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Washington Department of Ecology
300 Desmond Drive SE
Lacey, WA 98503

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Re: Carbon Capture, Removal, Utilization, and Storage in Washington's Cap-and-Invest Program

Clean Air Task Force, Inc. ("CATF") respectfully submits these comments on the Washington Department of Ecology's ("Ecology") request for feedback regarding engineered carbon management pathways under the Cap-and-Invest Program.

CATF is a nonprofit environmental organization working globally to safeguard against the worst impacts of climate change by catalyzing the rapid development and deployment of low-carbon energy and other climate-protecting technologies. Our Industrial Innovation program, in coordination with CATF's State Policy, Land Systems, Electricity, and Legal teams, develops and advocates for policies aimed at making carbon capture, removal, and storage technologies commercially available for use in the industrial and power sectors in the United States. With more than 25 years of internationally recognized expertise on climate policy, science, and law, and a commitment to exploring all potential solutions, CATF is a pragmatic, non-ideological advocacy group focused on climate change and the clean energy transition. CATF has offices in Boston, Washington, D.C., and Brussels, with staff working remotely around the world.

Feedback Area 1: Carbon Management Within the Cap-and-Invest Program

Point-source carbon capture and storage (CCS) represents the most immediate and commercially viable compliance pathway for covered entities in Washington. The fundamental technology, which involves capturing CO_2 from industrial exhaust streams using amine-based or other solvent methods, is at commercial maturity, with global deployments demonstrating that it can significantly reduce facility-level emissions without significantly altering production processes. For sectors with large, concentrated emission sources — such as refineries, chemical manufacturers, and cement producers — CCS offers a retrofit pathway that is simply not replaceable by electrification or fuel switching on near-term timelines.

Engineered or technological carbon dioxide removal (CDR), which includes mechanical and chemical solution sets that capture and store atmospheric or industrially produced CO_2, is moving towards initial deployment. CATF supports Ecology's CDR Evaluation Study that concludes Washington should continue to develop a diverse set of CDR pathways as a critical component of efforts to achieve 2050 statutory limits. Toward that end, a systematic method for

identifying and evaluating policy levers tailored to Washington's state-specific CDR potential should be developed and advanced.

Feedback Area 2: Carbon Management in Washington

Engineered carbon management is a feasible decarbonization strategy for a number of facilities subject to the Cap-and-Invest Program. Washington's industrial base includes petroleum refining, chemical manufacturing, cement production, and pulp and paper production, sectors identified in the broader literature as priority candidates for CCS deployment due to concentrated emission streams, limited alternatives for full electrification, or potential to deliver net-negative CO_2 emissions.

Realizing the potential of carbon management in Washington will require addressing several barriers:

- *Infrastructure gaps*: Washington lacks established CO_2 transport and storage infrastructure. Determining subsurface storage viability within the state or identifying access to regional storage hubs is a critical first step.
- *Financing and bankability*: Point-source CCS remains capital-intensive. Without the combination of carbon price revenue under the Cap-and-Invest Program and supplemental state or federal financial support, many projects will struggle to achieve financial close.
- *Regulatory uncertainty*: Lengthy permitting timelines, particularly for Class VI injection wells, which require detailed site characterization and multi-year review, mean that even projects launched today are unlikely to be operational before the early 2030s. Moreover, absent clear guidance on how the exemption provisions of the CCA Program Rule apply to specific project configurations, companies face difficulty building investment cases for carbon management projects.

Feedback Area 3: Implementation of the CCA Program Rule

Washington's existing definition of "permanent sequestration," requiring 99% containment over at least 1,000 years with a high degree of confidence, is scientifically defensible and consistent with the durability expected of geologic CO_2 storage. Deep saline aquifer injection under appropriately characterized caprocks, and in-situ or ex-situ mineral carbonation are the approaches most likely to satisfy this standard based on available scientific evidence. The former benefits from decades of commercial operational experience and an established regulatory program under the EPA's Class VI Underground Injection Control (UIC) framework; the latter offers the advantage of near-permanent, verifiable carbon fixation but requires further scale-up.

Ecology should leverage the existing Class VI framework as the foundation for its implementation approach, as it already requires extensive site characterization, comprehensive monitoring of well integrity and groundwater quality throughout operations and for 50 years post-injection, financial assurance covering corrective action and site closure, and emergency response preparedness. This framework was designed to be the most stringent well class in the UIC program, placing liability on operators rather than the public.

CATF appreciates the opportunity to provide feedback and comments with regard to engineered carbon management solutions under Washington's Cap-and-Invest program. We welcome opportunities to engage further in support of advancing viable carbon management opportunities consistent with the Climate Commitment Act.

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