

Ócean GeoLoop

## **Company Presentation**

May 2024

**Overview** 

## Green, disruptive technologies with a global reach



Escalating emissions increase the global temperature, resulting in a major climate crisis



Man-made emissions causing ecosystem collapse and loss of biological diversity in the oceans



A growing world population requires an increasing amount of sustainable, local resources (energy, food, materials)

## Selected partners - a strong network



## Increasing customer interest

- Strong increase in customer interest in 2024, from both existing and new industries. Based on current dialogues, we expect to increase the portfolio of contracted customer studies in 2024.
- Strong progress in the ongoing feasibility study for quicklime producer NorFraKalk, expected to be finalized in September.
- We are proud to see the strong preliminary results from the study at NorFraKalk, documenting the performance of the company's carbon capture technology for the quicklime and cement industry.
- The company has identified significant improvements for the carbon capture solution, both related to energy consumption and capex.
- Continued high level of interest in our pilot and test facilities.
- OGL Oslo office has co-located with our partner Carbon Circle to strengthen the industrial partnership.

### Go-to-market strategy

## Our first targeted projects

• Ocean GeoLoop emphasizes collaboration and strategic partnerships as means of rapid industrial scaling.

FRANZEFOSS MINERALS

Vorske Skog

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NORÐURÁL

- OGL pursues a selected number of industrial targets, representing global industry segments with large market potential.
- Such a network model allows for rapid scaling in the global markets, both through the highly international corporate and ownership structure of the targeted customer cases, through Chevron New Energies as a global reach partner, and through our EPC and supplier partners.

Pursuing selected targets representing global industry segments



### **Quicklime and cement**

# Quicklime - a significant opportunity where OGL carbon capture technology is world leading





- No available technologies for largescale capture in this segment today.
- 1 ton of quicklime = ~1 ton of CO<sub>2</sub>
- World production is ~430 million tonnes.
- China is the largest player with ~310 million tonnes.
- 20 million tonnes in legacy production in the EU plus new projects in early stages.
- IRA combined with a strong partner In the US makes this a highly attractive market for OGL.



### **Quicklime and cement**

## NorFraKalk preliminary results indicate a strong fit for quicklime and cement

- Initial capture rate exceeding 90% and product gas purity of 95% are strong parameters.
- The corresponding energy consumption will be communicated before summer.
- Franzefoss Minerals' subsidiary NorFraKalk and Ocean GeoLoop are currently executing a feasibility study for a 10,000 tonnes pilot, as a step towards full-scale carbon capture.
- Franzefoss Minerals operates one of Europe's largest sources of limestone, located in Mid-Norway.
- The source is large enough for several hundred years of production and CCUS is their license to operate.
- Ambitions to double today's production of ~250,000 tonnes of quicklime in the near future.





## Clear goal



We want to contribute to developing the most energyefficient and environmentally friendly technology possible, which is also suitable for capturing  $CO_2$  at our lime kilns. This is the background for our partnership with Ocean GeoLoop.

#### Hanne Markussen Eek

CEO of Franzefoss Minerals AS\* and Chair of the Board of NorFraKalk AS.



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## Ocean GeoLoop's technology strategy

Ocean GeoLoop's overall technology strategy is to deliver disruptive technology to the market making carbon capture applicable in industries that today have demanding conditions for establishing this as a solution for decarbonization. In other words, we push for technologies that can be used with attractiveness everywhere.

Ocean GeoLoop's baseline technology is an all-electric technology for  $CO_2$  separation. Such an approach poses numerous advantages, directly enabling  $CO_2$  capture for the many emission points without waste energy. The disruptive part is the planned embedded electricity generation technology, the e-Loop. Successful proof of this technology would support the capture process, thus making  $CO_2$  capture possible in areas and regions where there is currently lack of power. Further, access to electricity provides the basis for efficient utilization of  $CO_2$  through a variety of existing or emerging utilization technologies as illustrated to right.





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### Pre-wash of the flue gas

Our carbon capture process

A water-based method is used to pre-treat the flue gas to eliminate acidic components and other pollutants that may affect the capture process.



### Absorption

The pre-treated gas proceeds to an absorption step drawing the  $CO_2$  out from the remaining flue gas.

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### Desorption

The  $CO_2$  is separated, and the liquid is recycled to the absorption module. The process is not dependent on thermal energy input, resulting in uncomplicated integration with the host.



## Ocean GeoLoop

- clean and green carbon capture



End-of-pipe solution - *simple integration* 



Universal absorption technology *- fits a range of emission points* 



Non-toxic, non-amine, highly stable and safe -no use of hazardous chemicals or other common HSE concerns



Fully autonomous operations - ease of operation and low staffing requirements



Electrically driven pressure swing process - no need for access to waste heat.



Further energy optimization potential through utilization of waste heat and OGL's  ${\tt eLoop}$ 

## High level technology strategy towards disruptive cost levels



### High level timeline

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## High level timeline within the CCUS Business area\*



Source: The Company

\*) High level timeline for the entire business roll-out to be presented in the Half Year Report 2024, September 5

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