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SABIN CENTER FOR CLIMATE CHANGE LAW

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The Rocky Mountain Institute ("RMI") in collaboration with the Massachusetts Clean Energy Center ("MassCEC") drafted a study of carbon dioxide removal ("CDR") opportunities within Massachusetts. RMI completed a draft of the study and opened the draft to public comment to further inform the final report. The Sabin Center for Climate Change Law ("Sabin Center") submitted these comments, to fully analyze questions around permitting, governance and policy for CDR projects in Massachusetts.

- Section 2.1.5. Permitting: The RMI study highlights laws that apply to CDR projects, including specifying laws that apply specifically to marine CDR projects.

While the discussion on permitting is helpful, there are a few points that need to be clarified. The current draft states: "At an international level, the London Protocol and London Convention influence dumping and research in international waters" (page 20, line 15). The use of the word "influence" here is ambiguous; "governs" or "regulates" would be clearer.

Also, it would be useful to clarify that the London Convention and London Protocol are separate agreements that operate in parallel. Their application is not limited to "international waters," as is implied in the current draft of the report (page 20, line 16). Instead, the agreements impose obligations on countries that have ratified the agreements. Those countries are obliged to regulate activities within their jurisdiction, including in their domestic waters. The U.S. has ratified the London Convention, but not the London Protocol, and is therefore bound by the Convention (but not the Protocol). The statement in the current draft that "the US is not party to this international agreement" is thus incorrect (page 20, line 17).

The statement that the London Convention and London Protocol "impact … how ocean fertilization (which leads to microalgae growth), mineral alkalinity enhancement, electrochemical alkalinity enhancement, and macroalgae and sinking are administered outside of [US] state and national waters" also requires clarification (page 20, line 17). Parties to the London Convention and Protocol have stated that those instruments apply to ocean fertilization activities and provided guidance on when those activities may be allowed. The U.S. has indicated that it will follow that guidance when permitting ocean fertilization

projects, both within its national waters and on the high sea. The London Convention and London Protocol thus do not just impact how projects "are administered outside of state and national waters" as currently stated in the report. It is also important to note that the parties to the London Convention and London Protocol are yet to decide how to treat the other mCDR approaches listed in the report. They have suggested, for example, that some ocean alkalinity enhancement activities might be regulated under the London Convention and London Protocol but others may not. It is thus incorrect to say that all forms of "mineral" and "electrochemical" alkalinity enhancement will be impacted by the London Convention and London Protocol.

The U.S. implements its obligations under the London Convention through the MPRSA. The draft states that the MPRSA "regulates ocean dumping in the US up to 12 miles off the coast" but this is incorrect (page 20, line 21). The MPRSA applies in two distinct situations: (1) the dumping of materials into ocean waters within 12 nautical miles (not regular) miles of the coast; and (2) the dumping of materials in any ocean area (including an area more than 12 nautical miles from the coast), where the materials were loaded onto a vessel in the U.S., or where the vessel used is registered or flagged in the U.S. (regardless of where the vessel was loaded). This needs to be clarified in the report.

The report should also note that other federal laws may apply to mCDR activities. Most notably, the Clean Water Act may apply to a number of mCDR projects, such as electrolytic ocean alkalinity enhancement, and is worth flagging in the report. The EPA has issued permits for mCDR projects under both the MPRSA (the WHOI LOC-NESS project in the Gulf of Maine) and the Clean Water Act (Ebb Carbon's Project Macoma in Washington State). We recommend updating the permitting section to include the above changes on the application of the MPRSA and the inclusion of the Clean Water Act.

The sentence on laws applicable to CDR projects on land is helpful. We recommend including, as an additional example of potentially applicable laws, those regulating the subsurface injection of carbon dioxide which will have relevance to many CDR activities.

- Section 3.1.6. Political and Sociocultural Environment: The RMI study discusses Massachusetts's policies and public acceptance towards CDR

The discussion on political and sociocultural issues highlights an important, and underdiscussed, factor when considering CDR. On page 24, line 35, we recommend changing the wording from "excuses" to "concerns exist that CDR deployment pulls resources away from, or reduces the incentive to pursue, necessary deep decarbonization" or something similar.

Further, on community engagement, we recommend highlighting the WHOI LOC-NESS project conducted in Martha's Vinyard, and in particular the examples of public opposition during the notice and comment period on the permit application for that project (which is public on EPA's website). This would provide additional nuance, particularly on the potential for opposition to CDR projects, even if there is general support for action on climate change. The example also demonstrates the importance of expanded public education on CDR generally and early and robust engagement around individual projects.

- Section 6.1.2. Governance: RMI provides a number of policy options available to Massachusetts to improve regulation of CDR

In the section on "Governance policy options for Massachusetts," we recommend including an additional recommendation on the need to distinguish between scientific research and deployment. This is particularly important for mCDR. At the international level, parties to the London Convention, London Protocol, and Convention on Biological Diversity have indicated that certain mCDR research activities may be permitted, but deployment should not take place until there is improved understanding of the activities' benefits and risks. This makes sense since research projects and large-scale deployment of mCDR have different risk profiles and potentially different levels of public support. There is, however, often uncertainty as to how to distinguish between research and deployment. Massachusetts should consider establishing a clear definition of scientific research and separate permitting requirements for research projects as distinct from deployments. This could have multiple benefits. First, it could help enable needed scientific research to answer questions on mCDR efficacy and potential risks. Second, it could enable Massachusetts to limit large-scale deployment until there is improved scientific understanding of mCDR and a valid basis for pursuing it.

The report could also recommend a state leasing program, similar to Alaska's carbon offset program. Alaska's program enables the state to implement carbon offset projects on State land, either through state-led projects or by leasing state land to private parties. The projects are vetted by the state, and are registered with independent carbon registries. The offset program thereby generates revenue through carbon offset credits while providing other environmental, social, and economic co-benefits and an opportunity for businesses to meet voluntary carbon-reduction targets. Massachusetts could implement a similar program, leasing available carbon land for CDR projects run either by the state or private parties. This provides for faster and clearer permitting procedures for CDR projects, and generates revenue for the state through the sale of carbon offset credits.

- Section 6.4.3. Consideration of Reversal Risk: RMI highlights the risks posed by CDR through reversal, where the captured carbon dioxide returns to the atmosphere

We would recommend including discussion on how insurance and buffer pools could work to mitigate reversal risk, and Massachusetts's ability to mandate their use. Massachusetts could mandate an insurance mechanism similar to the Price-Anderson Act, where the insurance mechanism allows for quick compensation for any harms caused, but has a strict limit on the amount of harm for which private actors could be held responsible. As assessing the damage caused by CDR may be difficult, an insurance mechanism provides an otherwise lacking degree of predictability.

Massachusetts could also implement a carbon credit buffer pool. Given the number of uncertainties in CDR, it is likely that some operators would be unable to deliver on carbon credits promised. By creating a buffer pool, Massachusetts can guarantee hitting carbon reduction targets, accounting for the uncertainties. However, buffer pools could provide challenges. In California, buffer pools have been severely undercapitalized, and wildfire losses have exposed their inability to reliably guarantee the environmental integrity of California's forest offsets program.

- Section 6.5.1. Lessons from Existing Policy: The RMI study discusses existing policies in Massachusetts, as well as other state policies, that could support CDR

Massachusetts could designate a state body to lead work on CDR and coordinate across different multiple state agencies, like Washington State's ORIA and New Jersey's Interagency Council on Climate Resilience. Massachusetts already has the Office of Climate Innovation and Resilience, which could fulfill this role. The Office of Climate Innovation and Resilience (or a new body) could help coordinate multi-agency permitting policy and assist those applying for a permit to navigate the process.

- Section 6.6: Additional policy considerations

We recommend adding significantly more discussion on the importance of community engagement. Recommendations CE4 and CE5 are important, but require further explanation in order the be fully understood. We recommend pulling these out into their own subsection, and providing more information on why community engagement is important and what community benefit agreements are. For this, the authors could draw on prior Sabin Center

work on the use of community benefits agreements in connection with direct air capture projects, and our database of example agreements. Environmental justice considerations, particularly in terms of siting, also should be explicitly highlighted, as they must be taken into account when planning CDR projects. Nature-based CDR projects may intersect with Indigenous populations that face disproportionate environmental challenges, and CDR projects located in urban areas may interact with disadvantaged communities. Massachusetts has enacted an environmental justice policy, and requires any policy or project permitted by the government to be in line with environmental justice principles. Explicitly highlighting these principles when discussing CDR siting and permitting reinforces the importance of continuous place-based community engagement.