

GREEN MINERALS

*Enabling the green shift*

Business Update– 25 January 2023

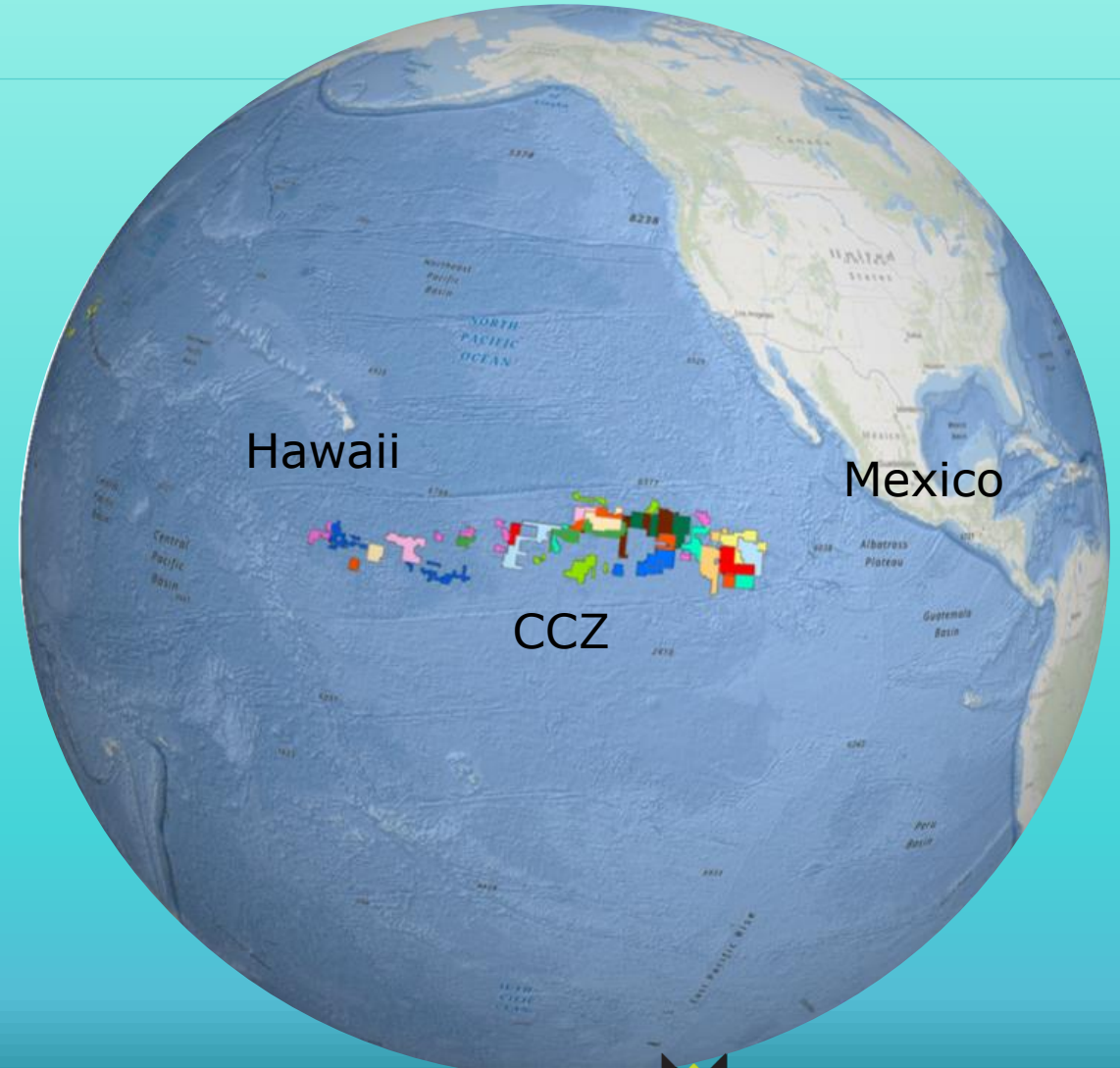
Ståle Monstad, CEO & Ståle Rodahl, Executive Chairman

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# Outline

- **Green Minerals signs MoU for nodule license in CCZ**
- **Polymetallic Nodules**
- **Nodules vs. SMS**
- **Update Norway**



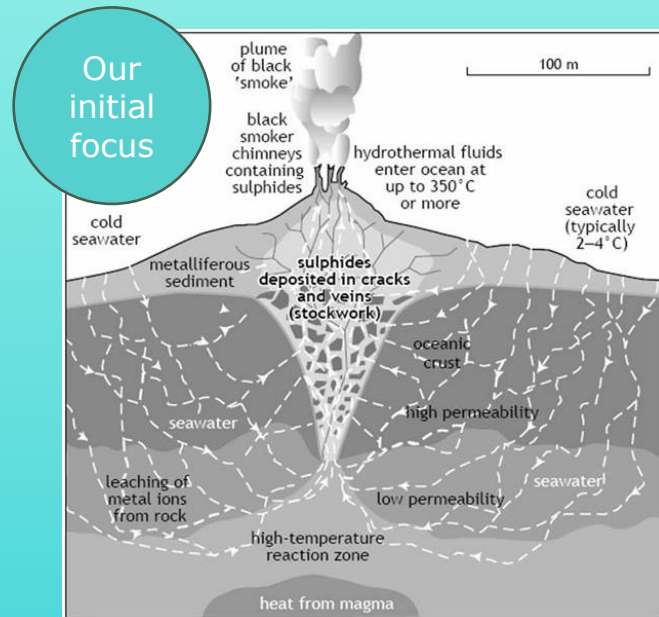
# MoU signed

- **Green Minerals signs MoU for partnership in a nodule license in CCZ in January 2023.**
- **Competent license holder.**
- **Significant amount of work done on the license to date, indicating**
  - **A significant resource of key battery metals on global scale.**
  - **>100 yrs production at same rate as NCS SMS**
- **Exclusivity for Green Minerals during the negotiation period.**



# Three main types of marine minerals occurrences

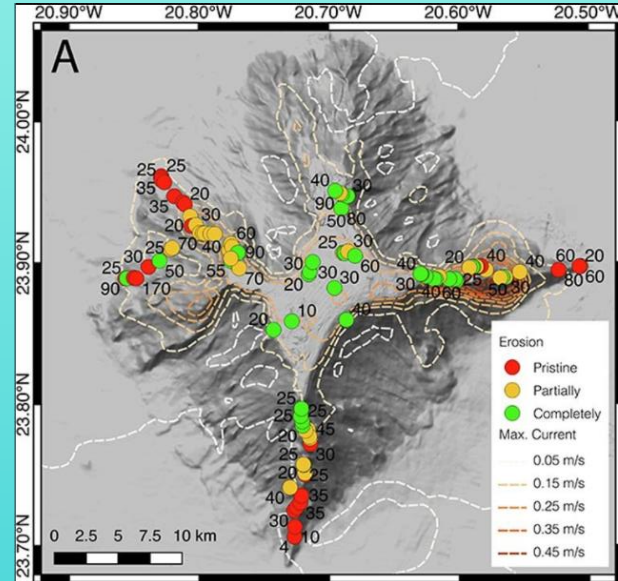
## Seafloor massive sulphides (SMS)



- Impacted area is very small (diameter in the 100's m range.)
- Production from SMS's will be performed through 'surgical interventions'.
- Non-unique ecosystems around inactive vents
- Probably relative low environmental impact.

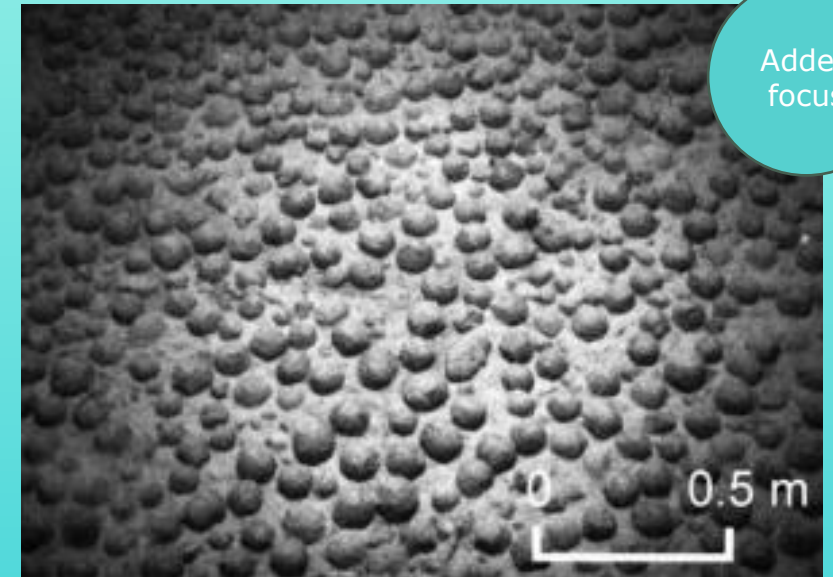
Closed loop production system reduce/remove sediment plume during extraction for all deposits.

## Manganese crust



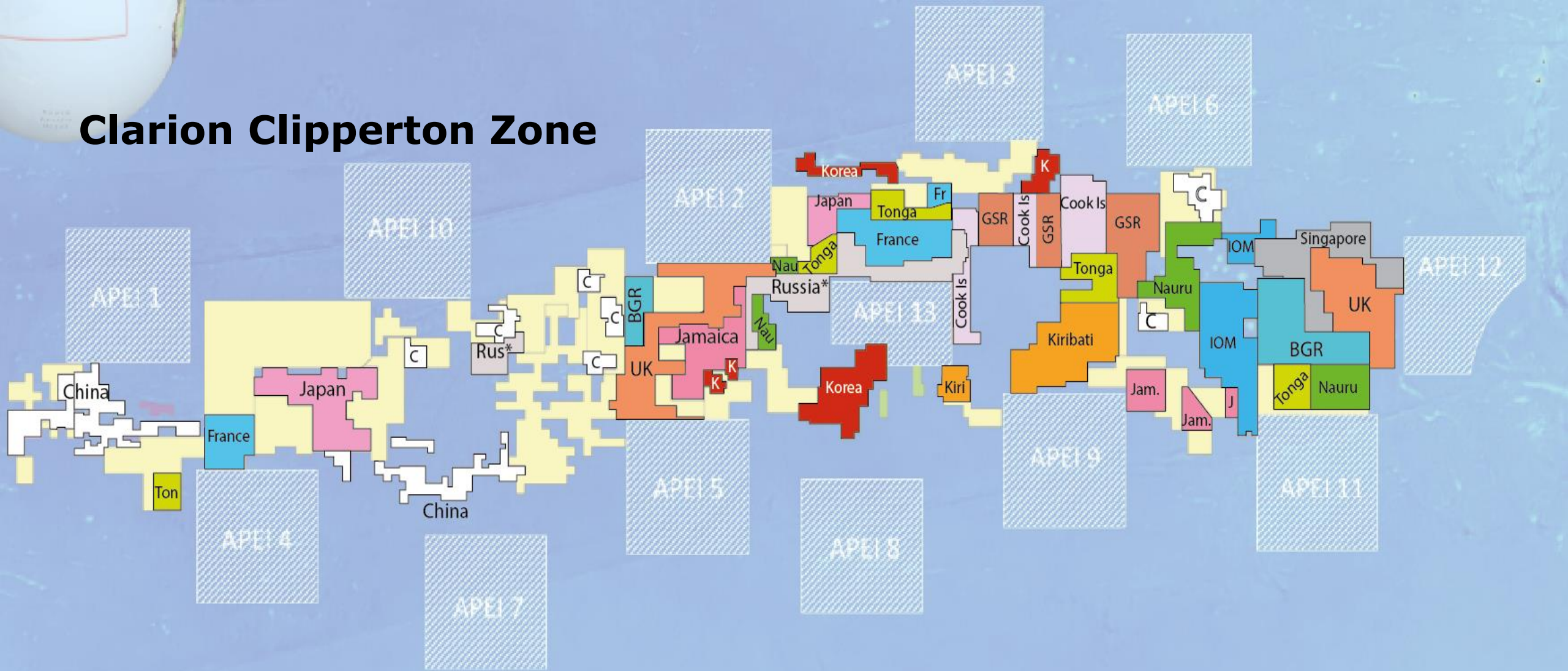
- Intermediate areas (50-100km<sup>2</sup>)
- Steep slopes most likely favourable for development of crust on NCS.

## Polymetallic nodules

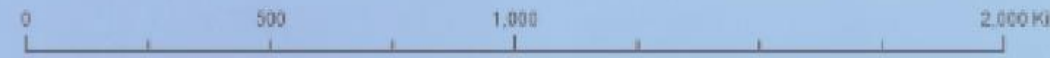


- Large areas (>250k km<sup>2</sup>)
- "Easy" exploration.
- The nodules can be harvested.

# Clarion Clipperton Zone



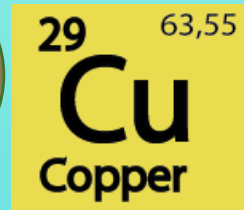
Yellow areas are reserved areas (open for developing countries).



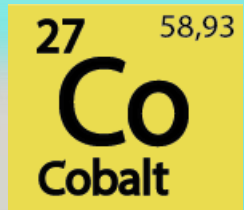
# Polymetallic nodules. “Battery in a rock”

- Polymetallic nodules, contain four essential battery metals: cobalt, nickel, copper, and manganese, in a single ore.
- Unlike land ores, nodules do not contain toxic levels of heavy elements.
- Licenses in the CCZ are large, often between 70 000 and 80 000 km<sup>2</sup>.
- The license Green Minerals are negotiating has completed the geological exploration work.
  - Resource assessment
- Some remaining work on the environmental baseline.
- The license will be close to ready for harvesting once the Mining Code (ISA legislation) is complete.

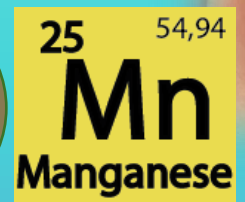
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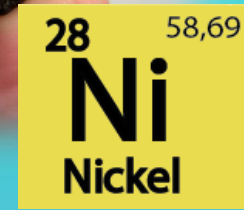
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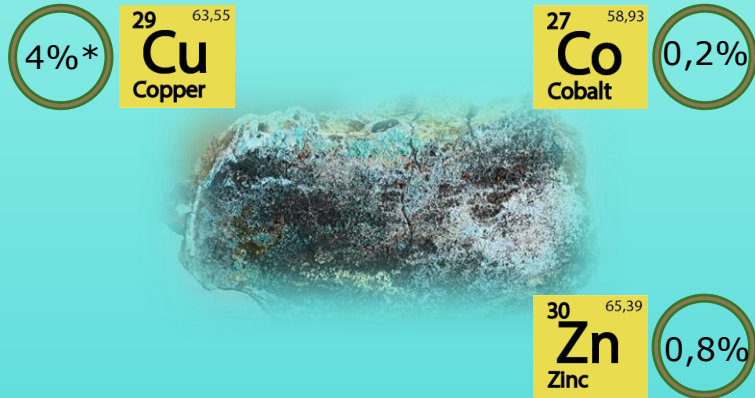


1,31%



# SMS vs Nodules

SMS



Polymetallic nodules



VS

- SMS is mainly a copper play, but some deposits also show very interesting Cobalt ore grades.
- Seafloor Massive Sulphides are 3D deposits, that cover small areas and mining is needed to produce the resource.
- Nodules are a 2D deposit, sitting unattached on the seafloor. Produced through harvesting.
- Nodules are rich in typical battery metals like Ni, Mn, and Co. Also rich in Fe.

\* Numbers illustrates typical values for the different commodities








# Portfolio strategy

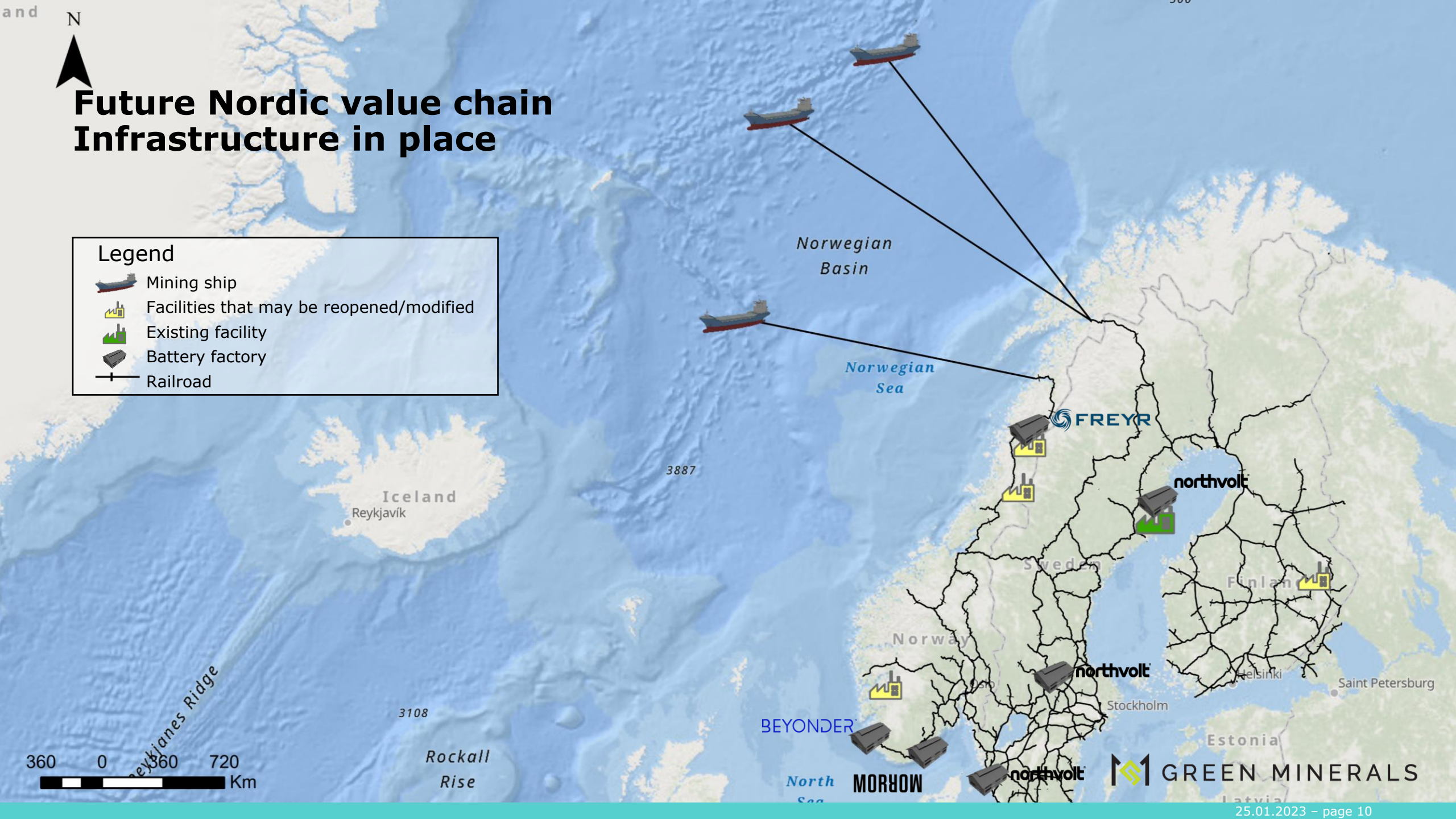
- **Visible risks and uncertainties:**
  - Exploration risk
  - Commodity volatility, breakthrough technology:
    - Cobalt/Nickel vs Solid State Batteries
    - Supply vs demand
  - Political and social license
- **Mitigation:**
  - Multi-commodity portfolio: Copper, Nickel, Cobalt, Manganese, (SMS+Nodules)
  - Diverse jurisdictions: Norway, ISA, other countries' EEZs
- => **Building the portfolio with partnerships to reduce the financial risk**



# Future Nordic value chain Infrastructure in place

**Legend**

-  Mining ship
-  Facilities that may be reopened/modified
-  Existing facility
-  Battery factory
-  Railroad



# Partnership for responsible production



Major global drilling contractor



Subsea equipment



Global pump supplier



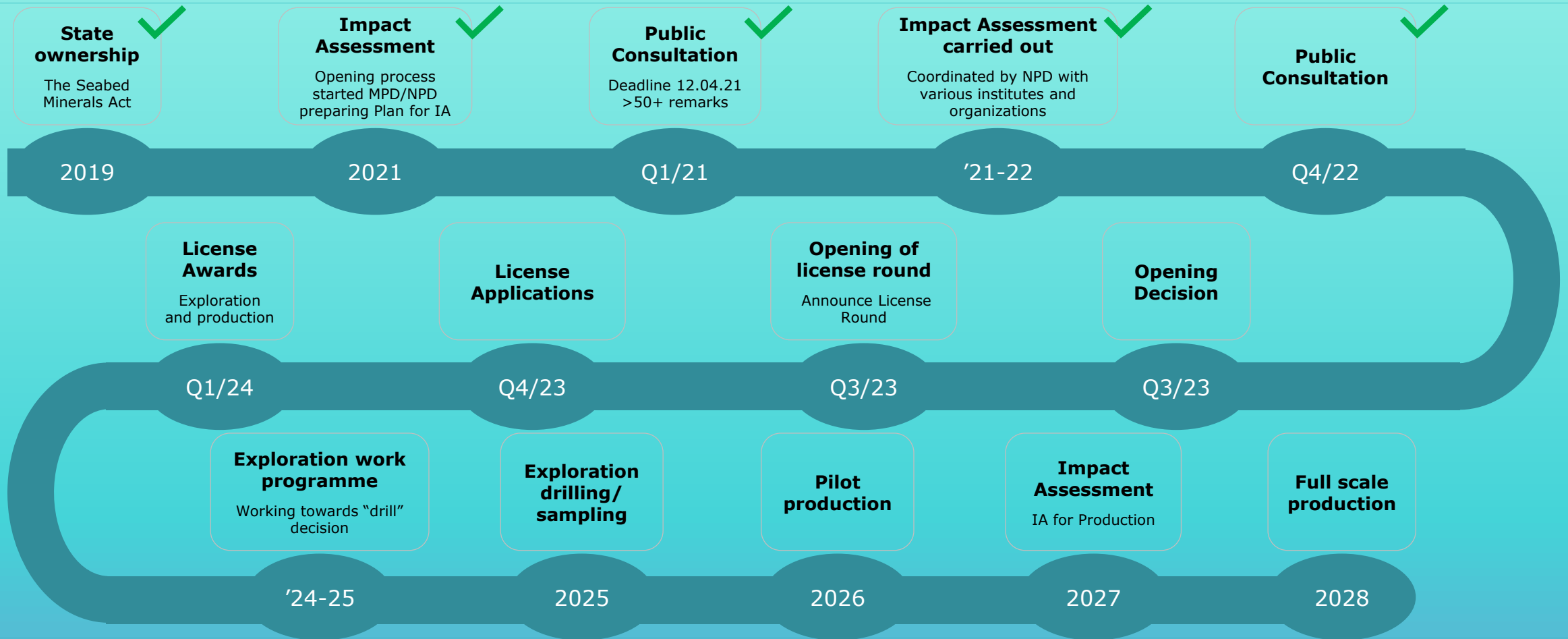
Horizontal transportation



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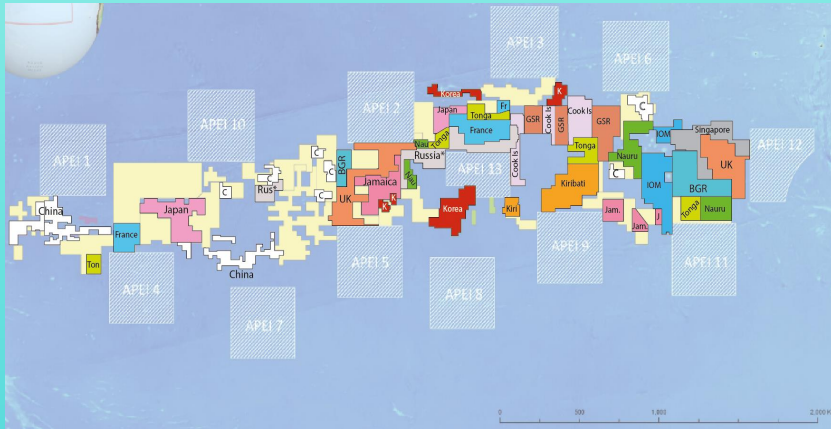
- MoU signed in August 2022 for delivery of a concept study on Harsh Environment Deep-Sea Mining System “ore from seafloor to port” for exclusive use in Norwegian waters.
- OSI has delivered risers for Allseas/TMC (Nodules) and Japanese consortium (SMS) and was part of integration works
- SMD delivered mining machines for previous SMS mining project
- OSI becomes shareholder in Green Minerals
- Study started late December 2022, on time

# Roadmap towards exploration license in '24 and production in '28



# Aspirational targets – operations and financials

CCZ



- Geological exploration work completed
- More than 200Mt wet nodules indicated on license
- Asset light strategy, minimize CAPEX, include industrial partners.
- Annual EBITDA (est) > USD 150m on current metals prices

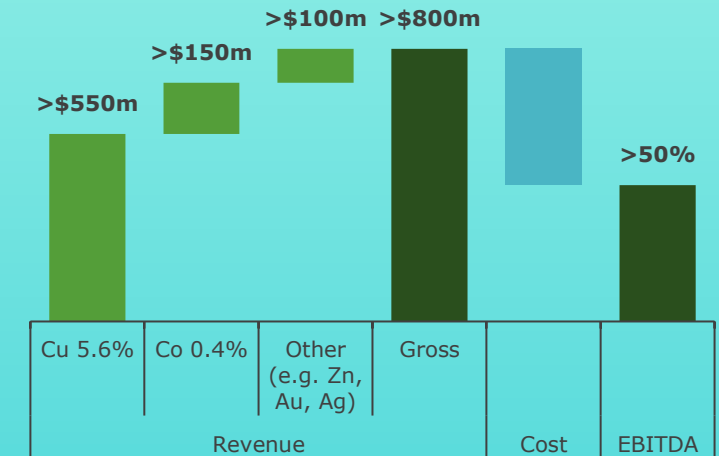
**Target: Production start in 2026**

NCS



- We plan for a pilot system ready to operate by 2026
- Processing to be performed in the Nordics
- Immense focus on subsea ecosystem and biodiversity
- **Target: Production in 2028 with processing capability in one of the Nordic countries**

FINANCIAL TARGETS - NCS



- Revenue:
  - 1.5 Mt annual ore production
  - USD 9,000 per ton copper (Cu)
  - USD 50,000 per ton cobalt (Co)
  - ~USD 100m uplift for additional metals
- EBITDA:
  - Includes overhead, mining cost and processing cost

# Recent industry developments

License award in Cook Islands provides perspective on industry values:

- -3 licenses awarded to Moana Minerals Ltd (OMLUS), CIC Ltd (Oddesey) and CIIC Seabed Resorces Ltd (Deme Gp)
- OMLUS (Moana Minerals Ltd) win triggered Transocean minority stake (press release 29<sup>th</sup> March 2022) at estimated 10 MUSD + 10 MUSD in-kind

CCZ

- The Metals Company successfully completed an integrated pilot system test in the CCZ in October 2022, lifting 3000 wet tonnes of nodules through a 4,3km riser system

	OMLUS	TMC	GEM
<b>Market cap (USDm)</b>	NA	229	10
<b>Production start (est)</b>	2026	2024	2026/2028
<b>Production in tpa (est)</b>	und.	1.3M	1.5M
<b>Resource status CCZ* (mt)</b>			(>200Mt *)
measured	NA	4	NA
indicated	NA	341	NA
inferred	33	11	NA
<b>Area of operation</b>	Cook Islands	CCZ	CCZ/Norway

\* Conditioned on conversion of the MoU into contract



# Green Minerals summary

- **A pioneer and frontrunner in marine minerals in Norway**
- **Green Minerals signs MoU on large nodule license in CCZ**
- **Opening decision in Norway 5-8 months expected, public consultation completed this week**
- **USA and the EU declare > 30 minerals critical to national security**
- **Large Oil&Gas contractors starting to position in DSM industry, shedding light on industry values**





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Q&A