



# Nothing is possible

Arvid Moss, EVP Energy, Norsk Hydro

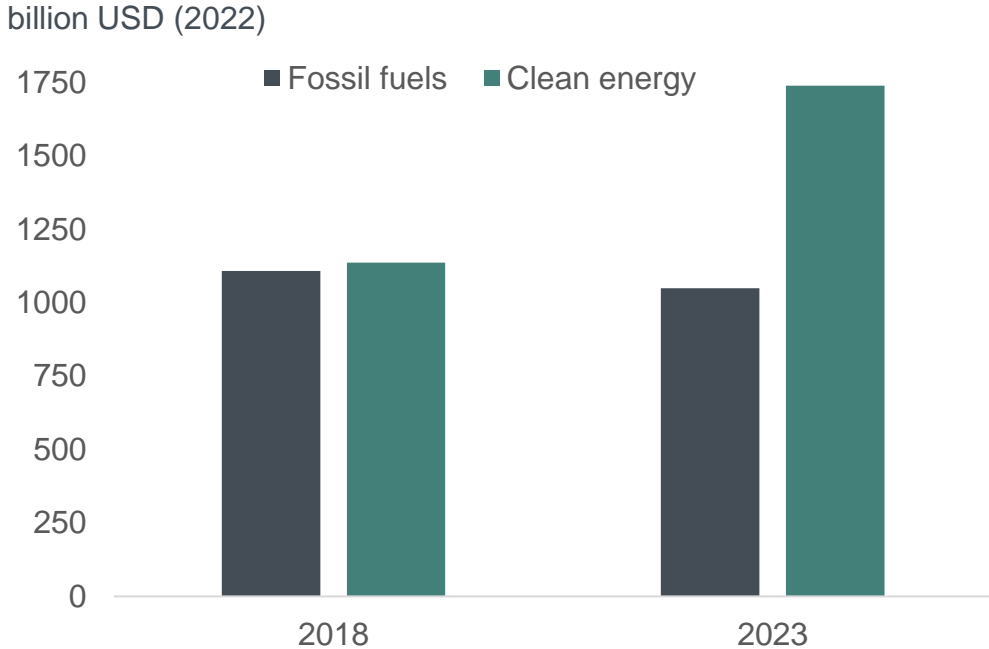
Pareto Securities' Energy Conference, 20 September 2023



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



**IEA:** “This year, for every dollar invested in fossil fuels, USD 1.70 is going to clean energy”



# Hydro's contribution: Renewable energy and sustainable materials needed for the energy transition



**Energy:** Renewable power, green hydrogen and batteries, addressing 100% of industrial emissions



**Aluminium:** Zero-carbon aluminium for the green transition



# Zero is possible. Hydro's internal contributors for zero-carbon aluminium



Renewable power in new areas: 60-70%



CCS/HAL Zero 25-30%



Green hydrogen/  
Electrification: 15-20 %



Bio/batteries,  
tech extrusion: 10-20%

\*Sum above 100% as electricity also needed for other elements. Approx figures

# The Energy ecosystem is set up to enable zero-carbon aluminium through dual role



Energy Operations & Development

Energy Markets

REIN 

Batteries

HAVRAND 

Projects



Operational scale, commercial competence

Strong industrial partners  
Deliver on project pipeline in renewable energies and technologies  
Area specific competencies: technologies, business models, geographies

Project development and implementation

# Hydro Rein is in execution mode – adding 1.5 TWh to captive power. PPA's to Hydro operations



1.7 GW gross, approx. 1.5 BUSD gross



## Stor-Skälsjön

- 42 turbines
- 260 MW installed, 802 GWh
- COD Q4 2023



## Mendubim

- ~1 million modules
- 530 MW installed, 1200 GWh
- COD Q1 2024



## Ventos de São Zacarias

- 80 turbines
- 456 MW installed, 1900 GWh
- COD Q4 2024



## Boa Sorte

- 775,220 modules
- 438 MW installed, 996 GWh
- COD Q2 2024

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

## 1 'World first' test in Navarra, Spain

- First batch of aluminium with green hydrogen
- Proved hydrogen can be used safely
- ...and give high metal quality

June, 2023

## 2 'World first' pilot in Høyanger, Norway

- Full scale 3 year pilot – and beyond
- Final step in technology qualification of hydrogen
- Saves 4000 tonnes CO<sub>2</sub>e yearly

2024/2025



# Empowering the future of green mobility with sustainable battery materials

Vianode

30% owner share

**E-MAGY**

5M EUR invested

**hydrovolt**

50% owner share

Lithium de France  
GEOTHERMAL

12% owner share

**Corvus**

24.1% owner share

**northvolt**

0.6% owner share

3 bn  
Capital allocated  
2020-2025

3x  
Targeted value  
uplift on equity  
invested





# Value creation across Hydro's energy space going forward

- 1** | Expanded footprint in the Nordics in terms of power and market operations, projects and sourcing
- 2** | Sourcing and management of power and fuels for Hydro operating assets across geographies
- 3** | Hydro Rein successfully established as separate company with external capital and partners
- 4** | Hydro Havrand developing portfolio, building on internal projects decarbonizing the aluminium value chain
- 5** | Preferred partner for industrializing sustainable battery material businesses in Europe





**Hydro**

*Industries that matter*