



General Motors Co (GM)

Vote Yes: Item #6 – Adopt a Policy on use of Deep Sea Mined Minerals

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SUMMARY

Deep sea mining (DSM) risks irreversible damage to marine ecosystems by destroying sensitive habitat that has formed over millions of years, obliterating surrounding marine life, and drastically reducing biodiversity. The detrimental impacts of DSM-related activities could reduce the functioning of vital ecosystem services the deep sea provides. General Motors' (GM) failure to adopt a deep sea mineral use policy and take a stance against battery-related minerals sourced from the deep seabed creates risks to the Company, including significant reputational risk.

Deep sea mined materials are not necessary to support significant electric vehicle deployment as underscored by the fact that 47 companies – including several of GM's auto manufacturing peers and leading financial institutions – support a DSM moratorium.

THE RESOLUTION

BE IT RESOLVED: Shareholders request that General Motors publicly disclose the Company's policies on the use of deep-sea mined minerals in its production and supply chains.

SUPPORTING STATEMENT: At Board discretion, GM should disclose the criteria it will use for decision making related to the use of deep-sea sourced minerals.

RATIONALE FOR A YES VOTE

- 1. Deep sea mining is environmentally destructive.** DSM machinery dredges the ocean floor in its pursuit of polymetallic nodules. This process indiscriminately kills the sea life in its path and could create a cascading effect of biodiversity loss not limited to the mining site. The detrimental impacts of DSM related activities could reduce the functionality of the vital ecosystem services the undisrupted deep sea provides.
- 2. Deep sea mining is not necessary to support substantial electric vehicle deployment, as demonstrated by moratorium commitments from GM's peers.** To date, 47 companies have signed a business statement calling for a moratorium on deep seabed mining. GM lags behind its auto manufacturing peers BMW, Polestar, Renault, Rivian, Scania, Volkswagen, and Volvo, all of which have supported a DSM moratorium. Several battery manufacturing companies have been proactive in committing to a DSM moratorium as well. GM's energy and mobility peers have already come to the conclusion that the environmental, regulatory, and financial risks of DSM are not worth taking.



In addition, car companies are increasingly using electric vehicle battery chemistry without cobalt and nickel – two of the metals found in nodules mined from the deep sea. Other battery technologies, including sodium-ion, avoid some, if not all, deep sea metals and are already incorporated into production by several automakers and battery manufacturers. Further, new technology, circular economy strategies, and increased recycling are projected to reduce demand for critical minerals by more than 50% by 2050.

- 3. GM risks reputational harm by not clarifying its stance on use of deep sea mined materials in its production and supply chains.** As the largest automaker in the US, by failing to adopt policies against the use of DSM materials until the process is proven safe to the marine environment, GM is likely to be perceived as a dominant driver of deep sea mineral demand and destruction. Such an association could make GM a target for backlash from those with environmental and climate concerns. The Initiative for Responsible Mining Assurance (IRMA) – the very authority GM uses to authenticate its responsible sourcing – does not apply to mining for deep sea minerals. Falling out of compliance with IRMA due to the use of deep sea mined minerals means GM would not only have to bear the reputational risks of being affiliated with DSM, but the reputational risks of losing its membership in the leading standard for mining at large. Conversely, by disclosing a strong DSM policy, GM can shield itself from these unnecessary risks.
- 4. Including deep sea sourced minerals in its production and supply chains opens GM up to regulatory and financial risks.** The financial stability of the DSM industry is currently highly questionable, making deep sea mined minerals a material risk for GM to incorporate into its production and supply chains. GM can avoid these risks by adopting a strong DSM policy and furthering the already established industry efforts to increase and scale battery recyclability and innovation.

25 countries and the European Parliament support a ban, moratorium, or a precautionary pause on DSM. GM's market share could be reduced should these countries follow their moratoriums with laws or regulations limiting or banning the sale of batteries containing deep sea minerals. Financial institutions are also increasingly taking stances against deep sea mining, which could reduce GM's access to financing and insurance.

DISCUSSION

1. Deep sea mining is environmentally destructive.

While the green transition – including electric vehicle (EV) deployment – quickens its pace, some companies are considering using minerals strip-mined from the seafloor for battery-related minerals, namely cobalt, copper, manganese, and nickel. Supporters of DSM argue that mining deep sea nodules poses fewer risks to climate and biodiversity compared to terrestrial mining. However, growing scientific consensus shows otherwise.

DSM risks damage to sensitive marine ecosystems on an enormous scale. Studies show that DSM is likely to be devastating to marine ecosystems, even when performed cautiously. Dredging obliterates seafloor



life and releases sediment plumes laced with toxic metals that poison marine food chains.¹ Removing nodules removes habitat for deep sea life including corals and sponges.² In the Clarion-Clipperton Zone – an undisturbed seabed in the Pacific Ocean identified as a future hotspot for DSM – researchers found the presence of over 5,500 species, with 92% of those species being new to science. This is likely only a small fraction of the over 90% of ocean species yet to be classified.³ Studies simulating deep sea mining demonstrate that biodiversity is likely to steeply decrease after deep sea mining, with little to no recovery after over 25 years.⁴

To mine the deep sea means disrupting the web of interspecies relationships and the services they provide, in ecosystems we do not yet fully understand. Deep sea life has evolved over millions of years to be reliant on the unique and undisturbed environment of the deep sea. Studies have found that deep-sea organisms are slow-growing and fragile, and habitats may never recover to pre-impact states.⁵

The likelihood of biodiversity loss associated with DSM also jeopardizes fish-based livelihoods and food supplies.⁶ As importantly, industrial-scale seafloor exploitation could have grave consequences for the ocean's ability to absorb carbon dioxide and may lead to release of carbon stores.⁷ In the deep sea, it takes roughly 10,000 years for the ocean floor sediment layer to grow 1 millimeter, a process that includes sequestering carbon. The robotic mining vacuum's disturbance reaches 10 centimeters into the seafloor, releasing a million years' worth of carbon.⁸

2. Deep Sea mining is not necessary to support substantial battery electric vehicle deployment, as demonstrated by moratorium commitments from GM's peers.

As of April 2024, 47 companies have signed the business statement calling for a moratorium on deep seabed mining. GM lags its auto manufacturing peers BMW, Polestar, Renault, Rivian, Scania, Volkswagen, and Volvo which have all supported a global moratorium on DSM and have committed to not sourcing minerals from the deep seabed. These companies have also excluded deep sea metals from their procurement policies and/or their investment policies. Several battery manufacturing and charging infrastructure companies including Addvolt and Charge have also been proactive in committing to or supporting a DSM moratorium.^{9,10}

Increasingly, car companies are using electric vehicle battery chemistry without cobalt and nickel – two of the metals found in nodules mined from the deep sea.¹¹ For example, lithium iron phosphate (LFP)

¹ <https://nhm.openrepository.com/handle/10141/622833>

² <https://www.sciencedirect.com/science/article/pii/S0308597X1630495X?via%3Dihub>

³ <https://oceanservice.noaa.gov/facts/ocean-species.html#:~:text=vital%20ocean%20ecosystems,-Scientists%20estimate%20that%2091%20percent%20of%20ocean%20species%20have%20yet,%2C%20unobserved%2C%20and%20unexplored..>

⁴ <https://www.nature.com/articles/s41598-019-44492-w>

⁵ <https://www.fauna-flora.org/wp-content/uploads/2023/05/fauna-flora-deep-sea-mining-update-report-march-23.pdf> p.17-18

⁶ <https://www.nature.com/articles/s44183-023-00016-8>

⁷ <https://www.mining.com/deep-sea-mining-could-contribute-to-increasing-the-scale-speed-of-climate-change-study/>

⁸ <https://www.reuters.com/graphics/MINING-DEEPSEA/CLIMATE/zjpqezqzlp/>

⁹ <https://www.stopdeepseabedmining.org/endorsers/>

¹⁰ <https://www.racetothetop.app/>

¹¹ <https://www.iea.org/reports/global-ev-outlook-2023/trends-in-batteries>



batteries have grown in popularity due to lower cost, higher stability,¹² greater availability of raw materials, better resilience to price shocks, and fewer ESG concerns.¹³ In early 2022, half of the Teslas coming off the production line globally used LFP battery technology.¹⁴ BMW, Ford, and Rivian announced plans to switch multiple models and/or their entire lineups to LFP batteries.¹⁵ Others battery technologies, including sodium-ion, avoid some, if not all, deep sea metals and are already incorporated into production by several automakers and battery manufacturers including the world's second biggest electric carmaker BYD¹⁶, CATL¹⁷, and Yiwei, a joint venture of VW.¹⁸ Solid-state batteries are increasingly being deployed, such as Solid Power¹⁹ which BMW plans to use in a 2025 model.²⁰ Toyota and Honda are working on solid state batteries.²¹ Other cobalt, nickel and copper free options are attracting attention including sodium sulfur,²² lithium-sulfur²³ and certain lithium silicon batteries.²⁴

These commitments reflect strong consensus that mineral needs can be met without DSM. Statements by mining interests and others have distorted much of the public's perception of the need for DSM, resulting in a false correlation between deep sea minerals, EV production, and a green transition.²⁵ The institute for Sustainable Futures concluded that even under a global, 100% renewable energy by 2050 scenario — the most ambitious future energy scenario — mineral needs could be met without mining the deep sea.²⁶

SINTEF, one of Europe's largest independent research organizations, presented models showing that new technology, circular economy strategies, and increased recycling could reduce demand for critical minerals by 58% by 2050.²⁷ Currently, just 8.6% of the world's materials are part of a circular economy, but by 2050, researchers predict 45–52% of cobalt, 22–27% of lithium, and 40–46% of nickel could be supplied from recycled materials.²⁸ The European Academies Science Advisory Council (EASAC), which represents all National Academies of Science in Europe, supports a moratorium on DSM until ecological consequences can be properly understood, measured, and controlled. In a 2023 statement, EASAC concluded that claims that deep-sea mining is essential for the clean energy transition are “misleading” and that deep-sea mining “lacks the mitigation and remedial measures available to terrestrial mining.”²⁹

¹² <https://marketscale.com/industries/transportation/electric-car-battery-bottlenecks-have-a-way-of-being-worked-out/>

¹³ <https://www.fastmarkets.com/insights/the-ev-battery-chemistry-debate-just-got-more-complicated/>

¹⁴ <https://electrek.co/2022/04/22/tesla-using-cobalt-free-lfp-batteries-in-half-new-cars-produced/>

¹⁵ [https://www.recurrentauto.com/research/lfp-battery-in-your-next-ev-tesla-and-others-say-yes#:~:text=What%20is%20an%20LFP%20battery,%20cobalt%20\(NCA\)%20cousins](https://www.recurrentauto.com/research/lfp-battery-in-your-next-ev-tesla-and-others-say-yes#:~:text=What%20is%20an%20LFP%20battery,%20cobalt%20(NCA)%20cousins)

¹⁶ <https://electrek.co/2024/01/05/byd-breaks-ground-first-sodium-ion-ev-battery-plant/>

¹⁷ <https://www.catl.com/en/news/6201.html>

¹⁸ <https://electrek.co/2023/12/27/volkswagen-backed-ev-maker-first-sodium-ion-battery-electric-car/>

¹⁹ <https://www.solidpowerbattery.com/all-solid-state-batteries/default.aspx>

²⁰ <https://www.electrive.com/2023/11/09/bmw-receives-first-solid-state-cells-from-solid-power/>

²¹ <https://www.engineering.com/story/solid-state-ev-batteries-are-closer-than-you-think>

²² <https://www.sciencedirect.com/topics/engineering/sodium-sulfur-battery>

²³ <https://lyten.com/products/batteries/>

²⁴ <https://sionenergy.com/lithium-ion-battery-technology>

²⁵ <https://www.blueclimateinitiative.org/sites/default/files/2023-10/whitepaper.pdf> p.5

²⁶ https://www.eu-midas.net/sites/default/files/publications/DSM%20RE%20Resource%20Report_UIS_July2016.pdf

²⁷ <https://sintef.brage.unit.no/sintef-xmlui/bitstream/handle/11250/3032049/CircularEconomyAndCriticalMineralsReport.pdf?sequence=7&isAllowed=y>

²⁸ <https://oceanfdn.org/wp-content/uploads/2024/02/dsm-finance-brief-2024.pdf> p.4

²⁹ https://easac.eu/fileadmin/user_upload/EASAC_Deep_Sea_Mining_Web_publication_.pdf p.3



UN Sustainable Development Goals also call for both ocean conservation and sustainable consumption and production.^{30, 31} In line with these goals and the Kunming-Montreal Global Biodiversity Framework’s target to protect 30% of seas by 2030,³² companies should be concentrating on reforming terrestrial mining practices, choosing materials with the least environmental impact, investing in developing technology and systems for reducing the use of raw materials, improving recovery and recycling of battery materials (as the EU is requiring in a new law³³), and accelerating the transition to a more circular economy.³⁴ A press statement from BMW emphasized that its “sustainability strategy is also relying more on resource-efficient closed-loop material cycles – with the aim of significantly increasing the percentage of secondary material in vehicles.”³⁵

	DSM Related Commitments	
	Supports a Global Moratorium	Excludes Deep Sea Mined Metals from Supply Chain
Volkswagen	Yes	Yes
Renault	Yes	Yes
BMW	Yes	Yes
Rivian	Yes	Yes
Tesla	No	No
General Motors	No	No

These commitments demonstrate confidence that the transition to EVs and the green transition at large can happen without the addition of another highly damaging, extractive industry. GM’s energy and mobility peers have already concluded the environmental, regulatory, and financial risks are not worth taking. To maintain its reputation and its competitiveness globally, GM can join them in adopting strong exclusionary policies on DSM.

3. GM risks reputational harm by not clarifying its stance on use of deep sea mined materials in its production and supply chains.

³⁰ <https://sdgs.un.org/goals/goal14>

³¹ <https://sdgs.un.org/goals/goal12>

³² <https://www.cbd.int/gbf/targets/3>

³³ <https://www.europarl.europa.eu/news/en/press-room/20221205IPR60614/batteries-deal-on-new-eu-rules-for-design-production-and-waste-treatment#:~:text=All%20waste%20LMT%2C%20EV%2C%20SLI,portable%20batteries%20of%20general%20use.>

³⁴ <https://deep-sea-conservation.org/solutions/no-deep-sea-mining/>

³⁵ <https://www.press.bmwgroup.com/global/article/detail/T0328790EN/bmw-group-protects-the-deep-seas>



Given GM's size and prominence in the U.S. automotive market, investors are concerned that the Company's stance (or lack thereof) on DSM could be consequential to its reputation. GM is a potential customer of deep sea-sourced minerals for its vehicle batteries. Among those who purchase an EV, 72% cite "helping the environment" as a major reason why.³⁶

The emerging deep-sea mining industry embodies one of the most significant new threats to global oceans and their biodiversity. GM may lose competitive advantage and market share if its customers perceive that GM's operations have substantial negative impacts on ocean systems and biodiversity.

While GM may not have taken an affirmative stance on deep sea mined metals, its failure to establish any public facing policies on the subject leaves a vacuum for others to fill. The Company's failure to establish a position on DSM, given that it is the largest automaker in the U.S., can drive investment in DSM. Customers, too, are likely to read into GM's failure to take a stance on DSM. If given the choice between GM and a peer committed to a DSM moratorium, the environmentally minded consumer may choose the latter.

Importantly, if GM ultimately uses deep sea mined materials, the Company will be in contravention of the IRMA responsible mining and refining program of which it is a member.³⁷ The Initiative for Responsible Mining Assurance (IRMA) is a leading independent assessment body, covering a range of environmental and social issues related to industrial scale mines.³⁸ IRMA has taken the position that its system:

"... was not developed to assess the unique risks associated with deep-sea mining and cannot be used to describe best practice for this type of extraction. As such, and in light of the need for ongoing research, the current inability to audit impacts, and a risk that IRMA's Standard could be inappropriately applied if used in the deep-sea context, IRMA does not allow its system...to be used by companies involved in deep-sea mining exploration."³⁹

IRMA's stance highlights that pre-existing mining guidance cannot reasonably be applicable or decision useful for DSM. Losing membership with the leading authority on responsible mining would jeopardize the responsible mining claims GM has made about the minerals used in its production and supply chains. The World Economic Forum (WEF) has also stated that responsible sourcing standards and tools used for terrestrial minerals may not readily transfer to the deep sea.⁴⁰

Deep sea mineral extraction is unique from terrestrial mining in a plethora of ways, and it would be unreasonable to apply any due diligence guidance to deep sea sourced minerals that does not explicitly mention deep sea mining. IRMA and WEF's stances are consistent with the moratorium on DSM, which asserts that we do not yet fully understand the environmental, social, and economic risks of DSM, and

³⁶ <https://www.pewresearch.org/short-reads/2023/07/13/how-americans-view-electric-vehicles/>

³⁷ https://www.gmsustainability.com/pdf/resources-and-downloads/GM_2022_SR.pdf p.78

³⁸ <https://responsiblemining.net/about/about-us/>

³⁹ <https://responsiblemining.net/2022/06/14/irmas-deep-sea-mining-position/>

⁴⁰ https://www3.weforum.org/docs/WEF_Deep_Sea_Minerals_2021.pdf p.6-7



we cannot clearly demonstrate DSM can be managed in such a way that ensures the effective management of the marine environment and prevents loss of biodiversity.⁴¹

As the largest U.S. automaker, GM's failure to take a public stance on DSM, or describe the constraints it would impose before using them, is likely being used to drive investment in deep sea minerals. This not only creates risk of reputational damage, but also creates systemic risk associated with resulting marine fishery failures and massive release of carbon from the ocean floor, even from initial testing of this mining technology.

4. Including deep sea sourced minerals in its production and supply chains opens GM up to regulatory and financial risks.

A growing number of national governments, parliamentarians, regional authorities, and other elected officials and government bodies have joined the call for a precautionary pause, moratorium, or all out ban on DSM in international waters, national waters, or both.²⁵ Countries including Canada, France, and the U.K., the European Parliament, and over 20 parliamentarians have taken stances against DSM.⁴² Additionally, over 800 marine science and policy experts from over 44 countries have called for a pause on DSM,⁴³ and 72 Indigenous groups have called for a ban on DSM.⁴⁴ Globally, the DSM industry lacks the social license to operate.⁴⁵

International opposition to DSM risks reducing GM's market share. If GM begins selling models containing deep sea sourced minerals, countries with a DSM ban, moratorium, or pause in place might take legislative or regulatory action (similar to how the U.S. has banned all imports from China's Xinjiang unless the company can prove they were not made with forced labor).⁴⁶ European organizations have already begun advocating for governments to "adopt a ban on the use or import of raw materials from the deep sea"⁴⁷ and to "ensure that relevant specific trade and sectoral regulations include a ban on the import and use of raw materials or manufactured goods that have been obtained from or produced with deep-sea minerals."⁴⁸

The current regulatory arena surrounding DSM is highly charged and uncertain. The International Seabed Authority (ISA) has delayed its target deadline for a finalized deep sea "mining code" to July 2025. Two years after the initial target date,³⁰ major outstanding issues remain, and the regulations require consensus in the executive body of the ISA, giving reason for several state representatives to doubt the extended deadline will be met.⁴⁹ Meanwhile, the CEO of The Metals Company (TMC) – the

⁴¹ https://deep-sea-conservation.org/wp-content/uploads/2024/01/DSCC-Position-Statement-on-Deep-Seabed-Mining_July2019-1.pdf

⁴² <https://deep-sea-conservation.org/solutions/no-deep-sea-mining/momentum-for-a-moratorium/governments-and-parliamentarians/>

⁴³ <https://seabedminingsciencestatement.org/>

⁴⁴ <https://www.blueclimateinitiative.org/say-no-to-deep-sea-mining#:~:text=Indigenous%20Voices%20for%20a%20Ban%20on%20Deep%20Sea%20Mining&text=Cultures%20across%20the%20Pacific%20consider,a%20member%20of%20our%20family.>

⁴⁵ <https://www.nature.com/articles/s44183-023-00009-7>

⁴⁶ <https://www.businessinsider.com/congress-passes-ban-on-all-imports-from-chinas-xinjiang-2021-12>

⁴⁷ <https://www.sharkproject.org/en/cooperation/ocean-resilience/deep-sea-mining/>

⁴⁸ <https://seas-at-risk.org/wp-content/uploads/2023/03/The-unsustainability-of-deep-sea-mining-Unearthing-threats-to-the-UN-Sustainable-Development-Goals.pdf> p.9

⁴⁹ <https://news.mongabay.com/2024/04/deep-sea-minings-future-still-murky-as-negotiations-end-on-mixed-note/>



main company pursuing DSM – has claimed the company is on track for its plans to launch commercial mining in July 2024 regardless of the state of the development of the regulations for exploitation, using a legal loop-hole called the two-year rule.⁵⁰ Thus, the first deep sea sourced minerals to come to market may be unregulated and are likely to remain unregulated as there is no funding mechanism from the ISA to routinely monitor the impacts of DSM or to ensure that companies extracting nodules from the deep seabed are accountable for the environmental damage they cause. This creates risk to potential future purchasers such as GM.

GM's inclusion of deep sea minerals may also reduce its access to financing. A growing movement of leading financial institutions have called on governments to not permit DSM.³⁷ These financial institutions represent over EUR 3.3 trillion and cite policy, regulatory, and reputational risks in their statement opposing DSM.⁵¹ The UN Environment Program's Finance Initiative (UNEPFI) states –

“ . . . the sustainable blue economy is a goal for the wider blue economy, and therefore excludes non-renewable extractive industries (e.g. offshore oil and gas, and deep seabed mining) ...”⁵² and that “[i]n their current form, there is no foreseeable way in which the financing of deep-sea mining activities can be viewed as consistent with the Sustainable Blue Economy Finance Principles.”⁵³

Similarly, the European Investment Bank excludes DSM as “Projects unacceptable in climate and environmental terms.”⁵⁴ Several financial institutions, including Swiss Re,⁵⁵ Credit Suisse,⁵⁶ Lloyds,⁵⁷ Standard Chartered,⁵⁸ NatWest,⁵⁹ Storebrand Asset Management,⁶⁰ Triodos Bank,⁶¹ and BBVA bank⁶² have come out with exclusions on DSM.

The financial risks of DSM continue to compound when the market volatility, macroeconomic trends, and technical hurdles associated with the industry are analyzed. Business models for DSM rely on expected growth in demand for EV minerals, so demand fluctuations, including reductions in new demand due to recycling, may affect the industry's ability to sell DSM products. A report commissioned by the ISA found that, considering the uncertainty around the prices for commercial metals, it is possible that relatively high-cost minerals from the seabed will not be competitive, and will generate little to no

⁵⁰ <https://www.miningwatch.ca/news/2023/11/15/while-metals-company-construct-their-own-reality-commercial-deep-sea-mining-long#:~:text=TMC%20CEO%20Gerard%20Barron%20claimed,called%20the%20two%2Dyear%20rule.>

⁵¹ <https://www.financeforbiodiversity.org/leading-financial-institutions-call-on-governments-to-not-permit-deep-sea-mining/>

⁵² <https://www.unepfi.org/publications/turning-the-tide/> p.16

⁵³ <https://www.unepfi.org/publications/harmful-marine-extractives-deep-sea-mining/>

⁵⁴ https://www.eib.org/attachments/publications/eib_eligibility_excluded_activities_en.pdf

⁵⁵ <https://www.swissre.com/dam/jcr:52d75760-2c43-4d96-be2f-0514382ac51a/2023-sustainability-report-en.pdf>

⁵⁶ <https://www.eco-business.com/news/credit-suisse-joins-growing-list-of-banks-shunning-deep-sea-mining/>

⁵⁷ [https://www.lloydsbankinggroup.com/assets/pdfs/investors/annual-report/2019-download-](https://www.lloydsbankinggroup.com/assets/pdfs/investors/annual-report/2019-download-links/2020apr_lbg_esg_approach.pdf)

[links/2020apr_lbg_esg_approach.pdf](https://www.lloydsbankinggroup.com/assets/pdfs/investors/annual-report/2019-download-links/2020apr_lbg_esg_approach.pdf) p.20

⁵⁸ <https://www.sc.com/en/about/sustainability/position-statements/extractive-industries/>

⁵⁹ <https://www.mining-technology.com/news/banks-one-third-uk-assets-deep-sea-mining/?cf-view>

⁶⁰ https://www.storebrand.no/filbibliotek/_attachment/inline/42b9db43-4da4-4333-a1cc-21680cf63260/86158%20-Storebrand-Policy-on-Nature.pdf

⁶¹ <https://www.triodos.com/en/articles/2021/triodos-bank-supports-moratorium-on-deep-sea-mining>

⁶² <https://shareholdersandinvestors.bbva.com/wp-content/uploads/2021/01/Environmental-and-Social-Framework- -Dec.2020-140121.pdf>



profit.⁶³ Metal prices have fluctuated over the past decade, in part because of battery innovation, and have not risen in tandem with EV production. For example, EV production has increased by 2000% between 2016 and 2023, yet cobalt prices have dropped by 10%⁶⁴ and nickel prices have crashed over 40% since last year.⁶⁵

Experts are questioning whether deep sea mining is even technically viable.⁶⁶ The technology to mine the deep seabed on an industrial scale is unproven while the delivery rate needed to be profitable is high. The development plan of The Metals Company (TMC) requires 12.2 million tons of (wet) material a year, which would require 33,000 tons a day, or 1,392 tons an hour, assuming operations continued 365 days a year, 24 hours a day.⁶⁷ For reference, in Fall 2022, TMC brought up 3,000 tons of nodules (of the 4,500 tons it collected) during a two-month long collector test. To achieve full production, TMC must achieve a rate 3,000x its current rate.⁶⁸ TMC would have to deliver at this rate using remotely operated vehicles (with limited spatial awareness, depth perception, and ability to transmit information wirelessly) while dealing with unique operational challenges including high pressure at unprecedented depths, freezing temperatures, corrosive sea water, high turbidity, and low light.⁶⁹

Investor's caution over these mounting risks have been demonstrated by TMC's performance on the stock market. TMC has repeatedly struggled to maintain a stock price above \$1 and thus to stay listed on the NASDAQ, receiving three delisting notices since December 2022. Using TMC's own financial model with a market adjusted discount rate (TMC's original 9% rate is *extremely* optimistic considering its risk profile) the total project's net present value would be brought down from the \$6.8 billion projected in TMC's published financial model to \$1.8 billion, a 73% reduction based on a change in the discount rate alone (and not reflective of either decreased metal prices or increased costs since the financial model's publishing in 2021).⁷⁰

Given these factors, TMC's profitability and ability to steadily deliver materials is highly uncertain. Should GM integrate deep sea sourced minerals into its production and supply chains, the Company could be met with inconsistent and unreliable supply, leading to costly production delays.

Finally, DSM introduces risk to investors at an economy-wide scale as well. One recent report calculated a loss in value of ecosystem services of U.S. \$465 billion if 10,000 square kilometers were mined annually for 15 years.⁷¹ This is a highly conservative estimate given significant knowledge gaps regarding deep sea ecosystems. Another report noted that:

The latest scientific research indicates that the environmental damage caused by DSM is likely to be extensive, irreversible and unmitigable. DSM "risks disrupting the global carbon cycle,

⁶³ <https://www.isa.org/jm/wp-content/uploads/2022/12/ISA-Technical-Study-32.pdf> p.16

⁶⁴ <https://oceanfdn.org/wp-content/uploads/2024/02/dsm-finance-brief-2024.pdf>

⁶⁵ <https://www.bloomberg.com/news/articles/2024-02-03/from-green-hype-to-bailouts-the-nickel-industry-has-imploded?embedded-checkout=true>

⁶⁶ <https://nautil.us/the-dubious-economics-of-deep-sea-mining-309597/>

⁶⁷ https://www.sec.gov/Archives/edgar/data/1798562/000121390021013348/ea137001ex99-2_sustainable.htm

⁶⁸ <https://allseas.com/news/trial-run-concludes-with-record-haul/>

⁶⁹ <https://www.nature.com/articles/s41893-020-0558-x>

⁷⁰ <https://oceanfdn.org/wp-content/uploads/2024/02/dsm-finance-brief-2024.pdf> p.15-16

⁷¹ <https://planet-tracker.org/wp-content/uploads/2024/02/How-to-Lose-Half-a-Trillion.pdf>



threatens fisheries and food security, and would lead to extensive and irreparable biodiversity loss with devastating consequences for both people and planet."⁷²

Given the role of deep sea biodiversity in food webs, the deep sea's role in the global carbon cycle, the high vulnerability of deep sea ecosystems to disturbance, and our own limited knowledge of deep sea systems,⁷³ the significant disturbance caused by deep sea mining represents a threat to the very systems that support the global economy and thus to diversified portfolios.

The DSM industry is demonstrably fraught with risk. By adopting a policy restricting deep sea mineral use, and prioritizing investments in battery recovery, recyclability, and innovation, GM can avoid the myriad risks associated with deep sea mining, especially at this early stage, while also permanently reducing need for this destructive and expensive technology.

RESPONSE TO GM BOARD OF DIRECTORS' STATEMENT IN OPPOSITION

- ***Board Statement: GM's commitment to fostering a sustainable supply chain guided by science and data drives our vision for an all-electric future.***

Proponent Stance: The Board regards its investments in research and development, design and engineering, manufacturing, and its supply chain as critical for contributing to a more sustainable future. 'Sustainability' is more than emissions reductions. While EVs will play a significant role towards a more sustainable future, conservation of important and vulnerable resources is equally important. Preventing biodiversity and nature loss is necessary to maintain the vital ecosystem services we depend on. GM cannot risk supporting, actively or passively, a new extractive industry with the likelihood of extensive and dramatic environmental and climate impacts in an *attempt* to reduce emissions from vehicles. Creating a new problem to solve an existing problem is poor systems thinking.

- ***Board Statement: "The adoption of new technologies, including those like deep-sea extraction, is subject to GM's robust processes and policies applicable to onboarding suppliers."***

Proponent Stance: The Board elaborates "GM would treat any hypothetical future engagement with suppliers involved in deep-sea extraction like any other and require the supplier to, at a minimum...comply with its Responsible Minerals Sourcing Policy, which is aligned with the principles established by the Organization for Economic Co-operation and Development." To date, the approach of Organization for Economic Co-operation and Development Due Diligence Guidance (OECD DDG) does not provide guidance for sourcing minerals mined from the deep sea. Therefore, compliance with OECD guidance is not relevant to the ask of the proposal. Should manufacturers or metals markets seek to transfer the approach of the OECD DDG to the deep sea to promote the exclusion of minerals whose production does not meet their environmental or social expectations, or those of their stakeholders, the task would be formidable.

⁷² <https://eifoundation.org/resources/downloads/towards-the-abyss-eif-deep-sea-mining-report.pdf>

⁷³ <https://eifoundation.org/resources/downloads/towards-the-abyss-eif-deep-sea-mining-report.pdf> p.6-8



The OECD DDG is a 120-page document, which details roles, responsibilities, risks, model policies and recommended actions in a range of specified circumstances for each entity in the supply chain. Initially designed for application to small-scale mining in areas of physical insecurity, the text of the document reflects circumstances that are significantly different from those of deep-sea mineral extraction. It does not currently cover DSM. Additional guidance, requiring working group consultations and lengthy stakeholder engagement processes, was required for each new sector incorporated in the OECD DDG. The few issues manufacturers and metal exchanges currently address through the OECD DDG – the association of mineral extraction with gross human rights violations and conflict – are not stakeholders' principal concern with deep-sea minerals.

New and detailed guidance would need to be written and agreed upon if the approach of the OECD DDG were to be transferred to deep-sea minerals, and this process could take many years. Ten years elapsed between the inception of the OECD DDG in 2006, and the first pilot alignment of the standard in 2016-2017. Meanwhile, deep-sea minerals could enter supply chains before the end of the decade.

The Board concludes that if the Company were to pursue a commercial relationship related to deep-sea mineral extraction, "approval, and oversight would be managed by the Company's Senior Leadership Team." However, without a deep sea mineral policy in place, shareholders have no basis to understand what will guide the Company's decision making. It is troubling that GM is not currently heeding the overwhelming scientific consensus that DSM is not only destructive, but unlikely to be necessary or profitable in the future, and that it has failed to publicly state what guardrails it would put in place in order to use deep sea materials..

- **Board Statement:** "GM does not currently utilize deep-sea extraction in its supply chain."

Proponent Stance: Plans to begin mining the deep sea are set to be put into motion as early as July 2024. Deep sea minerals could come to market before the end of the decade, with or without regulation in place. This proposal asks GM to disclose the Company's policies on the use of deep-sea mined minerals in its production and supply chains so that shareholders have information about the risks to marine ecosystem and the Company. Adopting a public DSM policy provides an important way for the Company to signal a cautious approach to the issue, while helping it remain competitive with its peers.

CONCLUSION

Vote "Yes" on this Shareholder Proposal 6. This proposal reduces GM's risk exposure to highly controversial deep sea mining.

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For questions, please contact Elizabeth Levy, As You Sow, elevy@asyousow.org

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2024 Proxy Memo

General Motors Inc | Adopt a Policy on use of Deep Sea Mined Minerals