWh long term PPAs to Hydro
- Sustainable and attractive riskadjusted returns of eIRR 10-20%

### EBITDA 2030 Hydro Energy Classic and Hydro Rein NOK billion<sup>2)</sup>



# Execute on ambitious decarbonization and technology road map, step up to contribute to nature positive and a just transition











Forcefully deliver on net-zero roadmap, decarbonizing our value chain from mine-to-components



Contribute to a nature positive future through initiatives on biodiversity, emissions reduction and supply chain management



Improve lives and livelihoods wherever we operate by supporting a just transition

### Hydro maintains 2030 climate target, despite portfolio changes







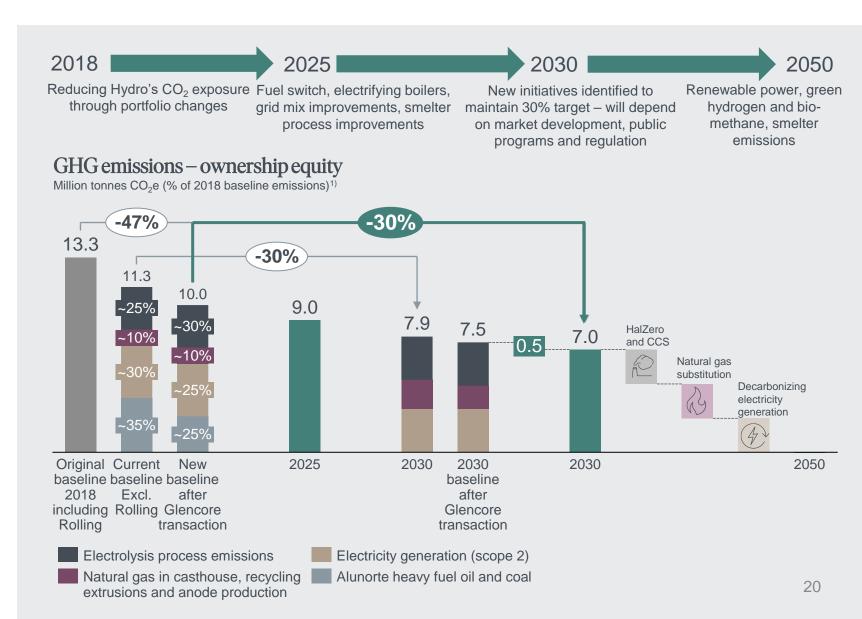
Hydro reduces total exposure to GHG emissions<sup>1)</sup> by 47% from 2018 to 2030



Hydro maintains 30% target by 2030, despite portfolio changes



Hydro's ambitions and ability to deliver low-carbon or near zero aluminium remains unchanged



# Contribute to a nature positive future through initiatives on biodiversity, waste handling and land-use

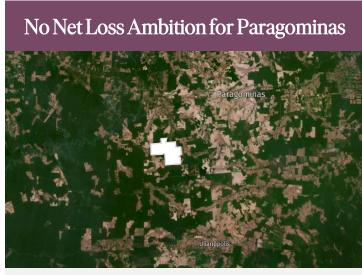












- No Net Loss of biodiversity for our bauxite mine, from a 2020 baseline
- Strengthening onsite mitigation and rehabilitation
- Investing in conservation and restoration offsets

# Partnerships for Nature Positive Outcomes



- Develop opportunities for positive nature impacts beyond delivering NNL outcome for mine
- · Partnership with Imazon and IPAM
- Creating value for nature and society where we operate

#### Supply chain emissions



- Establish inventories and baselines for material pollutants linked to Hydro's supply chain by end of 2024
- World Economic Forum's Alliance for Clean Air

# Improving lives and livelihoods wherever we operate by supporting a just transition













Respect and promote human rights



Support positive local development



Invest in education



Responsible supply chain

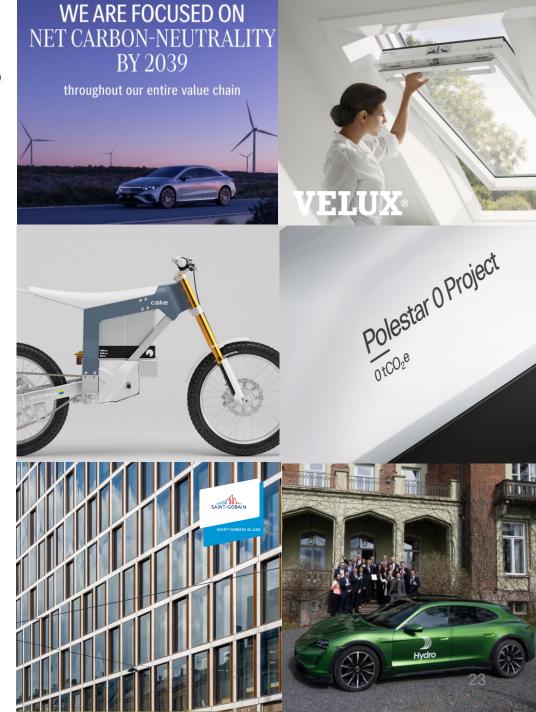
# Shape market for greener aluminium, in partnership with customers

1 2 3 4

Utilize Hydro's combined strengths as a fully integrated company from mine to metal

Partner with strategic customers to grow market for greener aluminium

Partner with Original Equipment Manufacturers to champion joint decarbonization targets



### Greener earnings uplift potential 2030

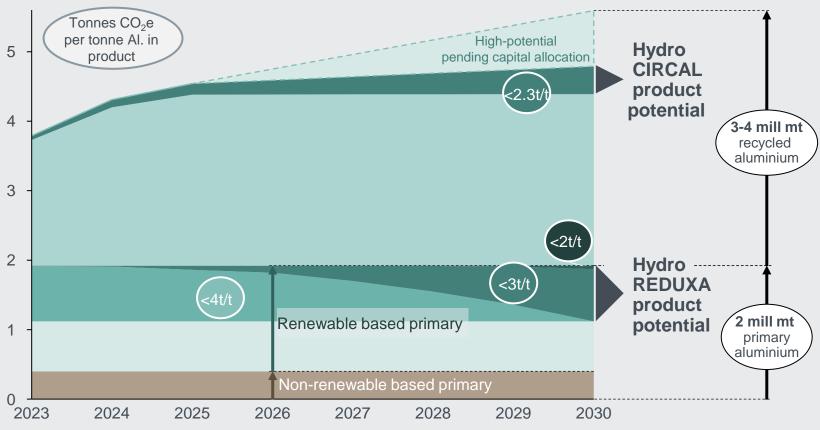
# NOK 2 billion<sup>1)</sup>



Hydro is pioneering the green aluminium transition

#### Greener product capability from total aluminium portfolio<sup>1)</sup>

Million tonnes capacity potential



1) Based on 2030 EU ETS cost and relative CO<sub>2</sub> reduction vs Hydro REDUXA 4.0 at current industry traded upcharge. Hydro REDUXA and CIRCAL potential based on estimated certification capacity. Primary capacity based on equity share renewable power. Hydro CIRCAL products have post-consumer scrap content > 75%

### Strategic direction – business area implications

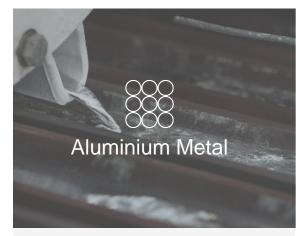




- Execute on 2030 decarbonization targets and position as sustainability leader
- Develop low-carbon offering
- Strengthen profitability through podium position and optimized capex



- Pursue profitable captive hydropower growth options
- Hydro Rein JV with Macquarie enables further development of renewable power production
- Batteries to focus on successful execution in current investments
- Hydro Havrand to focus on decarbonization opportunities within Hydro's operations



- Step up growth and be an industry leader within recycling
- Partner with customers to shape markets for low-carbon aluminium
- Deliver on roadmap to net-zero with technology leadership



- Step up growth investments aiming to increase market share in attractive, high-growth segments
- Utilize market leader position to shape the markets for greener aluminium and partner with customers on new greener solutions





### Hydro 2030:

# Pioneering the green aluminium transition, powered by renewable energy

### Key priorities towards 2030

- Step up growth investments in Recycling and Extrusions to take lead in the market opportunities emerging from the green transition
- Execute on ambitious decarbonization and technology road map and step up to contribute to nature positive and a just transition

- Step up ambitions within renewable power generation
- Shape the market for greener aluminium in partnership with customers



# Hydro going to market

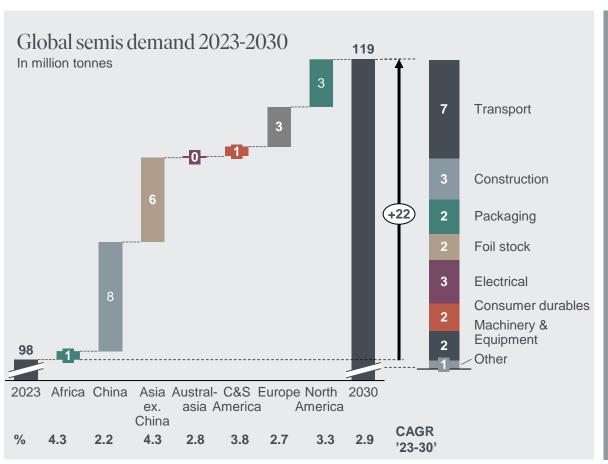
Trond Olaf Christophersen

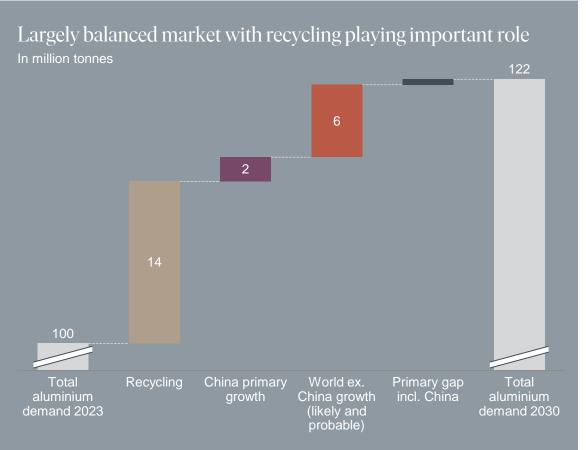
Executive Vice President, Corporate Development

### Largely balanced markets towards 2030



Healthy demand outlook driven by transport and electrical



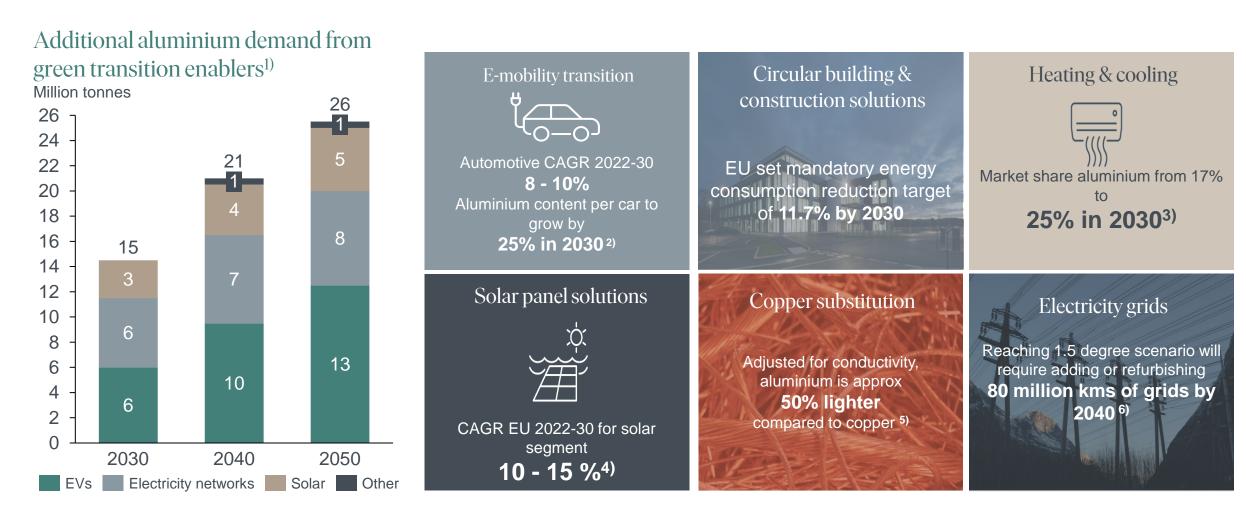


Source: CRU, Hydro Analysis.

# Aluminium is a key enabler for the entire green transition



2030 energy transition will require 15-22 million tonnes aluminium, increasing to 25-42 million tonnes by 2050

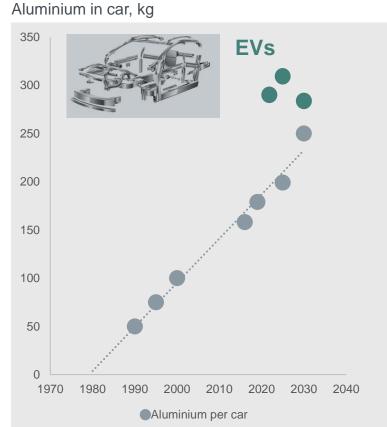


# EV transition driving strong growth in aluminium demand

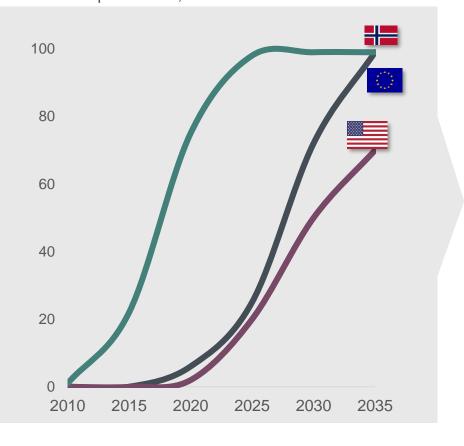


Key choices on component design and material selection are being matured now

### Aluminium content per car growing



### While EV share of sales is growing exponentially EV sales penetration, %



Average aluminium content per car will grow from 205 kg/car in 2022 to 256 kg/car in 2030

Demand for aluminium from European and American automotive industry to increase by 2.9 million tonnes from 2022-2030

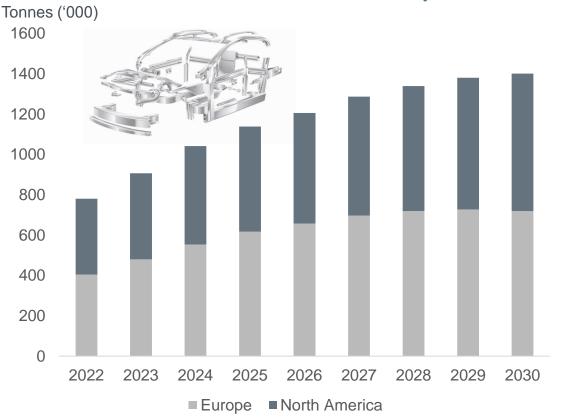
Source: IEA, Ducker, analysis based on EU27+UK

# EVs are not built the same way as internal combustion engines cars

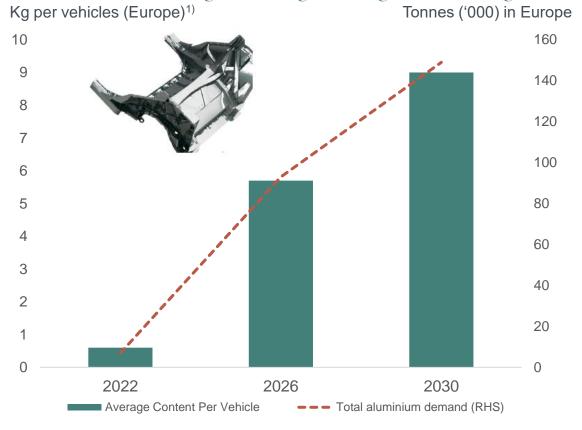


Radical change in design leading to changing dynamics for aluminium usage

#### Aluminium demand from extrusions driven by switch to EVs



#### Use of aluminium large and mega castings accelerating



# Solar market provides strong growth potential for aluminium Judico



Regional growth potential within aluminium mounting systems



CAGR 2022-30 for global solar segment

Chinese domestic alu demand from solar in 2023 ~2.8 million tonnes

Potential aluminium demand for mounting systems in NA and Europe 600,000 tonnes



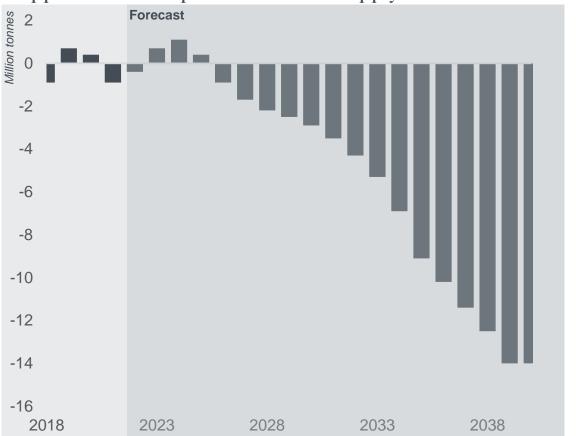
32 Source: BNEF, Shanghai Metals Market

### Aluminium is an attractive substitute for copper



Especially in segments with high growth from green transition

Copper demand expected to exceed supply from 2027 onwards



Key substitution facts

**Copper:** ~ \$8,400/t **Aluminium:** ~ \$2,200/t





Price ratio of
>3.5x
leads to increased
substitution away from
copper

Aluminium is

50% lighter
compared to copper
adjusted for conductivity



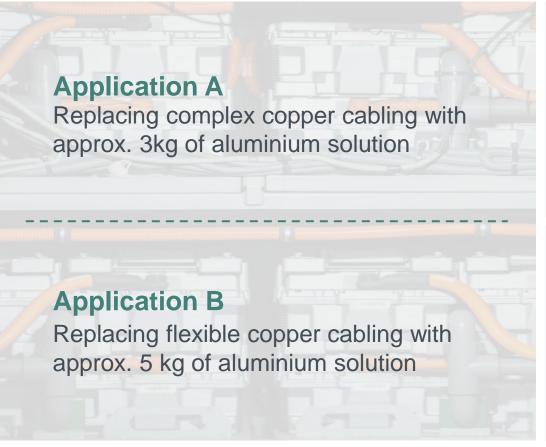
Source: FT, CRU, Hydro analysis

### Transition to EVs enables substitution opportunities



EVs contain considerably more copper than combustion engines





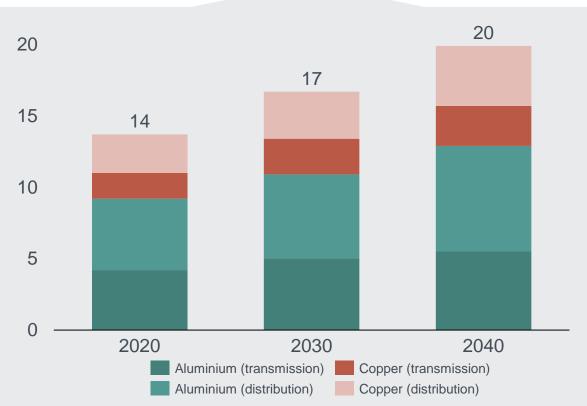
Potential additional global demand in 2030
100kt

Potential additional global demand in 2030

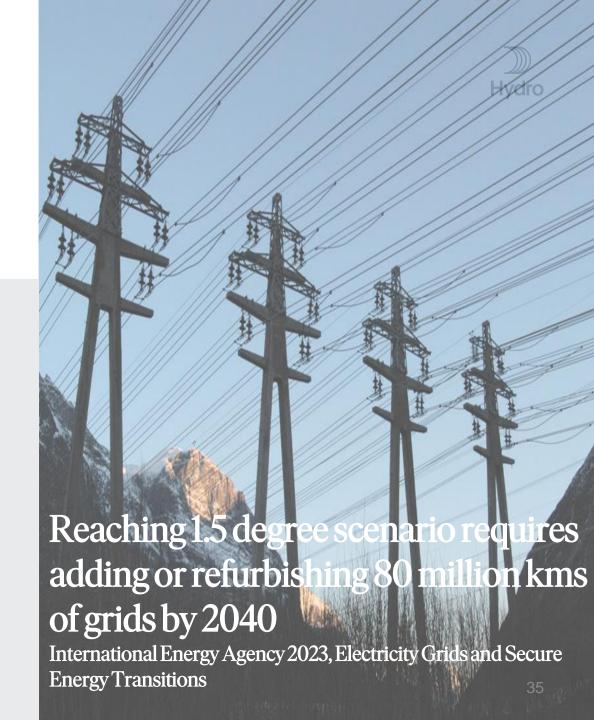
180kt

# Green transition drives substantial expansion of electricity grids

Average annual demand for aluminium by 2040 in stated policies scenario Million tonnes



Source: International Energy Agency



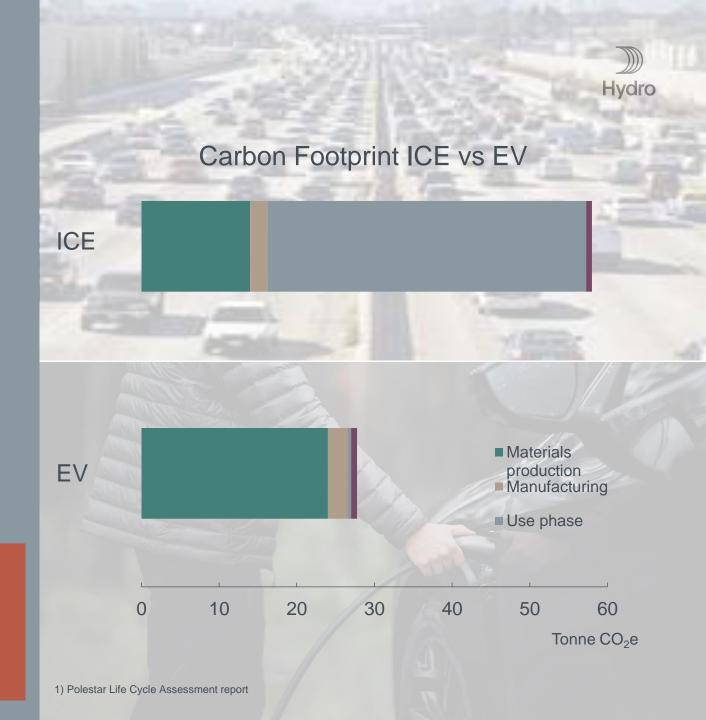
From cutting
tailpipe emissions
to cutting
embedded emissions

83%

Of the embedded emissions from aluminium, steel and polymer

+40%

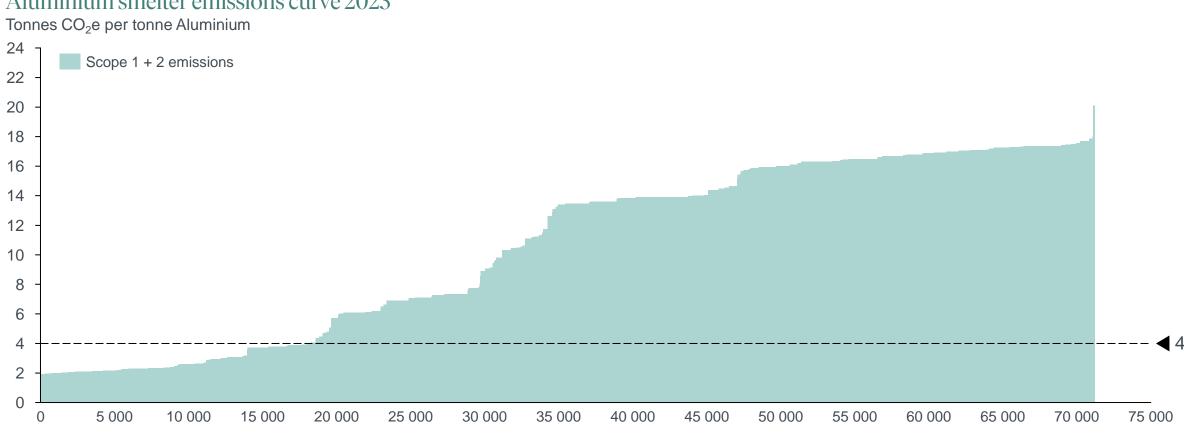
Emissions from materials, including batteries, increase 40% from ICE to EV<sup>1)</sup>



# Aluminium smelter perspective: 18 million mt produced globally with CO<sub>2</sub> footprint below 4 kgCO<sub>2</sub>/kg



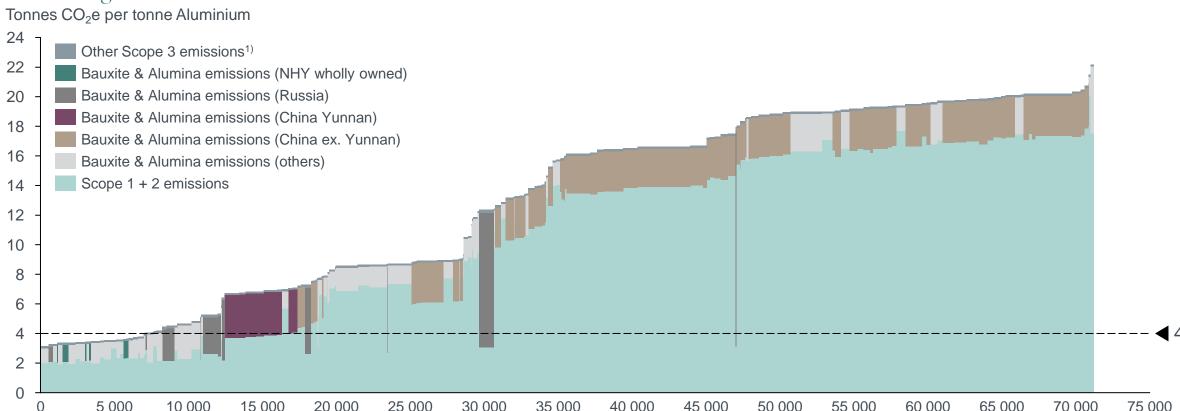
### Aluminium smelter emissions curve 2023



Source: CRU, Hydro Analysis

# Full value chain perspective: 7 million mt of primary production with embedded emissions below $4.0~\rm kgCO_2/kg$ aluminium

### Cradle-to-gate emissions curve 2023



# The green transition represents a massive shift for the aluminium industry



### Above market growth towards 2030







Automotive CAGR 2022 - 2030

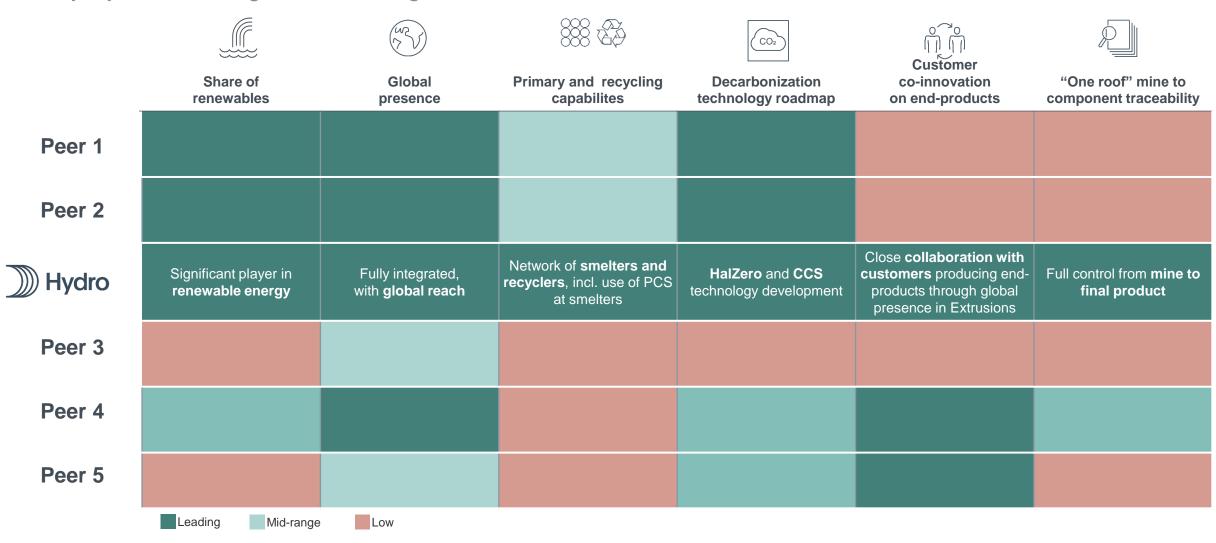
Solar CAGR EU 2022 -2030

<sup>3)</sup> HVACR CAGR of major markets 2022-2030

## Many vying to take sustainable aluminium leading positions Hydro



Only Hydro with integrated advantage

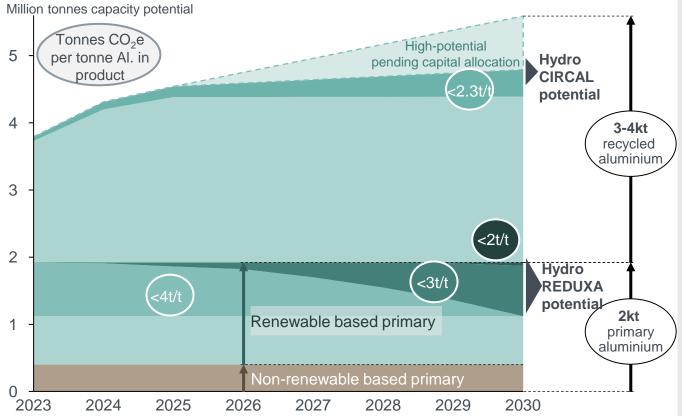


Source: company annual and CMD reports

# Positioning Hydro to pioneer the green aluminium transition

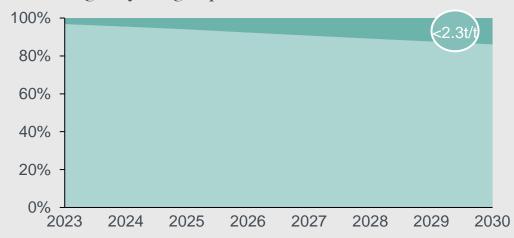
Earnings uplift potential 2030 of NOK 2 billion<sup>1)</sup>

### Greener product capability from total aluminium portfolio<sup>1)</sup>

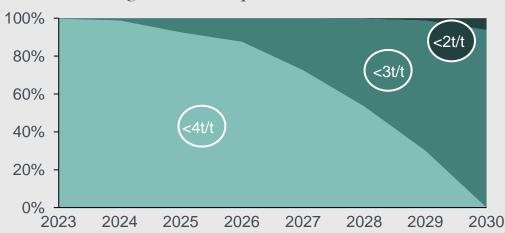


1) Based on 2030 EU ETS cost and relative  $CO_2$  reduction vs Hydro REDUXA 4.0 at current industry traded upcharge. Hydro REDUXA and CIRCAL potential based on estimated certification capacity. Primary capacity based on equity share renewable power. Hydro CIRCAL products have post-consumer scrap content > 75%

### Growing recycling capabilities



### Transforming REDUXA portfolio



## The unique Hydro offering



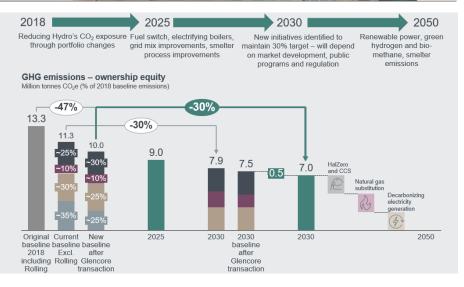




Broad low-carbon product portfolio with spearhead products



Decarbonization roadmap to 2030, and net-zero





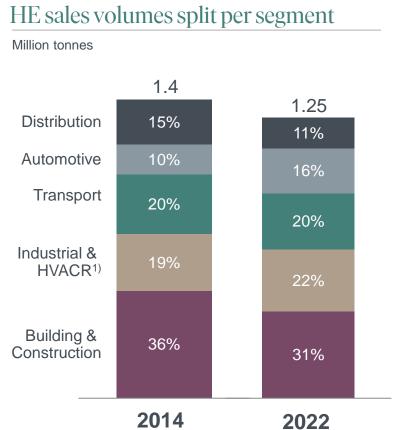
## Step up growth in Extrusions

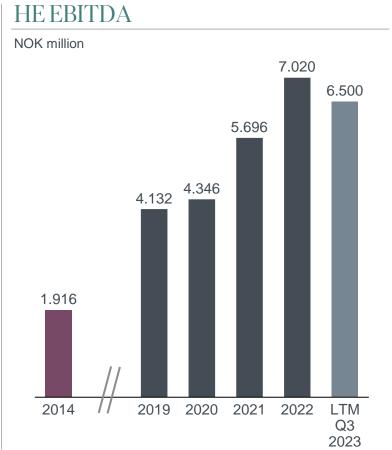
Paul Warton

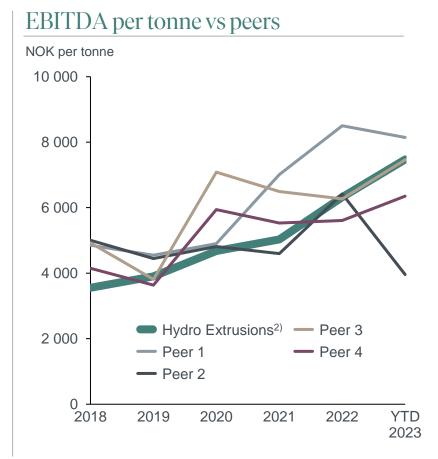
Executive Vice President, Hydro Extrusions

## Hydro Extrusions delivering strong EBITDA uplift through targeting high-growth, advanced segments









<sup>1)</sup> Heat, ventilation, air conditioners & refrigerators

<sup>2)</sup> HE EBITDA adjusted for capitalization of dies to make comparable to peers

# Industry trends towards 2030 are favorable for Hydro Extrusions, driven by customer needs and segment growth



Opportunity to leverage Hydro Extrusions' strengths increases as target segments develop

### Customer needs



- As industries and applications mature, customers demand more developed solutions
- Value added offerings
- New, R&D driven solutions
- Customers will partner with suppliers providing new and advanced solutions, e.g., low-carbon, high R/C content, sustainably produced solutions

### Segment growth



- More growth expected in value added product and solutions area rather than "commodities"
- Attractive segments with 5-10% annual growth
- Key growth segments include Automotive / Emobility and solar / Renewables / Big & Wide Rail

### HE capabilities



- Strong innovative capacity to provide highquality advanced solutions
- Developed R&D position that can be further enhanced
- Head start vs competition in sustainability area
- Size, geographical coverage and advanced capabilities to be relevant in differentiated segments

# Hydro Extrusions will leverage opportunities from greener transition to strengthen market positions



Secular growth drivers in key segments



Automotive CAGR 2022-30:

8-10%



Solar in EU CAGR 2022-30:

10-15%



Copper substitution potential, HVAC&R by 2030, million tonnes:

0.6

### HE positioning and growth ambitions

- Strong global positions, long term relationships with major automotive OEMs
- Proven capabilities, innovation and sustainability as key competitive levers
- Increase share of direct OEM supply and long-term contracts
- Investment projects under execution globally
- HE with strong value offering, including surface treatment and low-carbon aluminium solutions
- Solar mounting systems fit well on existing 7-9 inch presses
- · Projects in pipeline to increase capacity
- HVAC&R customers with production in North America and China
- Customer projects with proven solutions for replacing copper with aluminium
- · Grow capacity and increase customer solutions

Source: Ducker Group, CRU, BNEF, Hydro analysis 4

# Critical growth projects under execution, maturing projects to enable profitable growth



Further strengthening flagship plants in the portfolio, leveraging key trends

### **Key trends**



- Sustainable products with low-carbon footprint
- Recyclability and keeping materials "in the loop"
- · Greener energy sourcing



- E-mobility
- Light-weighting of vehicles



- Customer collaboration: high level of service, tailored solutions, short lead times
- Proximity as clear competitive advantage

### **Project under execution**

Hungary recycling

Navarra recycling

Sjunnen recycling



US: TDC upgrade and Cressona

PT China press

PE coating line



Phoenix press and fabrication ramp-up

Hungary and Tønder automotive presses

Nenzing press

Rackwitz press

Cressona press

COI press (US)



### **Project capacity growth since 2021**

Capacity added

Growth<sup>1)</sup>

~250.000 tonnes of recycling capacity



~45.000 tonnes of automotive press capacity



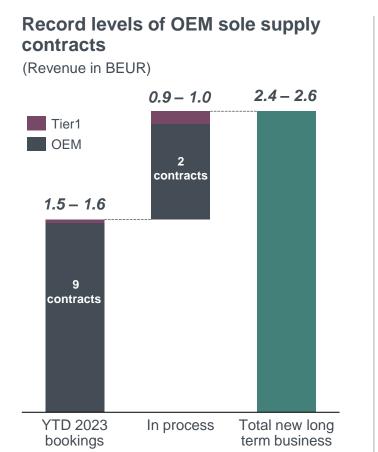
~70.000 tonnes of other press capacity

+ 5%

1) Compared to base capacity 2021

## Significant automotive growth business last quarters









## Across geographies and units

Extrusion North America

Extrusion Europe

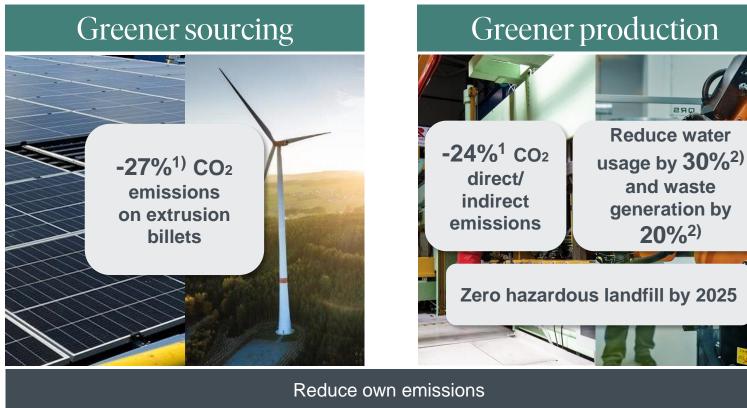
Precision Tubing

Asia & South

America

# Reducing own emissions and helping customers improve their products' sustainability towards 2030







Confirm and improve with labels and certifications

Help customers improve their products sustainability

1) Baseline 2018. 2) Baseline 2019

# Reducing own emissions and helping customers improve their products' sustainability towards 2030





#### **Greener Sweden**

Pilot project towards net-zero



Renewables in the U.S.

Spanish Fork plant fully solar powered



### Greener production

### **PV-powered press**

Solar-powered press in Poland



### Hydrogen-fueled recycling

World's first batch produced in Spain



### Greener products

### **Shaping the market**

First project with Hydro CIRCAL 100R



### **Greener partnerships**

Partnering with customers and others



# Customers from all industries partnering with Hydro Extrusions to make greener products











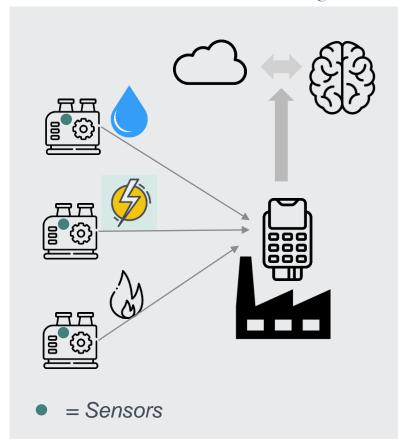


## Digitalization, AI and automation

Hydro

Key levers to improve performance and profitability

### AMR = Automatic Meter Reading



AMR = Sensors with real-time tracking of energy, water, gas consumption and vibration at machines in plants

### Value contribution

- Using AI / machine learning / dash-boards to identify "irregularities"
  - Benchmark between machines and products to drive improvements & reduce waste / consumption
- Peak-shaving / improved production planning
- Preventive maintenance through vibration / consumption patterns
- Traceability through connected systems

### Automation

- PT Taicang Fabrication reducing 95 FTEs through Automation & EBS<sup>1)</sup> (>20% of work-force)
  - Ergonometric, quality, safety and finance
- Automatic quality controls enable delivering millions of parts without quality issues

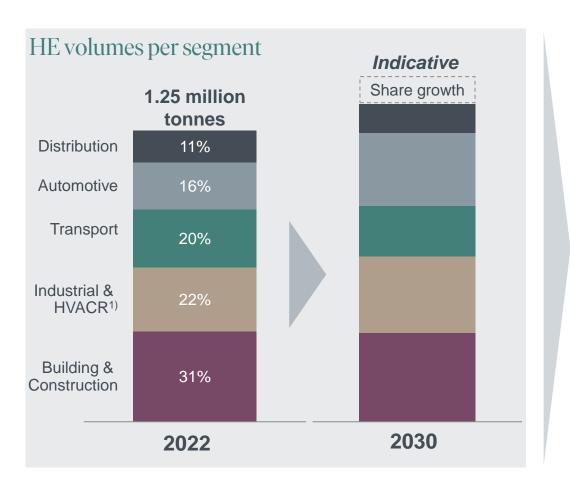


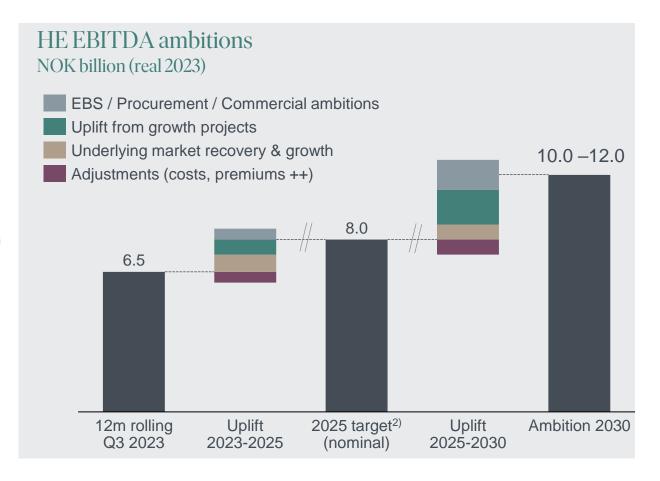
1) Extrusion Business System 52

# HE increasing profitability towards 2030 through uplift from growth projects and underlying improvements



Growing market share in dedicated segments, further operational and commercial improvements





<sup>1)</sup> Heat, ventilation, air conditioners & refrigerators

<sup>2)</sup> Target of 8 BNOK in 2025 in nominal terms as communicated in 2021. Range target 2030 in real terms



# Hydro Extrusions 2030 strategic direction





- Growing with the **underlying markets**
- Growing in non-commoditized segments fitting with HE's capabilities
- Continue to compete based on capabilities and service
- + Market share growth ambition in high-growth, profitable segments



- Investments to support capabilities and **ability to compete through high service levels**
- · Press and fabrication capacity, value added services and recycling



- Sustainability giving commercial opportunities
- **Segmentation** and improved **greener offerings** as key levers



- Increased **digitalization** throughout value-chain
- **Standardization** will generate value through the value-chain from understanding profit to driving procurement and reducing energy consumption



## Step up growth in Recycling

Eivind Kallevik

Executive Vice President, Hydro Aluminium Metal

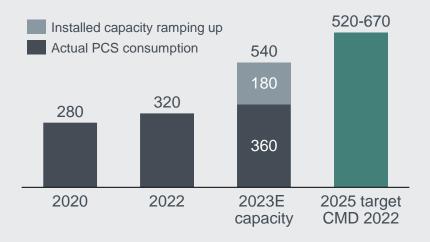
# 2025 recycling targets achieved with 2023 year-end installed capacity

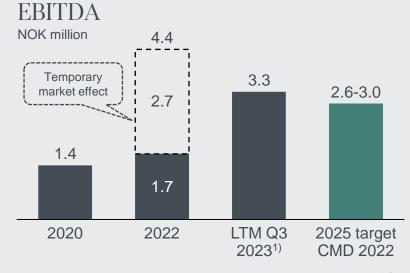
Recent recycling projects with production and post-consumer scrap capacity Tonnes ('000)



### Post Consumer Scrap

Consumption and targeted capacity, tonnes ('000)





1) Incl. Alumetal from July 1 56

## Megatrends support recycling agenda

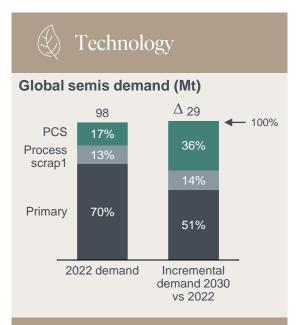


Increasing focus on circular economy from both consumers and regulators



- Process design closed loops
- Product design lower material use
- Reuse and refurbish (second life)





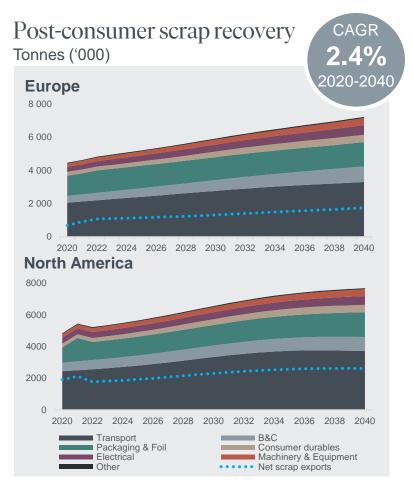
- Capture and recycle products at end-of-life
- Improve scrap sorting
- Increase recycling efficiency
- Technology advancement



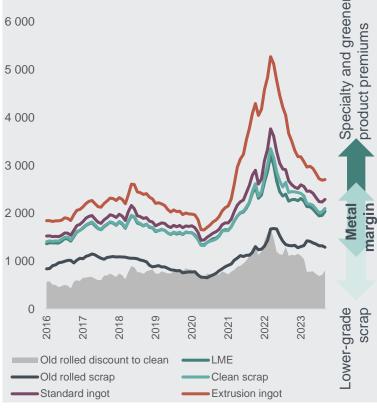
## Post-consumer scrap generation is increasing



But multiple hurdles exist for its utilization



## Price spread scrap Clean vs. complex post-consumer scrap, EUR/tonne



### Key trends in aluminium recycling

- Growth in recycling and billet capacity pressuring margins on "clean" scrap feedstock
- Large export volumes from Europe and North America to Asia
- Regulatory changes and protectionism measures affecting future scrap market
- Increasing generation and more interest in lower-grade scrap, but multiple challenges:
  - Supply chain complexity
  - Contamination
  - Collection
  - Sorting limitations
  - Logistics

# Mixed scrap types require sorting capabilities and ability to convert to various products



Securing access to the right scrap – key success factor

High Low Need for sorting Clean profiles Shredded profiles EC wire chops Painted profiles Castings **Taint Tabor** Twitch Post-Post-Mix of pre- and Mix of pre- and Mix of pre- and Post-consumer Post-consumer consumer consumer post consumer post consumer post consumer scrap scrap wire scrap Parity to LME **Premium** to **Premium** to **Discount** to **Discount** to **Discount** to **Discount** to LME **LME** LME LME LME Furnace-ready scrap Mixed scrap Cast (40-50%) Rolled (60-85%) Cast **Extrusions Extrusions Extrusions Extrusions** Rolled (30-40%) **Extrusions (15-40%) Extrusions (10-20%)** 

Source: Hydro analysis

# Diversifying and high-grading recycling product portfolio across markets and geographies



Successfully completed organic and inorganic projects in 2023 include:



## Introducing Hydro CIRCAL, increasing El market share in the US

- 40kt of PCS per year enabling delivery of similar volumes of Hydro CIRCAL® to the North American market
- Lowest carbon extrusion ingot offering in North America



## Diversifying portfolio and growing high-margin HyForge capacity

- Ramping-up the HyForge line in Rackwitz Germany
- Forging stock geared towards the automotive industry



### Entering the recycled FA market with Alumetal acquisition

- Advanced sorting capabilities and capacity
- Opportunity to utilize more scrap grades
- Identified synergies of 10-15 MEUR by 2027



## Securing access to scrap, industrializing HySort technology in the US

- Invested 4MUSD in a 50:50 JV with scrap-yard operator Padnos in MI, US
- Installing HySort equipment; total capacity ~36 kt p.a.
- Supplying Cassopolis with suitable fractions; marketing the rest externally

## Hydro has a proven track record developing recycling capabilities

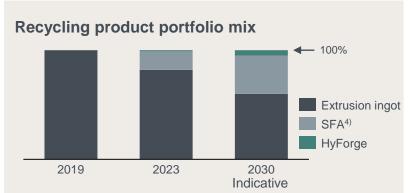


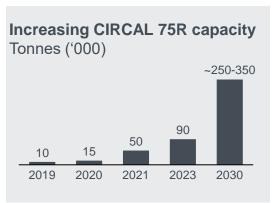
Increasing use of PCS and sorting capacity 1)

Diversifying asset and product portfolio<sup>2)</sup>

Expanding specialty and greener product offerings<sup>3)</sup>

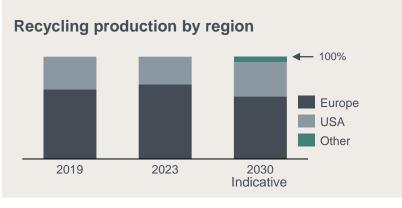
+40% PCS use 2019 to 2023





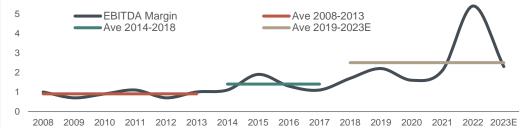


+100 kt
Sorting capacity
2019 to 2023



### Lifting profitability through the cycle

AM Recycling indexed EBITDA margin USD/tonne (2008 set at 1)



<sup>1)</sup> Average PCS consumption in the AM extrusion ingot recycling plants. 2) AM global recycling portfolio; 2023 based on Alumetal production since July 1, 2023. 3) Extrusion ingot Hydro CIRCAL capacity in AM and HE recycling plants and remelters, Europe and US. 4) SFA = scrap-based foundry alloy

## Stepping up activities across the recycling value chain



Continuing to transform scrap into sustainable solutions for our customers

### **Scrap sourcing**



#### Sorting



#### Melting/casting



### **Products & Commercial**



- Strengthen existing and grow new partnerships for upstream positioning
- Enhancing use of IT/IS tools for scrap to product optimization

- Increase sorting capacity through investments and partnerships
- Rolling out advanced sorting technology (HySort)
- Greenfield / brownfield
- New recycling capacity at primary smelters
- Process optimization, best practices sharing
- · Develop advanced, sustainable products and solutions
- New partnerships
- Offer recycling friendly alloys (RFAs)

### Selected projects in the pipeline adressing key market trends



SFA products for automotive e.g. gigacastings, electrical engine housing

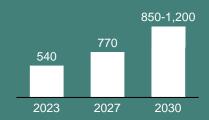


Specialty casthouse equiped to produce advanced products also for automotive; large CIRCAL capacity



Introducing HyForge for automotive applications in the US

### Recycling 2030 ambitions:



**850-1,200** kmt PCS capacity



NOK **5-8** billion EBITDA potential



# Hydro with competitive advantages in recycling





### Full value chain with multiple product outlets

- Large recycling asset base in Europe and North America
- Broad range of products extrusion ingot, sheet ingot, foundry alloys, HyForge, Master alloys
- Ability to utilize and upcycle mixed scrap



### **Sorting & production technology**

- Technical and metallurgical competence
- Production optimization know-how from scrap to product
- Patented HySort technology, in-house R&D



### **Close customer & supplier relations**

- · Local presence and market insight in core locations
- Established relationships with scrap suppliers
- · Partnerships and close cooperation with customers
- · Commercial intelligence and strong value chain positioning



# Primary aluminium roadmap to zero

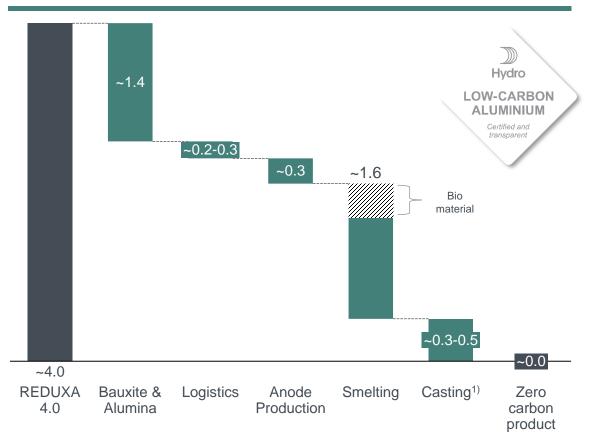
**Eivind Kallevik** 

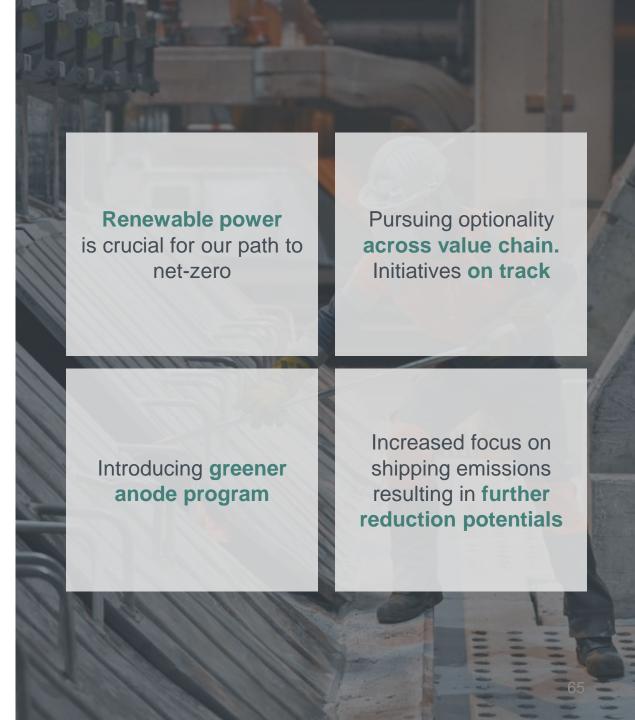
Executive Vice President, Hydro Aluminium Metal

## Widening our scope to reach zero CO<sub>2</sub> emissions

Structured approach to reduce emissions throughout primary value chain

### CO<sub>2</sub>e emissions kgCO<sub>2</sub>/kgAl

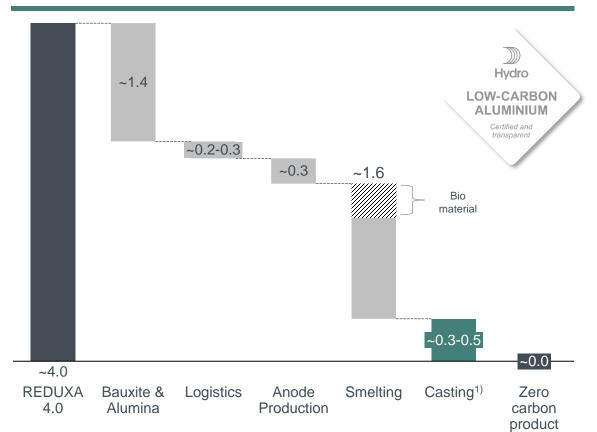




## Pursuing optionality to decarbonize casthouses

Important milestones for all initiatives: bio-methane, hydrogen and direct electrification

### CO<sub>2</sub>e emissions kgCO<sub>2</sub>/kgAl



## Starting industrialization of bio-methane from 2024, stepping up activities in electrification

### **Bio-methane**

Introducing biomethane at
 Sunndal plant –
 Commercial
 agreement with
 Havila to deliver
 from 2024

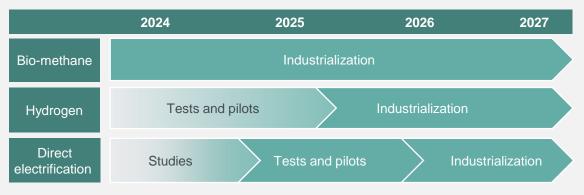
### Hydrogen tests and pilots:

- Navarra test 2023– successful
- Årdal PFA Test
- Høyanger Recycling hydrogen pilot

### Direct electrification pilots:

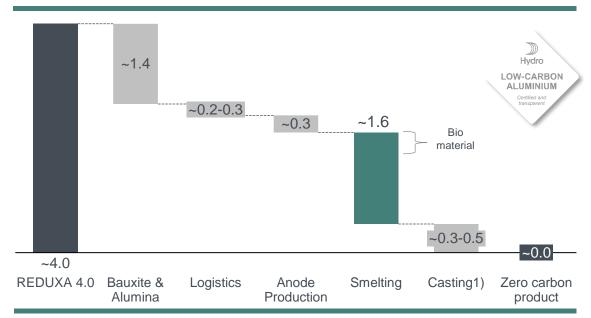
- Sunndal Plasma Pilot
- Høyanger Recycling Electrification Pilot

### **Timeline**

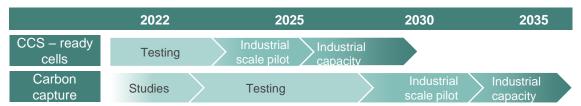


# Electrolysis decarbonization on track – carbon capture

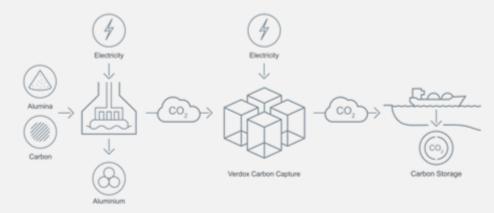
### CO<sub>2</sub>e emissions kgCO<sub>2</sub>/kgAl



### **Timeline**



### **Technology shift for existing aluminium smelters**

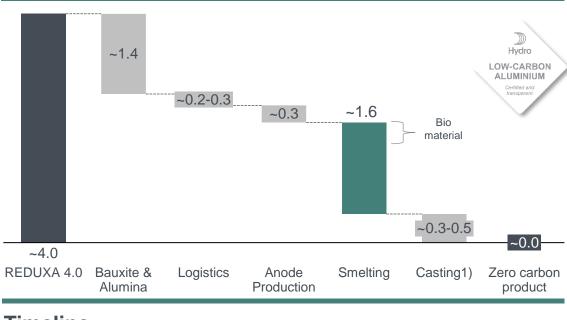


- Testing of Verdox technology ongoing at Sunndal
- Installing capture ready cells as part of ongoing relining process
- On track to deliver first CO<sub>2</sub>
   capture in 2024 and industrial
   scale pilot volumes by 2030



## Electrolysis decarbonization on track - HalZero

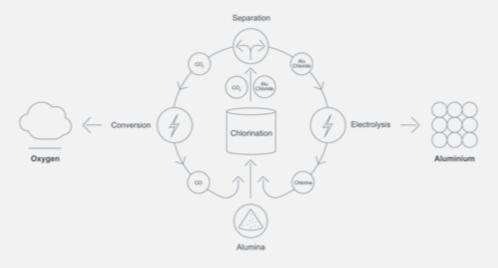
### CO<sub>2</sub>e emissions kgCO<sub>2</sub>/kgAl



### **Timeline**

	2022	2025	2030	2035
HalZero	Studies	Testing	Industrial scale pilot	Industrial capacity

### Ground-breaking technology to change the game



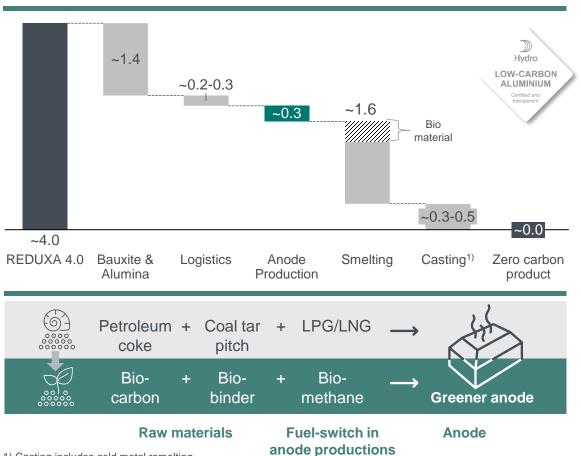
- Approval to start construction of new test facility in Porsgrunn - expected to be operational by 2025
- On track for first metal by end 2025 and industrial pilot volumes by 2030



### Anode decarbonization

Utilizing bio-materials in anode production triggers potentials for below zero emissions

### CO<sub>2</sub>e emissions kgCO<sub>2</sub>/kgAl



### Bio-methane and bio-materials in the process

- Fuel switch to bio-methane in anode baking furnace Havila contract
- Substitution to bio-based packing materials

### Bio-materials in anodes

- Substitute fossil materials to bio-carbon and bio-binder in anode
- Potential to reduce the CO<sub>2</sub>, PAH and S emissions
- Collaboration with external suppliers and research institutions
- Potential below zero CO<sub>2</sub> emissions from electrolysis off-gas capture

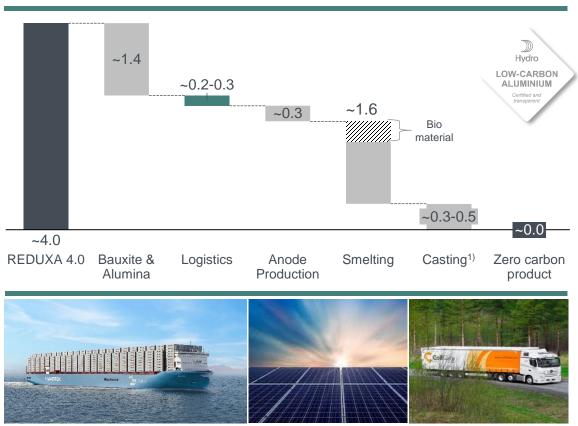
### **Timeline**

	2022-2026	2026-2030	>2030
Bio-methane		Industrialization	
Greener anodes	Studies, testing and verification (pilot scale)	Industrial pilot testing and verification	Industrial scale-up

## Logistics decarbonization

Choosing the right solutions leads to reduced emissions. Ambition: 30% reduction by 2030

### CO<sub>2</sub>e emissions kgCO<sub>2</sub>/kgAl



### What we have done

- >95% of AM volumes now have the major transport leg by sea
- 85% emission reduction on container transport from China to Europe
- · Moving volumes from truck to barge, rail and sea
- · Introducing biofuel on selected trucking routes
- Supply chain improvements



### What we will do

- Developing greener routes
- Exploring opportunities for "green shipping corridors"
- Digitalization and measurement to improve incentive structures and transparency

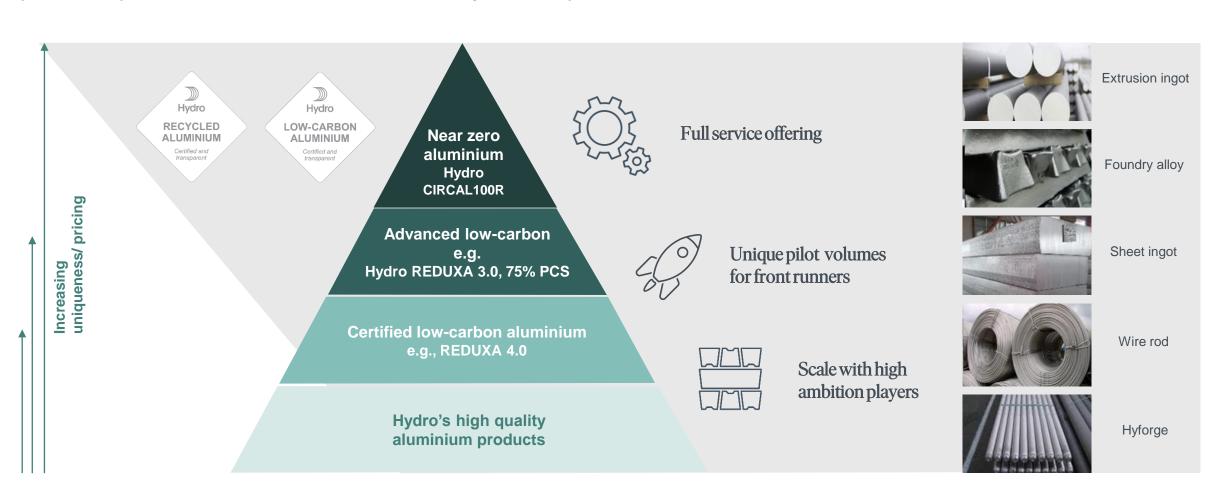
### **Timeline**

	2023	2026	2030
Greener land transport / operation	Biofuel and solar opportunities		Greener fuels / electrification
Greener sea transport	From land to Greener opportunities		Greener routes / corridors

## Hydro has a unique value proposition in aluminium



Going to market with a combined offering of primary and recycled aluminium with a full product spectrum and with tailor-made alloys is unique to AM



## Track record gives solid foundation for new partnerships



Exploring new arenas for collaboration and co-development with existing partners while pursuing new partnerships

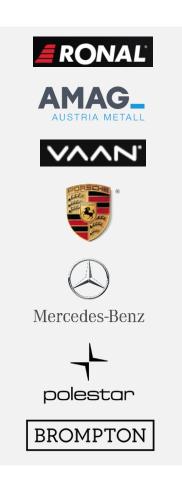
### Our approach

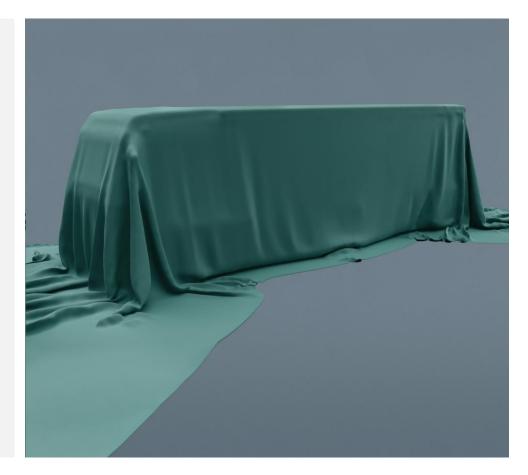
Decarbonization of customer footprint through purchase of low-carbon products

Collaboration on sustainability and comarketing

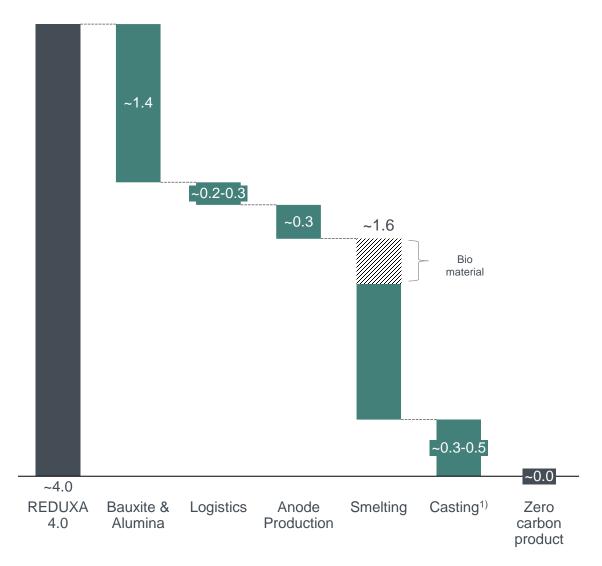
Exploring closed-loop concepts and new design options

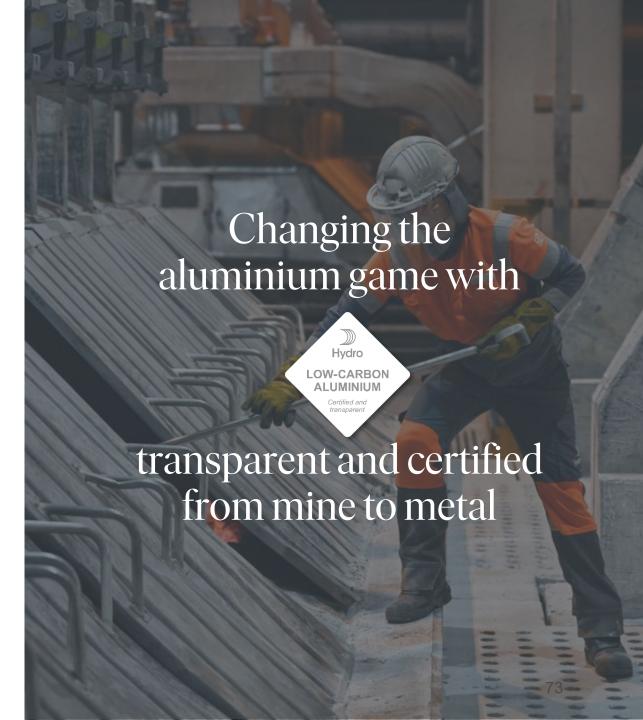
Shaping next generation products





#### CO<sub>2</sub>e emissions kgCO<sub>2</sub>/kgAl







# Hydro Bauxite & Alumina Lifting profitability, in a sustainable way

John Thuestad

Executive Vice President, Hydro Bauxite & Alumina

### B&A is an important enabler for low-carbon aluminium



Controlling the top of the value chain



**Bauxite** 



**Alumina** 



Energy

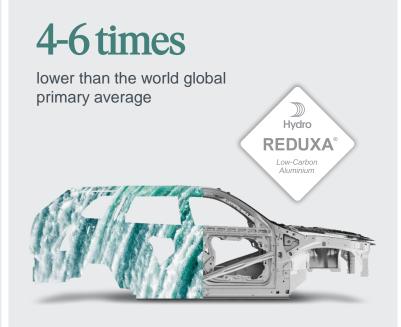


Primary aluminium



Extrusion

We can produce among the lowest carbon aluminum in the world



Guaranteeing an integrated supply chain that follows world class ESG practices

Enabling greener premiums for our primary aluminium and extrusion products







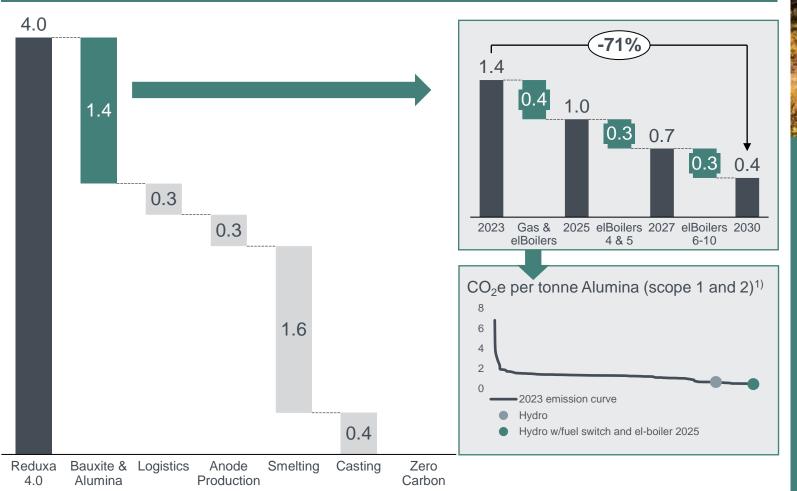
Hydro has the highest quality, lowest carbon and most sustainable Alumina in the world allowing us to demand a greener premium from our top customers

#### In 2025 B&A will deliver:

- + 1st Decile Energy usage
- + 1st Decile Emissions
- + Best Practice Tailings Management
- + Best Practice Residue Management
- + Best Practice Reforestation
- + Best Practice Social Investment
- + Best Practice Community Engagement
- = Global EPD + greener premium

# Alunorte reducing carbon 70% by 2030

#### CO<sub>2</sub>e emissions kgCO<sub>2</sub>/kgAl





- Already 1<sup>st</sup> Quartile emissions in 2023
- Fuel Switch and three el-boilers will move Alunorte to one of the lowest smelter grade Alumina available (project being executed)
- Further two el-boilers will remove the need to use coal by 2027
- An additional five el-boilers will give us the ability to produce steam without emissions

1) CRU 2023 emission curve



### Contribute to nature positive





#### Reforestation

- Best practice reforestation program in Paragominas, exceeding 1-to-1 replanting on a strict a three-year cycle:
  - Year 1 = Deforestation
  - Year 2 = Mining
  - Year 3 = Reforestation
- Working together with multiple universities and researches
- Expanding the program and start rehabilitation outside of our mine, contributing towards Nature Positive



#### Residue management

- Hydro is current best practice in Residue management averaging 0.7T of Residue per T of alumina
- Entered into an agreement with Wave Aluminium – creating the potential to extract up to 1 million tons of carbon free pig iron from residue each year
- The first phase of the treatment plant will go live in 2024 and will be capable of processing 50,000T of Residue

### Investing in the community is our license to operate





#### **Social Infrastructure**

- Construction of 9 Terpaz community centers (3 already built) targets security, income generation and access to basic services to 1,500 people per day
- Construction of a Technical School with the capacity to educate 1,200 students per year



#### **Community Projects**

- Investment in community-based projects benefitted 80 thousand people since 2018
- 60 thousand people with access to education
- 1,400 family farmers with access to technical support



#### **Stakeholder Engagement**

- Transparency, dialogue and volunteer work are performed by a dedicated team
- 178 community leaders are involved in a dialogue forum called Sustainable Barcarena Initiative
- 500 volunteers worked to benefit 14 thousand people and 70 local organizations

# Focus on driving profitability in a sustainable way



#### CAPEX: 5.7 BNOK

#### Improvement program

#### Tailings dry backfill

tailings Temporary drying of

Fuel switch



El-boilers



- 400 000

tons CO<sub>2</sub>



- · Tailings dry backfill removes the need for tailings dams.

**60%** IRR

- New standard in Brazil and no new tailings storage areas will be licensed
- · Moving away from tailings storage dams increases safety and saves billions of NOK in CAPEX

**26%** IRR

- 700 000 tons CO

- FSRU arriving at Alunorte by year end
- Upon full conversion, **700,000 tonnes** reduced in CO<sub>2</sub> emissions per year and ~USD 25 per tonne improved cash cost (USD 160-190 million annually<sup>1)</sup>)
- Moving from Brent index (Oil) to Henry Hub (Gas) reduces the price volatility

>50% IRR

- With the success of 1st electrical boiler (IRR>200%), two more electrical boilers are currently being installed
- Powered by 20-year renewable PPA's with Hydro Rein projects, provide a stable power price for the next 20 years at an average of USD 6 per MWh cheaper than gas

**Improvements NOK 3.2 Billion** 

Commercial **NOK 620 million** 

- The Improvement Program brings significant gains through high-energy engagement from the whole organization
- · The Commercial program highlights the trading book efficiency for alumina and hydrate sales

### Industry frontrunner with robust operations

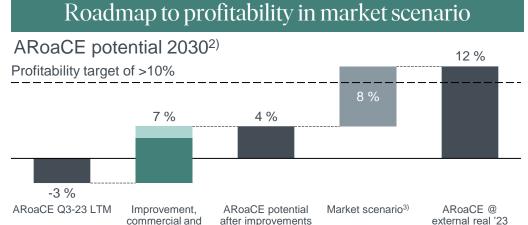


B&A have developed a more robust operation, but current market environment is challenging

#### Improved operations

- Nameplate production at Alunorte/Paragominas for the last 3 years
- Greatly improved asset integrity leading to the first award of ISO550001 to a refinery and to a bauxite mine
- Complete rebuild of the water management systems to reflect the changing climate/rainfall levels
- Successful deployment of the press filters
- Development and deployment of tailings dry backfill
- Rebuilt key relationships both in the government and local communities
- Rebalancing alumina portfolio (Glencore deal) to reflect internal Alumina needs, returning cash to Hydro
- All while delivering some of the highest quality alumina in the world

# CRU (2023), USD per tonne Alumina<sup>1)</sup> 600 500 400 300 200 100 —2019—2023 Hydro Hydro w/fuel switch



areen premiums

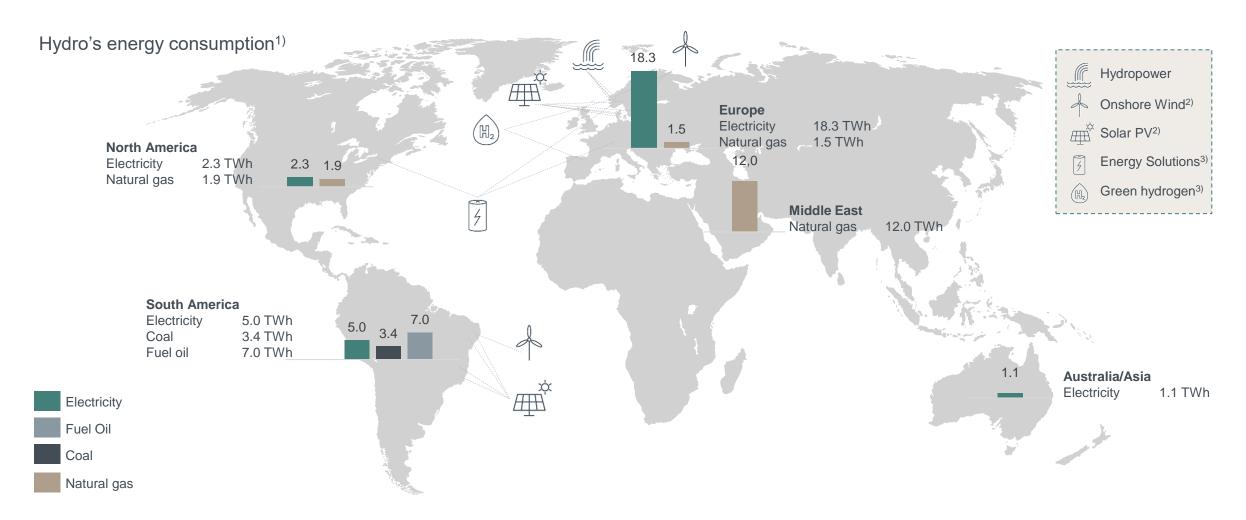
<sup>1)</sup> CRU 2023 cost curve. 2) Cash flow calculated as EBITDA + tax + long-term sustaining CAPEX. Assumptions and sources behind the scenarios can be found in Additional information. 3) Sources: External scenario is based on CRU price and premium assumptions and S&P Global FX assumptions, with adjustments as specified in the footnotes



# Energy at the core of green transition

# Pioneering the green aluminium transition, powered by renewable energy





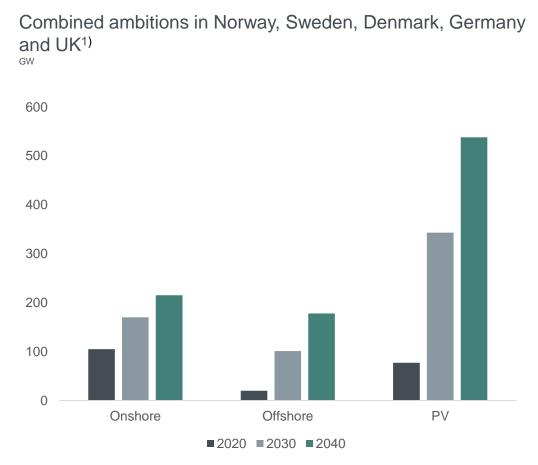
<sup>1)</sup> Based on equity-adjusted 2022 values for Norsk Hydro's bauxite mines, alumina refineries, smelters, remelters and extrusion plants.

<sup>82</sup> 

# Geopolitics driving energy transition, green value chains and friendshoring of critical resources







### Norwegian power market surplus in question



Public opposition to onshore wind parks limiting the effect of attractive renewable resources

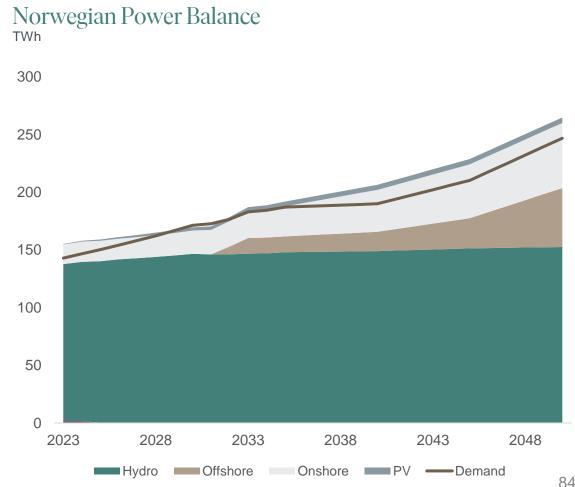
#### Market uncertainty prevails

- Power market balance weakening (short-med term)
- Demand from electrification and new industries outpaces supply in the short end
- Unfavorable resource rent taxation (onshore wind)
- · Lack of certainty regarding timing of new offshore wind areas

#### Solution space



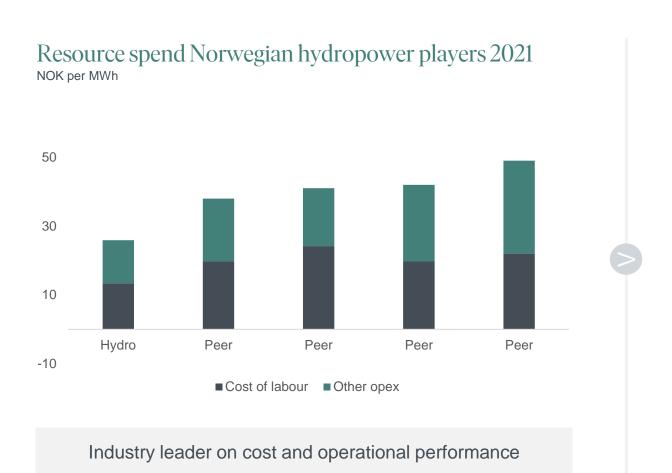
- Cheaper firming costs through flexible hydropower in Norway
- Acceptable solutions locally, land use and value creation



Source: Hydro

# Energy: Strong production platform, market performance and growth opportunities





#### Strong platform for value creation

- EBITDA "platform" from operations
  - 8 TWh on long term contracts (predictable prices)
     + 2 TWh (average) net long spot volume in merchant market
  - App. NOK 3.5 billion LTM adjusted with normal production and no area price gain<sup>1)</sup>
- Commercial contribution of app. NOK 400 million (average last years) comes in addition
- Maturing portfolio growth options; emphasis on flexible production and selected geographies

# Hydro Rein's journey: Fast-tracking portfolio development

in portfolio



			(-\(\frac{1}{2}\)'-\\	STATE OF THE PARTY
CUSTOMERS	PORTFOLIO		PEOPLE	CAPITALIZATION
5.3 TWh p.a. <sup>1)</sup> signed under long-term EUR & USD PPAs	$\begin{array}{c} 2.6GW^{\text{1}} \\ \text{gross capacity} \\ \text{in construction \& secured} \end{array}$	392) total # of renewable projects in portfolio	~753) Hydro Rein FTEs	JV with Macquarie Asset Management signed in October
4.4bn <sup>1)</sup> USD contracted	7.2 GW <sup>2)</sup> gross capacity	30 total # of sites in scope for	2 Main hubs: Oslo and Rio de	Valuation: USD 333 million

Energy Solutions pipeline

Janeiro

revenues

<sup>)</sup> Including Vista Alegre.

<sup>2)</sup> Total portfolio within JV scope, including Irupé.

<sup>3)</sup> As of August 2023; including new contracted employees not yet started

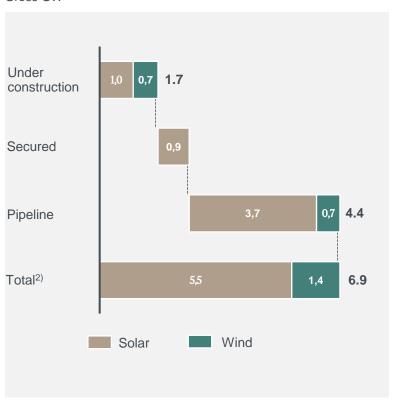
# Current portfolio adds 2.4 TWh to REIN's captive power<sup>1)</sup>



1.7 GW gross, approximately USD1.8 billion gross

#### Renewable energy

Gross GW



#### Projects under construction

#### Stor-Skälsjön



- 25% ownership share
- 42 turbines
- 260 MW
- 802 GWh
- COD Q1 2024



#### Ventos de São Zacarias



- 49.9% ownership share<sup>3)</sup>
- 80 turbines
- 456 MW
- 1900 GWh
- COD Q4 2024



#### Mendubim



- 33.3% ownership share<sup>3)</sup>
- ~1 million modules
- 530 MW
- 1200 GWh
- COD Q1 2024



#### Boa Sorte



- 33.3% ownership share<sup>3)</sup>
- 775,220 modules
- 438 MW
- 996 GWh
- COD Q2 2024



- Projects in construction and secured.
- 2) Total portfolio within JV scope, including Irupé.
- 3) Hydro Rein's ownership before farmdown to offtakers

# Hydro Rein on track to becoming preferred supplier of renewable energy solutions to industrials



#### 2026 Targets communicated at Hydro's Capital Markets Day 2022

#### **3 GW**

Gross portfolio in operation and construction

#### >500 MW

added gross capacity to pipeline on average annually

#### 400-450 MNOK1)

Estimated EBITDA contribution from projects in construction

#### Key numbers<sup>1)</sup>: portfolio under construction – as of Q3 2023

#### 1.7 GW

Gross portfolio in operation and construction

#### ~3 BNOK

Estimated pro-rata Equity Capex (net of agreed farm-downs)

#### ~410 MNOK

Estimated pro-rata
EBITDA<sup>2)</sup> from projects
in construction

#### 1.5 GW

Gross capacity added to the pipeline in 2023YTD

#### 2030 vision of continued profitable growth

#### Sustainable & attractive risk-adjusted returns

10-20% platform eIRR

#### **Balanced portfolio**

Between geographies and technologies

#### **Services and capabilities**

Covering the full value chain, capturing developer margin

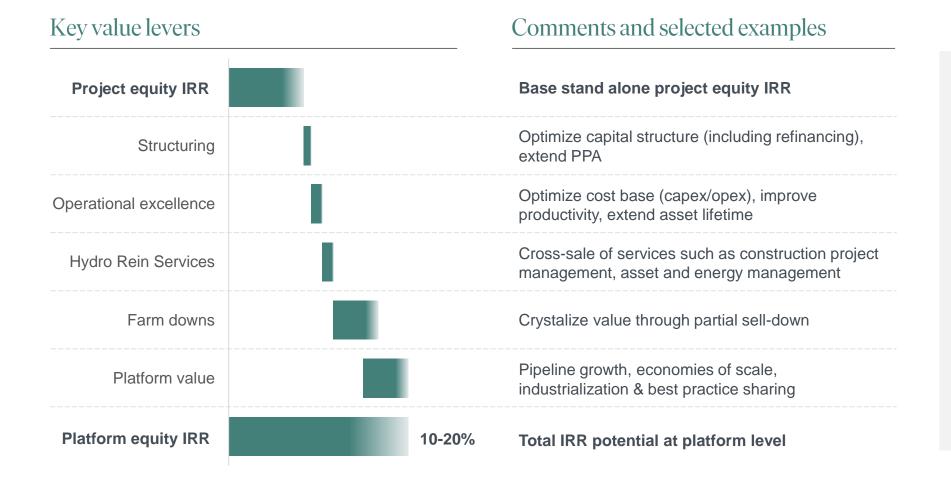
#### Regional leadership

REIN being one of the leading players in core geographies

### Multiple value levers to create attractive returns



Value levers at project and platform level



Hydro Rein with access to several value creation levers at asset level to boost project returns

Further, material return potential at **Platform Level** that is not captured at individual asset level

Total return potential REIN JV platform level: **10 - 20% IRR** 

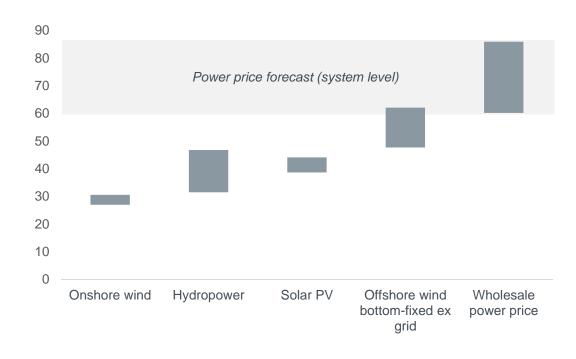
# Norwegian power projects remain attractive



Attractive resource base and cost level across technologies prevail

- Cost of selected technologies show that attractive projects can be matured in Norway
- Short/medium term relies on onshore wind and PV, with time to maturity and permitting as key challenges
- Longer term, offshore wind will add significant power volumes to the Norwegian and North Sea system
- Norwegian hydropower adds flexibility at lower cost than alternatives
  - · Increasing in value
  - · Lower degree of cannibalization
  - Key challenges: Acceptance, timeline and tax uncertainties





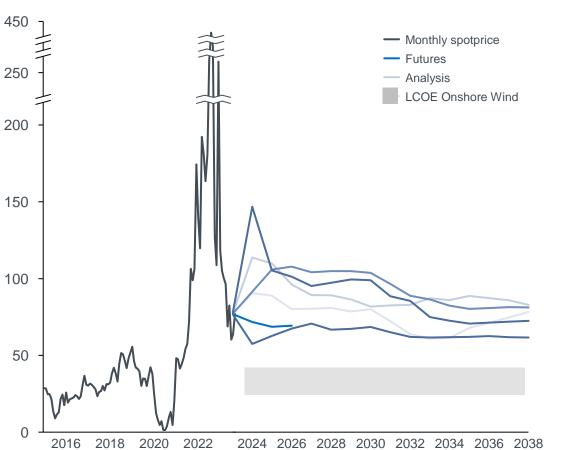
### Project based PPAs still most attractive for sourcing



#### Hydro Rein a key vehicle

#### Monthly spot price and future prices in NO2

Nominal EUR per MWh



#### **Hydro Rein**

- Strong capabilities, responsible partner
- Developer and long term owner
- Profitability through several levers



#### **Hydro Energy**

- · Portfolio optimization
- Balancing, nomination, as produced to baseload firming & area management

#### **Aluminium Metal**

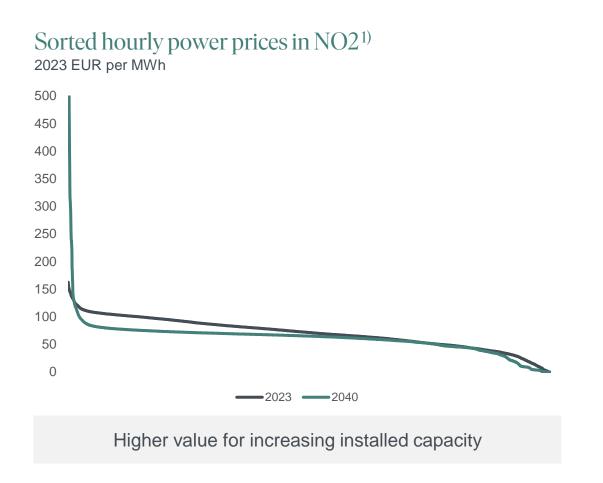
- Competitive sourcing expected to be below spot on average
- Firm power delivery, volatility risk mitigated

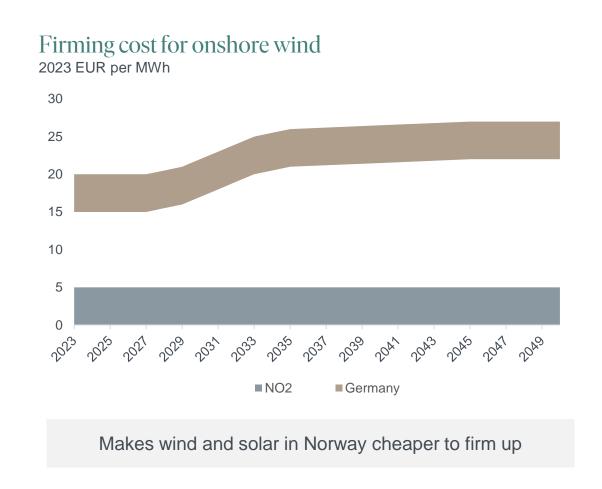
Sources: Baringa, Hydro analysis, SKM, THEMA, Volue

### Increasing value of flexible hydropower



Enabler for renewables at low shaping cost



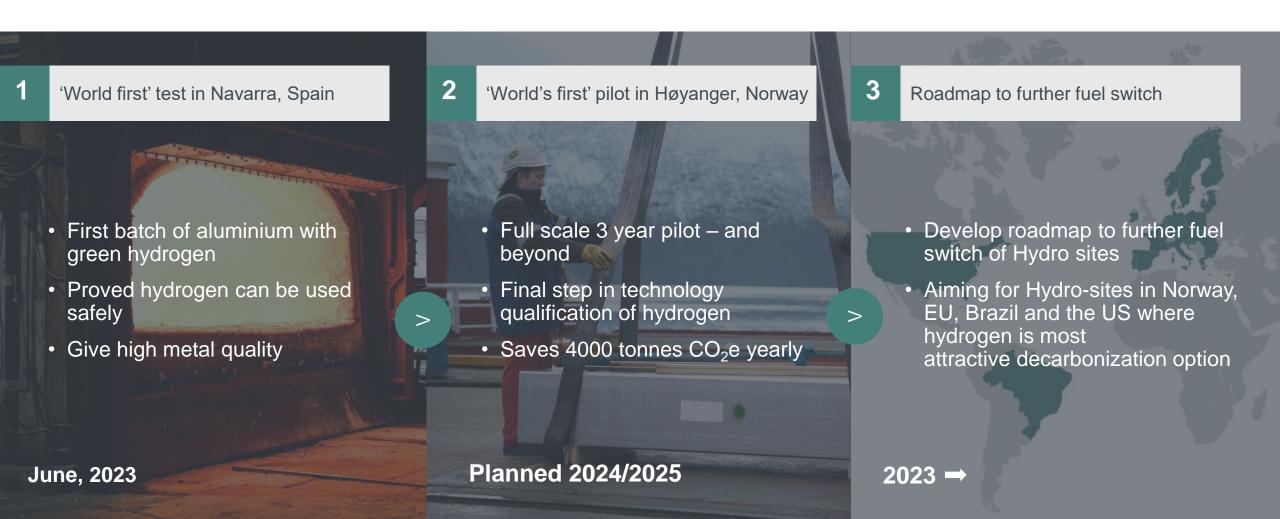


1) All weather years. Source: Statnett

#### Hydrogen breakthrough



# Hydro Havrand: World's first aluminium made with green hydrogen



# Empowering the future of green mobility



Progress in the sustainable battery materials portfolio throughout 2023

#### STRATEGIC TARGETS

3x

Value uplift in 2030 on equity invested by 2027

#### **GROWTH ASSETS**



Circular solutions

50% ownership

- Fully operational and reached nameplate capacity during Q3.
- Commenced building industrial pilot for battery pack dismantling and discharge.



#### **Vianode**

Anode materials

30% ownership

- First plant under construction at Herøya, which will support customer qualification.
- Signed lease agreement for large-scale plant at Frier Vest, Norway.



Anode materials

- · Ramping up pilot production
- Strengthening organization on strategic positions





Lithium

12% ownership

 Secured 2 exploration permits in Alsace region and target to start drilling operations in 2024.



PORTFOLIO HOLDINGS





# Value creation across the energy space going forward

High performance and profitability ambitions:

Energy Classic ROACE > 15% Hydro Rein JV platform annual eIRR 10 – 20 % Batteries 3x invested capital, 20% TSR average annually

- Grow value of our Norwegian portfolio through upgrading of existing hydropower plants. Increase commercial ambitions in market operations
- Develop Hydro Rein to become the preferred supplier of renewable energy solutions to industrial customers in core markets and a key enabler for decarbonization of Hydro
- Support Hydro across business areas and geographies with fuel switch solutions including green hydrogen
- Develop our portfolio of assets delivering more sustainable battery materials, empowering the future of green mobility





# CFO Strengthened resilience and greener value creation

Pål Kildemo

**Executive Vice President and Chief Financial Officer** 

# Earnings driven lower by weaker economic growth



Robust capital structure supporting strategic capital allocation



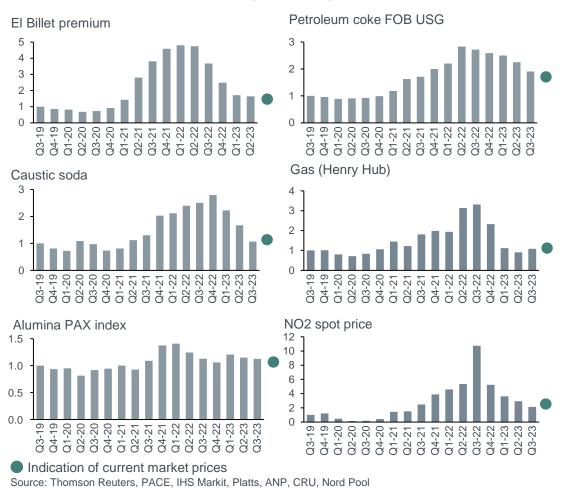
<sup>2)</sup> Adjusted EBITDA figures as reported and excludes Rolling

<sup>3)</sup> Free cash flow defined as net cash provided by operating activities plus net cash used in investing activities less purchases of short-term investments, less process from sales of short-term investments

<sup>4)</sup> Figures are as reported and excludes Rolling

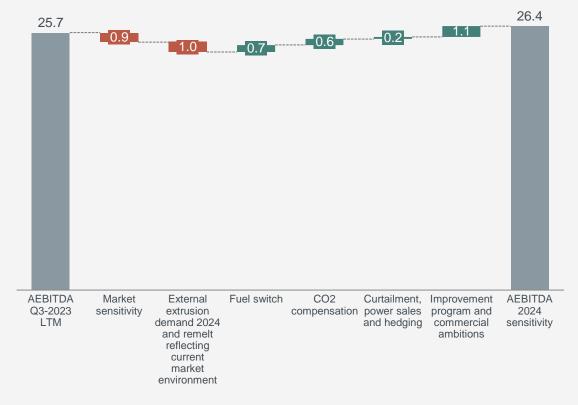
# Market uncertainty continues into 2024

#### Revenue and cost drivers (indexed)



#### AEBITDA sensitivity 2024

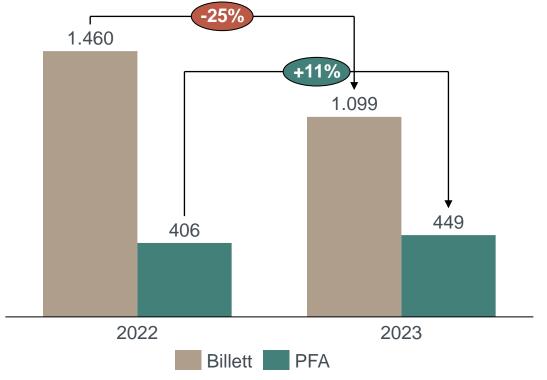
NOK billion



# Handling short-term volatility

Utilizing portfolio flexibility, margin management, freeing up cash, and securing downside

#### VAP demand development in Europe, YoY



#### Short-term and medium-term mitigation

#### **Aluminium Metal**

- Electrolysis production curtailed by ~130kt (Norwegian smelters)
- Volumes shifted between product segments
- · Utilizing short-term flexibility in recyclers

#### **Extrusions**

- Strong margin management
- · Shifting volumes between product segments
- Continuous adaption of extrusion capacity to demand through reduced number of shifts
- Manning reductions in Europe to manage cost in challenging market
- Utilizing short-term flexibility in recyclers

#### Continued efforts to reduce working capital

Year to date cash release of more than NOK 4 billion

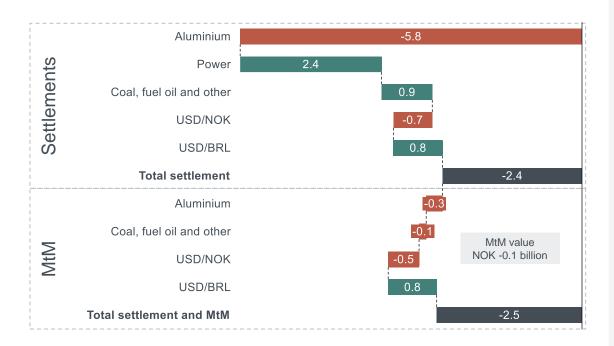
#### **Hedging program securing margins in challenging market**

- Implemented hedges for most of the exposure to coal, electricity and gas for 2024 in B&A.
- 2024 gas and power hedges in place for 50% of exposure in both Metal Markets and Extrusions
- Integrated margin hedge in place for 2024 and 2025
- USD/BRL hedges in place for Alunorte and Albras

Source: CRU 99

# Integrated margin hedging strengthens low-cycle earnings

#### Strategic hedging status<sup>1)</sup>



1) Mark to Market as of October 31, 2023
The hedges are entered in the following FX: NOK (51% of total hedged volume), USD (37%) and EUR (12%)
USD/NOK locked FX rate: 2023; 8.5: 2024;9.49: 2025: 10.18

- · Derivative positions locked in at historical strong margins
- Negative realised values through a strong market, and positive market value going into a softer market
- Hedged raw materials offset part of cost increase

#### Hedged volumes and Integrated Margin<sup>2)</sup>

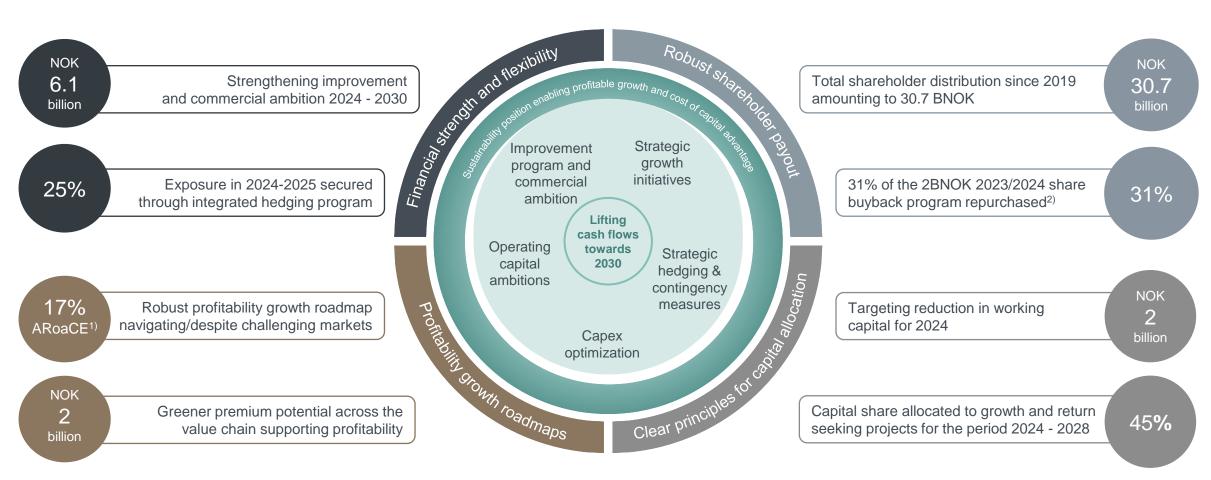




# Our financial framework guides the short and long-term



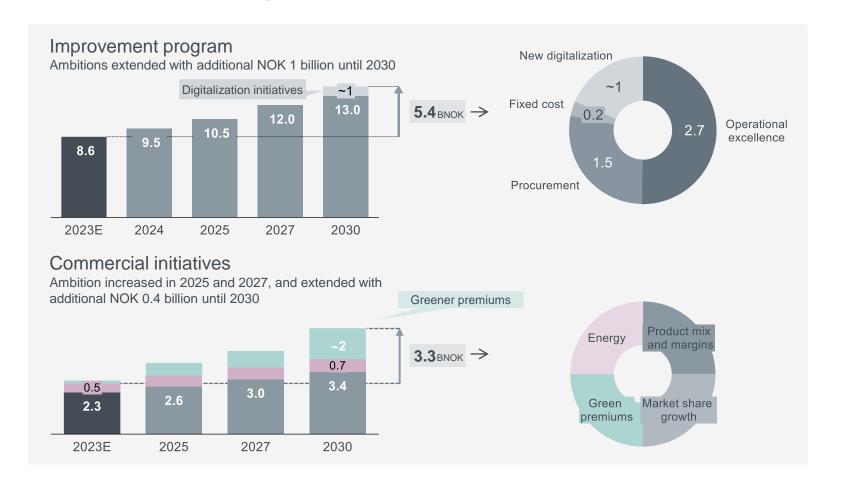
Solid framework for lifting returns and cash flow and managing uncertainty



<sup>1)</sup> Hydro group external scenario 2030 ARoaCE based on CRU price and premium assumptions and S&P Global FX assumptions, with adjustments as specified in the footnotes 2) 31% repurchased as of 24th of November

### Extended improvement ambitions

Strengthening future competitiveness and positioning with additional potential from digitalization, greener premiums and commercial improvements in Energy





### Extending the improvement ambitions to 2030



Targeting NOK 14.0 billion in accumulated improvements and NOK 6.1 billion in commercial ambitions by 2030



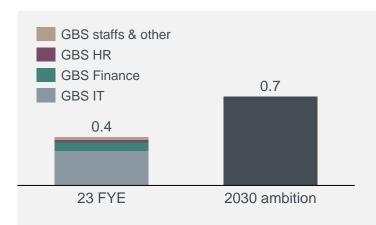
# Significant thematic improvements across organization



NOK 6.8 billion improvements through global business services, procurement and digitalization

#### Global Business Services

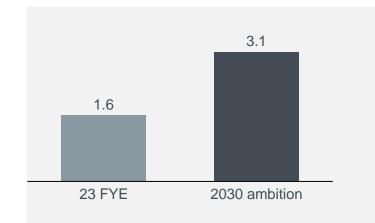
NOK billion



- NOK 360 million delivered since 2019, NOK 300 million targeted until 2030
- World class staff costs levels, driven by geographic footprint, scale, analytics and automation

#### Procurement

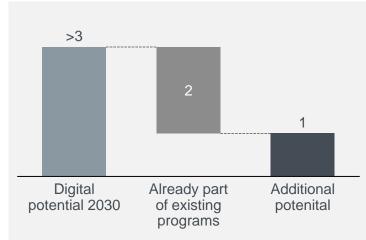
NOK billion



- NOK 400 million group procurement program launched in 2019
- Delivered NOK 1.6 billion, and targeting additional potential of NOK 1.5 billion

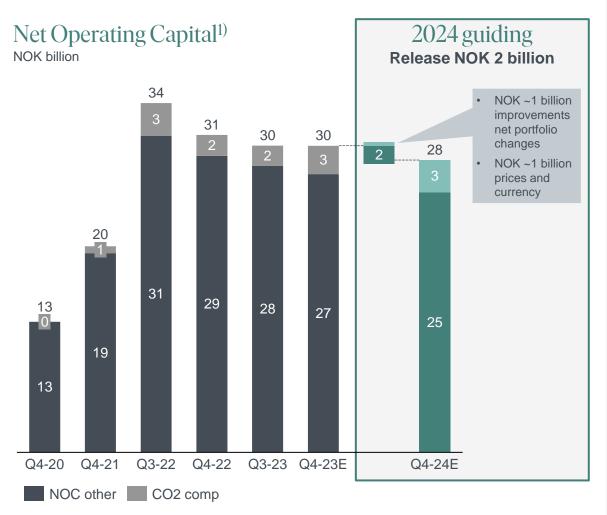
#### Digitalization

NOK billion



- Overall digital potential of > NOK 3 billion, where 60-70% is covered by existing improvement program
- Ambition to deliver NOK 1 billion in digital improvements on top of existing improvement program by 2030

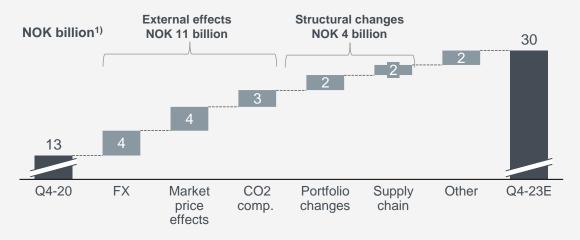
# Targeting NOK 2 billion Net Operating Capital release 2024



# Structural changes and market effects driving Net Operating Capital increase historically

NOK 17 billion NOC increase since Q4-20

- Weakening reporting currency (NOK) (all BAs)
- Higher sales- and raw material prices (all BAs)
- Introduction of CO2 compensation scheme (AM)
- Portfolio changes (AM, HE)
- Strategic supply chain changes (AM)
- M&A and growth
- · Transitional inefficiencies due to restructuring and market volatility (AM, HE)



1) Net Operating Capital end of period.

# Capital allocated according to strategic modes



Strategic modes reflect global megatrends and high-return opportunities

# Safe, compliant and efficient operations The Hydro Way



**Businesses** 



Bauxite & Alumina



**Aluminium Metal** 



Recycling



**Energy** 



**Extrusions** 

Strategic mode

Sustain and improve

Sustain and improve

Growth

Selective growth

Growth

**Towards 2030** 

Reduce risk, improve sustainability footprint, improve cost position Robustness and greener, increase product flexibility, improve cost position

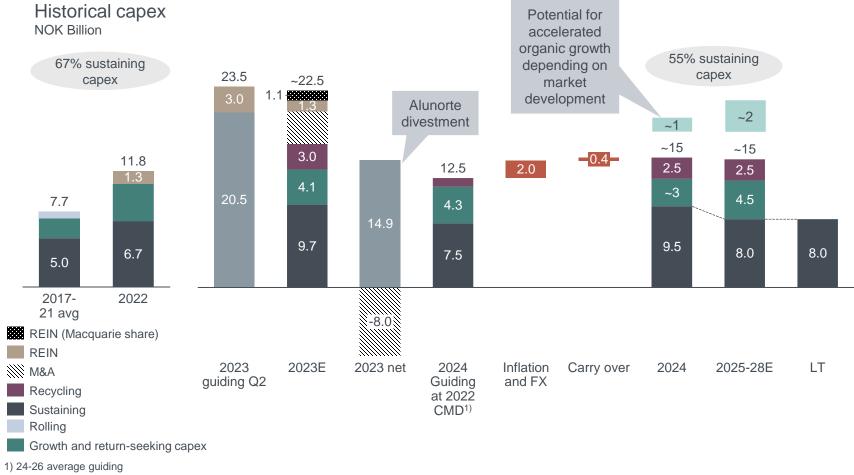
Substantial shift in conversion of post-consumer scrap

Growth in renewables and batteries

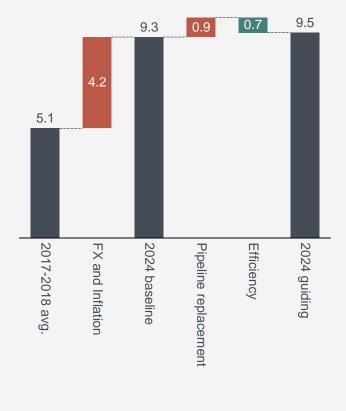
Growth with new capacity and capabilities

# Underlying 2024 capex in line with last year's guidance

Added flexibility depending market development



#### Sustaining capex development **NOK Billion**



### Greener investments drive value creation



Hydro's largest prioritized investment areas combine sustainability and profitability

#### **Recycling (PCS)**

Several large recycling projects completed or near execution:

- Cassopolis√
- Alumetal √
- Rackwitz √
- Hungary ✓
- Cressona √

IRR 15-30%

Targeting 850 -1200 ktons PCS consumption uplift by 2030

#### **B&A (El-Boilers)**

Substantial decarbonization investments in B&A with positive business cases:

- Elboiler pilot √
- Elboiler expansion: In execution
- Alunorte Fuel Switch: Near completion

IRR: ~20%1)

Bauxite and Alumina
CO2 reductions under
excecution:
1 million tons

#### **Electrolysis abatement**

Technology roadmaps in Aluminium Metal to produce zero carbon primary metal

HalZero: Investment decision taken on Stage 2 facility ✓

**Verdox**: Progressing towards first carbon capture

#### R&D

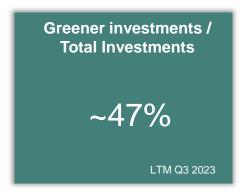
Creating a pathway to zero carbon primary aluminium

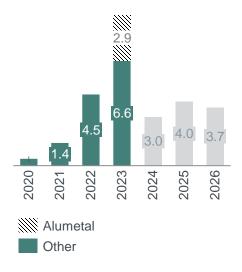
#### Other

- Energy savings initiatives with short payback time
- Fully electric presses in Extrusion Europe:
- Nenzing
- Tønder
- Trzcianka Green Press

IRR 20-35%

Combining profitability with sustainability improvement

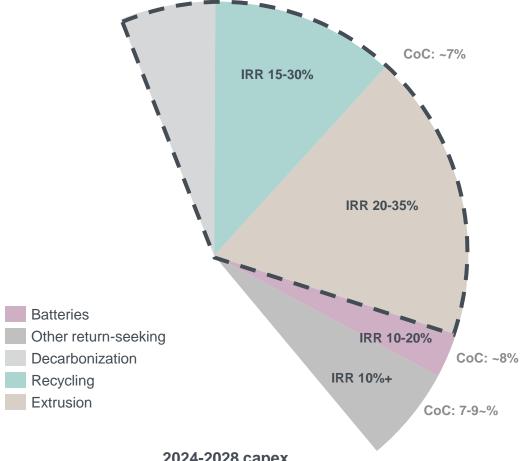




1) Before any green alumina premium is assumed

## Strong profitability in strategic growth areas

Indicative profitability in current return-seeking and growth portfolio



#### Recycling

- Increase proportion of post consumer scrap (PCS), lowering metal cost
- Improved economies of scale in brownfield expansions
- Sorting technology and equipment standardization

#### Extrusions

- New presses with improved capabilities and commercial value, capturing market share
- Press replacements with significant cost reductions and increased productivity
- Focus on high growth segments including automotive, systems business and commercial transportation

#### Decarbonization

- Alunorte Fuel switch project (IRR 20+%) and electrical boilers
- Carbon capture technology pilots in mid-term, industrial scale pilot volumes by 2030
- HalZero as technology pilots in mid-term, industrial scale pilot volumes by 2030

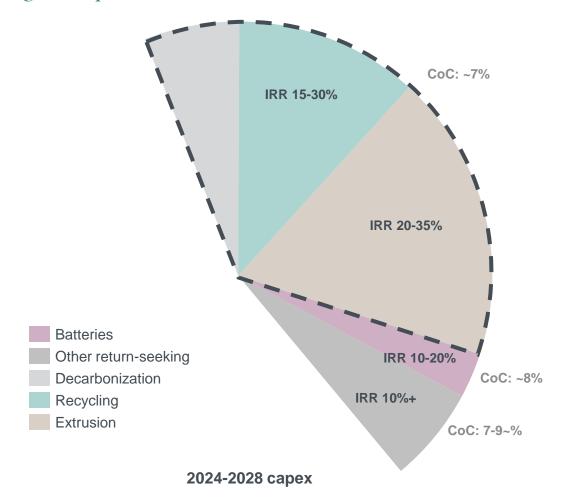
#### Batteries

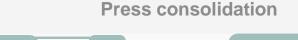
- Focused strategy within sustainable battery materials, leveraging Hydro capabilities
- Establish positions in attractive growth segments in core markets
- Core investments: Hydrovolt (recycling) and Vianode (anode material)

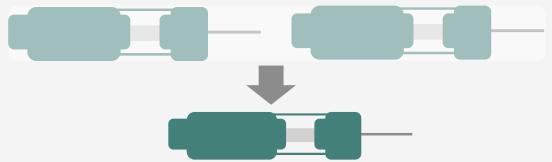
**2024-2028 capex** 109

## Press replacements giving new capabilities and cost savings

Indicative profitability in current return-seeking and growth portfolio







	Two old presses	One new press
Manning	2 x 8 FTEs per shift	4-5 FTEs per shift
Maintenance cost p.a.	EUR 1,500K	EUR 350-450K
Downtime	15-20%	5-10%
Scrap rate	33-35%	25-28%
Annual production	2x9K tonnes	16K tonnes

Based on cost savings alone

IRR: 30%+

#### **Benefits**

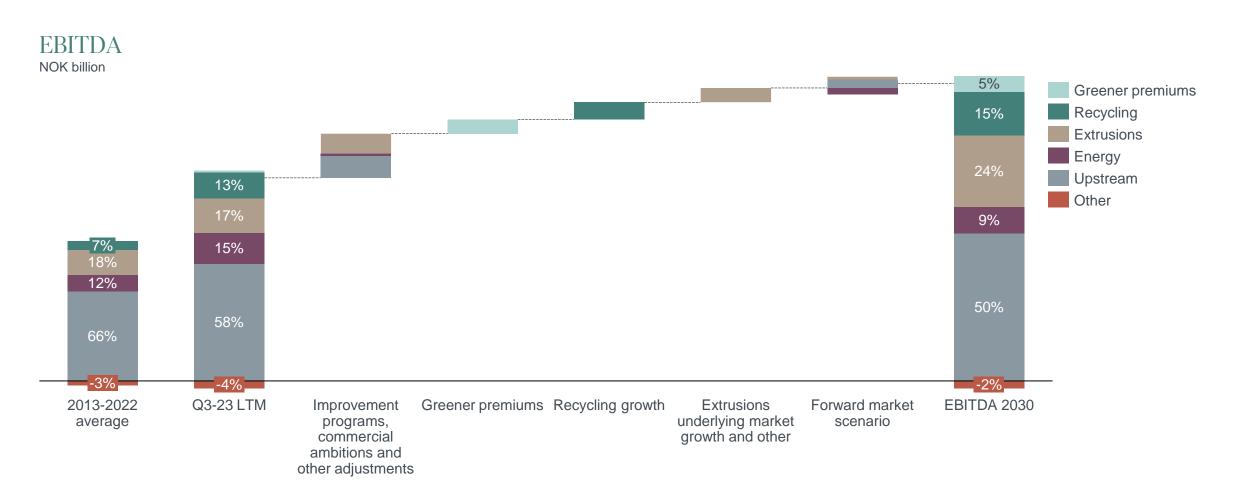
- Higher levels of automation and better ergonomics, state-of-the-art technology.
- New and improved technical capabilities to serve new segments at higher prices
- High energy efficiency, lower cost per kilo & higher EBITDA per ton

110

## Capital allocation increases earnings resilience



Extrusion and recycling margins, greener premiums growing as share of total earnings

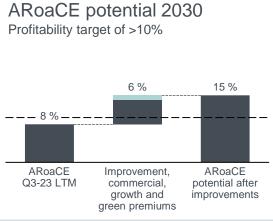


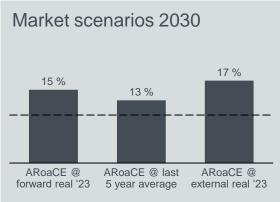
Note: 2013-2022 average and Q3-23 LTM EBITDA as reported

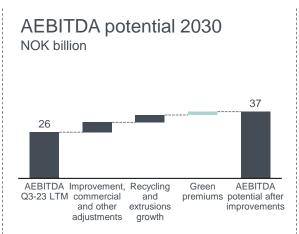
## Hydro profitability growth roadmap

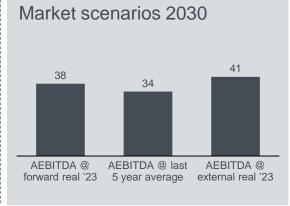


Main drivers – improvement efforts, growth and market development

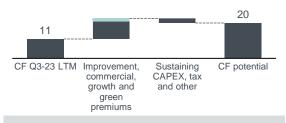


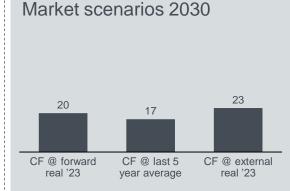






## Cash flow potential after sustaining CAPEX<sup>1)</sup> 2030 NOK billion





#### Main further upside drivers

- Sustainability differentiation and ability to produce net-zero aluminium
- Positive market and macro developments
- High-return growth projects
- Technology and digitization
- · Portfolio optimization

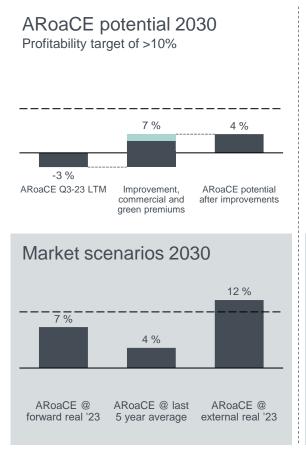
- Negative market and macro developments, incl. trade restrictions
- Operational disruptions
- Inflation pressure
- Project execution and performance
- Deteriorating relative positions
- Regulatory frameworks, CSR and compliance

<sup>1)</sup> Cash flow calculated as EBITDA + tax + long-term sustaining CAPEX + other (lease payments, interest expenses)
Assumptions and sources behind the scenarios can be found in Additional information
Sources: External scenario is based on CRU price and premium assumptions and S&P Global FX assumptions, with adjustments as specified in the footnotes

## Bauxite & Alumina profitability growth roadmap



Main drivers – fuel switch, commercial differentiation and market development







#### Main further upside drivers

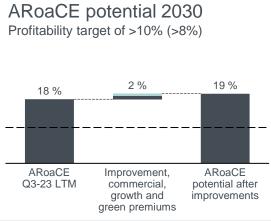
- Positive market and macro developments
- Further commercial differentiation, incl. greener alumina
- Fleet optimization at the mine
- Sustaining CAPEX optimization

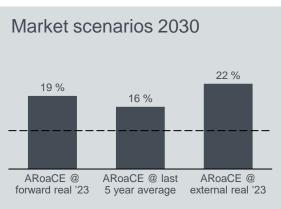
- Operational disruptions
- Negative market and macro developments
- Regulatory, CSR and country risk
- Supply chain disruptions
- · Value chain concentration in Brazil

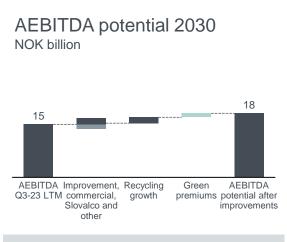
### Aluminium Metal and Metal Markets profitability growth roadmap

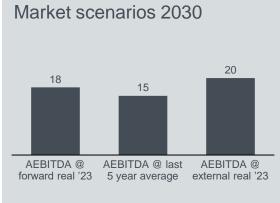


Main drivers – improvement efforts, commercial differentiation and market development

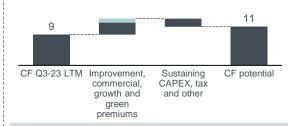


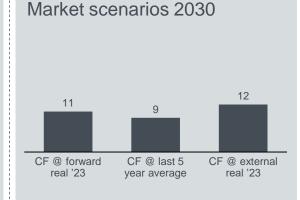






## Cash flow potential after sustaining CAPEX<sup>1)</sup> 2030 NOK billion





#### Main further upside drivers

- Positive market and macro developments
- Commercial differentiation, incl. greener brands
- Further recycling growth opportunities
- Portfolio optimization
- Further potential in automation, process control and efficiency, operational excellence

- Negative market and macro developments, incl. trade restrictions
- Deteriorating relative cost and market positions
- Operational disruptions
- Supply chain disruptions
- Regulatory and country risks, incl. tax

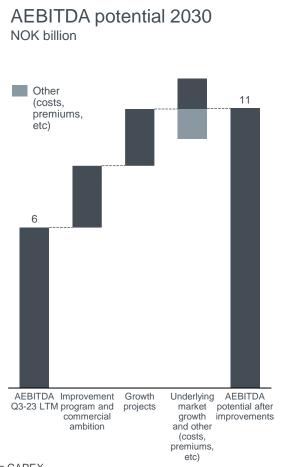
<sup>1)</sup> Cash flow calculated as EBITDA + tax + long-term sustaining CAPEX Assumptions and sources behind the scenarios can be found in Additional information Sources: External scenario is based on CRU price and premium assumptions and S&P Global FX assumptions, with adjustments as specified in the footnotes

## Extrusions profitability growth roadmap

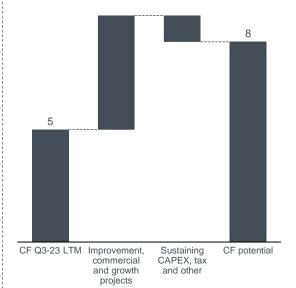


Main drivers – improvement program and commercial ambition









#### Main further upside drivers

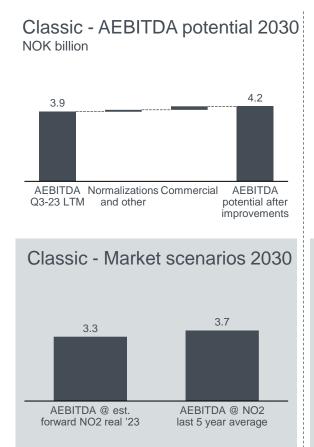
- Selective profitable growth including larger projects
- Continuous portfolio review and optimization
- Operating and fixed cost optimization
- Positive market and macro developments

- Negative market and macro developments, incl. trade restrictions
- Inflation pressure
- · Loss of large customer contracts
- Supply chain disruptions
- · Regulatory and country risks

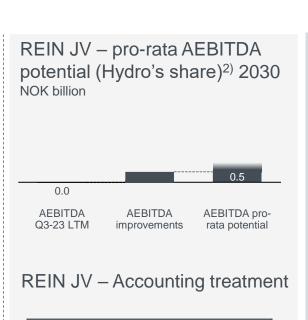
## Energy profitability growth roadmap



Main drivers – Net spot sales volume and market development







- REIN JV will be booked as an equity accounted investment after transaction
- This means the Hydro share of net income will be included as part of the Energy AEBITDA

#### Main further upside drivers

- Additional growth opportunities
- Further commercial and operational improvements
- Positive market and macro developments
- Batteries not included return target of 3x invested capital

#### Main downside risks

- Negative market and macro developments
- Regulatory and framework conditions, incl. tax
- New project execution

Note: Classic excluding growth from new energy areas

1) Cash flow calculated as EBITDA + tax + long-term sustaining CAPEX

2) EBITDA from assets. S&GA at JV-level not included

Assumptions and sources behind the scenarios can be found in Additional information

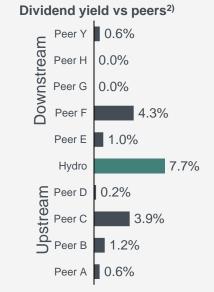
## Ambition for shareholder distribution

- Final proposal for distribution at Q4 reporting in February 2024
- Pay out depending on year-end financials
- Aiming at 50-60% of adjusted net income for 2023
- A combination of ordinary dividends and share buyback if supportive financials
- Proposal conditional upon Annual General Meeting approval
- Capital structure policy and targets stating an adjusted net debt target over the cycle around NOK 25 billion, with proposed shareholder cash distribution added to cash position at year-end
- Share buybacks ongoing, approximately 31% of the program repurchased as of 24<sup>th</sup> of November 2023



#### Hydro's Dividend Policy

- Pay out minimum 50 percent of adjusted net income as ordinary dividend over the cycle
- The dividend policy has a floor of NOK 1.25 per share
- Share buybacks or extraordinary dividends will supplement dividends during periods of strong financials, due consideration being given to the commodity cycle and capital requirements for future growth
- The pay out should reflect Hydro's aim to give its shareholders competitive returns, benchmarked against alternative investments in comparable companies



<sup>1)</sup> Based on share price at year end

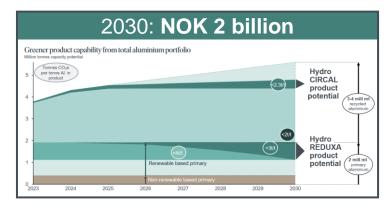
<sup>2)</sup> Peer group includes (in alphabetical order): Upstream: Alcoa, Century, Chalco, Hindalco, Rusal Downstream: Amag. Arconic, Constellium, Kaiser

<sup>3)</sup> Distributed share of underlying net income including share buy-backs

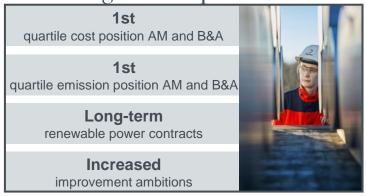
## Why invest in Hydro: key takeaways from today



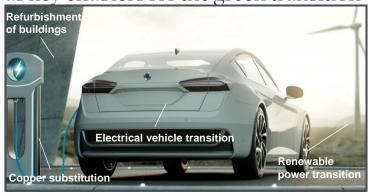
Greener earnings uplift potential 2030



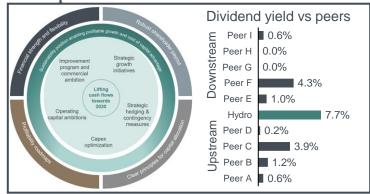
Robust positioning with ambition to strengthen competitiveness



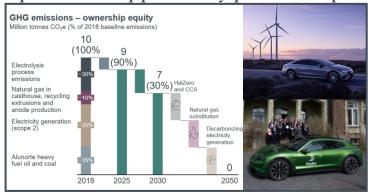
Portfolio of profitable growth projects as key enablers for the green transition



Resilient financial framework and competitive shareholder distribution



Pathway to net-zero aluminium products supported by partnerships



Good track record on relative shareholder value creation





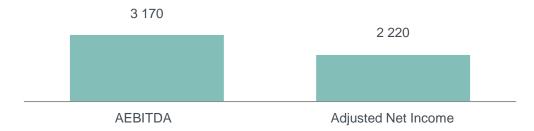
## Appendix

## Significant exposure to commodity and currency fluctuations



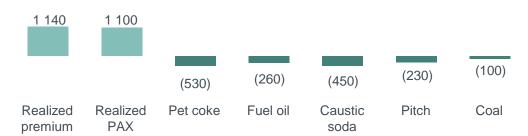
Aluminium price sensitivity +10%

NOK million



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

NOK million



#### Currency sensitivities +10%

Sustainable effect:

NOK million	USD	BRL	EUR
AEBITDA	3,840	(890)	10

#### One-off reevaluation effect:

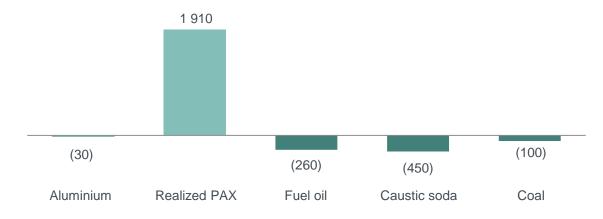
Financial items	(1,040)	1,220	(3,730)
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- Annual adjusted sensitivities based on normal annual business volumes. LME 2,240 USD/mt, realized premium 490 USD/mt, PAX 350 USD/mt, fuel oil 820 USD/mt, petroleum coke 610 USD/mt, pitch 1,260 EUR/mt, caustic soda 650 USD/mt, coal 150 USD/mt, USDNOK 10.41, BRLNOK 2.06, EURNOK 11.11
- 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
- 2023 Platts alumina index (PAX) exposure used
- Adjusted Net Income sensitivity calculated as AEBITDA sensitivity after 30% tax
- Sensitivities include strategic hedges for 2023 (remaining volumes for 2023, annualized)

### Bauxite & Alumina sensitivities



### Annual sensitivities on adjusted EBITDA if +10% in price NOK million



#### Currency sensitivities +10%

NOK million	USD	BRL	EUR
AEBITDA	870	(650)	-

#### Revenue impact

· 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

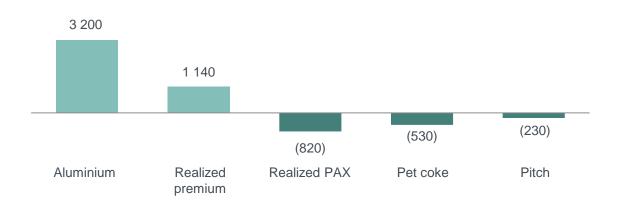
#### Energy

- ~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)

### Aluminium Metal sensitivities



### Annual sensitivities on adjusted EBITDA if +10% in price NOK million



#### Currency sensitivities +10%

NOK million	USD	BRL	EUR
AEBITDA	2,940	(250)	(360)

#### 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
- ~ 2-3 months lag
- · Mainly priced on Platts index

#### 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

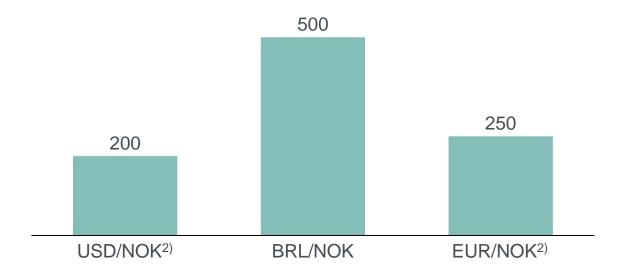
#### Power

- 14.0 MWh per tonne aluminium
- · Long-term power contracts with indexations

## CAPEX sensitivity to FX



Annual sensitivities on CAPEX if +10% in currency<sup>1)</sup>



Capex currency exposure<sup>3)</sup>

- BRL ~40%
- USD ~15%
- EUR ~20%
- NOK and other ~25%

The estimates for the different currencies exposures for capex are based on the 2024-2026 allocation guidance.

The annual sensitivity estimates are based on the 2024 allocation guidance of 15 BNOK

There is possible underlying FX exposure in the Norwegian smelters for the EUR and for the USD

<sup>1)</sup> Based on the 15 BNOK 2024 capex guidance

<sup>2)</sup> Possible underlying FX exposure in Norwegian capex

<sup>3)</sup> Based on 24-26 allocation

### Assumptions behind scenarios



Scenarios are not forecasts, but illustrative earnings, cash flow and return potential based on sensitivities

- Starting point AEBITDA Q3-23 LTM
- Cash flow calculated as AEBITDA less EBIT tax and long-term sustaining capex, less lease payments and interest expenses for the Hydro Group
  - Tax rates: 25% for business areas, 40% for Energy, 28% (LTM) for Hydro Group
- ARoaCE calculated as AEBIT after tax divided by average capital employed
  - Average capital employed assumed to increase with growth capex and return-seeking capex above LT sustaining CAPEX 2024-2026
- The actual earnings, cash flows and returns will be affected by other factors not included in the scenarios, including, but not limited to:
  - Production volumes, raw material prices, downstream margin developments, premiums, inflation, currency, depreciation, taxes, investments, interest expense, competitors' cost positions, and others
- External scenario is based on CRU price and premium assumptions and S&P Global FX assumptions, with adjustments as specified in the footnotes

#### Price and FX assumptions

Assumptions used in	03 2023 I TM	2024		2030	
scenarios		forward real	Forward real 2023	Last 5 year average	CRU / S&P Global real 2023
LME, USD/mt	2,240	2,240 (deflated by 2.5%)	2,300 (deflated by 2.5%)	2,180	2,560 (deflated by 2.5%)
Realized premium, USD/mt	490	380 <sup>1)</sup>	380 <sup>1)</sup>	430	570 <sup>4)</sup> (deflated by 2.5%)
PAX, USD/mt	350	320 (deflated by 2.5%)	340 <sup>2)</sup> (deflated by 2.5%)	330	380 (deflated by 2.5%)
Caustic soda, USD/mt	650	320 <sup>1)</sup>	320 <sup>1)</sup>	430	410 (deflated by 2.5%)
Coal, USD/mt	150	110 (deflated by 2.5%)	100 <sup>3)</sup> (deflated by 2.5%)	130	100 <sup>7)</sup> (deflated by 2.5%)
Pitch, EUR/mt	1,260	970 <sup>1)</sup>	970 <sup>1)</sup>	840	920 <sup>5)</sup> (deflated by 2.5%)
Pet coke, USD/mt	610	470 <sup>1)</sup>	470 <sup>1)</sup>	450	500 <sup>5)</sup> (deflated by 2.5%)
NO2, NOK/MWh Nordic system, NOK/MWh	1,150 850	770 <sup>6)</sup> 480 (deflated by 2.5%)	650 <sup>6)</sup> 400 (deflated by 2.5%)	840 620	650 <sup>7)</sup> 400 <sup>7)</sup> (deflated by 2.5%)
USDNOK EURNOK	10.41 11.11	10.68 11.77	10.38 12.25	9.28 10.35	8.15 <sup>8)</sup> 9.58 <sup>8)</sup>
BRLNOK	2.06	2.19	2.15	1.93	1.47 <sup>8)</sup>

<sup>1)</sup> Spot price. 2) % of LME forward price deflated by 2.5%. 3) 2026 nominal forward price deflated by 2.5%. 4) Realized premium based on CRU product premiums 2023 5) Historic average % of LME, using CRU LME price deflated by 2.5%. 6) Based on Nordic system forward price and constant NO2-Nordic system area price 7) Based on price from forward case 8) Based on S&P Global

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#### Next event

# Fourth quarter results and 2023 Annual Report February 14, 2024

For more information see www.hydro.com/ir

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