climate solutions
accelerating the transition to our clean energy future

26 June, 2026

Department of Ecology
State of Washington
P.O. Box 47600
Olympia, WA 98504-7600

Re: Carbon Management Within Washington State's Cap-and-Invest Program

Climate Solutions thanks you for the opportunity to submit comments on near and long-term priorities related to engineered carbon management under the state's Cap-and-Invest program. Climate Solutions is a clean energy nonprofit organization working to accelerate solutions to the climate crisis. The Northwest has emerged as a hub of climate action, and Climate Solutions is at the center of the movement as a catalyst and advocate.

Policy Considerations for Carbon Management in Washington State

As Washington state works to hit its statutory climate obligations, there has been increased interest in possible decarbonization technological pathways including carbon management. For the integrity of our climate laws, careful consideration for the development, deployment, and governance of carbon management technologies will be critical and have lasting implications for Washington's ability to achieve its statutory greenhouse gas ("GHG") reduction limits while maintaining the integrity of landmark climate policies, including the Climate Commitment Act ("CCA") and Clean Energy Transformation Act. How carbon management is considered under Washington climate laws also has direct and indirect impacts on communities most impacted by climate change and pollution. Given the early stage of carbon management technological development and infrastructure in Washington, any framework, rule, guidance, or any other consideration from the state should prioritize real emissions reductions, protecting communities and the environment, and ensuring these technologies complement, rather than attempt to replace, other established decarbonization pathways for the highest and best applications. As an organization dedicated to advancing ambitious, equitable, and effective climate solutions, Climate Solutions has a strong interest in ensuring that engineered carbon management policies are thoughtfully designed and implemented in a manner that strengthens, rather than undermines, Washington's climate goals.

Point Source Carbon Capture and Storage

Highest and Best Use

We believe carbon capture and storage ("CCS") should be pursued strategically and applied to its highest and best uses. Given the nascent stage of CCS technologies and infrastructure in Washington, efforts to develop and support point source carbon capture and storage should be limited to, to the maximum extent practicable, addressing hard-to-abate emissions where other decarbonization pathways are technically or economically infeasible, such as cement and steel production. Carbon capture deployment should not be prioritized in sectors with readily available decarbonization alternatives, including fossil gas-fired electricity generation, as this practice risks prolonging fossil fuel dependence in Washington. As Ecology evaluates future CCS integration under Cap-and-Invest, it should establish clear criteria for determining when CCS represents an appropriate mechanism for compliance, including whether other more appropriate or technically and economically feasible alternatives exist that reduce the states reliance on fossil fuels, better align with ensuring the state's zero emissions targets, and protect communities from non-GHG pollution that may be perpetuated by CCS utilization over alternative technological pathways.

Support, Not Replace

CCS should complement, not replace, established emissions reduction strategies that reduce energy use or GHG production entirely. The availability of carbon capture and storage ("CCS") should not diminish efforts to pursue established decarbonization measures, including fuel switching, electrification, energy efficiency, and the buildout of renewable and other clean energy resources. Policies supporting CCS incorporation in the state's Cap-and-Invest program should be designed to avoid creating incentives that inadvertently favor CCS over lower-cost or more effective emissions reduction pathways.

Recent changes in federal policy heighten the importance of maintaining this balance. Over the last year, federal support for many clean energy technologies has been reduced, while incentives for carbon capture under Section 45Q have not only remained in place but have increased in value. Washington should exercise caution in establishing mechanisms or policies for CCS development, given the risk of creating a market that prioritizes creating and capturing GHG emissions over not emitting in the first place. State policies should avoid unintentionally sending market signals that result in carbon capture being leveraged as preferred alternatives to other proven decarbonization options. We recognize that Washington still faces significant challenges in deploying clean energy infrastructure at the scale and pace required to meet its climate goals. However, those challenges underscore the need to accelerate investment, permitting, and deployment of proven clean energy solutions, rather than shift policy focus toward supplemental technologies such as CCS.

Energy Impacts

Carbon capture facilities are energy intensive and require substantial power, land, and material inputs. Carbon capture technologies compete for many of the same clean electricity resources needed to decarbonize other sectors of Washington's economy. As the state works to electrify transportation, buildings, and industry while meeting growing electricity demand, Ecology should consider the opportunity costs associated with directing significant quantities of clean electricity toward carbon capture rather than other decarbonization strategies that may achieve greater emissions reductions per unit of energy consumed. Ecology should evaluate these broader system impacts, including increased electricity demand, grid planning considerations, and associated infrastructure needs when assessing the role of CCS in achieving Washington's climate goals.

Effectiveness

Commercial-scale carbon capture technologies have also not demonstrated 100% capture efficiency. While technology continues to improve, Washington should consider how CCS technologies function over the long term within the framework of the CCA and state GHG limits. Treatment of CCS under CCA should ensure that covered entities retain a pathway to full compliance with Washington's declining emissions limits and should account for the possibility of residual emissions, fugitive emissions, and other performance limitations. Ecology should ensure that any compliance framework for CCS is structured to support the long-term achievement of Washington's statutory greenhouse gas reduction limits and does not create compliance pathways that become increasingly difficult or infeasible as emissions limits decline.

Monitoring & Verification

This challenge may be compounded by the complexity of monitoring emissions from facilities with multiple emission sources and multiple capture points. Effective monitoring, reporting, and verification will likely require additional resources and oversight and should account for the possibility of fugitive emissions or other losses that may not be easily quantified. Ecology should carefully consider these implementation and compliance challenges when evaluating the treatment of carbon capture under the CCA. Before captured emissions are eligible for compliance treatment under the CCA, Ecology should establish robust monitoring, reporting, and verification requirements sufficient to ensure captured emissions are accurately quantified, permanently managed, and enforceable over time, including more robust guidance on what is considered as permanent sequestration, including a requirement that sequestration is either done in state or in a linked market, with

equivalent protocols. Ecology should ensure that any compliance treatment associated with permanently sequestered carbon is supported by sufficient evidence demonstrating durable storage and long-term accountability. Climate Solutions does not see any issues with the current permanence definition as defined by rule, and feels strongly that the definition should not be weakened to facilitate CCS deployment.

Class VI Standards & Federal Oversight

Recent federal actions weakening environmental protections underscore the importance of strong state oversight. Because Class VI sequestration wells remain under the jurisdiction of the U.S. Environmental Protection Agency, Washington should evaluate opportunities to obtain Class VI primacy and ensure that any carbon sequestration activities in Washington are subject to robust state standards and oversight. Maintaining state authority over permitting and enforcement would help ensure the long-term safety, effectiveness, and public accountability of geologic sequestration projects.

Additional CCS infrastructure presents further safety considerations. Carbon dioxide pipelines and associated infrastructure are largely regulated by the federal government, and recent changes to federal regulatory priorities raise concerns about the adequacy of safety oversight. As Ecology considers the role of CCS within the CCA, these risks should be considered alongside the potential emissions benefits of CCS to ensure that Washington's policies account for the full range of environmental, public health, and safety impacts. Outside of CCA compliance, it is also critical that the state of Washington consider how inclusion under CCA could prolong fossil infrastructure and non-GHG emissions associated with them that may not receive any additional monitoring through this process. We would be concerned if 100% GHG compliant CCS under CCA allows the perpetuation of fossil infrastructure that still pollutes communities with non-GHG emissions. Historically marginalized communities have faced the worst impacts of climate changes and industrial pollution. CCA makes clear that benefits of decarbonization should flow to these groups that have been left behind. We strongly encourage Ecology to consider the impacts of a decarbonization pathway that perpetuates disproportionate non-GHG emissions impacts.

Near-Term Limitations

It is also important to recognize that carbon capture and geologic sequestration are unlikely to provide meaningful near-term emissions reductions in Washington. The state currently lacks active geologic sequestration sites, and development of the infrastructure and regulatory systems necessary to support large-scale sequestration will take considerable time. While providing regulatory clarity around CCS is important, CCS should not be viewed as a near-term contributor to compliance under the CCA or to achieving Washington's statutory GHG reduction limits. Accordingly, covered entities should not rely on CCS technologies to meet near-term compliance obligations, and state policies should avoid creating expectations that these technologies will be available at the scale necessary to support Washington's near-term emissions reduction milestones. Overreliance on CCS technologies before they are commercially and operationally mature could result in investments that delay deployment of proven decarbonization solutions and increase the risk of missing near-term emissions reduction milestones. Until commercial sequestration infrastructure exists at meaningful scale, we caution against creating compliance mechanisms that assume covered entities will be able to rely on CCS to meet compliance obligations.

Utilization

Captured carbon should be managed in a manner that advances durable decarbonization outcomes. Carbon utilization pathways should only be considered for essential or other applications that provide clear climate benefits. As Ecology considers the use of CCS within the state's Cap-and-Invest program, we are also specifically interested in how the state can ensure activities are not supported where emissions cannot be adequately tracked to ensure they are not subsequently re-released in substantial quantities. To the greatest extent possible, captured carbon should be directed toward permanent geologic sequestration or limited beneficial uses that provide durable climate benefits, such as co-locating facilities with the production of SAF, permanent mineralization, and low-carbon concrete curing. Though not an existing concern in

Washington given the state is not an oil producer, leveraging captured carbon for Enhanced Oil Recovery (EOR) is an example of a utilization practice we would be deeply concerned with given the indirect GHG impacts. Currently, this is the dominant use of captured carbon utilization in the U.S. In addition, Washington should prioritize in-state utilization and sequestration pathways wherever feasible to ensure accountability and avoid simply transferring emissions-related responsibilities outside the state.

Transport & Infrastructure

CCS presents unique infrastructure and resource considerations that distinguish it from many other decarbonization pathways. Unlike renewable energy resources such as wind and solar, large-scale CCS deployment often requires extensive supporting infrastructure, including compression facilities, transportation networks, pipelines, and sequestration or utilization sites. These systems introduce additional impacts associated with materials, construction, transportation-related emissions, land use, and additional points of failure that can result in GHG releases, ecological impacts, and risks to human health. These broader lifecycle and infrastructure considerations should be incorporated into any state policy framework for carbon management under CCA. Within the authority granted to Ecology under CCA, Ecology should consider and incorporate mechanisms to ensure these additional impacts are considered appropriately and that the utilization of CCS to meet GHG compliance requirements does not simply result in emissions being shifted to non-covered categories or other energy, land, or community impacts.

Direct Air Capture

Direct air capture (DAC) presents distinct policy considerations from point source carbon capture and should therefore be evaluated separately within Washington's climate programs. Unlike point source capture, which can more directly reduce emissions from covered sources within Washington, DAC removes carbon dioxide already present in the atmosphere and does not reduce emissions associated with any particular activity or facility in the state. As such, carbon removed through DAC should not be attributed to individual Washington-based emissions sources or treated as equivalent to direct emissions reductions achieved by covered entities.

Within the context of the CCA, DAC is more appropriately viewed as a form of carbon dioxide removal analogous to an offset project under the CCA offset program rather than a means of exempting emissions from covered sources. The CCA and implementing regulations distinguish between direct emissions reductions by covered entities and offset projects that generate GHG removals or reductions elsewhere. Consistent with this framework, any DAC activities should be considered separately from source-specific carbon capture and should be subject to the same principles that govern offset credits, including requirements that removals provide direct environmental benefits to Washington and be real, permanent, quantifiable, verifiable, enforceable, and additional.

While DAC may ultimately play an important role in addressing residual emissions and historical atmospheric carbon concentrations, it should be additional to, not substitute for, direct emissions reductions. Washington should ensure that any future treatment of DAC within the CCA preserves the integrity of the declining emissions cap and maintains clear distinctions between reducing emissions at their source and removing carbon from the atmosphere. To the extent DAC is incorporated into Washington's carbon market, it should be done through carefully designed mechanisms that are consistent with existing carbon removal and offset project procedures and that maintain the CCA's emphasis on achieving real emissions reductions within Washington.

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Climate Solutions asks that Ecology provide clear policy guidance regarding when carbon management is an appropriate compliance pathway under the Cap-and-Invest program, including the circumstances in which covered entities may rely on carbon management, expectations for demonstrating permanent sequestration, and how various carbon management technologies will complement rather than displace established emissions reductions pathways. As Ecology continues evaluating engineered carbon management, future guidance and any subsequent rulemaking should prioritize preserving the integrity of the CCA, meeting statutory GHG limits, protecting communities, and ensuring robust and accurate accounting for all covered emissions. Climate Solutions greatly appreciates the opportunity to provide comments, and looks forward to engaging further as the process continues.

Sincerely,

James Hove, Washington Director

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