

Lawyer Insights

Online Feature: CCUS: Dispelling myths about risk

By Frederick Eames, Chiara Trabucchi and Daniel McGarvey
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As carbon capture, utilization and storage (CCUS) to reduce carbon dioxide (CO₂) emissions gains interest, companies are concerned about the risks. What will happen when CO₂ is injected into deep geological formations? If the stored CO₂ leaks or other challenges arise, how much would it cost to fix? What options are available to pay for these costs? Can I get insurance?

The authors are well-versed in CCUS, with diverse backgrounds relevant to risks in the fields of economic valuation, risk management and the law. For well-sited, well-operated facilities, the risk of CO₂ leakage is low, the impacts of any leakage should be manageable, CCUS operations of such facilities can be insured similar to other industrial operations.

The authors are members of the CCUS Commercialization Consortium, a voluntary organization focused on accelerating the deployment of CCUS. Risk management is one of the top issues of interest for the consortium and its members. The consortium has led education efforts on CCUS risk management, not only within the organization but more broadly with the public and other stakeholders. However, this article is on behalf of the authors and not that of the consortium.

The first thing the public should know is that the regulatory structure for CCUS is designed to minimize risks. The key regulatory program is the U.S. Environmental Protection Agency's Underground Injection Control (UIC) program. This program requires extensive up-front research and analysis to understand the movement of CO₂ underground. It establishes siting requirements to assure the injection zone will contain the CO₂, operational requirements to maintain safe operation, financial requirements to affirm the integrity of the company responsible for injecting and storing the CO₂, and frequent monitoring and reporting requirements to assure the CO₂ is going only where it is supposed to and no further. The U.S. EPA's UIC program requires strong corrective action, financial responsibility and long-term monitoring. Together, these requirements offer broad protection to the public and to the environment.

The same regulatory structure has been in place since 2010. Why then are we expressing fresh confidence on the manageability of CCUS risk?

Recent work leveraging the carbon capture and storage valuation (CCSvt) model affirms that estimating emergency and remedial response costs for prospective CCUS projects is not only possible, but practical. The foundation of the CCSvt model is understanding the interactions between the capture stream, the geophysical environment in which it will be stored and nearby populations. CCUS project developers are using the model to monetize prospective emergency and remedial response costs. Using conservative assumptions, the model relies on decades of economic experience monetizing compensatory damages for a wide-ranging suite of environmental events. It considers the long-term nature of CCUS projects, the probability of a response-necessitating release, site variability, the chemical composition of the CO₂ stream, the size of potentially impacted populations and potential exposure pathways.

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Tools like the CCSvt model inform the face value of financial assurances for carbon storage permits, the circumstances under which such amounts may be needed and when they will be needed. This information helps the financing decisions of CCUS project equity investors across various industries. These tools routinely are used by financial and natural resource economics firms and rebut the persistent assumption that such analysis is not feasible. Importantly, the output of such tools counteracts the view that government-sponsored or broad-scale liability relief is the only path to commercial-scale CCUS deployment. Notably, results of the CCSvt model suggest lower risk at well-sited, well-operated CCUS sites.

A persistent assumption dogging project developers is that sequestration sites and their supporting piping and injection equipment are somehow uninsurable. Though every new technological undertaking requires education to engender underwriter comfort, the idea that insurers will not support CCUS projects is patently false. Insurance for CCUS projects is being offered today. Insurers face mounting pressure to support greenhouse gas (GHG) reduction and other green technologies as part of corporate environmental, social and governance (ESG) initiatives, and CCUS is an opportunity to champion a breakthrough approach to reduce GHGs with measurably low risk.

The firms best positioned to master the technical issues surrounding deep underground storage already operate daily in industries with similar or more rigorous technological performance requirements (e.g., cross-country pipelines and underground storage of natural gas). Not only do companies in these industries maintain robust insurance programs to support their operations, but standard exclusions on their existing insurance policies generally would not be triggered by adding CCUS to their portfolio. U.S. companies have been injecting CO₂ to expand oil production (i.e., enhanced oil recovery) for more than 50 yr. The technology to capture, compress and inject CO₂ underground—and insurer support for it—is well established.

Comprehensive insurance programs already exist to address the corrective action and emergency remedial response outlined in the UIC program. Traditional first party (“property”) coverage paired with operators’ expense (commonly called “control of well” coverage) addresses emergency response and repairs. Pollution legal liability coverage addresses claims arising from the escape or unplanned migration of CO₂, as well as environmental damage to the injection well site and surrounding property. In the context of the operations that environmental underwriters routinely insure, CCUS is manageable and insurable.

Project sponsors interested in pursuing insurance for CCUS risks should involve insurers early in the CCUS planning process, consider leveraging existing insurance programs to the extent feasible when designing financial assurance plans, engage brokers and consultants who understand CCUS risks and associated consequences, and retain the option to transition from commercial insurance to a captive insurer or other formalized self-insurance option (with regulatory approval) as the project progresses over time.

The presence of a strong regulatory structure, risk valuation tools that suggest lower risk values than previously envisioned and access to available insurance can help dispel the myth that CCUS is too risky and help everyone—project developers, financiers, policy makers and the public—have greater confidence in CCUS as it develops into a more widespread industrial activity.

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