

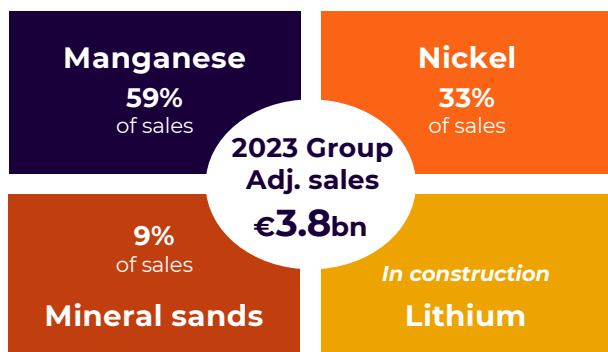


**Challenges and opportunities of
decarbonization**
*A CCS project for Mn Alloys in
Norway*

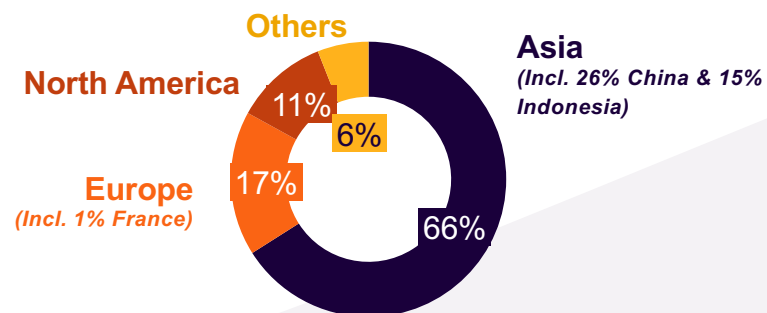
Julien Burdeau

A global pure-play Metals & Mining Company

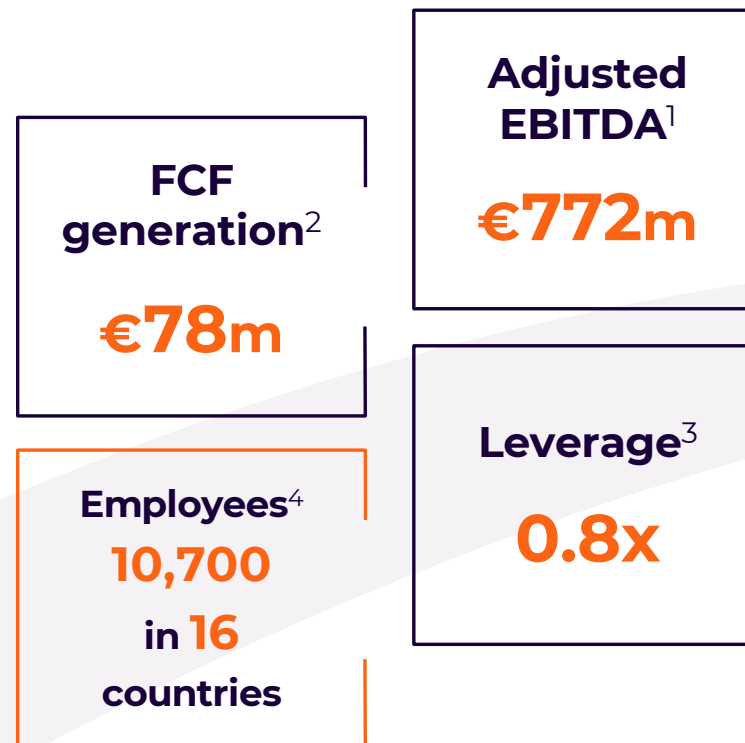
Refocused on four activities in M&M



2023 adjusted sales by geography



FY 2023 performance



¹ EBITDA including Eramet's share in Weda Bay's EBITDA of €425m

² Net of Tsingshan's capital injection to the Centenario project

³ Net debt / Adjusted EBITDA

⁴ Including c.1,500 at Weda Bay

Operating in manganese, nickel, mineral sands & developing battery-grade lithium

MANGANESE <i>In operation</i>	NICKEL <i>In operation</i>	MINERAL SANDS <i>In operation</i>	LITHIUM <i>Starting summer 2024</i>
			
<p>ASSETS</p> <p> Ore – Moanda (Gabon) World's largest manganese mine</p> <p> Alloys 6 metallurgical plants: 1 in France, 1 in Gabon, 3 in Norway & 1 in the US</p>	<p>ASSETS</p> <p> Weda Bay (Indonesia) World's largest nickel mine</p> <p> 1 NPI plant</p> <p>SLN (New Caledonia) 5 mining sites & 1 ferronickel plant</p>	<p>ASSETS</p> <p> GCO (Senegal) Titaniferous minerals & zircon extraction</p> <p>World's largest single dredge operation</p>	<p>ASSETS</p> <p>Centenario (Argentina) Battery-grade Lithium Carbonate</p> <p>Phase 1: start of production in summer 2024</p> <p>Phase 2 (1st tranche): conditional FID approved</p>

CO2 reduction is embedded into our ambitious CSR roadmap “Act for positive mining”

Responsible mining is part of the solutions to support the energy transition

3 AREAS
FOR ACTION TRANSLATED
INTO 10 AMBITIONS
FOR 2026



3 AMBITIOUS 2035
TARGETS



Care for people

- 1 Take care of health and safety of people on our sites
- 2 Provide an inclusive environment where everyone can grow
- 3 Accelerate the local & sustainable development for communities

100% Sites with
D&I² label



Trusted partner for nature

- 4 Control & optimize water consumption
- 5 Biodiversity preservation
- 6 Mitigate risk of pollution / Reduce environmental impact

Biodiversity towards net positive impact



Transform our value chain

- 7 Reduce the CO₂ footprint of our value chain
- 8 Optimize mineral resources consumption and contribute to a circular economy
- 9 Develop responsible value chain that respects our Human rights and CSR requirements
- 10 Mining sites assessed by IRMA¹

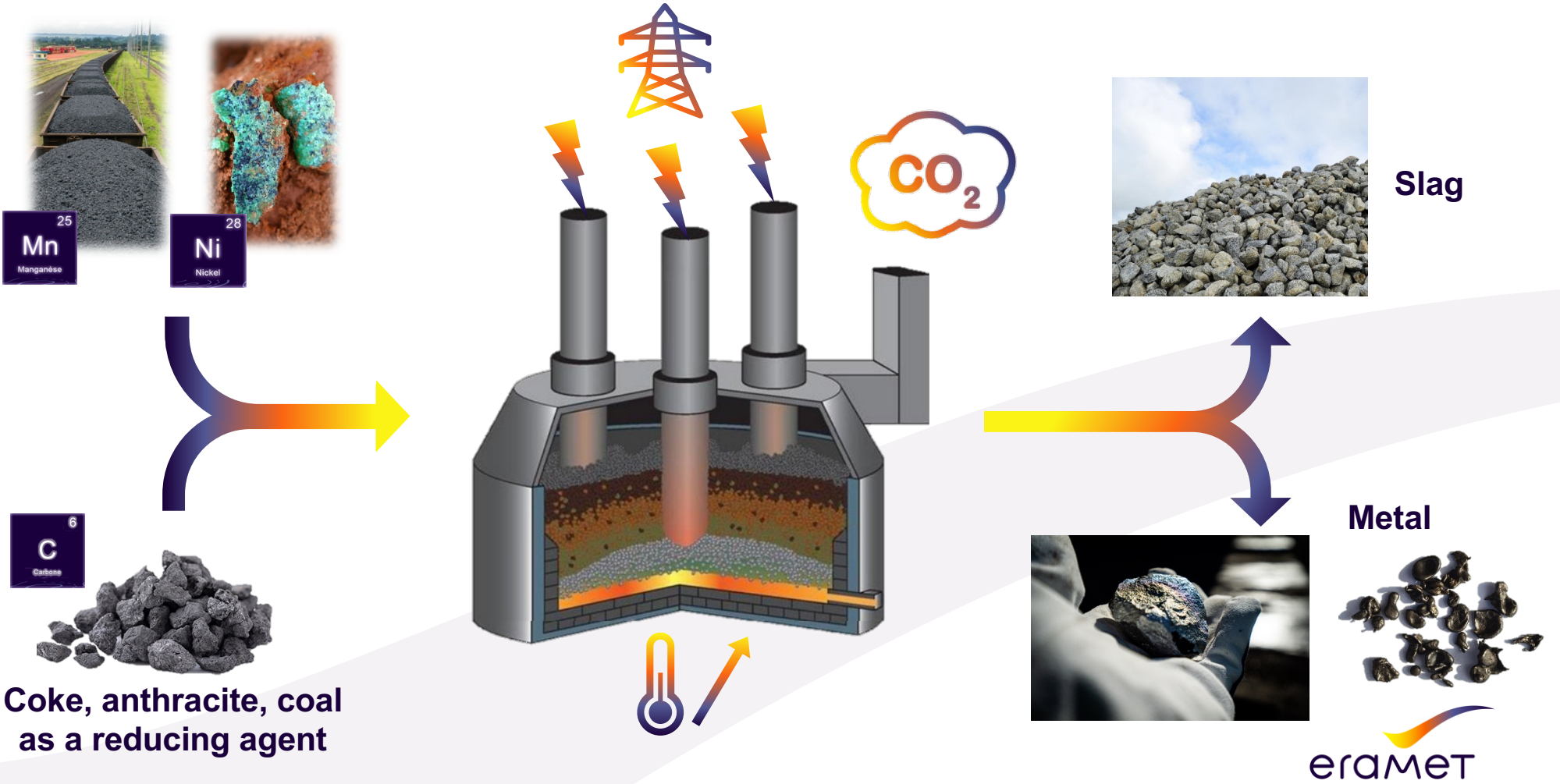
-40% CO₂ emissions
reduction scopes 1&2³

¹ 100% of mining sites engaged in an independent assessment process

² Diversity & Inclusion

³ Absolute target, in tons of CO₂ vs. 2019

Our Mn and Ni smelters concentrate 90% of Scope 1 & 2 emissions

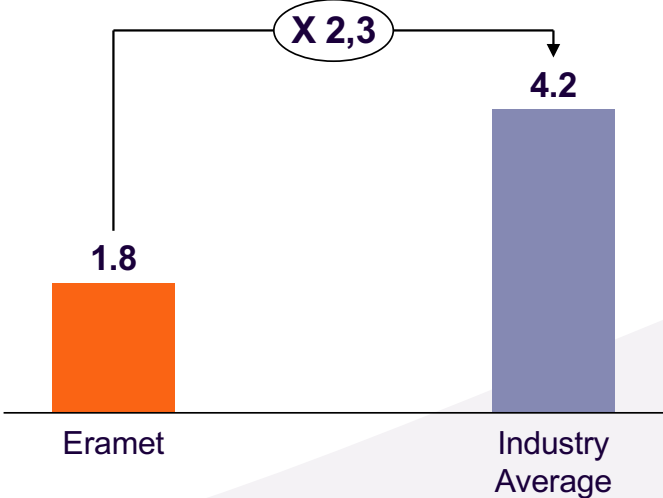


Eramet CO₂ strategy for Mn alloys

Lowest existing footprint in the industry

- CO₂ footprint is **c. 60%** lower than the industry average because of our existing renewable power base

TONS OF CO₂ EMITTED BY TON OF ALLOY (SCOPE 1 & 2)



Ambitious Mn alloys decarbonization roadmap

- Objective to reduce CO₂ emissions intensity (scope 1 & 2) of Mn alloys products by **70%**

THREE MAIN INITIATIVES

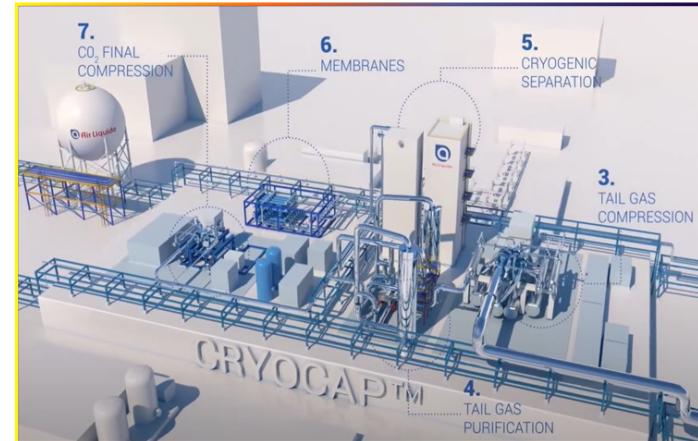
<p>Biocarbon Replace fossil carbons by BioCarbon produced from wood</p>	<p>CCS Capture and store our CO₂ emissions</p>	<p>CCU Capture and use our CO₂ emissions</p>
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Our Carbon Capture project in Sauda, Norway



Sauda FeMn plant

- **Biggest FeMn plant in Europe**
- **Emits >300kt CO₂ eq per year**
- **In top 15 emitters of Norway**



The CCS project

- **Pressure Swing Adsorption** technology, followed by cryogenic separation
- **Pilot plant** under construction, tests planned in 2025
- Full-scale project ongoing, to capture **~260 kt CO₂ eq** per year
- Capture by the **end of the decade**

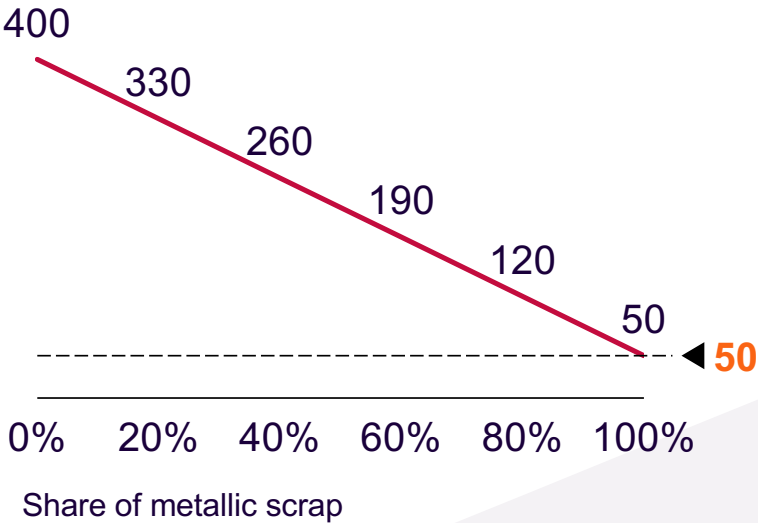


Opportunity #1

Near Zero Mn alloys are an enabler of Near Zero steel

CO₂ intensity of Near Zero Steel¹

In kg CO₂ / ton of Crude Steel



Contribution of Mn alloys

In kg CO₂ / ton of Crude Steel

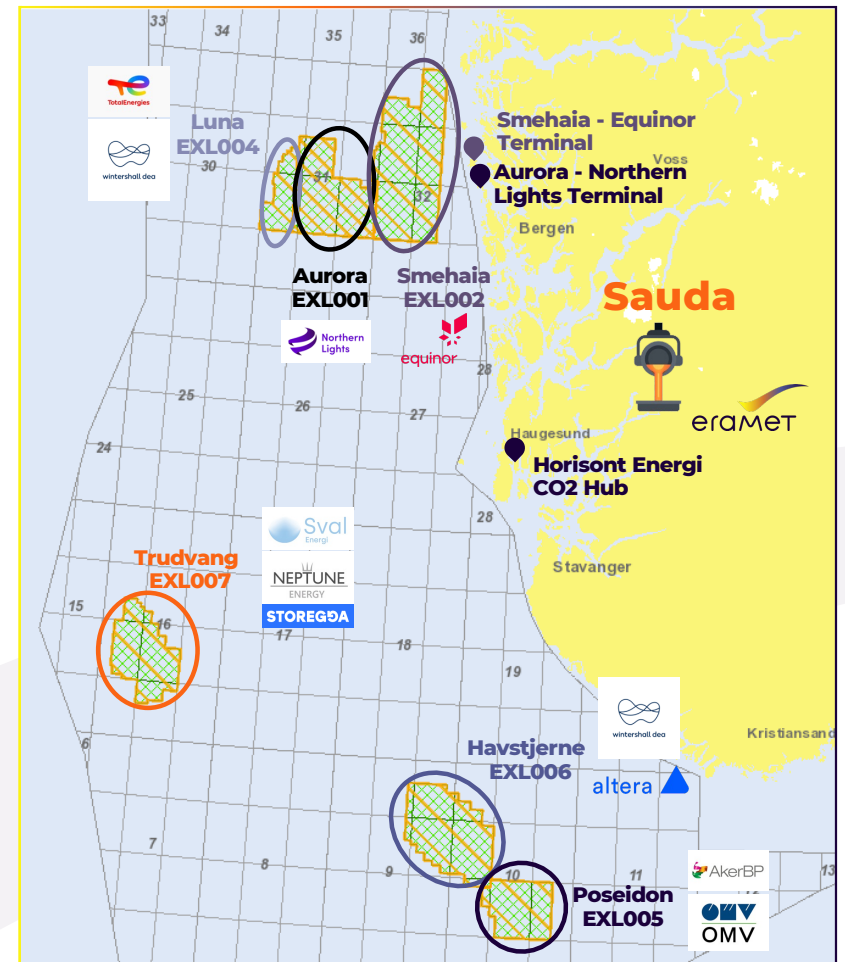


1. According to Responsible Steel standard

Opportunity #2 A favourable location

Eramet's Sauda plant is located **less than 250km** away from 6 of the **7 awarded storage sinks** in Norway.

The plant has **direct sea access** with a quay capable of receiving vessels more than **250m long**.



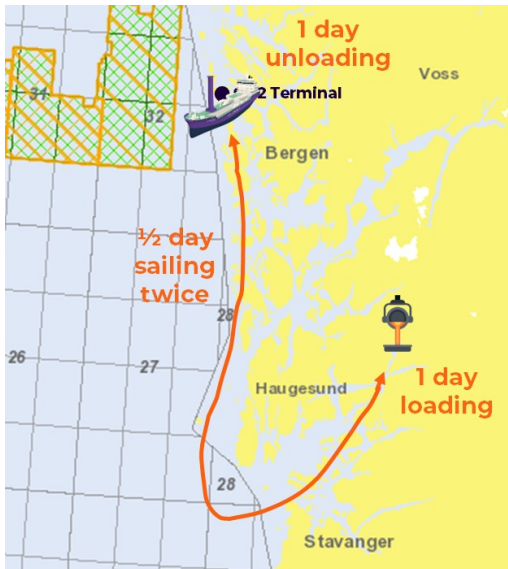
Challenge

Identify and deploy an adequate transportation scheme

Northern Lights is a straightforward solution...

... but Suda needs 1/3 or their typical vessel...

... so we are investigating several options



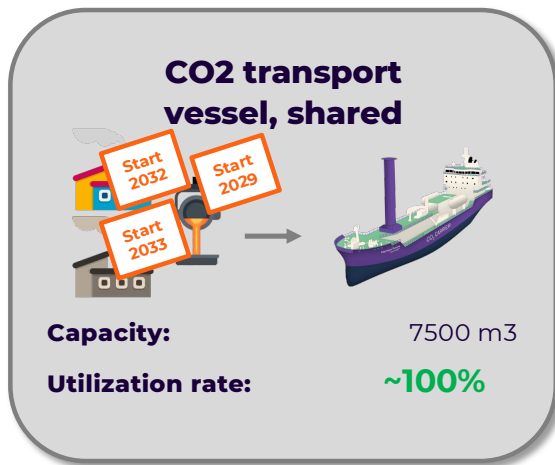
CO2 transport vessel

Capacity: 7500 m³
Capacity to load: ~9 days of production
Sailing distance to terminal: 140 nm
Roundtrip duration: ~3 days
Utilization rate: ~1/3

- 1. Emit & capture **3 times more CO2** to fully utilize the vessel!
- 2. **Aggregate with other emitters** to fully utilize the vessel.
- 3. Use a **smaller vessel** which would be fully utilized.
- 4. Search for **other transport** options.

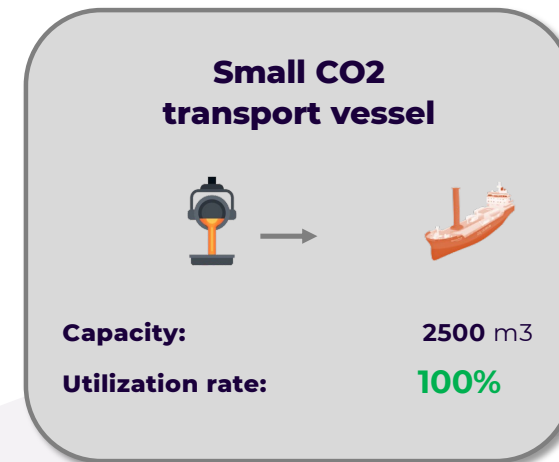
... that entail challenges as well

2. Aggregation of emitters



Alignment of **interests** and **timelines** among emitters, compatibility of CO₂ volumes, **risk sharing** schemes...

3. Smaller vessels



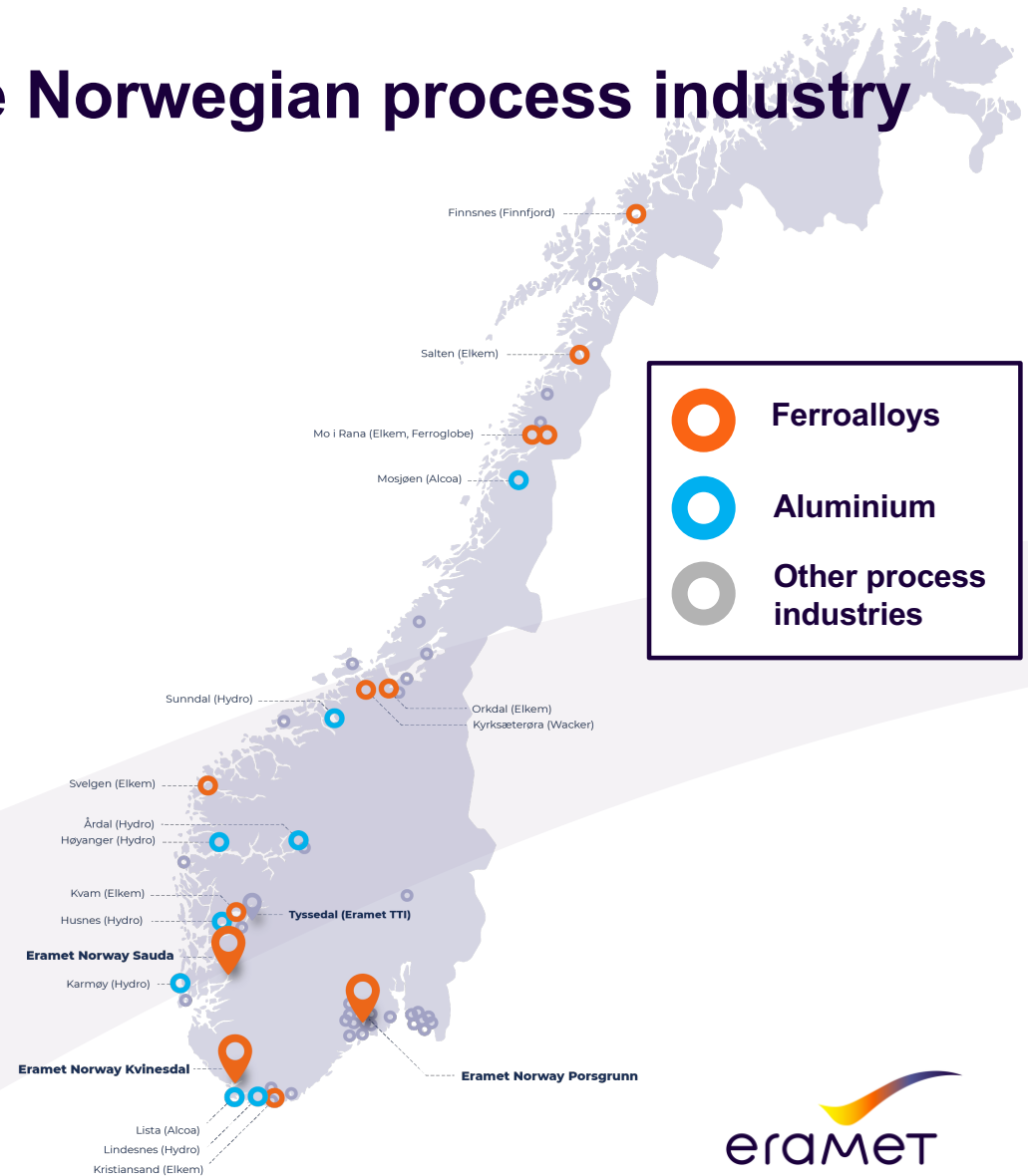
Competitive **vessel design** and operation, dedicated **infrastructure** at **terminal**, cost impact for storage provider...

A challenge shared across the Norwegian process industry

The Norwegian process industry:

World-leading players in several different industries

- Produces metals and materials needed in the climate and energy transition
- Contributes to autonomy and societal security in Europe
- Has the lowest footprint today
- Leading the way in the development of new solutions towards a low-carbon society





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