



April 22, 2024

Tricia Light  
White House Office of Science and Technology Policy (OSTP)  
RE: Marine Carbon Dioxide Removal Research Plan  
Submitted via email to Tricia.M.Light@ostp.eop.gov

Dear Ms. Light and Colleagues:

The [Carbon Business Council](#) (CO2BC) is a nonprofit trade association of more than 100 innovative carbon management companies with over \$16.5 billion in combined assets working across six continents. We appreciate this opportunity to submit comments on the Marine CDR Plan in response to the National Science Foundation (NSF) Request for Information (RFI) [89 FR 13755](#), on behalf of the White House National Science and Technology Council (NSTC) Marine Carbon Dioxide Removal Fast-Track Action Committee (MCDR-FTAC).

In January 2024, the CO2BC published an [Issue Brief](#), developed with a working group of over 20 CO2BC member companies and ecosystem partners, highlighting the critical importance of marine carbon dioxide removal (mCDR) to achieving national and global climate goals. We and our members are thus pleased to see the emphasis and urgency to develop a mCDR Plan represented by the MCDR-FTAC, and strongly support the Committee's vital work.

We would like to provide comments on the following "Questions to Inform Development of the Strategy," as listed in the RFI:

1. *How would a Marine CDR Plan affect you, your organization, or your community?*

- As highlighted in CO2BC's January 2024 [Issue Brief](#), mCDR has to date not received funding support or regulatory guidance commensurate with its massive climate mitigation potential. The National Academies of Science have estimated that at least \$1.5 billion of funding is needed this decade for mCDR across research, development, and deployment (RD&D), and our hope is that the mCDR Plan will galvanize support for increased funding, and offer a roadmap for how that funding can be most beneficially deployed.<sup>1</sup>
- Another key obstacle for mCDR RD&D is the lack of any fit-for-purpose regulatory framework. We are hopeful that the mCDR Plan will address this gap, and provide more detailed thoughts on regulation and permitting in comments on question #2.
- A comprehensive and appropriately funded federal mCDR Plan that provides a framework and roadmap for RD&D of the full range of mCDR approaches will establish the U.S. as a global leader in the responsible advancement of mCDR. This would serve as a model for other nations, as well as attract investment and position the U.S. to reap significant

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<sup>1</sup> [Research Strategy for Ocean Carbon Dioxide Removal and Sequestration](#). NASEM, 2022.

economic benefits (including jobs creation) from this promising commercial sector.<sup>2</sup> Strong and science-based Federal Government oversight will additionally help foster the social license needed to responsibly advance mCDR RD&D.

*2. What questions or concerns do you have about the regulation of marine CDR, including marine CDR research? What tools or resources should the Federal Government provide to support the safety and effectiveness of marine CDR research, including testing at scale in the field? What knowledge exists, and what additional knowledge is needed to inform the safe and effective regulation of marine CDR research? What knowledge exists and what additional knowledge will be needed to inform decisions about the readiness of any marine CDR approach for full-scale deployment or commercial application?*

- We understand that the term “dumping” has legal, regulatory, and legislative precedent both in the U.S. and internationally. However, we urge the MCDR-FTAC to take the opportunity of the mCDR Plan to retire this language, which has a strongly negative connotation, in favor of more neutral terminology. mCDR activities seek to generate net climate benefit via restoring and sustaining ocean health and should not be conflated with waste disposal or other polluting activities. Furthermore, many mCDR approaches may offer meaningful ecosystem co-benefits, such as local mitigation of ocean acidification.<sup>3</sup> Additionally, not all mCDR activities encompass adding material to the ocean – e.g. direct ocean capture, blue carbon, marine permaculture, etc.
- We encourage the Federal Government to avoid the conflation of mCDR with other climate interventions, such as marine solar radiation management (mSRM), that employ distinct methods for a differing purpose.
- We do not see a clear distinction between “research” and “commercial” mCDR activities in practice, and encourage the mCDR Plan to avoid these labels in favor of a focus on project scope, scale, climate benefit, and other impacts. Public-private partnerships offer an opportunity to accelerate the advancement of the mCDR field and create a magnifying effect on public investment. It has been encouraging to see the Federal Government’s support for this kind of public-private collaboration by many of the September 2023 [NOPP awards](#) and October 2023 [ARPA-E mCDR grants](#), and we are hopeful that the mCDR Plan will continue to foster such engagement.
- While existing statute offers some pathway for permitting mCDR RD&D – and the CO2BC was pleased to see [the permit recently awarded member company Vesta](#) for its Duck, NC field trial – we encourage the MCDR-FTAC to identify opportunities to implement more fit-for-purpose regulatory frameworks for mCDR RD&D activities. Additionally, given the number of federal agencies involved, we echo others’ call for the creation of a permanent interagency working group to facilitate and expedite mCDR permitting questions.
- Pre-permitted mCDR testing facilities (potentially implemented via National Labs) would offer a significant accelerant to responsible RD&D.

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<sup>2</sup> [Carbon Removals: How to Scale a New Gigaton Industry](#), McKinsey & Company, 2023.

<sup>3</sup> [CDR: Mitigating Ocean Acidification and Climate Change](#). NOAA Ocean Acidification Program.

3. Which marine CDR techniques or what aspects of marine CDR do you believe the Federal Government should prioritize for research? Are there particular marine CDR approaches that you believe are especially promising with regard to climate change mitigation, ocean acidification, or other benefits? Are there particular marine CDR approaches that you believe are particularly more or less risky with regard to the environment, public health and communities, or other uses of the sea?

- As a tech-neutral trade association, the CO2BC encourages the Federal Government to develop the mCDR Plan in a method-neutral fashion that does not promote or exclude any individual approach. Just as we will need a portfolio of CDR solutions to meet our climate goals, we should seek to advance RD&D for a portfolio of approaches within mCDR.

4. What kinds of information about marine CDR would be most helpful for the Federal Government to make available to the public, research community, and other stakeholders? How should the government engage marine CDR stakeholders and the public, including Indigenous communities and communities that may be affected by marine CDR?

- The Federal Government has a critical role to play in public engagement and education with respect to mCDR. While public awareness is currently very low, initial polling suggests that coastal communities are open to the mCDR opportunity, and concerned about the effects of climate change.<sup>4</sup> We encourage the mCDR Plan to include significant funding and operating support for public engagement and education, and capacity building for marine NGOs.
- Providing resources and support to state and local permitting authorities who may be unfamiliar with mCDR can potentially help to advance responsible RD&D. Similarly the Federal Government can beneficially provide materials to support public engagement for mCDR RD&D and templates for effective and equitable community benefit plans.
- Initial mCDR field trials and pilot deployments [are starting](#) to scale, and represent an excellent opportunity for the Federal Government to showcase the mCDR opportunity with site visits supported by clear, evidence-based communication and transparent data sharing. Existing deployments from CO2BC members in the U.S. include:
  - Captura: two operational direct ocean capture pilots in [Los Angeles](#)
  - Ebb Carbon pilot system at DOE's [Pacific Northwest National Laboratory](#)
  - Equatic pilot system in [Los Angeles](#)
  - Planetary ocean alkalinity enhancement field trial in [Hampton Roads, VA](#).
  - Vesta coastal carbon capture field trial in [Duck, NC](#)
  - Vycarb pilots in [New York and Massachusetts](#)

5. What are the most significant marine CDR efforts being undertaken by academia, industry, philanthropy, non-governmental organizations, and other governments that the Federal Government should be aware of? What factors should the Federal Government take into account when considering

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<sup>4</sup> [Coastal Americans Overwhelmingly Support Ocean-Based Carbon Dioxide Removal, and Are Alarmed About Climate Change Impacts](#). Climate Nexus, March 2022.

*potential partnerships between these entities and the Federal Government? What are the biggest challenges that the Federal Government and potential partners may face in collaborating, and how could the Federal Government help overcome these challenges? What examples of partnerships are most relevant to potential marine CDR partnerships?*

- CO2BC would be pleased to partner with the Federal Government to advance mCDR RD&D. Additionally, CO2BC ecosystem partners such as [Ocean Visions](#), [Carbon to Sea](#), [\[C\]Worthy](#), Columbia's [Sabin Center for Climate Change Law](#), the [Institute for Responsible Carbon Removal](#), [World Ocean Council](#), and [Yale Center for Natural Carbon Capture](#) offer excellent partnership opportunities with strong mCDR domain expertise.
- Public-private partnership will be a key enabler and accelerant for advancing responsible mCDR RD&D. mCDR expertise, capacity, and capability are distributed across the public and private sectors, as well as the marine research community, National Labs, and NGOs. The field will advance most quickly when ecosystem actors work together, and are not separated into silos such as “research” and “commercial.” Deployment-led learning and innovation will be key, and we encourage the mCDR Plan to facilitate this kind of collaboration to enable the participation of private-sector and philanthropic capital, including the sale of CDR credits, to supplement and help scale public sector investment.

*6. What else would you like the Federal Government to consider as it develops a Marine CDR Plan?*

- As outlined in CO2BC's May 2023 [Issue Brief](#), high-quality monitoring, reporting, and verification (MRV) is of critical importance to building the market trust and social license necessary to scaling CDR to meet our climate goals. [NOAA's September 2023 \\$24M funding awards](#) and [ARPA-E's October 2023 \\$36M funding awards](#) included some MRV projects, but further sustained and scaled support is needed.<sup>5</sup>
- In addition to scaling RD&D funding for mCDR, the Federal Government has the opportunity to set verification standards and show what high-quality, science-based MRV looks like via its CDR procurement and other funding programs. E.g. more explicit inclusion of mCDR as areas of interest (AOI) in DOE's [CDR Purchase Pilot Prize](#) and [Voluntary CDR Purchase Challenge](#), as well as funding an mCDR AOI for DOE's [Carbon Negative Shot Pilot Program](#) would contribute significantly to advancing high-quality MRV for mCDR. The CO2BC encourages the MCDR-FTAC to include these ideas in the mCDR Plan.
- A key accelerant for the mCDR field would be the expansion of the 45q tax credit to include mCDR – or the implementation of a separate method-neutral CDR tax credit that supports mCDR activities. The CO2BC encourages the MCDR-FTAC to highlight this opportunity in the mCDR Plan.

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<sup>5</sup> [U.S. Congressional Action Needed to Accelerate Ocean-Based CDR Solutions](#). Carbon to Sea, March 2024.



We would be pleased to discuss these questions further with the MCDR-FTAC and other relevant Federal Government stakeholders, and connect you with CO2BC members and partner organizations working to advance mCDR. We very much appreciate the important work that you and your colleagues do, and the opportunity to submit this input for your consideration.

Sincerely,

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