

Tivan Seabed Mining

Thomas Hansen

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Rare earth metal demand is growing, and we plan to revolutionize how this mining takes place.



80% of the worlds cobalt lies in the ocean

Seabed mining is an untapped market that will be a major part of the mining industry in the future

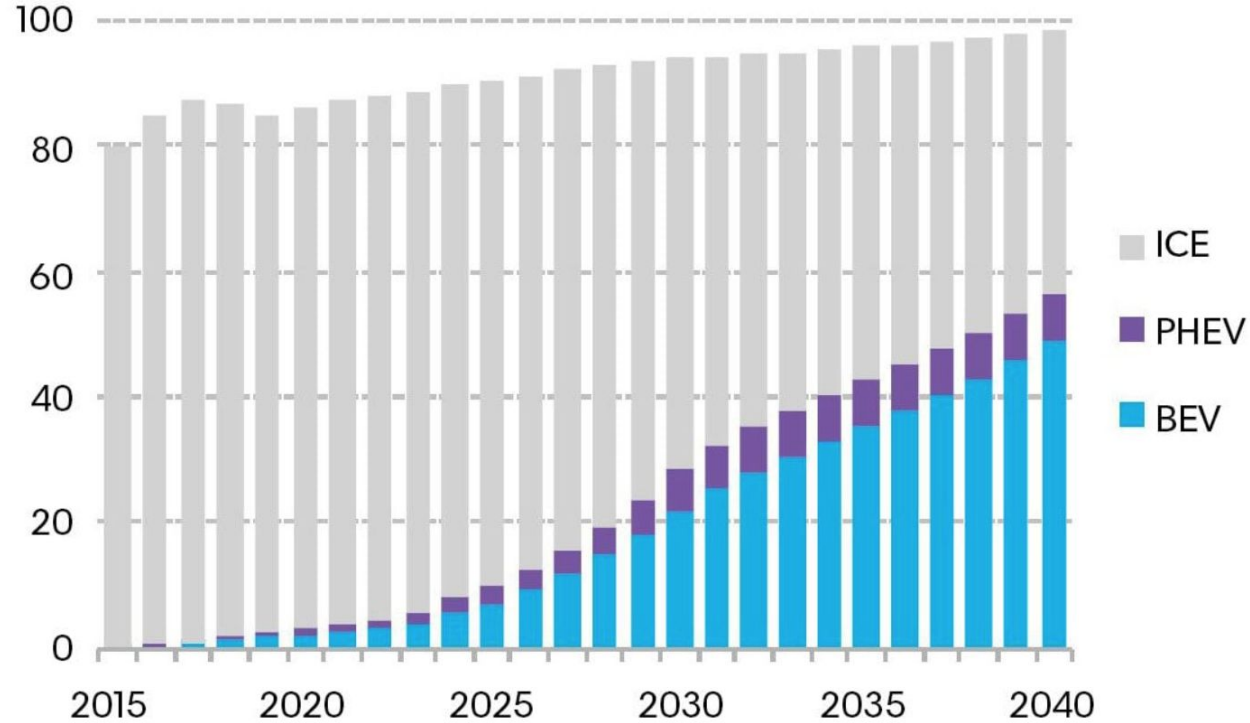
Problem to Solve

Electric Vehicle market is expanding due to governmental pressure and improving technology

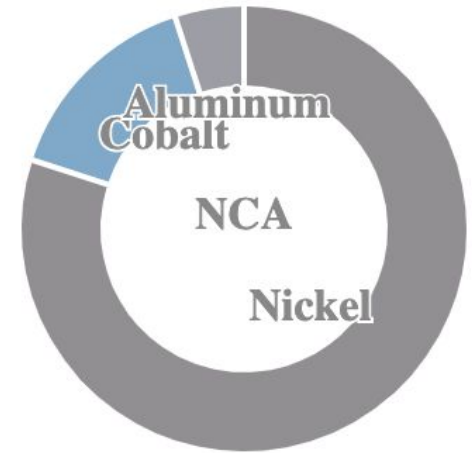
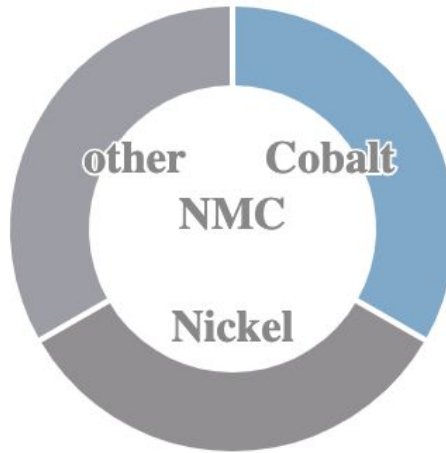
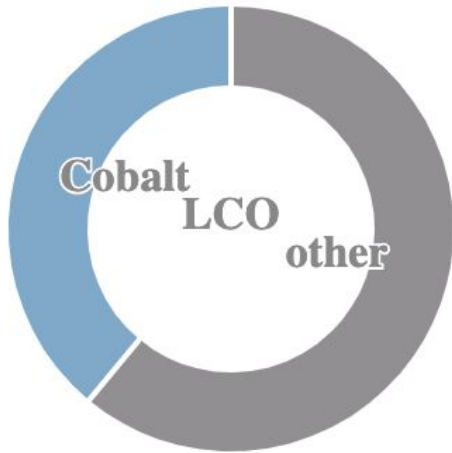
BloombergNEF suggests by the mid 2020's the EV market could be 3x the size of what it is now

Global long-term passenger vehicle sales by drivetrain

Million vehicles



Source: BloombergNEF



Electric car batteries all use at least some of the metals mined from the seabed, including nickel, cobalt, manganese, and copper. Most common among EV's are NCA and NCM

What we're doing

We're building an autonomous system to mine polymetallic nodules from the seabed floor in a cost-effective manner

The rapid improvement of reliable satellite internet is making remote autonomous systems feasible

The absence of multi-kilometer pumps and crushing equipment on our system greatly reduces costs to operate and mine

History of Seabed Mining and Demand

War in congo
region drove the
price up to 250k
per metric ton
1977

ISA formed by
UN
1994

Second Congo
War drives up
price again
2008

1980
DSHMR Act is
enacted

1995
First Congo war
drove up cobalt price

2018
Speculation drives up
price of cobalt for it to
collapse back



Market and Consumers

The USGS says the raw nickel, copper, manganese, and cobalt markets in 2018 were worth 13.24 billion dollars in the US.

29 companies currently have plots reserved on the seabed, have demonstrated they have the financial means to carry out a full mining operation, but have no plans for excavation because the equipment isn't feasible.



Competition

Nautilus Minerals

First and only company to have applied for an excavation permit from the ISA.

Mining for gold off the shores of Papua New Guinea, but due to high complexity costs and staff the company's future is uncertain.

DeepGreen Metals

DeepGreen tried to use a method similar to Nautilus where they would crush the nodules and pump them back up, but their system can only be profitable if the price of cobalt remains exceptionally high



16-22 months

Until our system will pay for the platform and drone costs, bringing in 350k to 500k per month at current metal prices

Use of Funds

Looking for 450k to continue seabed exploration, apply for license through the NOAA, and complete the environmental report

1,108k will be able to hire a team of 4 for 18 months to complete plans on retrofitting a barge for metal extraction and test deep water drones

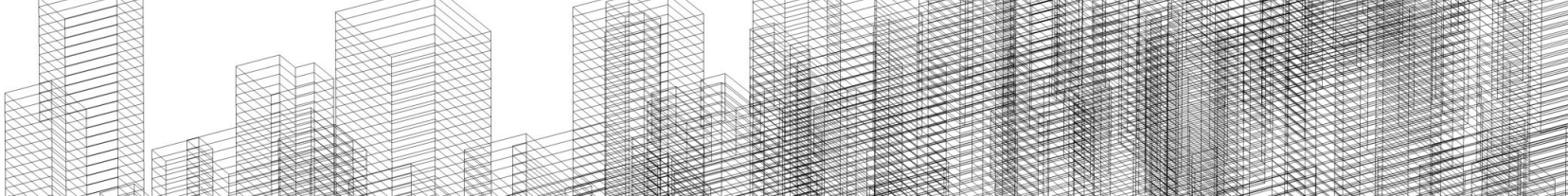
100k to apply for an excavation license

Here we could raise further funds for construction of the platform, or we have the option of an IPO (since mining operations exist under separate rules)

Team

Thomas Hansen, CEO - Electrical engineer and computer science major

Michael Zhou, CFO - Economics and math major, has family and personal connections to the mining industry in China where 85 to 90% of all rare earth metals refining takes place



Contacts

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