June 26, 2026

Department of Ecology
State of Washington

RE: Feedback on Carbon Capture, Removal, Utilization, and Storage in the Cap-and-Invest Program for Washington State

1PointFive appreciates the opportunity to provide feedback to the Washington Department of Ecology regarding its solicitation of input on integrating engineered Carbon Capture, Removal, Utilization, and Storage within the framework of the Washington Cap-and-Invest Program. We share Ecology's interest in clear, practical pathways for recognizing engineered carbon management within Cap-and-Invest while supporting emissions reductions and program integrity.

1PointFive is a Carbon Capture, Utilization and Sequestration company that offers integrated solutions to help organizations unlock value from addressing carbon dioxide emissions. Through large-scale Direct Air Capture facilities and geologic sequestration hubs, we are working to deliver durable carbon dioxide removal and storage while enabling the development of low-carbon products and fuels. 1PointFive, via our parent company Occidental, has more than 50 years of carbon management expertise in developing, operating, and maintaining large-scale CO_2 transportation and injection infrastructure. We respectfully offer the following feedback:

Feedback Area 1: Carbon management within the Cap-and-Invest Program

1) Which engineered carbon management pathways do you think present the greatest opportunity for Cap-and-Invest Program compliance? For example, point source carbon capture and storage, carbon capture and utilization, and technological carbon dioxide removal. Why?

Point Source Capture and Storage and Direct Air Capture and Storage (DACS) are proven, scalable, measurable and verifiable technologies that present the greatest near- and long-term opportunities for Cap-and-Invest compliance.

Point Source Capture and Storage is the most immediately deployable pathway for compliance because both point source capture technology and geologic CO_2 storage are mature, proven technologies that can be applied to industrial emissions streams in the near-term. For Washington's large industrial emitters, point source CCS can support continued operations while achieving significant near-term emissions reductions. Analyses from the Intergovernmental Panel on Climate Change and International Energy Agency consistently find that carbon capture and storage is needed to achieve deep emissions reductions, particularly in

hard-to-abate industrial sectors, and that it is part of the lowest-cost pathway to meet climate goals.[1,2] This approach is also consistent with leading compliance programs around the world: both the UK Emissions Trading Scheme and EU Emissions Trading Scheme have already incorporated CCS into their emissions trading frameworks, recognizing captured and permanently stored CO_2 as a valid compliance-relevant emissions reduction pathway.[3,4]

Direct Air Capture and Storage (DACS) represents an important, complementary opportunity for Cap-and-Invest compliance. Unlike point source capture systems, DACS is location-flexible and provides durable carbon removal, making it particularly valuable for addressing emissions that are otherwise infeasible or more costly to eliminate at the source. DACS has already been incorporated into compliance programs: California's LCFS allows U.S.-based DACS projects to generate LCFS credits, New Mexico's LCFS includes DACS through a project pathway, and both the EU and UK are developing pathways to integrate DACS into their ETS programs.[5]

2) What additional clarity is required for effective deployment of engineered carbon management for Cap-and-Invest Program compliance? What is the most important? What is the most pressing?

The single most pressing clarity need is a clear, quantitative protocol for how carbon management projects generate compliance credits. Covered entities need to understand exactly how many compliance credits will be generated and how to demonstrate that compliance before investing in major projects and related infrastructure. Ecology should also clarify that DACS is treated as an exemption or compliance-recognized removal pathway, not as an offset. Unlike conventional offsets, DACS removes CO_2 from the atmosphere and exceeds Washington's 1,000-year storage requirement, providing equivalent climate radiative forcing benefit to preventing a CO_2 emission to the atmosphere. Treating qualifying DACS as an exemption would accurately reflect its climate impact, avoid conflating engineered removals with offset programs, and provide clearer investment signals for covered entities seeking durable compliance options.

3) Do you have any specific questions regarding the treatment of different carbon management pathways under the Cap-and-Invest Program?

Ecology should provide clear guidance on the treatment of different carbon management pathways for compliance purposes, including the eligibility of DACS projects to generate transferable compliance instruments, and the circumstances under which CO_2 captured in Washington and geologically stored out of state may qualify for Washington compliance credit.

Feedback Area 2: Carbon management in Washington

4) Do engineered carbon management pathways present a feasible decarbonization strategy for companies/facilities in Washington? For example, point source carbon capture and

storage, carbon capture and utilization, and technological carbon dioxide removal. Why? Why not?

Washington State has suitable geological formations with the potential to support engineered carbon management projects.[6,7] For Washington's hard-to-abate industrial sectors, engineered carbon management is not only feasible, but it may be one of the most practical ways to achieve deep emissions reductions while keeping critical industries operating in the state. For almost all industrial facilities, CO_2 emissions reduction cannot be fully addressed through electrification, efficiency improvements, or fuel switching alone. Carbon management technologies can provide a pathway to meet Cap-and-Invest compliance obligations.

Feedback Area 3: Implementation of the CCA Program Rule Permanent sequestration as defined in WAC 173-407-110

7) Which sequestration and/or mineralization approaches might meet this definition of permanent sequestration? Why?

Geologic sequestration is the clearest and strongest candidate for meeting the permanent sequestration definition. Storage in deep saline geological formations provides secure, long-term containment of injected CO_2 through well-understood geologic trapping mechanisms, including structural, residual, and dissolution trapping. Geologic storage has an existing rigorous regulatory framework under the federal Class VI Underground Injection Control program, which specifically regulates wells used to inject CO_2 for long-term geologic sequestration and includes requirements for site characterization, area of review modeling, well construction and operation, monitoring, reporting, financial responsibility, post-injection site care, and site closure.[8] The permanence of geologic sequestration is also well established by industry experience, natural analogues, and scientific assessments: the IPCC has found that, where a geologic storage site is appropriately selected and managed, CO_2 can be permanently isolated from the atmosphere, and the Sixth Assessment Report describe geological storage timescales of 10,000 years or more for CO_2 stored in geological formations.[9,10] Together, the existing Class VI regulatory framework and large-scale project experience make geologic sequestration the most proven form of durable storage under the program.

8) Does this definition create barriers to implementation of carbon sequestration methods and technologies? How and why?

No. The 1,000-year permanence requirement in WAC 173-407-110 is appropriate because it is consistent with the atmospheric lifetime of CO_2 and the purpose of a compliance credit for preventing an emission to the atmosphere. If a covered entity receives compliance value for avoiding or offsetting a CO_2 emission, the credited storage pathway should provide durability on a comparable timescale. Carbon sequestration methods that meet the definition are proven and scalable, most notably geologic sequestration.

This definition is therefore a strength of the program, not a barrier. It ensures that compliance credit is limited to genuinely durable sequestration projects and helps protect the carbon accounting integrity and credibility of the Cap-and-Invest Program. Ecology should maintain this standard and avoid weakening the permanence requirement in ways that would increase re-emission risk or dilute the climate value of compliance credits.

Models and frameworks for CCA Program Rule implementation

9) How can and should elements such as monitoring and verification procedures and risk mitigation, compensation, financial assurance, and reversal provisions be factored into Ecology's implementation of the CCA program rule?

Ecology should anchor its implementation framework on the EPA UIC Class VI program requirements, which is a comprehensive and technically rigorous regulatory framework for geological CO_2 storage that applies to all projects in the United States. Class VI already addresses the core implementation elements needed to evaluate and oversee geologic sequestration projects, including permitting, site characterization, area of review analysis, corrective action, well construction and operation, mechanical integrity testing, monitoring, reporting, financial responsibility, well plugging, post-injection site care, and site closure. Rather than creating a duplicative state framework, Ecology should rely on the Class VI program and focus any additional state requirements on issues specific to Washington's Cap-and-Invest program, such as crediting, eligibility, and administrative coordination.

10) How might federal Class VI well or other applicable state or federal standards be leveraged?

The UIC Class VI program should be the primary regulatory program for geologic sequestration projects seeking compliance credit under the Cap-and-Invest Program. Rather than duplicating Class VI requirements, Ecology should require projects to hold and remain in compliance with all applicable Class VI permits and requirements, while focusing any additional state rules on Cap-and-Invest-specific issues such as crediting, eligibility, and administrative coordination.

11) What other methodologies or protocols related to geologic sequestration and/or mineralization should Ecology look at?

Ecology should consider the EU Carbon Removal Certification Framework and the CCS+ Initiative methodology as useful models for developing crediting rules for geologic sequestration and durable carbon removal. The CRCF is developing an EU-wide approach for certifying permanent carbon removals. Although the CRCF is not a U.S. compliance program, it provides a strong model for how a regulator can establish quality criteria, approve methodologies, require independent verification, and use registries to track certified removal

units. Ecology should also review the CCS+ framework because CCS+ methodologies for CCS and DACS have been adopted by Verra under its Verified Carbon Standard program. Verra's VM0049 Carbon Capture and Storage methodology is active and globally applicable, and its associated modules include direct air capture, CO_2 transport, and CO_2 storage in saline aquifers. Together, the EU CRCF framework and CCS+/Verra methodologies offer practical models for rigorous, registry-compatible crediting across both point source CCS and DACS. Ecology should also look to Alberta's draft CCS quantification protocol, currently under consultation, as a North American example of a compliance-oriented framework for geologic sequestration.[11]

Conclusion

We greatly appreciate this opportunity to provide feedback to ECY on integrating CCRUS within Cap-and-Invest. We look forward to continuing to engage with ECY as implementation unfolds.