the metals company

Securing Battery Metals for Surging EV Demand

April 2022

Forward looking statements.

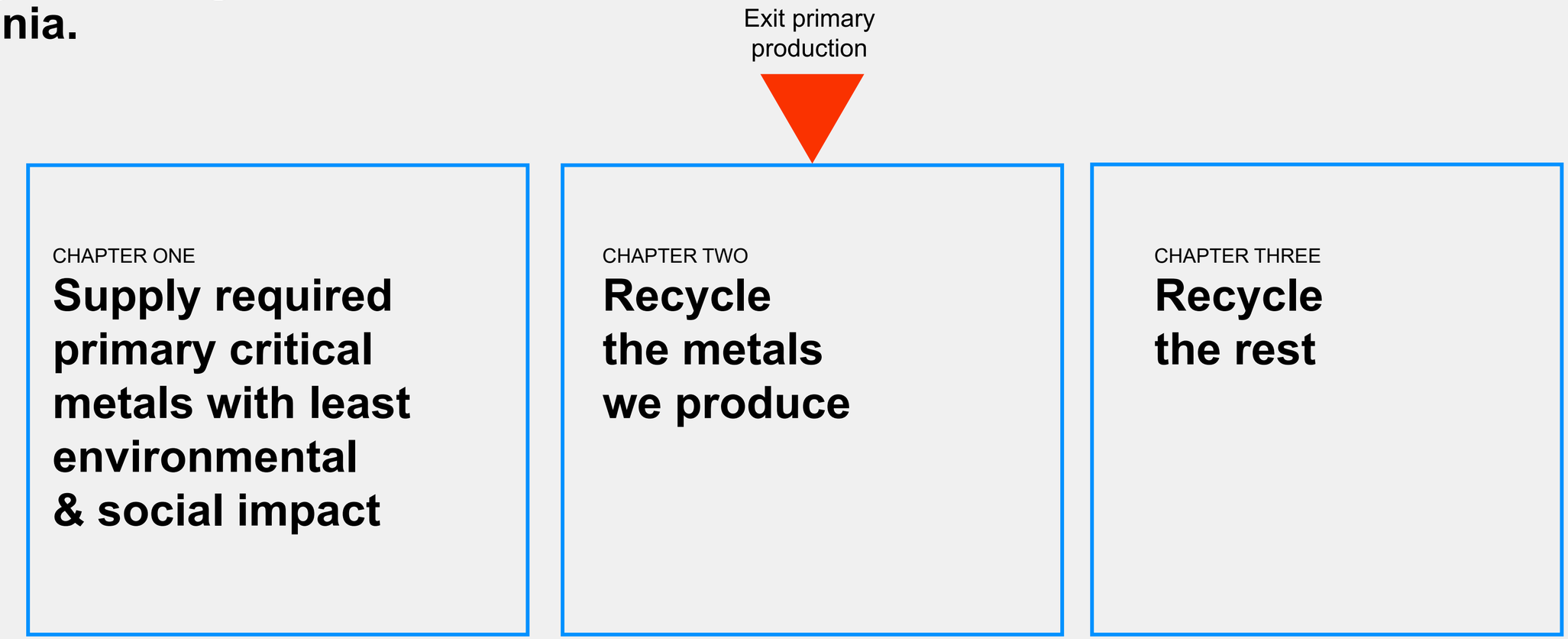
Certain statements made in this press release are not historical facts but are forward-looking statements for purposes of the safe harbor provisions under The Private Securities Litigation Reform Act of 1995. Forward-looking statements generally are accompanied by words such as “believe,” “may,” “will,” “estimate,” “continue,” “anticipate,” “intend,” “expect,” “should,” “would,” “plan,” “predict,” “potential,” “seem,” “seek,” “future,” “outlook” and similar expressions that predict or indicate future events or trends or that are not statements of historical matters. These forward-looking statements involve significant risks and uncertainties that could cause the actual results to differ materially from those discussed in the forward-looking statements. Most of these factors are outside TMC’s control and are difficult to predict.

Factors that may cause such differences include, but are not limited to: regulatory uncertainties and the impact of government regulation and political instability on TMC’s resource activities; changes to any of the laws, rules, regulations or policies to which TMC is subject; the impact of extensive and costly environmental requirements on TMC’s operations; environmental liabilities; the impact of polymetallic nodule collection on biodiversity in the CCZ and recovery rates of impacted ecosystems; TMC’s ability to develop minerals in sufficient grade or quantities to justify commercial operations; the lack of development of seafloor polymetallic nodule deposit; uncertainty in the estimates for mineral resource calculations from certain contract areas and for the grade and quality of polymetallic nodule deposits; risks associated with natural hazards; uncertainty with respect to the specialized treatment and processing of polymetallic nodules that TMC may recover; risks associated with collective, development and processing operations; fluctuations in transportation costs; testing and manufacturing of equipment; risks associated with TMC’s limited operating history; the impact of the COVID-19 pandemic; risks associated with TMC’s intellectual property; and other risks and uncertainties, including those in the “Risk Factors” sections, included in the final prospectus and definitive proxy statement, dated and filed with the Securities and Exchange Commission (the “SEC”) on August 12, 2021 relating to the business combination, in TMC’s Quarterly Report on Form 10-Q for the quarter ended September 30, 2021, filed by TMC with the SEC on November 15, 2021, and in TMC’s other future filings with the SEC. TMC cautions that the foregoing list of factors is not exclusive.

TMC cautions readers not to place undue reliance upon any forward-looking statements, which speak only as of the date made. TMC does not undertake or accept any obligation or undertaking to release publicly any updates or revisions to any forward-looking statements to reflect any change in its expectations or any change in events, conditions, or circumstances on which any such statement is based except as required by law.

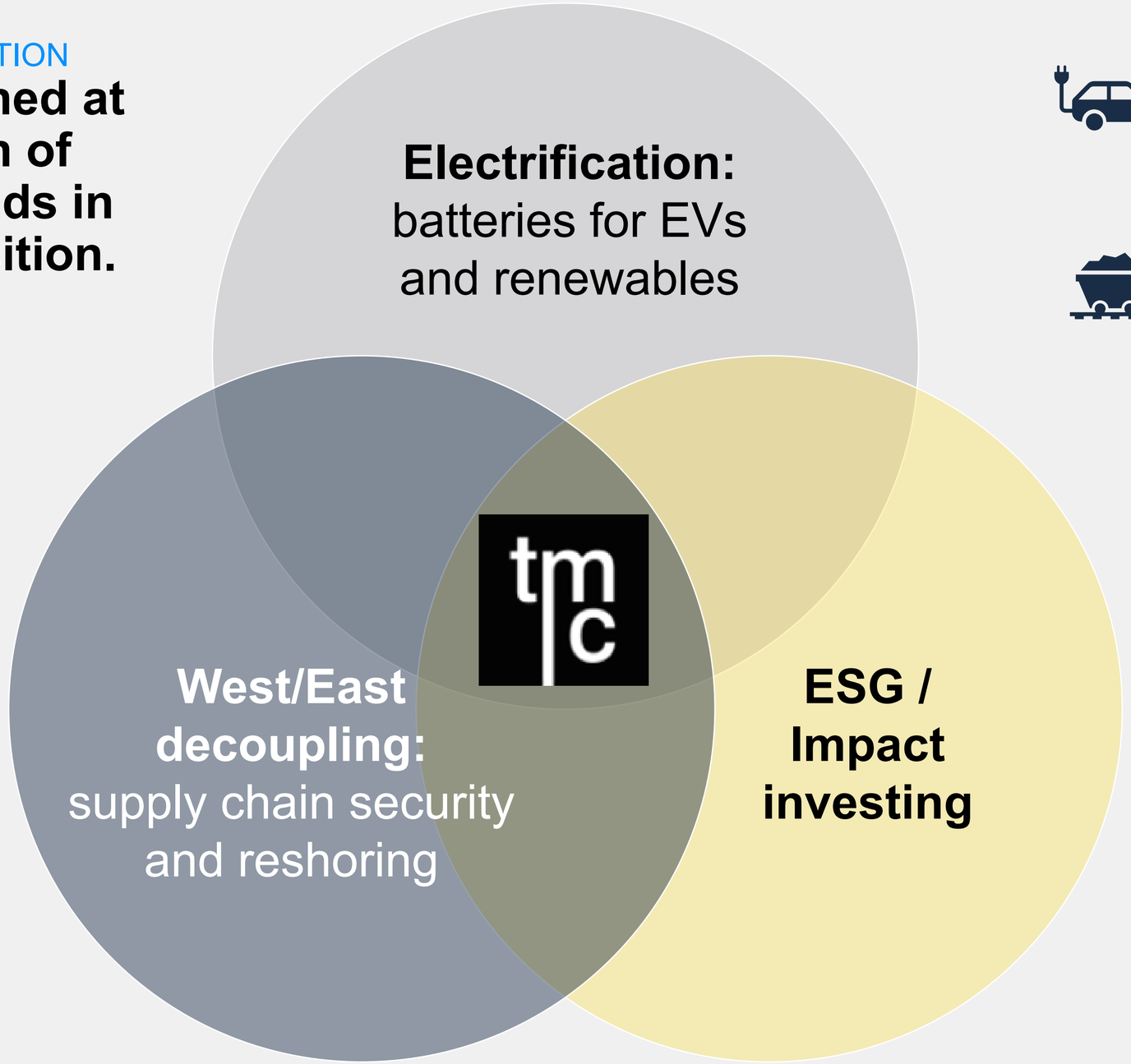
COMPANY

Our mission is to build a carefully managed metal commons that will be used, recovered, and reused again and again — for millennia.



OUR VALUE PROPOSITION

TMC is positioned at the intersection of three megatrends in the green transition.



$5 trillion

Total addressable market for EVs over the next decade[1]

$2 trillion

Cumulative mining investment required to limit rise in global temperatures to 2°C[2]

[1] Dan Ives, Wedbush Securities.
[2] Wood Mackenzie.


Video available at metals.co

BEFORE WE GET STARTED

Who is TMC? 100% focused on polymetallic nodules.

Established in 2011

33 direct team members – distributed in four hubs

More than 500 people working on the project through partnerships (e.g. science team, environmental team)

Incorporated in BC (Canada), listed on NASDAQ: TMC

Cash balance at September 30, 2021 = US$113M

Current cash expected to fund operations to application for exploitation contract in Q3 2023

Tier 1 partners / investors

GLENCORE MAERSK Allseas HATCH

OUR TEAM

Board of Directors: independent, mission-aligned and diverse, with 50/50 gender parity.

Gerard Barron
Chairman & CEO

adstream
NAUTILUS Minerals

Andrew Hall
Lead Independent

SIEMENS
A2Sea

Kathleen McAllister
Expected Audit Chair

Transocean PARTNERS LLC

Sheila Khama
Sustainability Chair

DE BEERS GROUP
THE WORLD BANK

Amelia Kinahoi Siamomua
Sustainability

The Commonwealth

Gina Stryker
Audit / Comp

Shell GenOn

Christian Madsbjerg
Nom & Gov Chair

RED ASSOCIATES
A COGNIZANT DIGITAL WORKS PARTNER

Andrei Karkar
Comp Chair

ERAS Holdings
ERAS Capital

OUR TEAM

Experienced leadership team.

NEOs

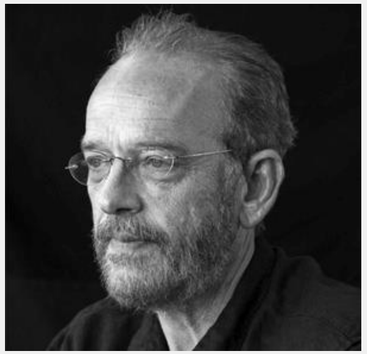
Gerard Barron
Chairman & CEO

Craig Shesky
CFO

Tony O'Sullivan
Chief Develop. Officer

Christelle Gedeon
Chief Legal Officer

Erika Ilves
Chief Strategy Officer



Dr Greg Stone
Chief Ocean Scientist

Erica Ocampo
Chief Sustainability Officer

Corey McLachlan
Head of Sponsoring State and ISA Relations

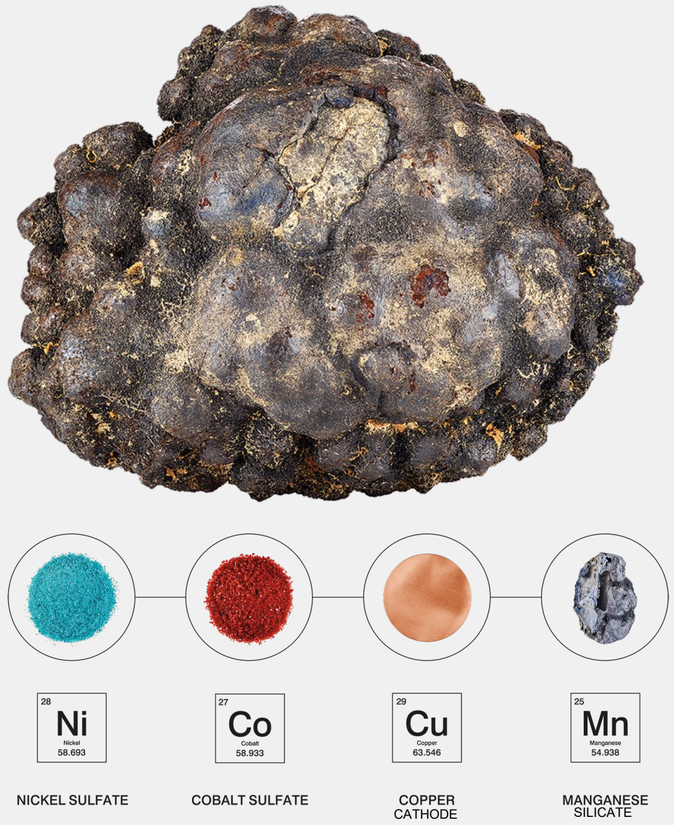
Jon Machin
Head of Offshore Engineering

Dr Mike Clarke
Environmental Program Manager

Dr Jeff Donald
Head of Onshore Processing

SUMMARY OF TMC VALUE PROPOSITION

Why nodules? Abundant, secure, low production cost and low ESG cost supply of metals.



Abundant

TMC is developing the world's largest estimated source of battery metals with enough nickel, copper, manganese and cobalt *in situ* to potentially electrify 280 million EVs[1]

Secure

Located on the abyssal seafloor in the international waters regulated by the International Seabed Authority, an inter-governmental organization established pursuant to the United Nations Convention on the Law of the Seas

Low production cost

Expecting to become the 2nd lowest cost nickel producer on the planet[2], reflecting high grades with four battery metals in high concentrations in a single resource

Low ESG cost

Expected 70-99% reduction of lifecycle ESG impacts, including near-zero solid processing waste, 90% less CO_2 equivalent emissions[3]

$21 billion NPV for 1st project, ~35x market cap

$21 billion net present value at current metal prices for NORI-D, TMC's first project representing 22% of the company's estimated resource[4]

[1] Assuming 75kWh batteries with NMC811 chemistry and nodule resource grade and abundance, "Where Should Metals for the Green Transition Come From?", Paulikas et al, LCA white paper, April 2020. Calculation based on estimated contained value of nickel.
[2] Canadian NI 43-101 Compliant Preliminary Economic Assessment (PEA) for NORI-D Area, AMC, February 2021; Metals Cost Curve, Wood Mackenzie, August 2020.
[3] "Where Should Metals for the Green Transition Come From?", Paulikas et al, LCA white paper, April 2020. "Life cycle climate change impacts of producing battery metals from land ores versus deep-sea polymetallic nodules", Paulikas et al, December 2020.
[4] Canadian NI 43-101 and SEC Regulation S-K (Subpart 1300) Compliant NORI Area D CCZ Mineral Resource Estimate and associated financial model, AMC, March 2021. Current prices as of March 9, 2022 except for nickel of $30,000/t. NPV at January 1, 2021.

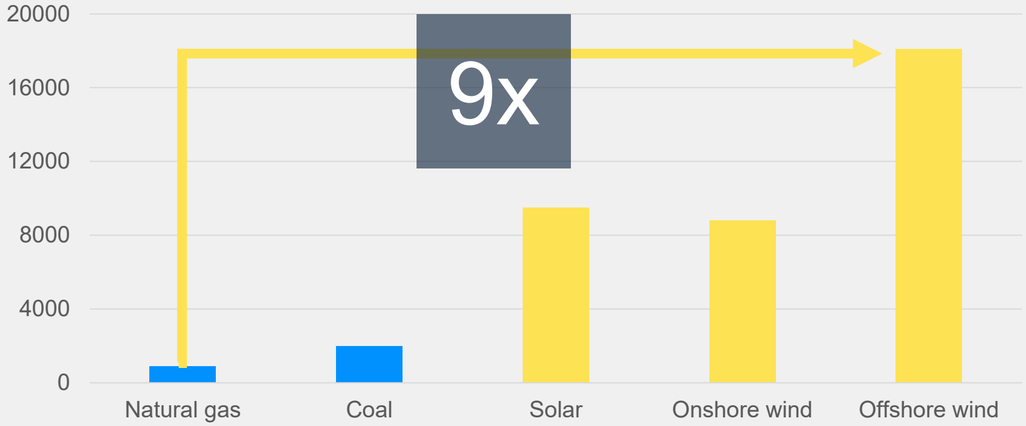
“The energy transition starts and ends with metals.”
“To hit the 1.5° C, a five-fold increase in base metal supply would be needed, requiring an investment of US$2 trillion.”
“Meeting demand could be mission impossible.”
Woodmac October 2021

Green future is metallic.

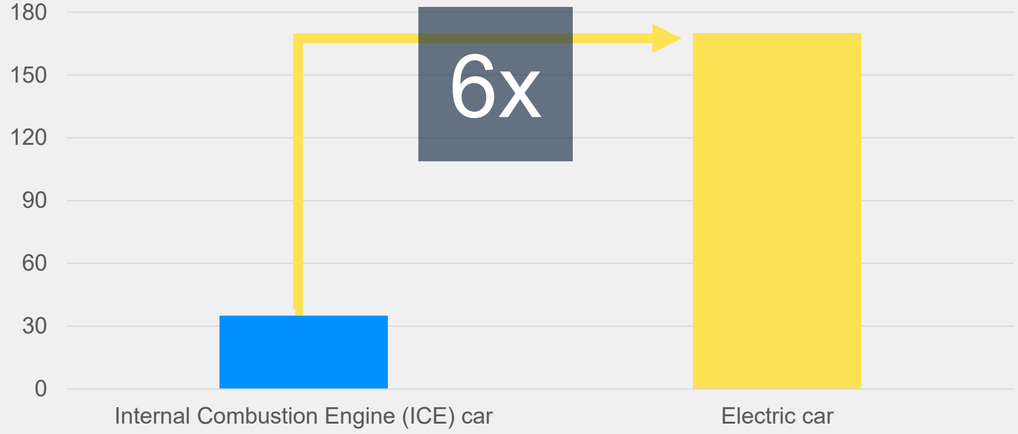
MARKET UPDATE

Exponentially greater metal intensity for clean tech = widening metal deficits.

Power plants – kg of selected minerals* per MW

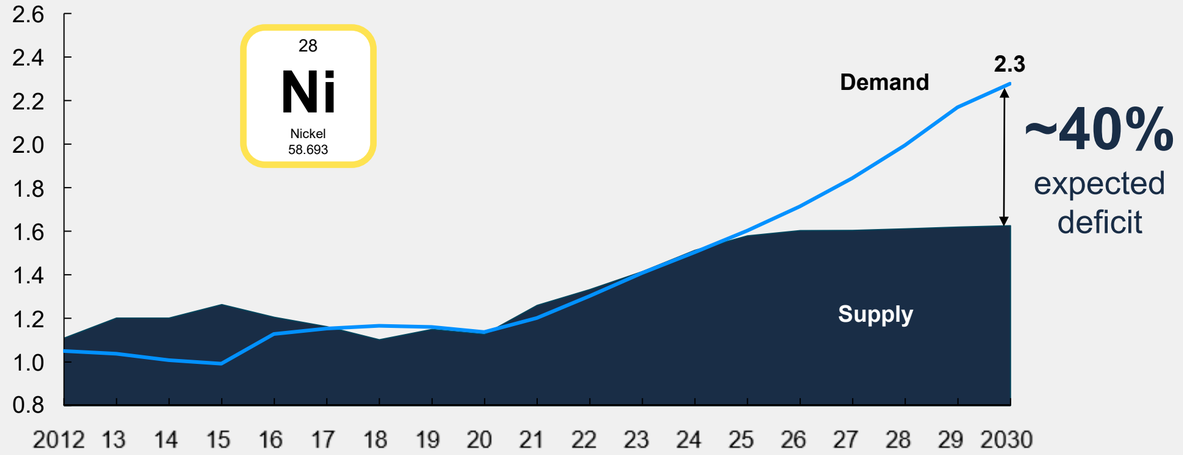


Cars – kg of selected minerals* per vehicle

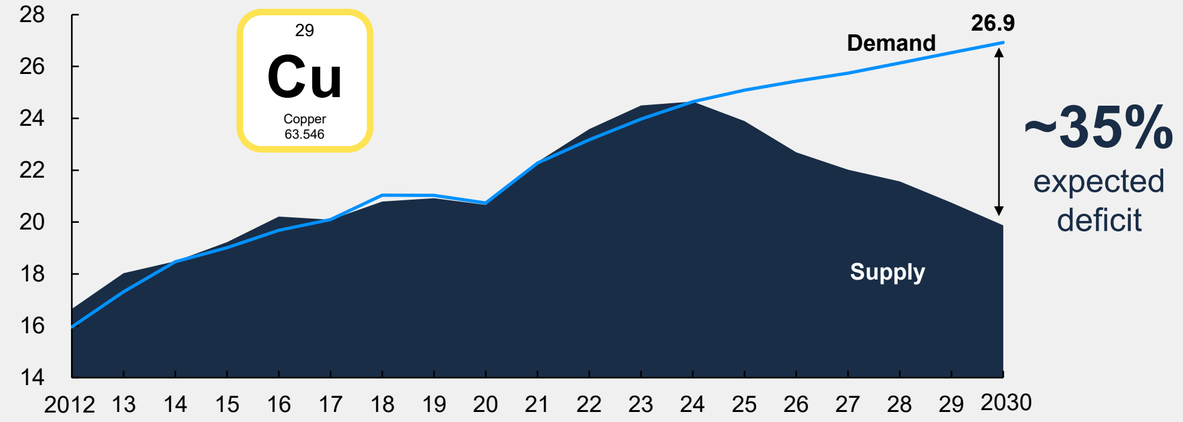


* Minerals include copper, lithium, nickel, manganese, cobalt, chromium, molybdenum, zinc, rare earths, silicon, others.
Source: Minerals used in selected power generation technologies, IEA, Paris, May 6, 2020

Nickel class 1 supply and demand w/o greenfield, in Mt[1]



Copper supply and demand w/o greenfield, in Mt[2]

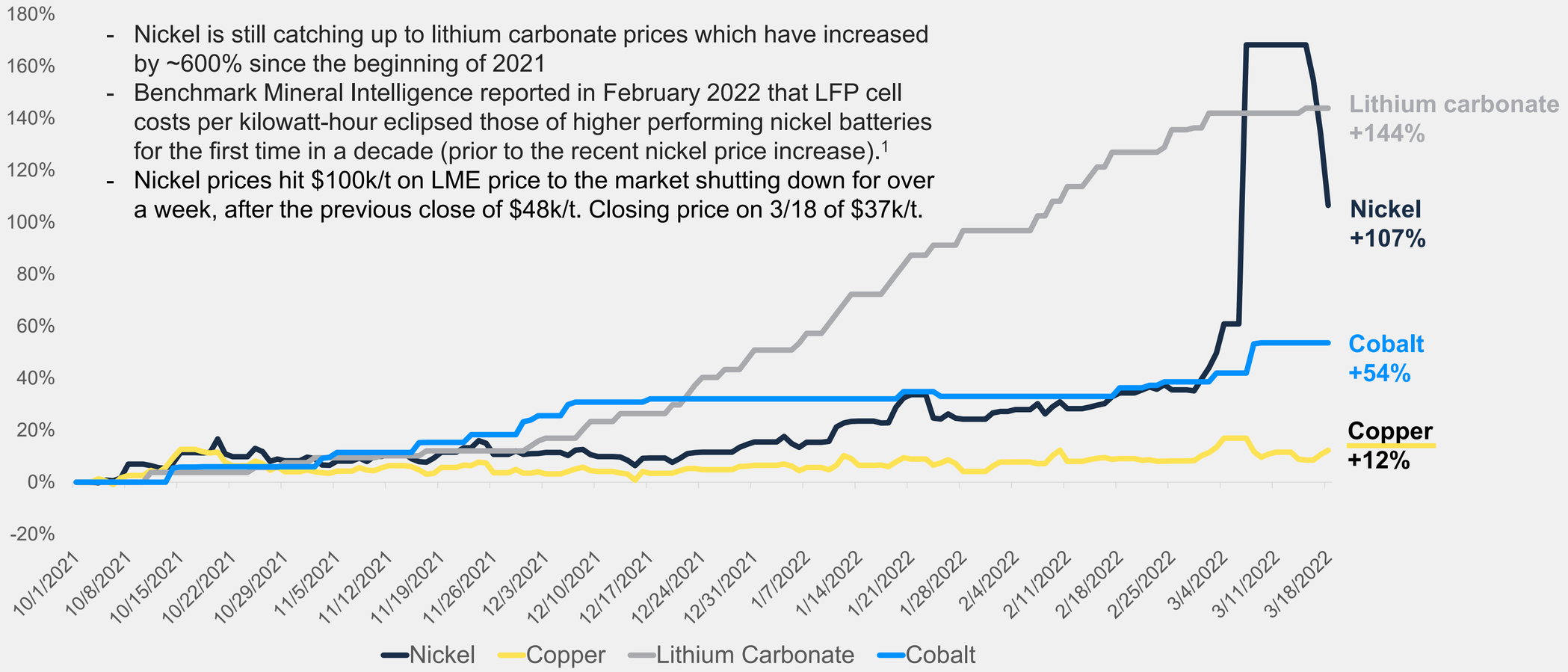


[1] "How clean can the nickel industry become?", McKinsey, September 2020.
[2] Q4 2020 Copper Long Term Outlook, Wood Mackenzie.

MARKET UPDATE

Since the beginning of Q4 2021, prices for certain critical metals have skyrocketed.

- Nickel is still catching up to lithium carbonate prices which have increased by ~600% since the beginning of 2021
- Benchmark Mineral Intelligence reported in February 2022 that LFP cell costs per kilowatt-hour eclipsed those of higher performing nickel batteries for the first time in a decade (prior to the recent nickel price increase).[1]
- Nickel prices hit $100k/t on LME price to the market shutting down for over a week, after the previous close of $48k/t. Closing price on 3/18 of $37k/t.



Source: Bloomberg as of March 18, 2022. Manganese 44% ore price assessment increased by approximately 25% since 9/30/21 on price.metal.com

[1] https://www.benchmarkminerals.com/membership/rising-lithium-prices-push-lfp-battery-cell-costs-above-high-nickel/

MARKET UPDATE

Increasingly recognized as a potential game-changer for EV metals by policy organizations and the gov’ts of the world’s largest economies.

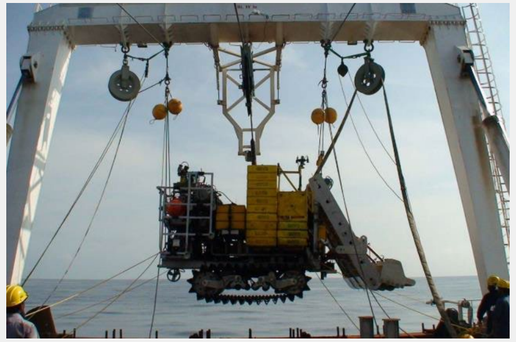
US Geological Survey, *Mar 2020:* “Deep-ocean mining can not only deliver the metals necessary for this [clean energy] transition but can do so with a low carbon footprint…The enormous amount of marine mineral resources, and the development of technology to access them, makes deep-ocean contributions to the production of critical minerals seem inevitable.”

G20 Environment Ministers, call for action on our ocean and seas, *July 2021*
In the context of the ISA, we support the development of International seabed mining regulations …We encourage the provision of financial, technological and capacity building support to developing countries especially to the least developed countries…”

International Renewable Energy Agency, *Mar 2022* “Subsea manganese nodules…contain around 1.3% nickel…Studies suggest that the environmental impact will be limited. This resource could become an important source of nickel and other metals in the coming decade.”

China

- Holds 3 nodule contracts, more than any other country
- Investment in deep-sea exploration and resource exploitation deemed a national priority (one of “three deeps”)



India

- Holds 1 nodule contract
- Prime Minister Modi approved in June 2021 $600M budget for the next 5 years for “Deep Ocean Mission”, including integrated mining system for mining polymetallic nodules

France

- Holds 1 nodule contract
- President Macron announced €300M+ investment in deep-sea nodule exploration as part of France 2030 Investment Plan, citing it as a key to independence and reindustrializing the country

Indonesia

- Working with the ISA on domestic legislation on seabed mining—a prerequisite to sponsoring/applying for an ISA exploration contract

Source: “China’s Deep Ocean Dives May Not Be Quite What They Seem,” Adam Minter, Bloomberg, 22 October 20201; “Emmanuel Macron Makes the Exploration of the Deep Seabed a Priority of France 2030”, Alain Jeannin, AFP, October 13, 2021; ISA Press Release 15 October 2021; Cabinet Approves Deep Ocean Mission, Press Release by the Government of India Cabinet Committee on Economic Affairs, 16 June 2021.

MARKET UPDATE

Letters in support of seafloor nodules recently sent by US political and military leaders to the Biden administration.

UNITED STATES SENATOR FOR ALASKA
LISA MURKOWSKI

→

U.S. DEPARTMENT OF ENERGY

Senator Lisa Murkowski (R-Alaska) to US Secretary of Energy, February 2022:

"New and abundant sources of supply, such as polymetallic nodules, offer a pathway to mineral security for the United States…

Given the sheer scale of the potential contribution, it would seem that any credible analysis of critical battery metal supply chains must include sea floor resources. Does DOE intend to undertake a strategic assessment of the role polymetallic nodules can play in addressing US needs and shoring up our supply lines?"

17 retired Army, Navy, Air Force and Marine senior officers with 595 total years of service:

→

U.S. DEPT OF DEFENSE

Letter in support of seafloor nodules from 17 retired generals, admirals and officers to US Secretary of Defense, February 2022:

"The US should consider responsible development of polymetallic nodules…as a potential game-changer for US critical mineral supply lines…

The [CCZ]…is a proven critical resource estimated to contain 3.4 times more cobalt, 1.8 times more nickel, and 1.2 times more manganese than all known land-based reserves combined. Therefore, any strategic planning should include a careful examination of this resource as a more secure and sustainable route to a green-energy future with lower planetary impact…"

MARKET UPDATE

Ambitious gigafactory plans without plans to supply them.

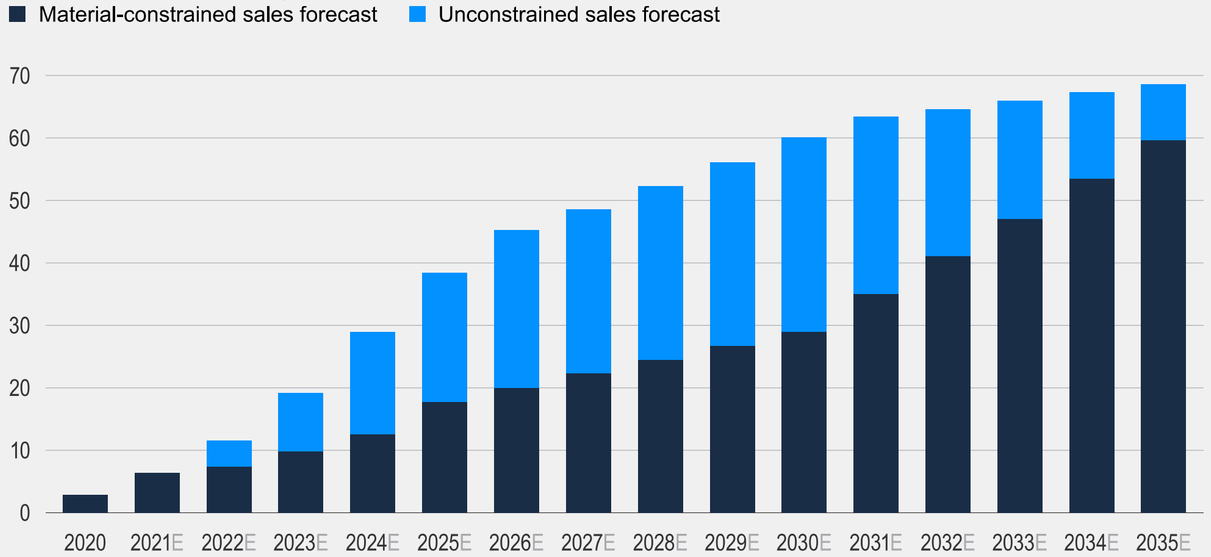
Company	State	GWh
Tesla	Texas	100
Ford / SK Innovation	Kentucky	86
Ultium	Tennessee	70
Tesla / Panasonic	Nevada	60
Freyr	TBD	50
Ford / SK Innovation	Tennessee	43
Stellantis / LG Energy Solution	TBD	40
Toyota	TBD	40
Daimler	Alabama	40
Ultium	Ohio	30
Stellantis / Samsung SDI	TBD	30
SK Innovation	Georgia	22
Kore Power	Arizona	12
Tesla	California	12
LG Energy Solutions	Michigan	5
Envision	Tennessee	3
iM3NY	New York	2
TOTAL		**645**

Source: BNEF, October 2021; public announcements

Expected lithium-ion gigafactories in the United States, 2030

By 2030, 30+ million EVs per year could be left unbuilt due to material shortages

Millions of units sold per year



Source: BM Review, Westbeck Capital estimates

MARKET UPDATE

Where will battery metals for US gigafactories come from?

"US-based OEMs would not be able to fulfil up to 35 million orders for EVs by 2030."
Steve LeVine, The Electric, October 31, 2021

"Battery supply is unlikely to keep up. Rising raw material costs could derail uptake. Alternative strategies would be needed."
WoodMac October 2021

"Battery cell prices are rising for the first time in gigafactory era, driven by hikes in raw material prices."
Benchmark Minerals, October 2021

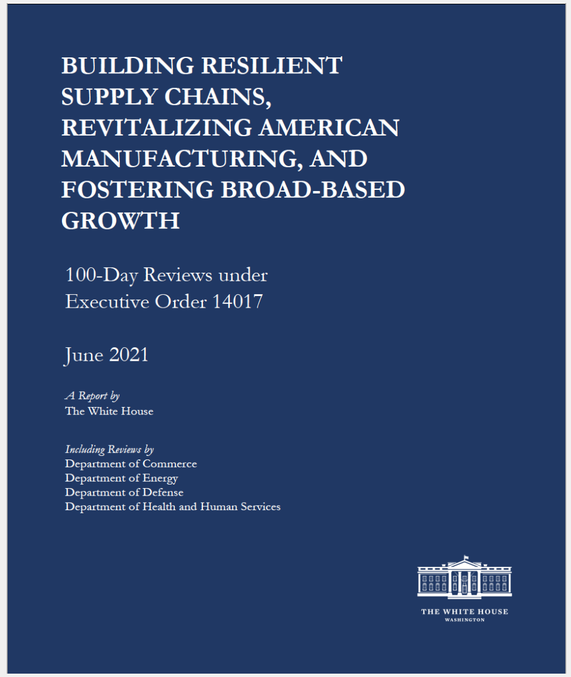
Metal requirements, reserves and production

Metal	Requirements to fully electrify US car sales ktpa[1]	US production ktpa[2]	US resources kt[2]	TMC NORI & TOML resource kt[3,4]
Lithium	189	-	630	-
Nickel	1,273	14	110	5,555
Cobalt	160	0.5	55	813
Manganese	148	-	-	123,920
Copper	1,533	1,300	51,000	4,709

[1] Total battery cell manufacturing capacity required to electrify US car sales. Estimates taken from June 2021 100-Day Review of Critical Minerals Supply Chain
[2] USGS 2021; White House 100-Day Review under Executive Order 14017
[3] Canadian NI 43-101 and SEC Regulation S-K (Subpart 1300) Compliant NORI Area D Clarion Clipperton Zone Mineral Resource Estimate and associated financial model, AMC, March 2021.
[4] Canadian NI 43-101 Resource Statement for full field financial model (internal DeepGreen development scenario).

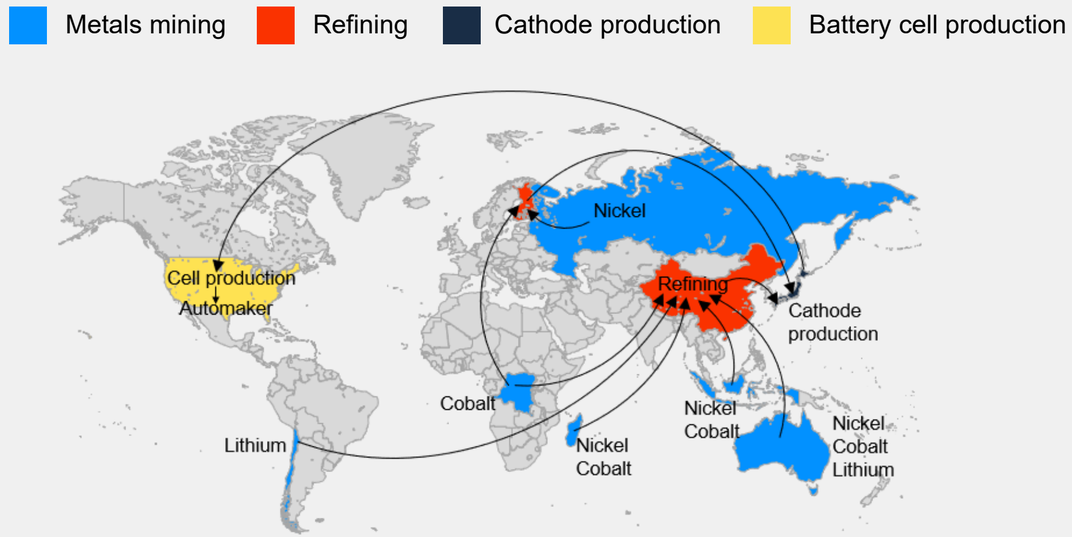
MARKET UPDATE

Biden administration is worried about metal dependence on China. Polymetallic nodules can shorten and re-shore the EV metal supply chain in the US.

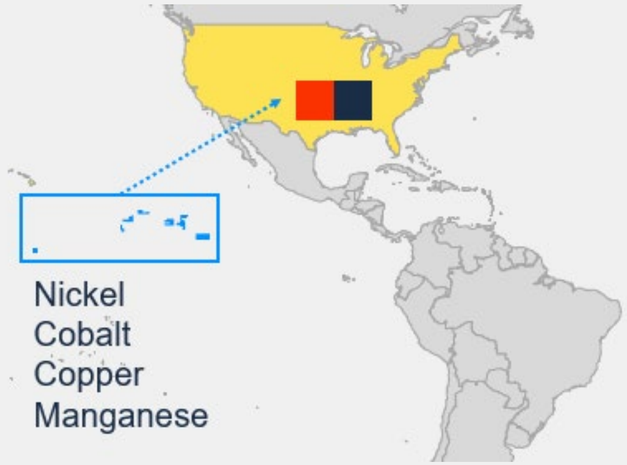


- "Currently, the US has limited raw material production capacity and virtually no processing capacity."
- "There could be a large shortage of Class 1 nickel in the next 3-7 years. If there are opportunities for the US to target one part of the battery supply chain, this would likely be the most critical to provide short- and medium-term supply chain stability."
- For the second supply chain step of refining and processing, the US has an even more significant deficit than in raw production capacity as critical minerals mined in the US are often exported for processing. Increasing US processing capacity alone would bolster the supply chain…"

Status quo: ~50,000-mile supply chain controlled by China



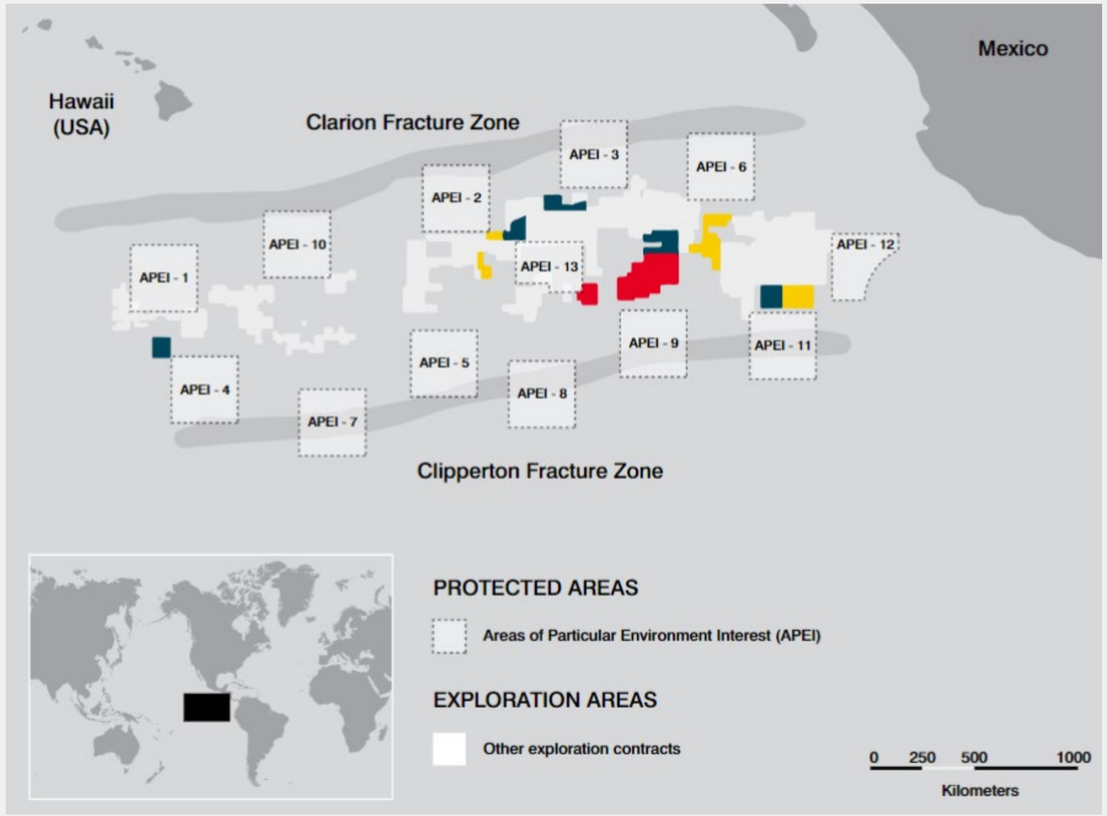
The nodule solution: ~1,500-mile supply chain re-shored in the US



Note: 50,000 miles describes the route, by land and sea, that some materials travel before reaching the car manufacturer as finished battery cells.
Source: BNEF, September 2021.

OUR VALUE PROPOSITION

SEC resource statements issued on NORI + TOML, with an *in situ* estimated resource of Ni, Cu, Co and Mn sufficient to electrify 280M EVs.[1]



TMC exploration contract area	NORI[2]	TOML[3]	Marawa
Sponsoring State	Republic of Nauru	Kingdom of Tonga	Republic of Kiribati
Exploration area	74,830 km^2	74,713 km^2	74,990 km^2
Technical resource statement	Yes	Yes	Work in progress
Estimated nodule tonnage	866[4] million tonnes (wet)	768 million tonnes (wet)	
Manganese	29.5%	29.2%	
Nickel	1.3%	1.3%	
Copper	1.1%	1.1%	
Cobalt	0.2%	0.2%	

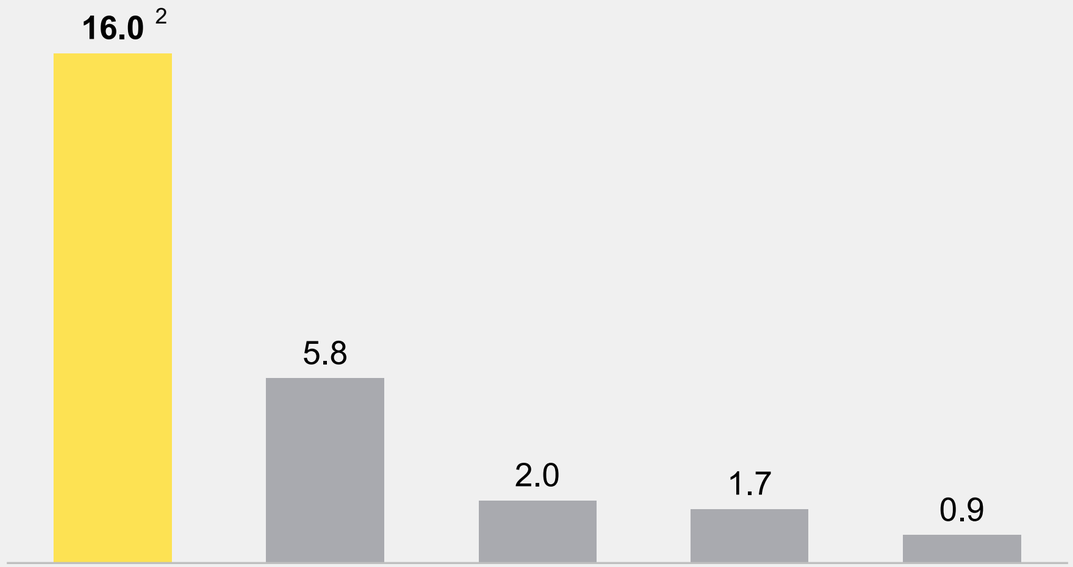
[1] Assuming 75kWh batteries with NMC811 chemistry and nodule resource grade and abundance, “Where Should Metals for the Green Transition Come From?”, Paulikas et al, LCA white paper, April 2020. Calculation based on estimated contained value of nickel.
[2] SEC Regulation S-K (Subpart 1300) Compliant NORI Clarion Clipperton Zone Mineral Resource Estimate AMC, 17 March 2021. 521 Mt Inferred, 341 Mt, 4 Mt Measured.
[3] SEC Regulation S-K (Subpart 1300) Compliant TOML Clarion Clipperton Zone Project Mineral Resource Estimate, AMC, 26 March 2021. 696 Mt inferred, 70 Mt Indicated, 2.6 Mt Measured.
[4] SEC Regulation S-K (Subpart 1300) Compliant NORI Area D Clarion Clipperton Zone Mineral Resource Estimate and associated financial model, AMC, 17 March 2021. 11 Mt Inferred @ 1.4% Ni, 1.1% Cu, 0.1% Co and 31.0 % Mn and 15.6 Kg/m2 abundance, 341 Mt Indicated @ 1.4% Ni, 1.1% Cu, 0.1% Co and 31.2% Mn and abundance 17.1Kg/m2, 4 Mt Measured @1.4% Ni, 1.1% Cu, 0.1% Co and 32.2% Mn and 18.6 Kg/m^2.

OUR VALUE PROPOSITION

TMC: largest undeveloped nickel project on the planet, and the alternative to Russian- and Chinese-controlled supply.

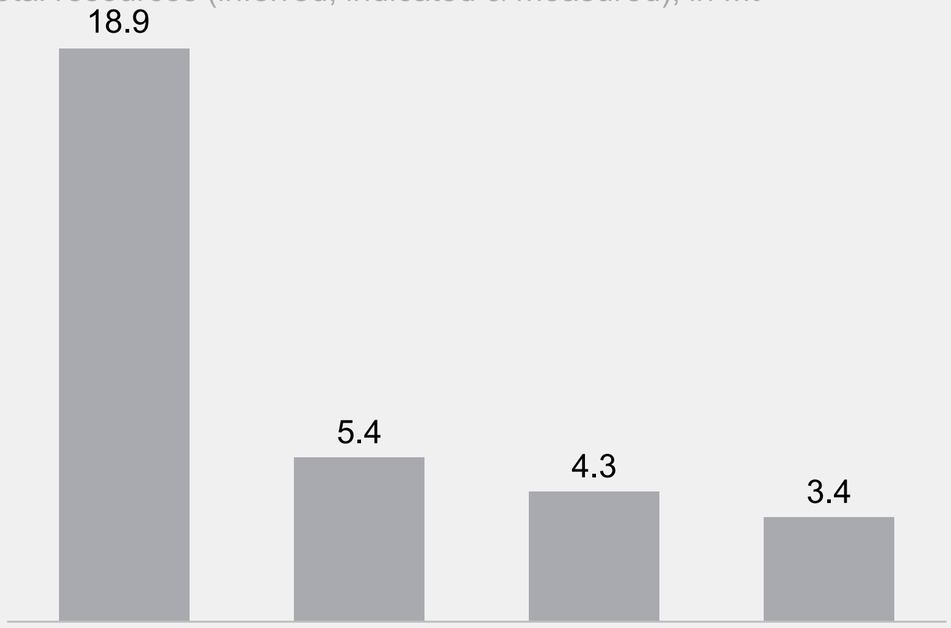
World's largest undeveloped nickel projects

Total estimated resources (inferred, indicated & measured), in Mt[1,3]



World's largest nickel producers

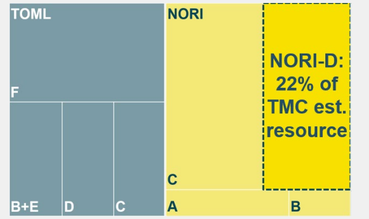
Total resources (inferred, indicated & measured), in Mt[1,3]



[1] Global Nickel Industry Cost Summary, Wood Mackenzie, August 2020; inclusive of reserves.
[2] Canadian NI 43-101 Resource Statement for full field financial model (internal DeepGreen development scenario).
[3] Asset Reports for Dumont, Wingellina, Araguaia, NiWest Laterite, Norilsk, FeNi Halmahera, Jinchuan and Koniambo, Wood Mackenzie.
[4] Nickel equivalence calculation uses NORI-D Model price deck as stated in NORI Initial Assessment available at investors.metals.co. For gold ($1,823/oz), platinum ($1,224/oz) and silver ($27/oz), spot prices as of May 12, 2021 are used.

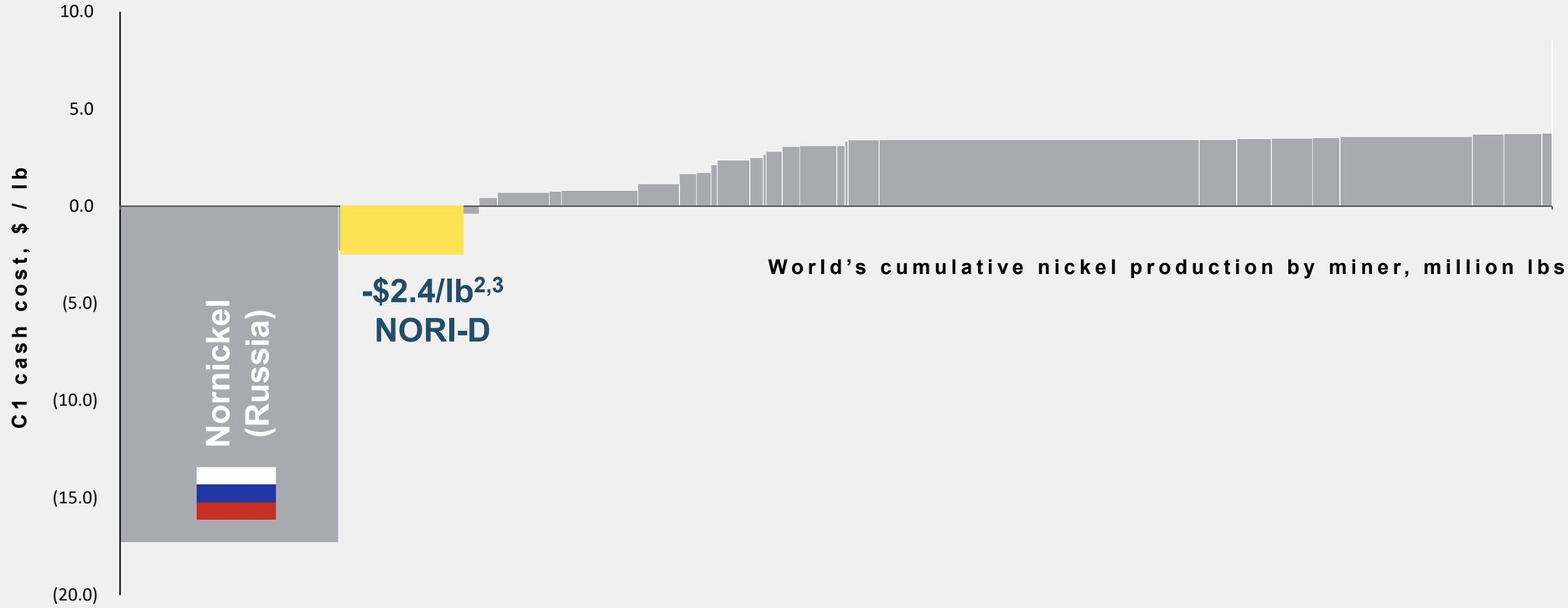
OUR VALUE PROPOSITION

We expect to become the second lowest-cost nickel producer in the world.



Nickel C1 cost curve on a by-products' basis[1]

C1 Cash Cost represents all direct costs, including mining, processing, freight, SG&A minus revenue from by-products



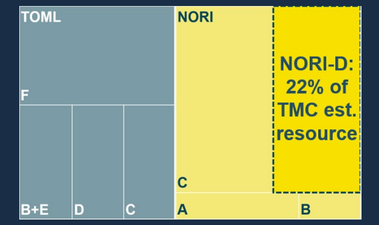
[1] Nickel C1 Cost Curve, Wood Mackenzie, August 2020.
[2] Average for the steady state years 2030-45.
[3] Canadian NI 43-101 Compliant Preliminary Economic Assessment (PEA) for NORI-D Area, AMC, February 2021.

PROJECT FINANCE

Near term focus on Project Zero, with plan to scale quickly.

Products	Production[1]
NiCuCo alloy	25Kt
Mn in silicate	303Kt

Products	Production[2]
Nickel	125 Kt
Manganese	2,903 Kt
Copper	93 Kt
Cobalt	10 Kt
Fertilizer	254 Kt

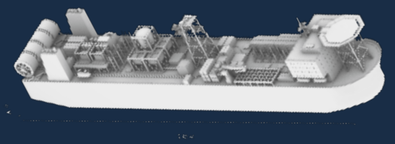


PROJECT ZERO
1.3Mt (wet)
1.0Mt (dry)

<$55M
Pre-production construction CAPEX borne by TMC to start commercial production

PROJECT ONE
12.5Mt (wet)
9.5Mt (dry)

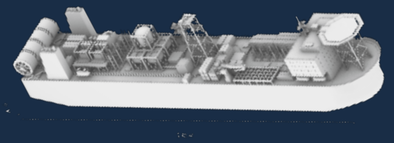
Production vessels
Hidden Gem acquired



Collector robots
Upcoming tests in Q1 2022 for pilot collector (#1)

Onshore processing term sheet
Epsilon Carbon intends to finance and build onshore facility subject to pre-feasibility report

Converted drillship



Purpose-built collection vessel

Support vessel

RKEF lines (x4)
New construction

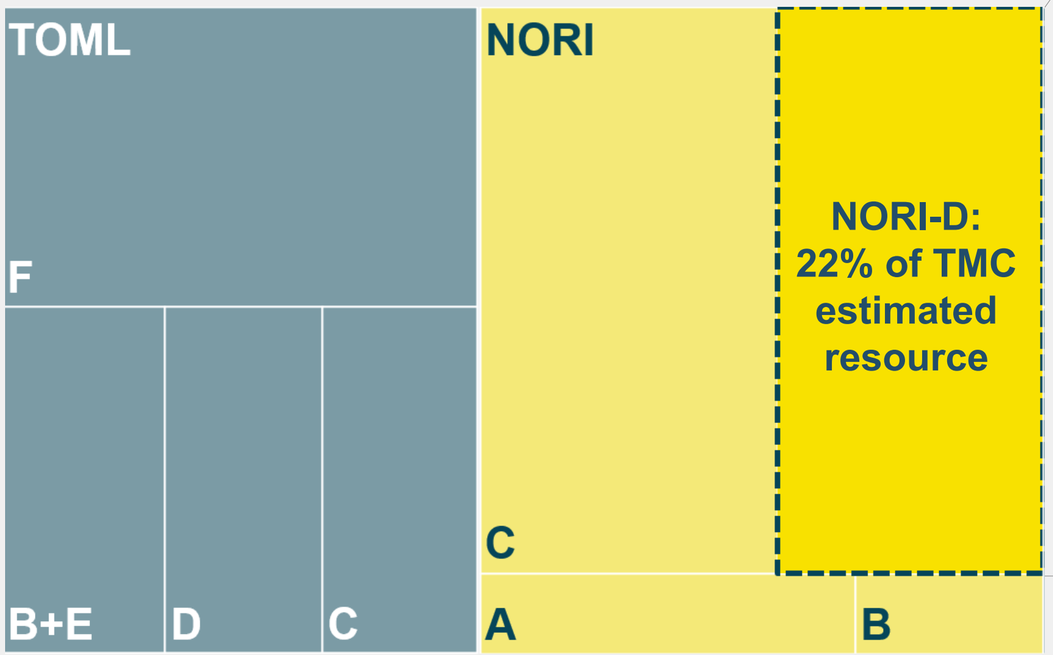
Refineries (x2)
New construction

[1] Production based on 1.3Mpta (wet) with a single subsea collector.
[4] Total NORI-D stable state production including both Project Zero and Project One, 2030-2045 average.
Source: Canadian NI 43-101 and SEC Regulation S-K (Subpart 1300) Compliant NORI Area D Clarion Clipperton Zone Mineral Resource Estimate and associated financial model, AMC, March 2021.

PROJECT ECONOMICS

Based on SEC-compliant Initial Assessment, NORI-D project estimated at $6.8 billion NPV (est. $21.4 billion using current metal prices).

Estimated resource 1,622Mt (wet) [1]



NORI-D Financial Model [2]

$ billions unless otherwise noted

Prices	CRU forecast	Mar 9, 2022 price	Increase
Nickel	$16,106/t	$30,000/t [3]	86%
Copper	$6,787/t	$10,165/t	50%
Cobalt	$46,416/t	$79,295/t	71%
Mn silicate	$4.53/dmtu	$6.89/dmtu	52%

Project economics—cumulative over project life			
Total revenue	**$95.1b**	**$161.4b**	**70%**
Nickel	44.0	82.2	
Copper	12.7	19.0	
Cobalt	10.4	18.9	
Mn silicate	27.2	40.7	
Total OPEX	**37.5b**	**37.5b**	**0%**
Total EBITDA	**57.3b**	**123.6b**	**116%**
EBITDA margin	*60%*	*77%*	*16 pts*
NPV	**$6.8 billion**	**$21.4 billion**	**+215%**

[1] Canadian NI 43-101 Resource Statement for full field financial model (internal DeepGreen development scenario).
[2] Canadian NI 43-101 and SEC Regulation S-K (Subpart 1300) Compliant NORI Area D Clarion Clipperton Zone Mineral Resource Estimate and associated financial model, AMC, March 2021. 'Current price' scenario is internal-only, as of March 9, 2022. NPV at January 1, 2021, assuming 9% discount rate.
[3] Nickel price of $30,000/t assumed for conservatism, given unprecedent volatility in the nickel price in March 2022.

OUR VALUE PROPOSITION

Resource definition: easy and effective to define.

250
box cores collected[2]

82,000
kg (wet) nodules collected[2]

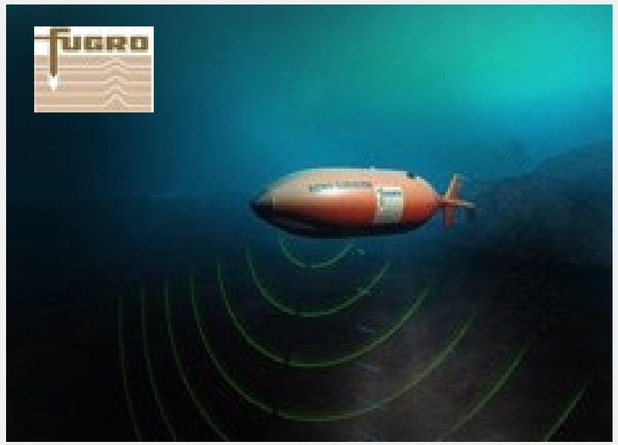
13,950
biological samples collected[2]

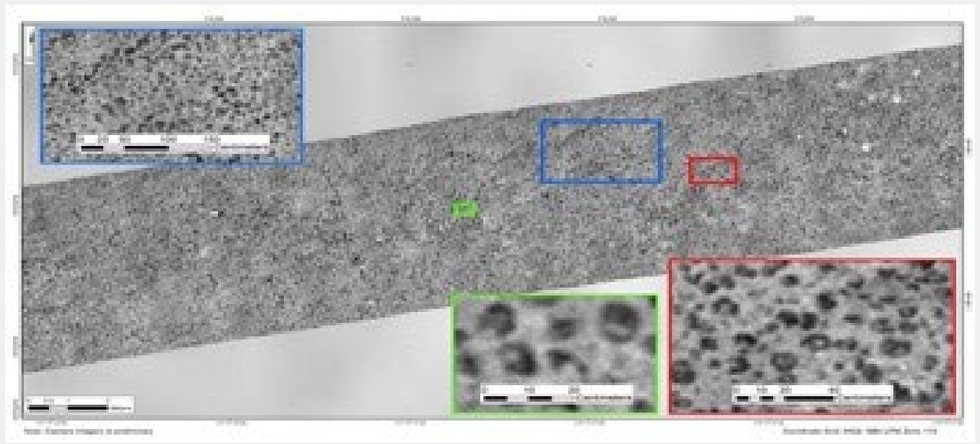
BOX CORE SAMPLING[1]

AUV CAMERA IMAGERY[1]

178,591
km² of high-res bathymetric survey[2]

5,439
km² detailed seafloor imagery[2]





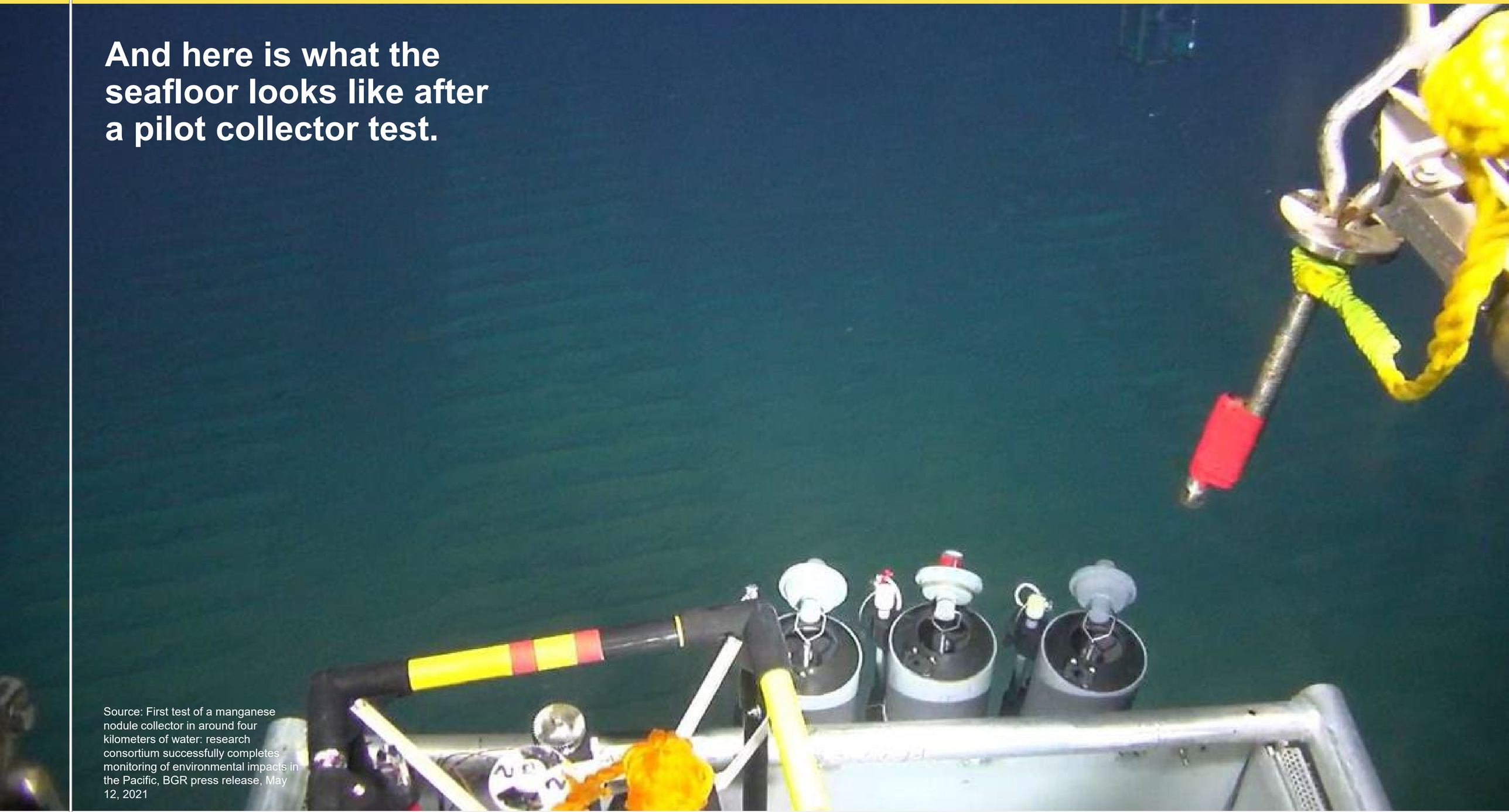
[1] Images from DeepGreen's resource survey offshore campaigns in NORI contract area.
[2] Boxcores, nodules collected, high-res bathymetry, detailed bathymetry – compiled by DeepGreen from - Canadian NI 43-101 and SEC Regulation S-K (Subpart 1300) Compliant NORI Area D Clarion Clipperton Zone Mineral Resource Estimate and associated financial model, AMC, March 2021. Canadian NI 43-101 Compliant TOML Clarion Clipperton-Zone Project Mineral Resource Estimate, AMC, July 2016 and DeepOcean NORI – D Bulk Sampling Report, 2020. Erias Cruise 6a Biological and Physiochemical Co-Sampling Report NORI area D post cruise, 2019; Erias Cruise 6b Biological and Physiochemical Co-Sampling Report NORI area D post cruise report, 2019.


Date: 30/05/2020
Time: 18:20:36 UTC
Dive No: 144
Easting : 482149.97m
Northing: 1147003.90m
HDG: 56.92
Depth: 4294.20m
Alt: 1.17m
Here is what
a polymetallic nodule
field looks like.

GSR pilot collector test.

Video available at
https://vimeo.com/653068330/7f4d928878

And here is what the seafloor looks like after a pilot collector test.



Source: First test of a manganese nodule collector in around four kilometers of water: research consortium successfully completes monitoring of environmental impacts in the Pacific, BGR press release, May 12, 2021

ESG CASE FOR TMC

Marine minerals: why we only focus on nodules.

3,800-5,500m depth

The Abyssal Plains

Polymetallic nodules

2-30 cm diameter discrete rocks formed by dissolved metal compounds precipitating around a nucleus
Growth: 10-100mm per million years

Unattached to the seafloor
Can be collected using gentle water jets directed at nodules in parallel with the seafloor

Low-food, low-energy environment

13 grams of biomass / m^2

800-2,500m depth

Seamounts

Cobalt crusts

2-26 cm thick, rock-hard, metallic layers that precipitate on the flanks of submarine volcanoes
Growth: 1-5mm per million years

Integral part of the seafloor that requires hard-rock cutting to break the ore from the substrate

Abundant food supply due to nutrient-rich water upwelling from near-bottom currents
High frequency destination for tuna and sharks

10-100x biomass vs. Abyssal Plain

1,000-4,000m depth

Hydrothermal vents

Seafloor massive sulfides

Tall chimney-like structures that form at hot vents where sulfide-enriched water flows out of the seabed, causing dissolved metals to bind into minute sulfide particles and sink as fine precipitants to the bottom

Integral part of the seafloor that requires hard-rock cutting to break the ore from the substrate

Abundant food supplied by chemoautotrophic bacteria which exploit energy-rich chemical compounds from the vents

100x biomass vs. Abyssal Plain

Source: World Ocean Review 2014; Bar-On et al, The Biomass Distribution on Earth, PNAS, June 2018, www.pnas.org/cgi/doi/10.1073/pnas.1711842115

ESG CASE FOR TMC

43% of the CCZ is already protected, more area than is currently under exploration.

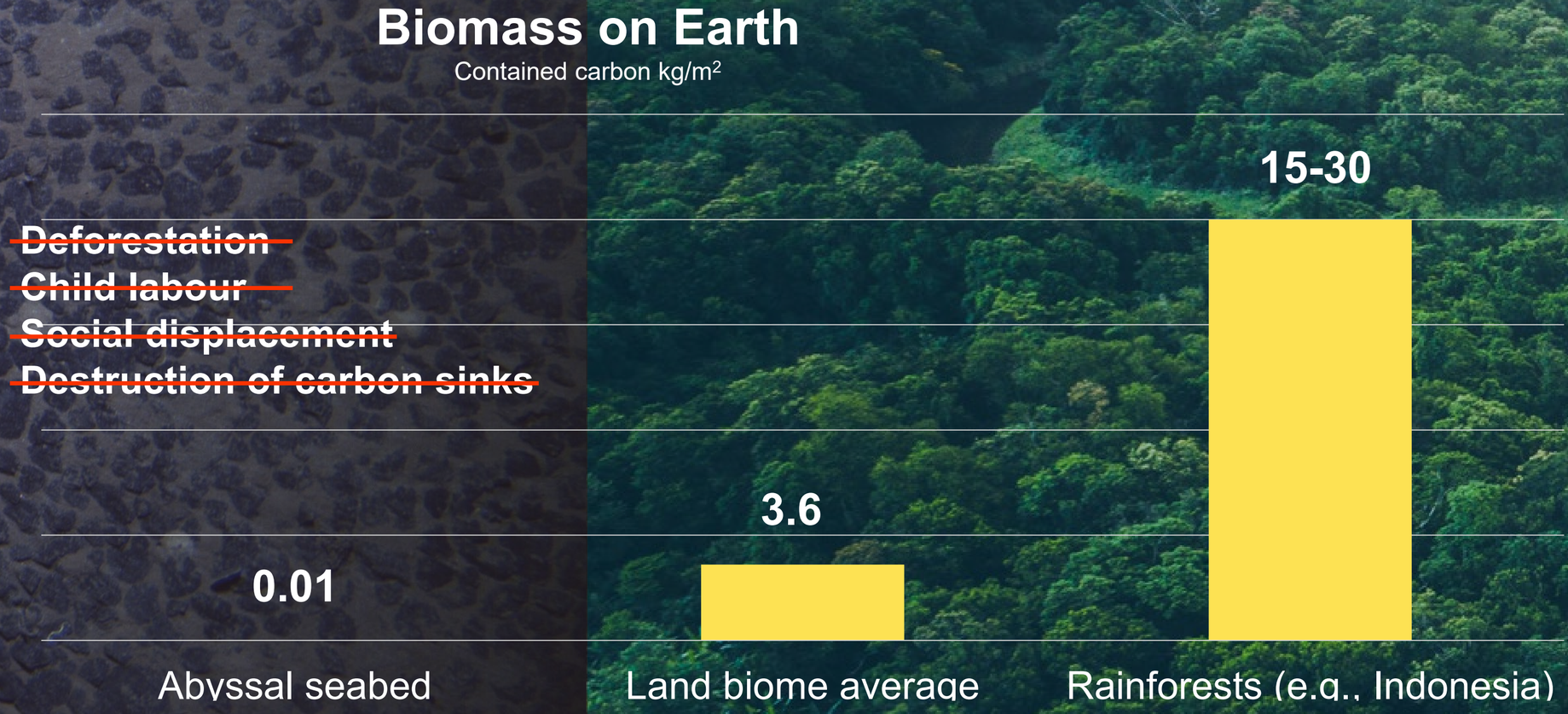
(Exceeds the IUCN marine habitat protection target to achieve 30% by 2030.)

1.97m km^2
under protection

1.28m km^2
under exploration

ESG CASE FOR TMC

Remoteness & depth of the site has several advantages.



~~Deforestation~~
~~Child labour~~
~~Social displacement~~
~~Destruction of carbon sinks~~

Note: The seafloor-biomass value incorporates an estimate of seamounts and hydrothermal vents attributed to Wei, et al., 2010. It is also an overestimate because it includes all fish in the water column, rather than focusing only on the seafloor and mid-water column. The overall biomass of earth's ice-free terrestrial area was 472.7 gigatonnes of carbon, compared to 2.49 gigatonnes of carbon for the global abyssal seabed.
Source: Bar-On, Phillips, & Milo, 2018; Wei, et al., 2010.

ESG CASE FOR TMC

The recognition of the rainforest nickel problem is growing.

The Guardian

Febriana Firdaus and Tom Levitt on nickel mining in Indonesia, *Feb 2022:* A Guardian investigation into nickel mining and the electric vehicle industry has found evidence that a source of drinking water close to one of Indonesia's largest nickel mines is contaminated with unsafe levels of hexavalent chromium (Cr6), the cancer-causing chemical more widely known for its role in the Erin Brockovich story and film."

Siti Nurbaya Bakar, Environment Minster for Indonesia, *Nov 2021:* The massive development of Pres. Jokowi's era must not stop in the name of carbon emissions or in the name of deforestation.

Verisk Maplecroft™

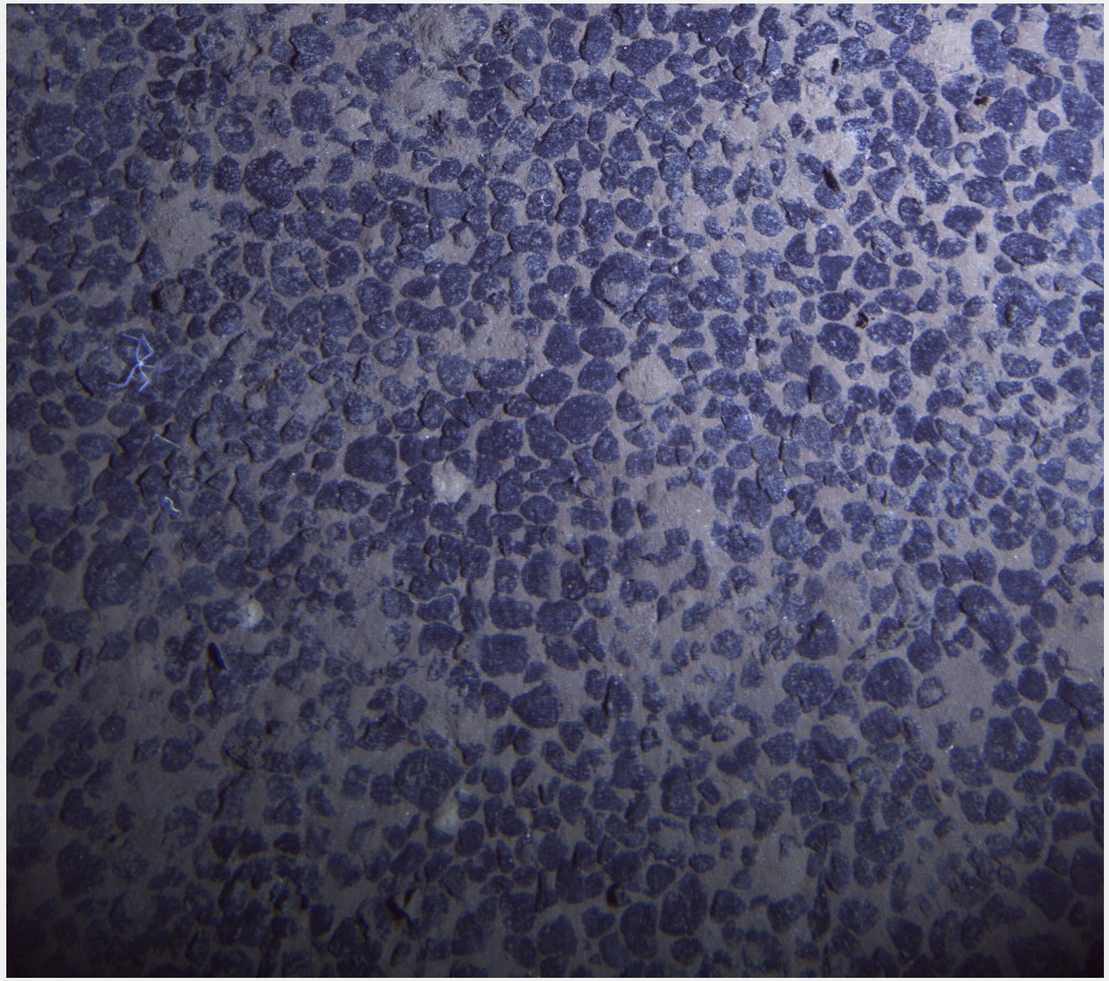
Oct 2021: Nickel is the mined commodity most exposed to biodiversity risks according to our index, mainly because of huge nickel operations in biodiverse areas such as Indonesia, New Caledonia and the Philippines. This raises a thorny issue for regulators and the industry: climate change is an existential threat to biodiversity as well as society, but can we justify destroying habitats to produce the materials we need to combat the climate crisis? As governments move to protect terrestrial biodiversity, perhaps deep-sea mining could be a solution.

NBC NEWS

Karol Ilagan, Andrew Lehren, Anna Schecter, Rich Schapiro on nickel mining in the Philippines, *Dec 2021*: "The move to expand the mine comes as the destruction of the world's rainforests, which play a crucial role in protecting wildlife and slowing climate change, is accelerating…experts say companies will have no choice but to expand their mining operations, impacting more places like the island paradise of Palawan."

ESG CASE FOR TMC

We are seeing increasing recognition of the game-changing potential of the nodule resource.



Forbes

Jim Conca on seafloor nodules, *Feb 2022:* This is not to say the operation will be perfect, but it will be much, much less impactful than any land operations, and is the most optimal method for getting these critical metals between now and 2050.

IRENA

Dolf Gielen and Martina Lyons, *March 2022:* Another option that is currently being developed is mining of subsea manganese nodules. ... The carbon footprint would be reduced to less than 4 tonnes of lifecycle emissions per tonne of nickel … produced at cost well below laterites … Studies suggest that the environmental impact will be limited..

The world's most sustainable nickel

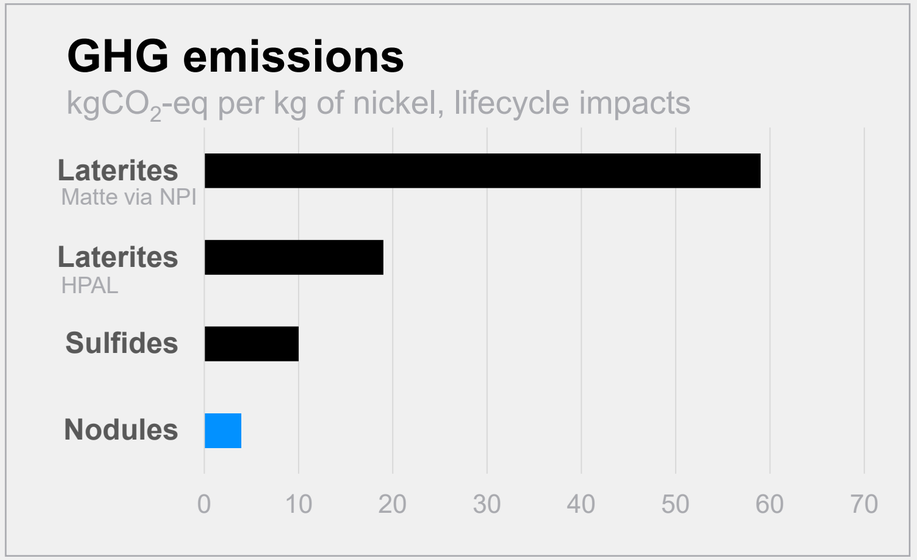
Responsible mining Consultant, Steven Brown, *Feb 2022:*
"…These metals must come from somewhere. In the case of nickel, that source will be largely in the tropical rainforests of Wallacea, unless we look to alternatives. And the only genuine alternative is deep sea nodules…an overly precautionary approach on deep sea nodules might condemn Wallacea, and the global climate, to irreversible damage."

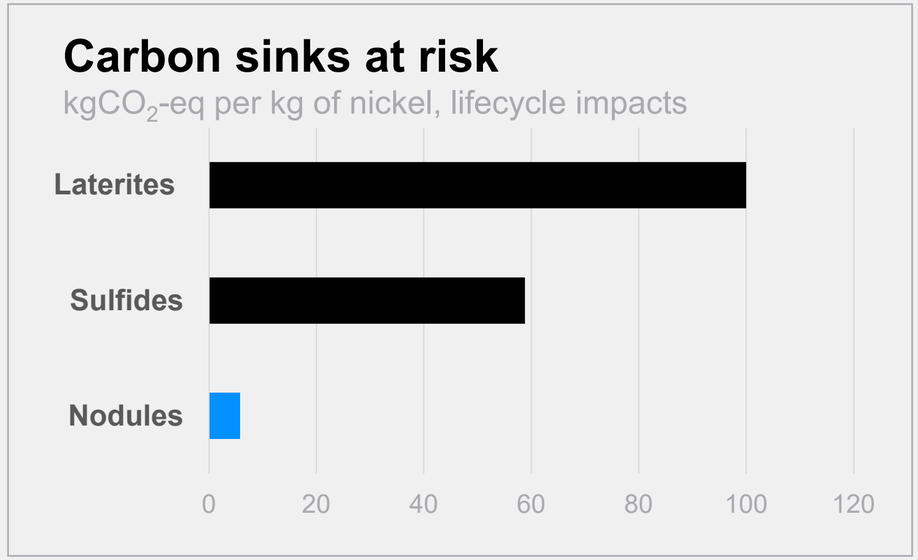
nature

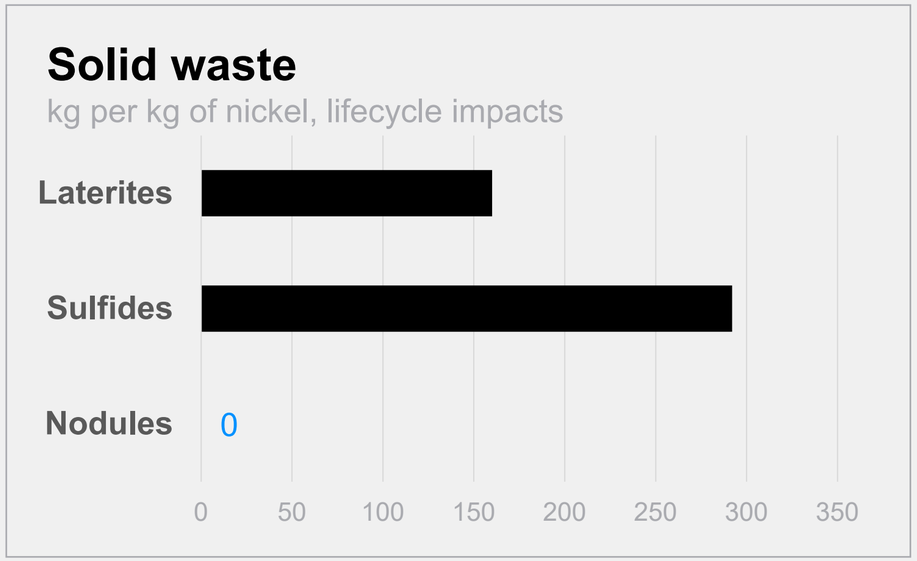
U.S. Geological Survey, *March 2020:* "Deep-ocean mining can not only deliver the metals necessary for this [clean energy] transition but can do so with a low carbon footprint.

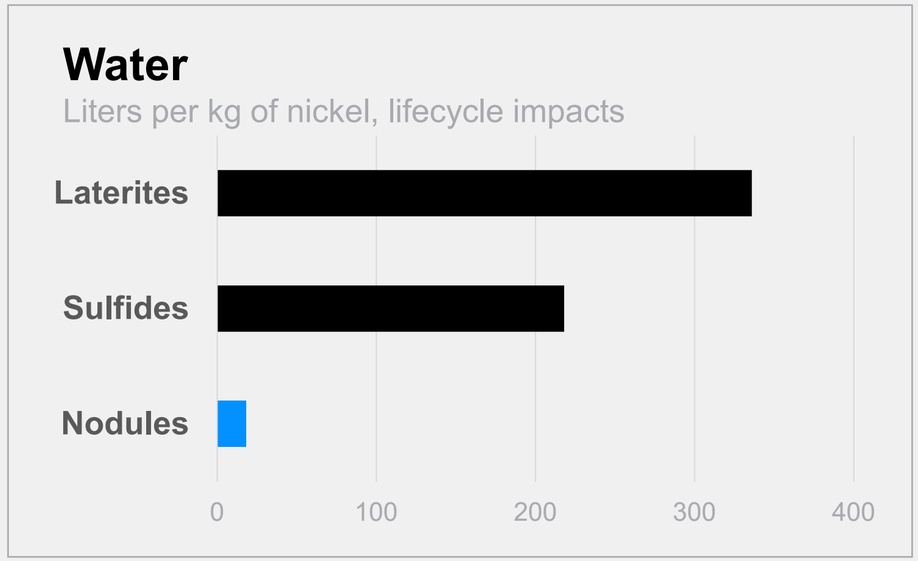
ESG CASE FOR TMC

Nodules expected to offer a much lower impact source for nickel.









Source: IEA, *GHG emissions intensity for class 1 nickel by resource type and processing route*, IEA, Paris https://www.iea.org/data-and-statistics/charts/ghg-emissions-intensity-for-class-1-nickel-by-resource-type-and-processing-route; Paulikas et al, "Where Should Metals for the Green Transition Come From? Comparing Environmental, Social and Economic Impacts of Supplying Base Metals From Land Ores and Seafloor Polymetallic Nodules," April 2020 White Paper, https://metals.co/download/237815/; Paulikas et al, "Life cycle climate change impacts of producing battery metals from land ores versus deep-sea polymetallic nodules," *Journal of Cleaner Production,* 275 (2020) 123822, https://doi.org/10.1016/j.jclepro.2020.123822

ESG CASE FOR TMC

Nodules expected to offer a much lower impact source for 4 critical battery metals.

Lifecycle Impact Assessment

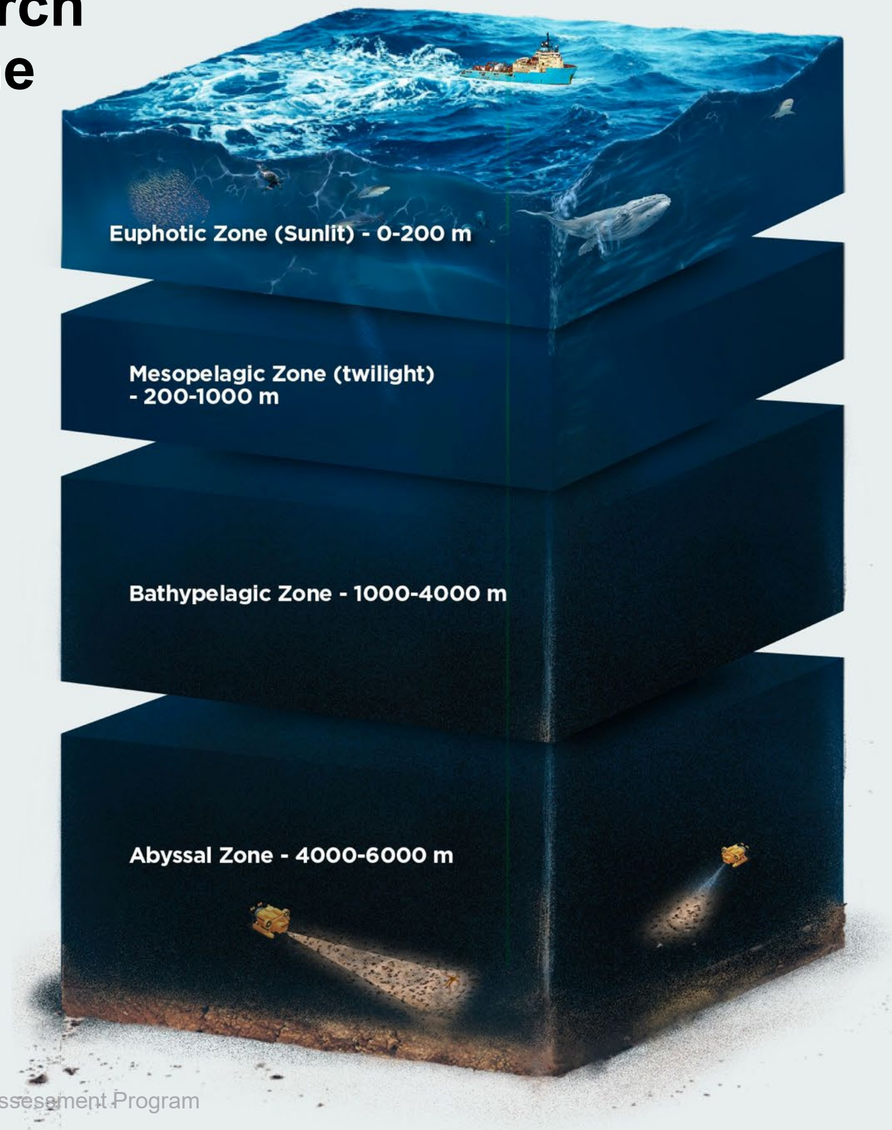
Demand scenario: Battery cathode precursor materials and copper for 1 billion electric cars
Key assumptions: cradle-to-gate production of nickel sulfate, manganese sulfate, cobalt sulfate and copper cathode assuming NMC811 cathode chemistry and 75kWh battery size.
Supply scenarios: (1) Conventional land ores ("land") and (2) Polymetallic nodules from the Clarion Clipperton Zone ("nodules").
Change: % impact reduction nodules relative to land ores or land ores relative to nodules

	Land	Nodules	% change*
Climate change			
GWP – CO_2 equivalent emissions, Gt	1.47	0.45	-70%
Carbon sinks at risk, Gt	9.30	0.58	-94%
Disrupted carbon sequestration, GT	2.06	0.24	-88%
Resource use			
Ore, Gt	25	6	-75%
Land, km^2	156,000	9,800	-94%
of which forests, km^2	66,000	5,200	-92%
Seafloor, km^2	2,000	508,000	+99.6%
Water, km^3	45	5	-89%
Primary and secondary energy, PJ	24,500	25,300	+3%
Waste			
Mining, processing & refining waste (onshore), Gt	63	0	-100%
Entrained seafloor sediment (offshore), Gt	0	9	+100%
Terrestrial ecotoxicity, 1,4-DCB equivalent Mt	33	0.5	-98%
Freshwater ecotoxicity, 1,4-DCB equivalent Gt	21	0.1	-99%
Eutrophication potential, PO4 equivalent, Mt	80	0.6	-99%
Human & wildlife health			
Human toxicity, 1,4-DCB equivalent, Mt	37,000	286	-99%
SO_x and NO_x emissions, Mt	180	18	-90%
Human lives at risk, number	1,800	47	-97%
Megafauna at risk, trillion organisms	47	3	-93%
Biomass at risk, Mt	568	42	-93%
Biodiversity loss risk	Present	Present	No change

Source: Paulikas et al, "Where Should Metals for the Green Transition Come From? Comparing Environmental, Social and Economic Impacts of Supplying Base Metals From Land Ores and Seafloor Polymetallic Nodules," April 2020 White Paper, https://metals.co/download/237815/; Paulikas et al, "Life cycle climate change impacts of producing battery metals from land ores versus deep-sea polymetallic nodules," *Journal of Cleaner Production,* 275 (2020) 123822, https://doi.org/10.1016/j.jclepro.2020.123822; Paulikas et al, Deep-sea nodules versus land ores: A comparative systems analysis of mining and processing wastes for battery-metal supply chains, Journal of Industrial Ecology, 13 Jan 2022. https://doi.org/10.1111/jiec.13225

ESG CASE FOR TMC

ESIA program: working with some of the best research institutions on the planet.



100+ studies

Seabed-to-surface ocean research program

Surface biology
- Surface fauna logbook (PelagOS)
- Remote Sensing, Hydrophone Acousitcs

Pelagic biology
- Microbial Community Characterization
- Phytoplankton Community Characterization
- Zooplankton Community Characterization
- Gelatinous Zooplankton Characterization
- Micronekton Characterization
- Trophic Analysis (Stable Isotopes)
- Temporal Variability of Pelagic Communities
- Trace Element Profiles In Water Column
- Particulate Profiles in Water Column
- Discharge Plume Characterization (Physical)
- Discharge Plume Characterization (Biological)
- Midwater Discharge (food webs particle composition)

Benthic biology
- Megafauna Characterization (Photo transects)
- Megafauna Characterization (Time Lapse)
- Macro Fauna Characterization
- Micro Fauna Characterization
- Meso Fauna Characterization
- Macro Fauna Characterization

Sediment analysis
- Baited camera and traps
- Benthic respiration and nutrient cycling
- Seafloor metabolic activities
- Bioturbation, sediment characteristics
- Porewater sampling
- Exposure toxicology studies
- Metals determination by ICP analysis
- Induction of gene transcripts (metals)

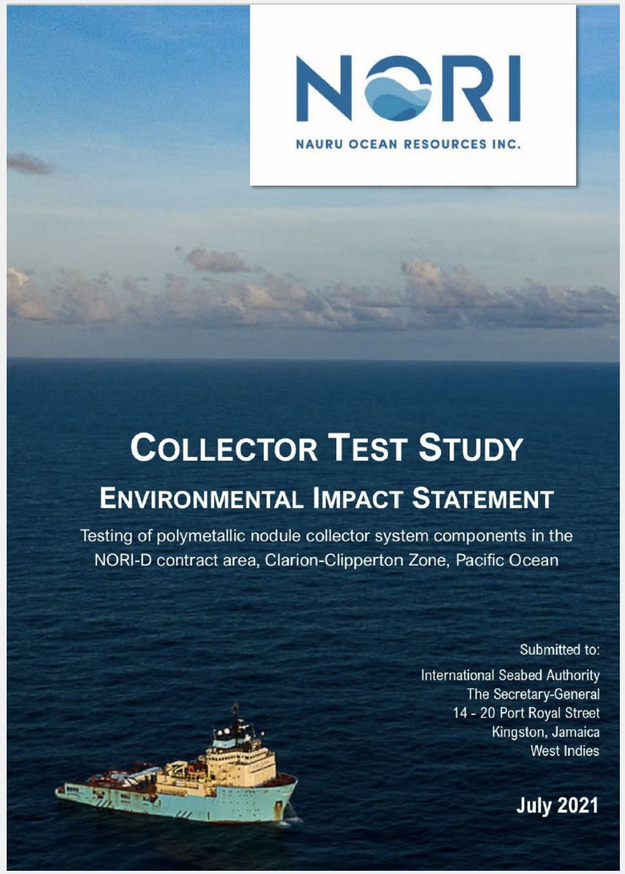
Collector impact studies
- Met ocean studies
- Bathymetry (seabed mapping)
- Habitat mapping
- Database development
- Digital twin development
- Collector test nearfield studies
- Collector test far-field modeling
- Plume modeling
- Existing Resource Utilization Study
- Noise & Light Study
- Meteorology & Air Quality Study
- Hazard & Risk Assessment
- Emergency Response Planning
- Cultural & Historical Resources
- Waste Management
- Cumulative Impacts

ESG CASE FOR TMC

Environmental Impact Statement (EIS) lodged with the ISA for pilot trial this summer; full NORI-D EIS to be completed in 1H 2023.

The purpose of an EIS is to document and report the results of the Environmental Impact Assessment (EIA). ISA requires that an application for approval of a plan of work shall be accompanied by an assessment of the potential environmental impacts of the proposed activities..

EIA is "the process of identifying, predicting, evaluating and mitigating the physicochemical, biological, socioeconomic, and other relevant effects of development proposals prior to major decisions being taken and commitments made". This includes all potential effects, both positive and negative.



NORI-D Collector Test EIS

12 week planned pilot trial at NORI-D in 2022

260 hours full system testing

3,600 wet tonnes of nodules to be collected

0.5 km^2 impacted directly by collector

6 km^2 impacted by sedimentation

NORI-D Collector Test EIS conclusion: The risk of the collector test resulting in 'serious harm' to marine environment at a regional scale is assessed to be **negligible**.

ESG CASE FOR TMC

Activists' concerns vs. data-based, peer-reviewed research.

CONCERNS

Deep-Sea Mining Science Statement
Signed by 621 people as of Dec 2, 2021
Organized by Deep-Sea Conservation Coalition

- "the production of large, persistent sediment plumes that would affect seafloor and midwater species and ecosystems well beyond the actual mining sites;
- the resuspension and release of sediment, metals and toxins into the water column, both from mining the seafloor and the discharge of mining wastewater from ships, detrimental to marine life including the potential for contamination of commercially important species of food fish such as tunas"

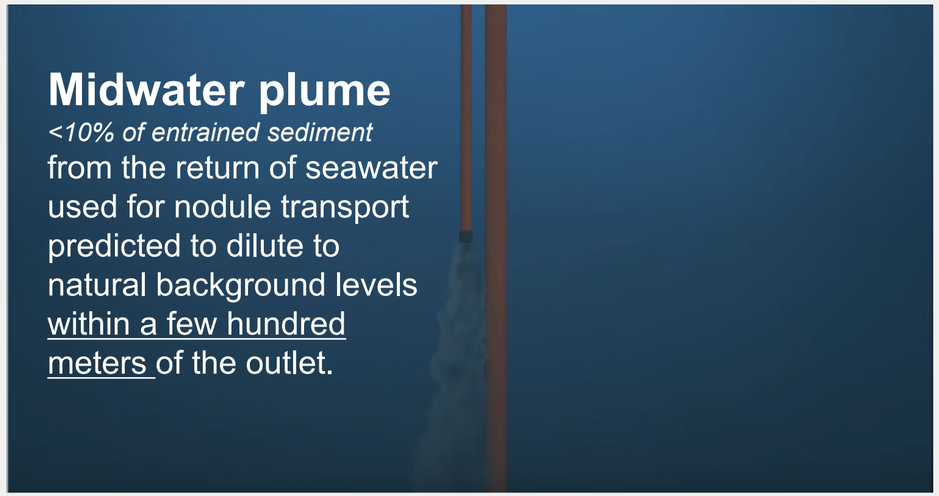
RESEARCH

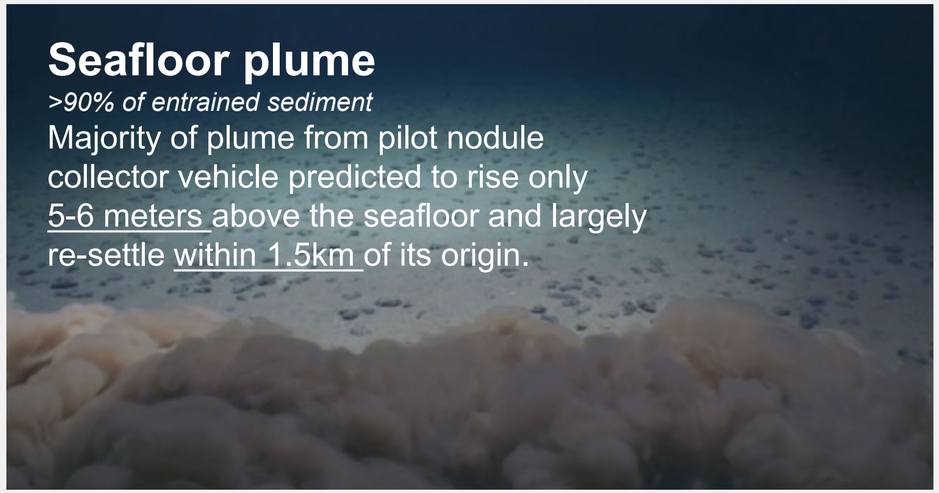
Research published and field studies conducted in 2021

- Peer-reviewed research on seafloor and midwater plumes published by MIT[1]
- Field observations of seafloor plumes conducted in May 2021 by BGR and GSR in their respective exploration contract areas in the CCZ[2]
- Plume modelling performed for TMC by DHI, one of the world's leading experts, using actual met ocean data from NORI exploration area in CCZ and settling properties of sediment from NORI-D[3]

Aligns with original U.S. NOAA Deep Ocean Mining Environmental Studies (1975-1981):

- While impacted at the collection site, on the scale of the CCZ, impact to benthic organisms would not be significant. Within DOMES sites, 0.5% of feeding benthic biota have potential for significant adverse effect.





[1] Ouillon, R., Kakoutas, C., Meiburg, E., & Peacock, T. (2021). Gravity currents from moving sources. *Journal of Fluid Mechanics, 924*, A43. doi:10.1017/jfm.2021.654; Muñoz-Royo, C., Peacock, T., Alford, M.H. *et al.* Extent of impact of deep-sea nodule mining midwater plumes is influenced by sediment loading, turbulence and thresholds. *Commun Earth Environ* 2, 148 (2021). https://doi.org/10.1038/s43247-021-00213-8
[2] First test of a manganese nodule collector in around four kilometers of water: research consortium successfully completes monitoring of environmental impacts in the Pacific, BGR press release, May 12, 2021
[3] NORI Environmental Impact Statement for Collector Test Study, July 2021

During production, we will give eyes and ears to the regulator with our digital twin, a mix of sensors and cloud-based AI.


Adaptive Management System (AMS) video available at
https://vimeo.com/645332455

GOVERNANCE

Regulatory framework: Transparent regulatory regime supported by international law.

Seabed resources in the high seas are governed by the International Seabed Authority (ISA)

- Autonomous international organization focused on developing states and protection of the marine environment for this ‘common heritage of mankind’ resource
- Modern regulatory regime agreed by consensus across 167 Member States plus the European Union
- A new level of transparency in extractive industry including public stakeholder and civil society engagement

We have the required contracts to explore our resources and we believe we are on track to secure our first exploitation contract.

1994 — **Regulator established**
ISA is formed and member nations join

2001 — **Exploration Regulations**
First exploration contracts granted to Government Institutions

2011 — **NORI Area**
exploration contracts granted to DeepGreen, sponsored by Nauru[1]

2012 — **TOML Area**
exploration contracts granted to Nautilus, sponsored by Tonga—acquired by DeepGreen in March 2020[2]

2015 — **Marawa Area**
Commercial rights secured by DeepGreen, sponsored by Kiribati[3]

2017
First draft Exploitation Regulations issued by ISA

2021
Final Exploitation Regulations were expected to be in place in 2020 but are delayed due to Covid-19…

…The ISA has committed to completing and adopting the code on an expedited basis, with a target of July 2023 following the 2-year notice submitted by Nauru in June 2021

2023
Exploitation Regulations expected to be adopted by the ISA

[1] NORI ISA exploration contract and NORI sponsorship agreement with Nauru.
[2] TOML ISA exploration contract and TOML sponsorship agreement with Tonga.
[3] Marawa ISA exploration contract and Marawa sponsorship agreement with Kiribati.

GOVERNANCE

The ISA is working to finalize the exploitation regime, which “must be adopted by 9 July 2023” following 2-year notice given by the Republic of Nauru on 9 July 2021.*

*Article 15 of the 1994 Implementation Agreement empowers a Member State whose national contractor is 2 years away from being ready to lodge an application for the ISA Exploitation Contract to notify the ISA of upcoming application. This notice obliges the ISA **“to consider and provisionally approve”** this application based on the state of the Exploitation Regulations at the time of the application (whether final or draft.)

IV. Proposed roadmap for 2022 and 2023

12. It is noted that, through a letter dated 25 June 2021, the Republic of Nauru notified the Council of the intention of Nauru Ocean Resources Inc. (NORI), a Nauruan entity sponsored by Nauru, to submit an application for approval of a plan of work for exploitation in the Area.[14] In such circumstances, Section 1, paragraph 15 (b), of the annex to the 1994 Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea requires the Council to complete the elaboration of the rules, regulations and procedures necessary to facilitate the approval of plans of work for exploitation in the Area within two years of the request.[15]

13. In order to meet this timeline and to ensure that a robust and holistic regulatory framework is adopted by the Council on or before 9 July 2023, it is clearly necessary for the Council to commit more time and financial resources to accelerate work on the draft regulations.

14. As a preliminary measure, therefore, it is suggested that the Council increases its physical meetings in 2022 to two sessions per year, each of three weeks’ duration and that the primary focus of these meetings is the draft regulations. As previously agreed, much of the work will take place in informal working groups, with no parallel meetings and sessions would be organized accordingly, with plenary meetings planned in advance. In the event that savings could be realized from the overall conference services budget for the financial period 2021-2022, a third meeting of the Council in 2022 could also be considered. A proposed meeting schedule for 2022 is in Annex III.

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[14] ISBA/26/C/38.

[15] The effective date of the request is 9 July 2021 (see ISBA/26/C/38) which means that the regulations must be adopted by 9 July 2023.

Source: *Status of the Draft Regulations on Exploitation of Mineral Resources in the Area and a Proposed Roadmap for 2022 and 2023*, Report of the Secretary General, July 2021, ISBA/26/C/44

ESG CASE FOR TMC

What we need to do to secure an ISA exploitation contract.

Q3 2023

Application for NORI-D

Components:

- ✓ Certificate of Sponsorship
- ✓ Mining Plan
- ✓ Financing Plan
- ✓ Environmental Impact Statement (EIS)
- ✓ Emergency Response and Contingency Plan
- ✓ Health & Safety Plan & Maritime Security Plan
- ✓ Training Plan
- ✓ Environmental Management & Monitoring Plan
- ✓ Closure Plan

315 days*

ISA process

45 days	120 days	60 days	90 days
Secretary General will review the application for completeness	If no amendments required, ISA's Legal and Technical Commission (LTC) reviews the application	Environmental Plans are published	For amending application, LTC reviews at next session (2x annual). The ISA Council then reviews and if acceptable approves application.

Q3 2024*

ISA exploitation contract for NORI-D

* From initial filing application could be approved—assuming no significant changes to the timelines.
Source: Draft Regulations on Exploitation of Mineral Resources in the Area, 28 March 2019, ISBA/25/C/WP.1

PROJECT DEVELOPMENT PROGRESS

We have built strong partnerships that allow us to move fast.

OFFSHORE

ONSHORE

RESOURCE → COLLECT → SHIP → PROCESS & REFINE → PRODUCT

Resource estimation

MAERSK

Invested $25M in 2017. Provided project management services including vessel operations and supplier management on all resource definition and environmental offshore campaigns through 2021.

AMC consultants

Canadian NI 43-101 & US SEC S-K 1300 compliant technical reports.

Nodule collection technology development

Allseas

Invested $100M in 2019-2021. Developing a pilot and first commercial nodule collection system.

Environmental impact assessment

Several world's leading deep-sea research institutions contributing to the offshore Environmental & Social Impact Assessment (ESIA) program consisting of over 100 discrete studies. These organizations are independent and expect to openly publish their research in peer-reviewed journals.

Flowsheet development

HATCH

Developed a near-zero solid waste flowsheet, overseeing Pilot Plant program executed at FLSmidth, XPS and SGS facilities.

Pilot plant program

Calcining — FLSmidth

Smelting
Sulfidation
Converting — XPS EXPERT PROCESS SOLUTIONS

Hydromet refining — SGS

Offtakes

GLENCORE

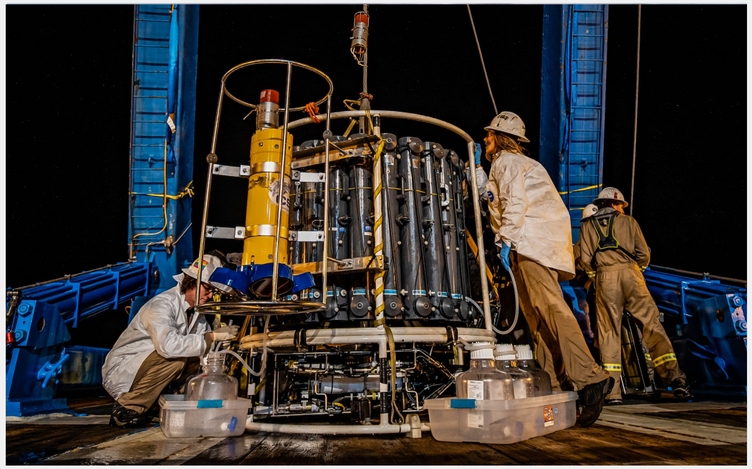
Invested in 2012. Holds offtake on NORI Area:
- 50% of Ni production
- 50% of Cu production

ESG CASE FOR TMC

Record-setting five offshore environmental campaigns in ten months totaling 172 days at sea.

Campaign 4E (17 days at sea)
Serviced the oceanographic moorings deployed at NORI-D during Campaign 4A. Conducted additional oceanographic profiling.

Campaign 5B (43 days at sea)
Pelagic biology studies of NORI-D supported by ROV, CTDs, MOCNESS nets and rosette water quality samplers for trace metals



Campaign 5C (37 days at sea)
Seasonal pelagic biology studies of NORI-D supported by ROV, CTDs, MOCNESS nets and rosette water quality samplers for trace metals

Campaign 5D (35 days at sea)
Collected seasonal data on benthic biology, sediment geochemistry and surface biology of NORI-D using box-core, multicore and floating hydrophones

Campaign 5E (40 days at sea)
ROV pelagic and benthic transects and sample collection. Collection of seasonal seabed images used for megafauna identification and quantification

PROJECT DEVELOPMENT PROGRESS

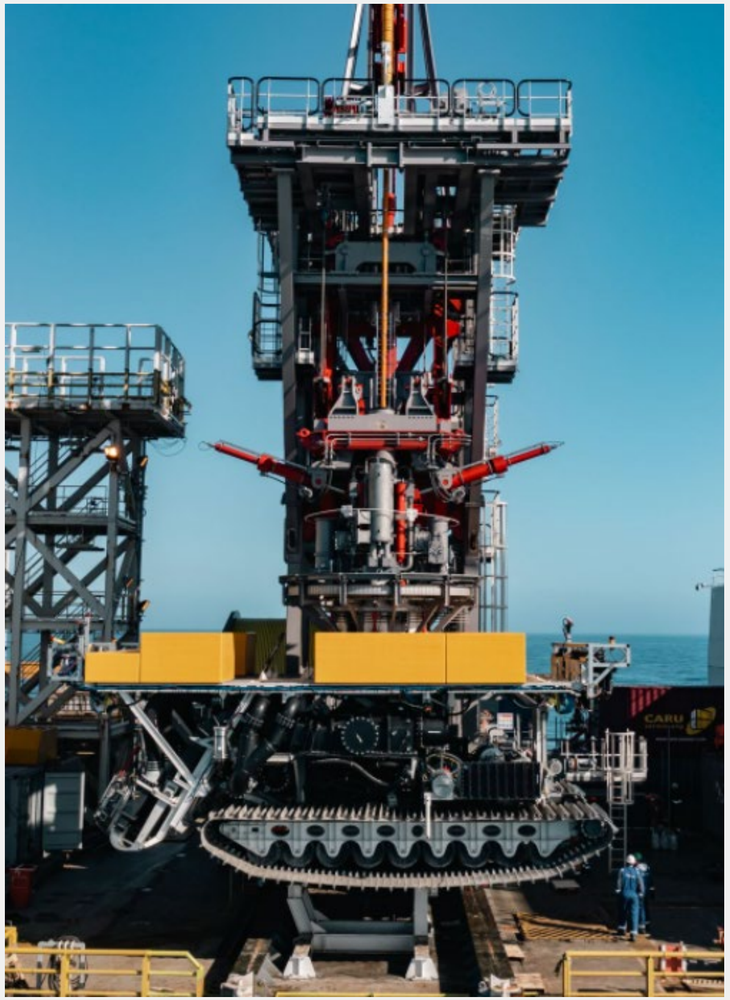
Project Zero nodule collection: de-risked, capex-light partnership.

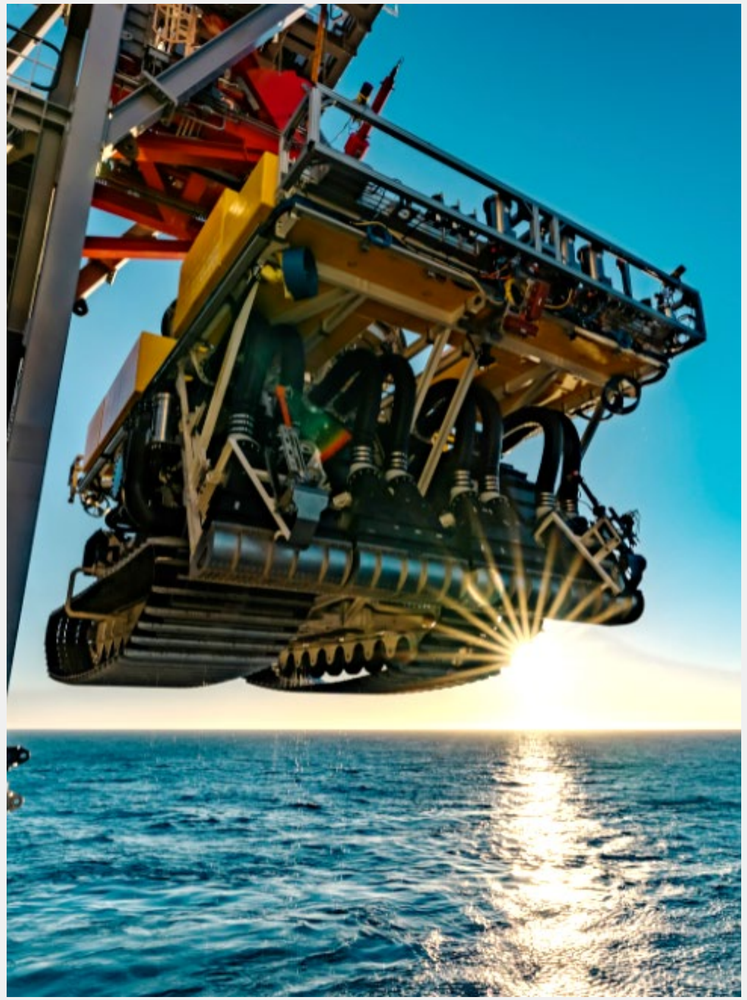
PILOT COLLECTOR SYSTEM TEST PROGRAM 2022

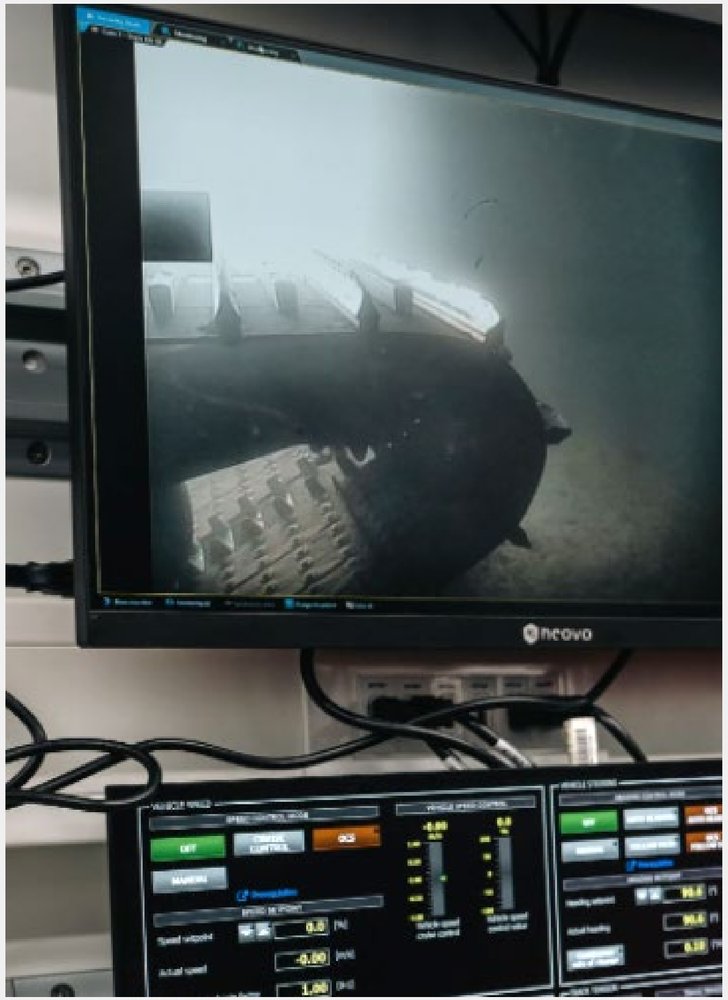
January	Riser acceptance test
February	Thruster re-lift, dockside vessel commissioning, review of nodule offloading & handling test program
Feb 7	LARS load test
Feb 28–Mar 3	Thruster installation
March 2–9	Collector wet function tests in outer harbor
March 12–17	Hidden Gem dynamic positioning trials
March 18–28	Collector drive test in the North Sea
April	Deepwater test in the Atlantic
Aug-Sep	**Pilot trials in NORI-D** - Integrated collector test - Environmental impact monitoring - 3,600 wet tonnes expected to be collected

PROJECT DEVELOPMENT PROGRESS

Pilot Collection System images taken during testing in North Atlantic.





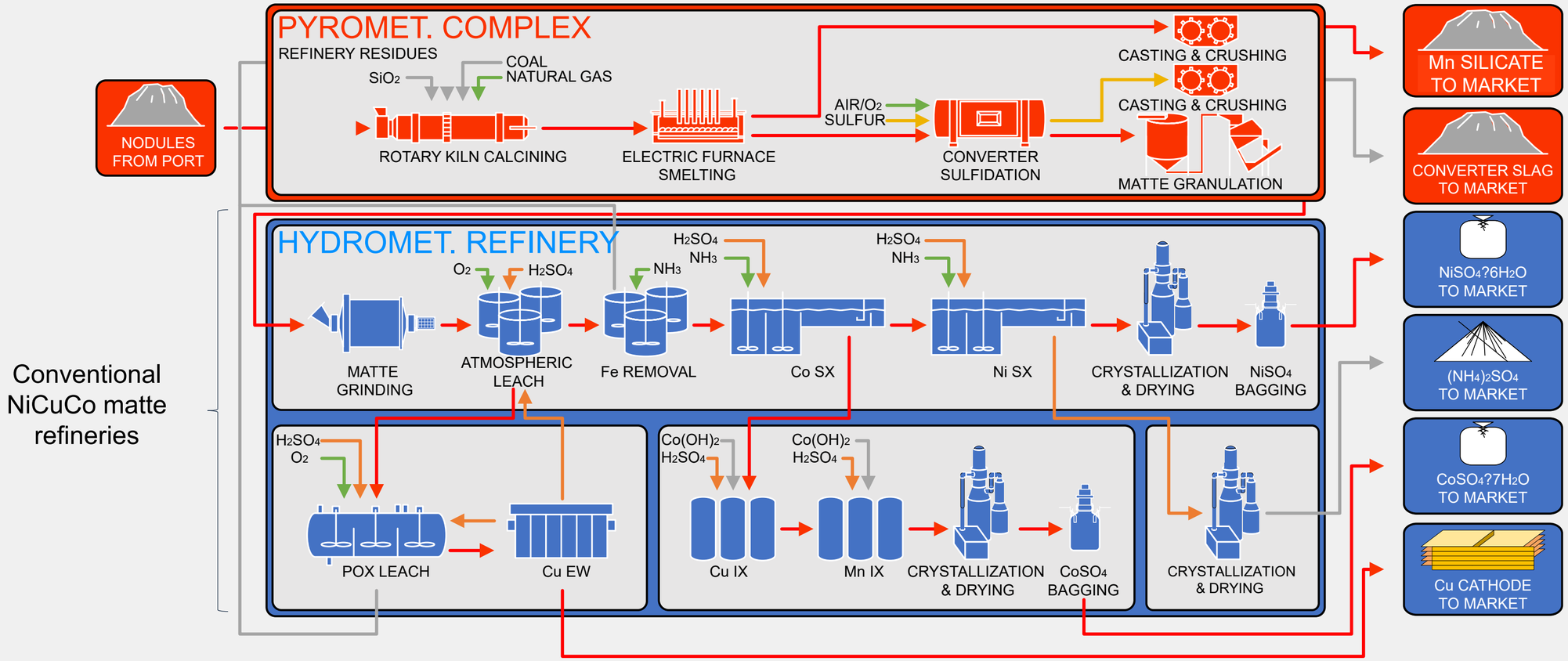


PROJECT DEVELOPMENT PROGRESS

conventional equipment and low risk flowsheet result in zero toxic waste, near-zero solid waste.

Dozens of Rotary Kiln - Electric Furnace (RKEF) plants processing nickel laterites in China, Indonesia, New Caledonia, South America

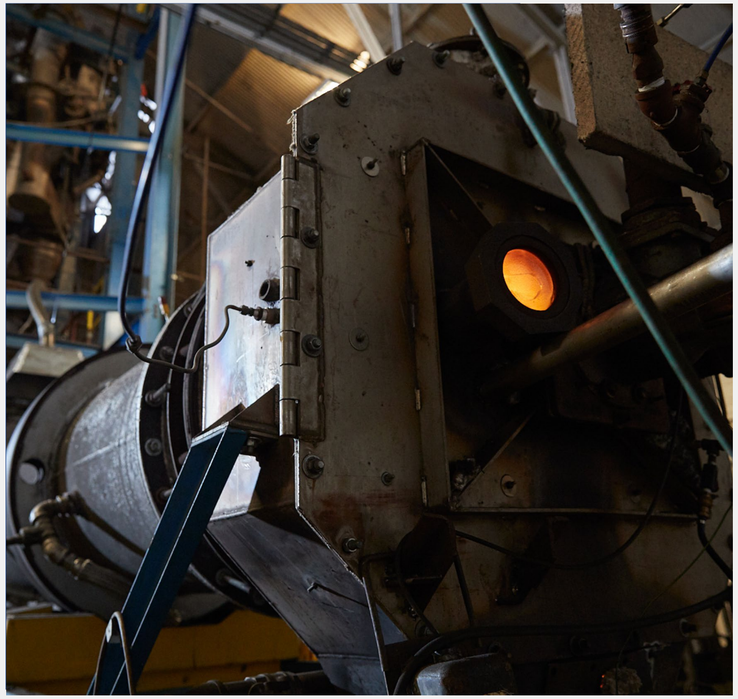
Converting is conventional in nickel & copper processing. Sulfidation step operated commercially by Société Le Nickel in New Caledonia



Conventional NiCuCo matte refineries

PROJECT DEVELOPMENT PROGRESS

Onshore, we have proven we can turn nodules into manganese silicate and NiCuCo alloy & matte.



Calcining nodules at FLSmidth's facilities in Whitehall, Pennsylvania.

Smelting nodules in an Electric Arc Furnace at XPS facility in Canada. Electrode temperature 1450 degrees C. Smelting results in two products:

- Manganese silicate product
- NiCuCo alloy (intermediate)

Converting NiCuCo alloy into NiCuCo matte (intermediate) at the same XPS facility.

Matte pour post converting. End-product is NiCuCo matte, 80% Ni+Cu.


Video available at
https://vimeo.com/613632525.co

PROJECT DEVELOPMENT PROGRESS

Project Zero nodule processing: de-risked, capex-light partnership.

- Established in 2010 as world-class supplier of carbon-based products
- Long-term exclusive raw materials (steel waste stream) purchase agreement with JSW Steel, India's largest steel manufacturer
- Started Epsilon Advanced Materials to develop and manufacture sustainable battery-grade Anode and Cathode active materials.

Source: Epsilon Carbon

epsilon carbon

ANODE BUSINESS

PRODUCTION

- **40,000 TPA** Synthetic Graphite in India by 2025
- **10,000 TPA** Natural Graphite in Finland by 2025

STRONG R&D PROWESS

- **Process patent** for bulk mesocoke
- Material development **for natural-synthetic blended graphite** and **silicon-graphite**

LOWER CARBON FOOTRPINT

- Power generated by **waste gases** to produce mesocoke and **80%+ renewable power** for thermal purification

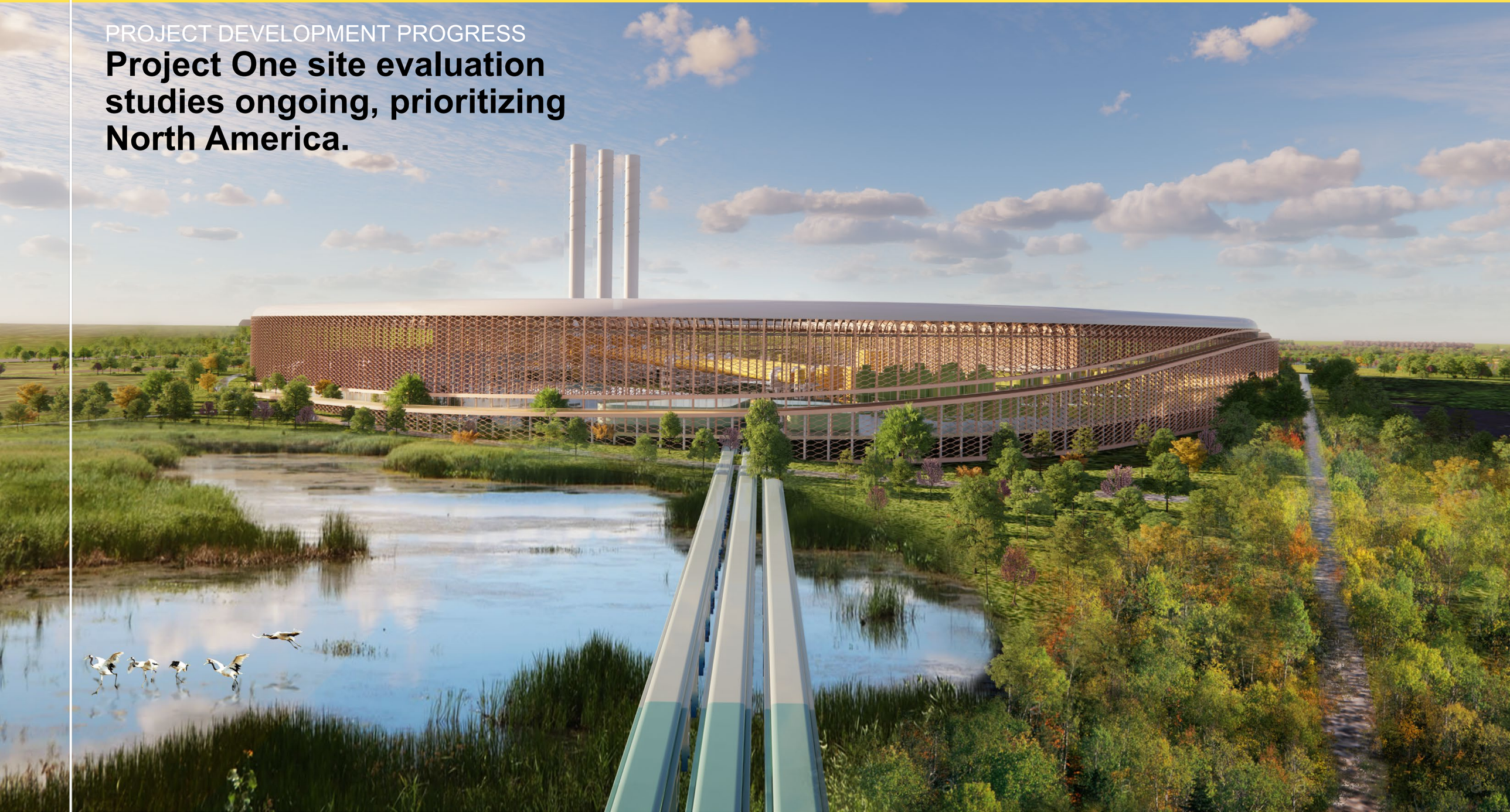
CATHODE BUSINESS

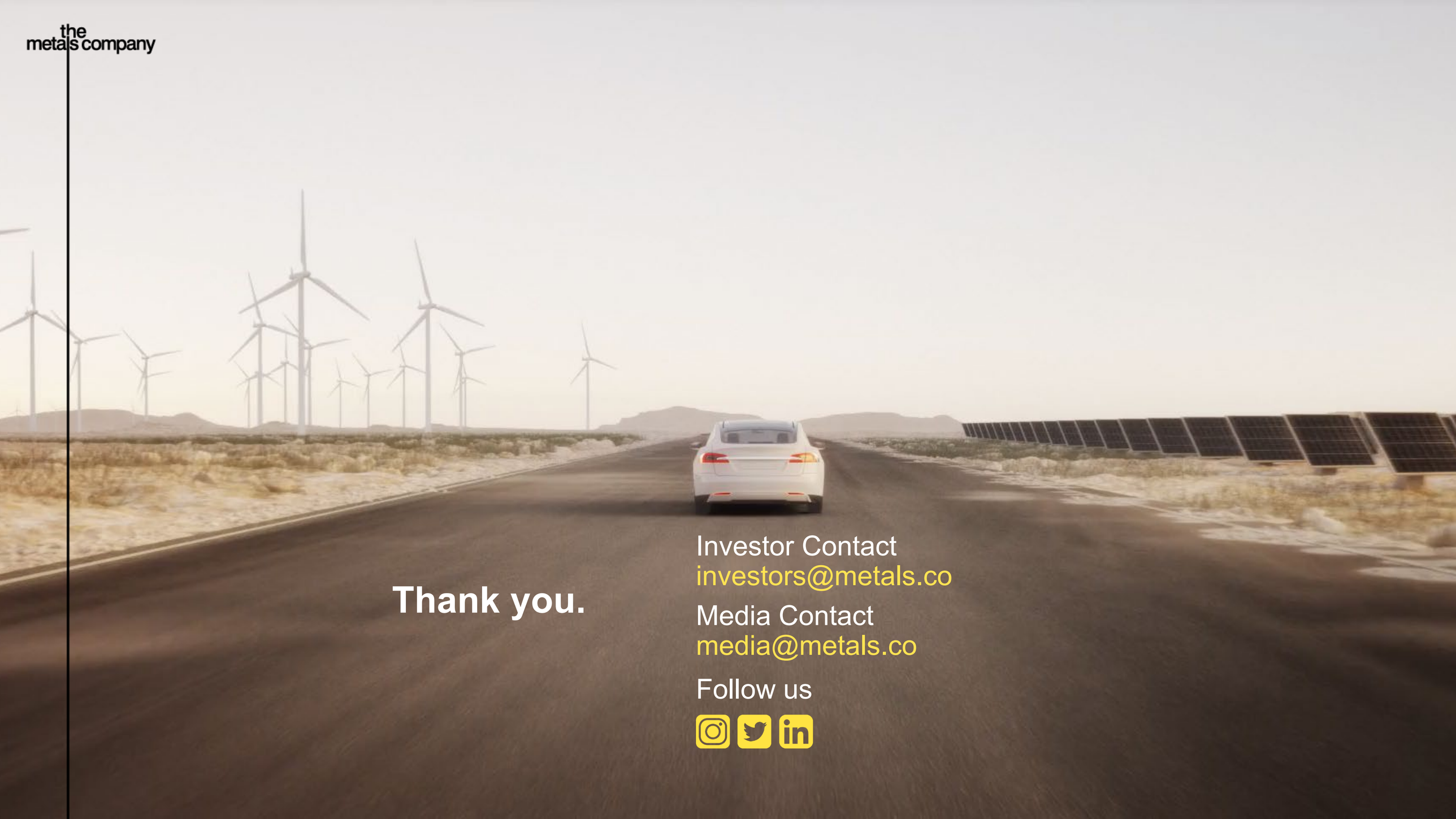
PLANS

- **LFP** from iron in waste streams in steel plants
- **NMC & other nickel-rich chemistries -** MOU with TMC for processing nodules (1.3m wet TPA) into 30,000 TPA of NiCuCo matte and 750,000 TPA of manganese silicate in India

PROJECT DEVELOPMENT PROGRESS

Project One site evaluation studies ongoing, prioritizing North America.





Thank you.

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