

## STATE LEGAL FRAMEWORKS FOR CARBON CAPTURE, UTILIZATION, AND SEQUESTRATION ARE EVOLVING RAPIDLY ACROSS THE COUNTRY

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Several leading international reports on climate change suggest carbon capture, utilization, and sequestration (CCUS) technologies may play a substantial role in meeting Paris Agreement climate goals. For example, the Intergovernmental Panel on Climate Change (IPCC) expects large-scale CCUS to be an important option to reduce emissions from hard-to-abate industrial sources, as well as to provide the storage component for negative emissions technologies that capture carbon from the atmosphere (DACCS) or from biomass or other sources.<sup>1</sup> The [U.S. federal government](#) also promotes the benefits of CCUS, noting that “[t]o reach the President’s ambitious domestic climate goal of net-zero emissions economy-wide by 2050, the United States will likely have to capture, transport, and permanently sequester significant quantities of carbon dioxide (CO<sub>2</sub>).”<sup>2</sup> Congress, too, recognizes the importance of CCUS in supporting the energy transition through recent incentives in the [Infrastructure Investment and Jobs Act](#) and [Inflation Reduction Act](#).

Yet policies facilitating CCUS development in the United States today often occur on a state-by-state level. To be sure, the federal government plays an important role by providing tax incentives, leasing federal lands and waters, and regulating injection well permitting through the U.S. Environmental Protection Agency’s (EPA) Underground Injection Control (UIC) Program (although this too can be shifted to states that apply for primacy, discussed further below). However, many policy decisions with substantial impacts on the CCUS industry are left to the states. And states are increasingly taking action to establish and clarify the legal framework applicable to CCUS operators.

Through March 2023, at least 15 states have enacted significant CCUS legislation. Of these, *eight states have enacted new (or made significant amendments to existing) CCUS frameworks since 2021*. This busy trend can be expected to continue through 2023, with several legislative efforts already underway in state houses across the country. One prominent example is Texas, where new proposed legislation was filed in March. Texas has the potential to be a very important state for CCUS development, with the highest carbon emissions of any state, a wealth of expertise in geologic industries—including the injection of CO<sub>2</sub> in oil and gas wells—and geology suitable for permanent sequestration both on- and off-shore. If enacted, the newly proposed bill would significantly expand and update Texas’s current CCUS legal framework, which dates back to 2009.

One resource to help track these recent developments is the new [CCUS Legislative Tracker](#), developed by Arnold & Porter and released on the [Carbon Dioxide Removal Law](#)

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<sup>1</sup> See IPCC, “Climate Change 2022: Mitigation of Climate Change—Summary for Policymakers” (2022), [https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC\\_AR6\\_WGIII\\_SummaryForPolicymakers.pdf](https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_SummaryForPolicymakers.pdf).

<sup>2</sup> *Council on Environmental Quality Report to Congress on Carbon Capture, Utilization, and Sequestration*, at 6 (June 2021), <https://www.whitehouse.gov/wp-content/uploads/2021/06/CEQ-CCUS-Permitting-Report.pdf>.

[webpage](#) of Columbia Law School’s Sabin Center for Climate Change Law. The tracker, which monitors legislative and certain other significant state CCUS actions, is designed to assist regulators, project proponents, and researchers to identify leading states, depict national trends, and facilitate comparison between varying state frameworks.<sup>3</sup> At initial publication, the tracker focuses on six types of state actions: (1) statutory clarifications of pore space ownership; (2) mechanisms to combine ownership interests within a potential storage facility; (3) long-term state stewardship programs; (4) trust funds and associated fee mechanisms used to defray various costs incurred by the state; (5) state assumption of UIC primary enforcement authority (known as primacy); and (6) inclusion of CCUS in published state climate action plans. These state actions primarily relate to sequestration (the “S” element of CCUS), although some may also apply to certain types of utilization or broadly to CCUS as a whole.

The first four actions are legislative. While many state CCUS statutes will cover more than these four areas, these four focus areas have been selected because they are common among states legislating in this area and are frequently identified as important legislative actions to facilitate CCUS development.<sup>4</sup>

The fifth action, UIC primacy, is a regulatory action. However, primacy has a major influence on a state’s legal framework for CCUS because it demonstrates a significant shift in the allocation of CCUS regulatory responsibilities between the state and federal government.

Finally, the sixth action, inclusion of CCUS in state climate action plans, is a policy action generally without independent legal effect. However, this action may be a potential indicator of states which may enact CCUS legislation in the near future.

## **I. Pore Space Ownership**

When CO<sub>2</sub> is stored underground, it often fills gaps or voids in the subsurface geological formations. This area is known as “pore space.” To operate a CCUS facility, the storage operator must obtain permanent rights to store CO<sub>2</sub> in this pore space. Where a single entity owns both the surface estate and the mineral estate in an area, it is relatively easy to determine who owns the pore space. However, if property rights are divided where one entity owns the surface and a separate entity holds rights to the subsurface minerals, it can be unclear which entity has rights to allow a third party to permanently use the pore space.

While many jurisdictions in the United States assign pore space rights to the surface owner (this is known as the American Rule), the caselaw in a particular jurisdiction may be unclear or even contradictory. This can complicate negotiations between CCUS operators, landowners, and mineral rights holders. Several states have chosen to address this concern by clarifying the ownership of pore space by statute.

## **II. Combination of Ownership Interests**

Sometimes, a CCUS project proponent will need to acquire pore space rights from many different owners in order to obtain an area large enough to operate a CCUS facility. If the storage

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<sup>3</sup> The tracker is not designed to provide legal advice or interpretation of the law in any state.

<sup>4</sup> See, e.g., Veronica E. Hemrich, [Carbon Capture, Utilization, and Storage in Illinois: Law and Policy Supplement](#), Prairie Research Institute, prepared at the direction of the Illinois General Assembly (Jan. 2023); [Carbon Capture, Utilization, and Storage \(CCUS\) Task Force Subcommittee Recommendations](#), State of Colorado CCUS Task Force, prepared at the direction of the Colorado General Assembly (Feb. 2022).

operator were required to obtain 100% of the necessary pore space rights through negotiation, a single owner might be incentivized to hold out for a larger payment and block the CCUS project, frustrating the interests of both the operator and the majority of surrounding owners.

Several states have chosen to address this concern by establishing a mechanism for a storage operator, with the consent of a majority or super-majority of pore space owners, to seek approval from the state to operate a CCUS facility over the objection of some pore space owners. The specific mechanism and terminology varies from state to state, but can include pooling, amalgamation, integration, unitization, and eminent domain.

### **III. Long-Term State Stewardship**

Carbon dioxide, once injected underground, needs to be sequestered into perpetuity. That will exceed the lifespan of individual corporations. To address this, some states have determined that state ownership, responsibility, and/or liability for CCUS facilities should eventually be transferred to the state for long-term stewardship. The structure and scope of these programs varies widely across states, however some common trends are emerging. States generally require the CCUS facility to have completed the UIC program's closure process and demonstrated several criteria to the satisfaction of the state agency. For example, it is common for states to require storage operators to demonstrate compliance with all relevant laws and that the stored CO<sub>2</sub> is expected to remain stable.

### **IV. Trust Funds**

Some states establish CCUS trust funds to offset certain costs that may arise from CCUS activities. These are often funded by fees placed on CCUS operators, but other funding sources may be included as well. Some states link these funds to long-term state stewardship programs to offset costs incurred by the state after assuming the stewardship role. However, other states have funds to offset administrative or other costs without any connection to state stewardship. Trust funds may also be utilized to pool risk across multiple CCUS operators, similar to an insurance pool.

### **V. Class VI Primacy**

Underground injection wells are regulated by the federal Safe Drinking Water Act, implemented through EPA's UIC Program. This program categorizes well types into classes, with wells for permanent sequestration of CO<sub>2</sub> as "Class VI" wells. However, under the UIC Program, states can obtain primacy for regulating injection wells if they demonstrate that their regulatory program is no less stringent than EPA's.

State primacy may expedite the permitting process for a CCUS project in the state. To date, EPA has only issued six Class VI permits related to two projects—and none since 2015. The time from application to approval *exceeded two years* for each of these permits. In contrast, North Dakota—the first state to obtain Class VI primacy—has issued four permits in the past 18 months, with each permit review process lasting *less than nine months*. The backlog of Class VI permits pending before EPA has ballooned from 14 to 47 in just the past 10 months, potentially indicating further processing delays at the federal level unless states step in to lead Class VI programs.

Forty-six states have primacy for at least one class of UIC well, and 31 states have primacy for all other classes of well (I–V). Only two states have received primacy for Class VI wells so far (North Dakota in 2018 and Wyoming in 2020), but this group may grow in the near future. EPA is expected to complete review of Louisiana’s primacy application, which has been pending since April 2021, as early as May 2023. Arizona, Texas, and West Virginia have each entered the “pre-application” phase, which involves consultation with EPA to prepare a formal application. In addition, the Infrastructure Investment and Jobs Act recently appropriated \$50 million in grants to help defray the costs of establishing and operating a state Class VI program. States seeking to apply for this funding must notify EPA by March 20, 2023, and Pennsylvania has already publicly announced its intention to do so.<sup>5</sup> As a condition of receiving funding, state applicants must demonstrate how environmental justice and equity considerations will be incorporated into their programs.<sup>6</sup>

## **VI. Inclusion of CCUS in State Climate Action Plans**

Some states publish climate action plans to document state goals, actions, and policies regarding climate change. States that feature CCUS in their public climate policies may be more likely to undertake legislative action to further those policies, such as through the four legislative actions discussed above, or use existing laws to regulate CCUS in different ways. For example, [California](#) published a draft climate action plan incorporating CCUS in May 2022 and quickly followed with CCUS legislation in August 2022.

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<sup>5</sup> Anya Litvak, “Pennsylvania Wants to Regulate Carbon Dioxide Storage Wells, State Plans to Tell the Feds,” *Pittsburgh Post-Gazette* (Mar. 15, 2023), <https://www.post-gazette.com/business/powersource/2023/03/15/pennsylvania-regulate-carbon-dioxide-storage-wells-epa-dep/stories/202303150028>.

<sup>6</sup> News Release, EPA, “EPA Announces Availability of \$50 Million to Support States and Tribes Developing Programs for Carbon Sequestration and Groundwater Protection” (Jan. 19, 2023), <https://www.epa.gov/newsreleases/epa-announces-availability-50-million-support-states-and-tribes-developing-programs>.