

## Cascade Climate Response to Call for input 2025 - Draft Standard: Addressing non-permanence/reversals

### About Cascade Climate

Cascade Climate is a philanthropy-backed climate not-for-profit organization focused on addressing aspects of the climate challenge that are underrepresented and underresourced in the current global climate strategy. These challenges—which have potential for significant impact on the climate and our way of life—are unlikely to be resolved through decarbonization alone.

For these emerging climate solutions, Cascade helps remove the biggest bottlenecks to progress by coordinating ambitious cross-sector initiatives, building tools and infrastructure to unlock cycles of learning-by-doing, and resourcing high-leverage R&D and policy work.

Our initial focus is on Enhanced Rock Weathering (ERW) as a promising durable carbon removal and agronomic solution. One of our flagship efforts in ERW has been the development and publication of our [Foundations for Carbon Dioxide Removal Quantification in ERW Deployments](#) report (“Foundations”)—a culmination of a multi-stakeholder process involving approximately 50 academic scientists, 20 ERW project developers, and various not-for-profit organizations.

### Permanence and Reversal Risk in ERW Projects

Enhanced rock weathering is considered a “permanent” carbon dioxide removal (CDR) solution since the practice leads to carbon storage via dissolved bicarbonates in the ocean and groundwater systems on timescales of tens of thousands of years ([Middelburg et al., 2020](#); [Renforth and Henderson, 2017](#)).<sup>1</sup>

“Foundations” recommends ERW practitioners discuss reversal risk, including project-specific considerations, prior to implementation. However, the risk of carbon storage reversals is generally negligible for ERW projects due to the inherent stability of bicarbonate ions in these long-residence-time reservoirs. Carbon losses that occur as bicarbonates travel from the soil profile to a durable carbon storage reservoir should be clearly accounted for in net carbon dioxide quantification. Since these losses are accounted for prior to storage, they are not considered “reversals”.


### Response to Draft Standard: Addressing non-permanence/reversals

Based on the two proposals put forth for the draft standard, we are supportive of the option identified under Section 3 13(a) of the cover note (Appendices 1 and 2). This process would allow for high quality mechanism methodologies with pathway-specific technical standards on reversal risks and permanence.

Please see the template on the following page for additional comments on the draft standard.

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<sup>1</sup> The terms “durable” and “permanent” are often used interchangeably when referring to carbon storage on longer time scales (typically 1,000+ years). However, “durable” is more scientifically accurate since no carbon storage is truly permanent on geologic timescales. We use the term “permanent” here to align with the language in the call for input.

		<b>CALL FOR INPUT</b>	
Name of submitter		Rachel Smith	
Affiliated organization of submitter (if any)		Cascade Climate	
Email of submitter		rachel@cascadecclimate.org	
Date of submission		August 4, 2025	

Instruction: Enter your input in the table below.

Document reference number and title: <b>A6.4-MEP007-A04. Draft Standard: Addressing non-permanence/reversals (version 01.0)</b>				
Item	Section no. (as indicated in the document)	Paragraph/Table/Figure no. (as indicated in the document)	Comment (including justification for change)	Proposed change (including proposed text)
1	Cover note Section 3	13(b)	Remove as option. Reversal risks and the required risk assessments vary by project type and should be embedded into methodologies. The risk profile of a forestry project looks very different from a durable bicarbonate or geologic storage pathway and a uniform approach to addressing risk reversal is not appropriate.	Strike text.
2	Appendix 3		See above.	Strike text.
3	Cover note Section 3	13(a)	Preserve text. This option is essential in recognizing the differences in reversal risks and permanence across carbon removal pathways. Pathway-specific technical standards embedded in methodologies, combined with universal procedural requirements, represent the optimal framework for ensuring environmental integrity while enabling the diverse portfolio of carbon removal technologies.	Preserve text.
4	Appendix 1 Section 3	5(d) and footnote 4	Preserve text and footnote 4 clearly recognizing “enhanced weathering” as a legitimate pathway under Article 6.4.	Preserve 5(d) text and footnote 4

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7	Appendix 1 Section 5	13 - 14	Preserve text. This provision is essential for implementation of carbon removal pathways with durable storage in ocean reservoirs, including enhanced weathering.	Preserve text
5	Appendix 1 Section 6.1	16 and footnote 9	Preserve text because this level of flexibility is critical for various CDR pathways. Expand footnote 9 to specify that mass balance approaches are also permissible for enhanced weathering projects.	Preserve text and add an additional example to footnote 9 "Additionally, mass balance approaches using mineral application rates and geochemical modeling may be used for enhanced weathering activities where direct measurement of distributed carbonate formation is technically or economically infeasible."
6	Appendix 1 Section 7.3	42(a) footnote 17	Expand text to explicitly include geochemical processes beyond participant control.	Add to 42(a) or in footnote 17. "including natural geochemical processes such as carbonate dissolution under changing environmental conditions."
8	Appendix 1 Section 7.1	38	Preserve text. This is essential for recognizing the differences in reversal risk profiles through pathway-specific provisions in mechanism methodologies.	Preserve text.
9	Appendix 2 Section 3.2.2	42 - 44	Preserve text and provide more details on evidence requirements beyond "modeling or other methods"	Preserve text

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