

INPUT ON WASHINGTON STATE CARBON MANAGEMENT FRAMEWORK

Recipient: Washington State Department of Ecology

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Subject: Input on Washington State carbon management framework

Dear Department of Ecology,

Thank you for the opportunity to provide input on Washington State's development of a carbon management framework. We appreciate Ecology's leadership and believe Washington State is exceptionally well positioned to be one of the leaders in carbon mineralization. The Columbia River Basalt Group represents one of the world's most promising geologic resources for in situ CO₂ mineralization—among the best-developed and most scalable opportunities outside Iceland.

Carbfix is a global leader in CO₂ mineralization, with more than a decade of operational experience injecting and permanently storing carbon dioxide in basalt formations. The Carbfix method has been deployed at commercial scale in Iceland, where CO₂ rapidly mineralizes into stable carbonate minerals, with more than 95% of injected CO₂ mineralized within two years. Carbfix is expanding its operations across Europe and North America and is working with industrial partners and carbon capture companies in the Pacific Northwest to evaluate similar basalt-hosted storage opportunities.

Based on this experience, we respectfully offer the following recommendations:

1. Retain the UIC Class V pathway for pilot and demonstration projects

Maintaining access to the Underground Injection Control (UIC) Class V permitting pathway is essential for early-stage carbon mineralization projects. Pilot and demonstration projects are critical for site-specific characterization, validation of injection and mineralization performance, and development of monitoring and operational best practices. Carbfix's progression from pilot injections to commercial deployment

underscores the importance of flexible, fit-for-purpose permitting pathways that enable learning while maintaining environmental protection.

Class V wells can provide a relatively rapid and cost-effective pathway for initial site screening and assessment, including evaluation of permeability, injectivity, and geochemical compatibility with mineral carbonation reactions. As projects transition from pilot to full-scale deployment, these wells can also provide long-term value if retrofitted into monitoring or water wells, supporting verification activities such as pressure monitoring, plume tracking, and confirmation of storage permanence.

Restricting or eliminating the Class V pathway would impede innovation and delay project deployment in Washington. We recommend that Ecology explicitly preserve Class V as a viable pathway for pilot-scale mineralization projects.

2. Establish a clear and pragmatic MRV pathway based on international standards

Robust monitoring, reporting, and verification (MRV) is foundational to ensuring environmental integrity and enabling participation in carbon markets. However, federal methodologies for carbon mineralization MRV remain incomplete and are not progressing at a pace that supports near-term deployment.

In the absence of finalized federal standards, Washington has an opportunity to lead by recognizing established international frameworks that are already rigorous, transparent, and operational. Carbfix projects in Iceland are licensed and certified under leading international standards, including the EU CCS Directive and Puro.earth carbon removal certification. Further verified by being the first, and yet only, on shore injection site with a operating license under the CCS directive in Europe. These frameworks rely on independently verified MRV protocols developed through extensive field deployment and aligned with ISO-based methodologies.

Such frameworks provide conservative accounting of permanent CO₂ sequestration and are widely accepted in both regulated compliance markets and voluntary carbon markets. Clarifying that these standards may be acceptable in Washington would reduce uncertainty and allow high-quality projects to proceed while federal methodologies continue to evolve.

3. Provide regulatory clarity on Class VI permitting and aquifer waiver pathways

Commercial-scale deployment of carbon mineralization will require a clear pathway for Class VI permitting under the U.S. EPA Underground Injection Control program. In the Pacific Northwest, this issue is particularly acute because basalt formations typically exhibit total dissolved solids (TDS) concentrations well below 10,000 mg/L.

As a result, many prospective storage formations may be classified as underground sources of drinking water under current federal definitions. This creates a structural barrier to deployment and may require aquifer exemptions or waivers, even in geologic contexts where the water is not practically usable or intended for consumption.

We encourage Ecology to recognize this regional constraint and support the development of alternative frameworks for defining non-potable water that are not solely derived from sedimentary oil and gas basin assumptions. Clear guidance on aquifer waiver pathways,



developed in coordination with EPA, will be essential to enabling deployment in basalt-hosted systems.

Washington has a unique opportunity to establish a globally leading carbon mineralization hub. A regulatory framework that preserves pilot-scale pathways, enables the use of recognized MRV systems, and addresses the specific geologic realities of basalt-hosted storage will help unlock investment, accelerate project development, and ensure environmental integrity. We appreciate the opportunity to provide input and look forward to continued engagement.

Sincerely,

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