Carbon Capture Coalition Statement for the Record

United States Senate Committee on Energy and Natural Resources
Full Committee Hearing to Examine Federal Offshore Energy Strategy and Policies

October 26, 2023

The Carbon Capture Coalition (the Coalition) appreciates the opportunity to submit this statement for the record for the Senate Energy and Natural Resources Committee hearing to examine federal offshore energy strategy and policies. Carbon management technologies are essential tools in a broader federal strategy to reduce greenhouse gas emissions, while simultaneously providing benefits to affected communities and regional economies through associated air quality benefits as well as the preservation and creation of family-sustaining jobs.

The Carbon Capture Coalition is a nonpartisan collaboration of more than 100 companies, unions, conservation and environmental policy organizations, building federal policy support to enable economywide, commercial scale deployment of carbon management technologies. This includes carbon capture, removal, transport, reuse, and storage from industrial facilities, power plants, and ambient air. Coalition members recognize that economywide adoption of carbon management technologies are critical to achieving net zero emissions to meet midcentury climate goals, strengthening and decarbonizing domestic energy, industrial production and manufacturing, and retaining and expanding a high-wage jobs base. Successful commercial deployment of these technologies requires prioritizing meaningful engagement and consultation with local communities as well as associated workforce development.

This statement outlines the safety and effectiveness of secure geologic storage of captured carbon dioxide (CO_2) and its critical importance in realizing essential emissions reductions targets by midcentury. Carbon capture, transport and storage technologies have been proven at commercial scale in the United States for decades and industry has more than 50 years' experience safely transporting and permanently storing CO_2. Increased interest in offshore storage resources in the U.S. among policymakers and key stakeholders to enable a clean energy economy, along with historic federal investments in carbon management and industrial decarbonization through the Infrastructure Investment and Jobs Act as well as essential enhancements to the 45Q tax credit, the cornerstone federal policy to incentivize carbon management projects have provided a near-term opportunity to scale commercial carbon capture, direct air capture and clean hydrogen projects, associated infrastructure, and geologic storage in the offshore environment.

In direct reaction to the passage of the 2018 FUTURE Act, as well as key recent enhancements to the 45Q tax credit, there have been nearly 150 carbon management projects publicly announced in the United States. These projects span both the carbon management value chain and stages of project development—from pilot scale, feasibility (front end engineering and design studies) up to commercial scale projects. Over 40 of these projects have been announced in 2023 alone, with more projects being announced each month. Additionally, more than 70 percent of these announced projects intend to store captured CO_2 deep underground safely and permanently in saline geologic formations. The United States has some of the most abundant and well characterized geologic storage sites in the world, and the U.S. Department of Energy (DOE) has been studying and working to identify potential U.S. CO_2 storage sites since the early 2000s. Their findings present a safe and scalable method of storing more than an estimated 1000 years' worth of U.S. CO_2 emissions.

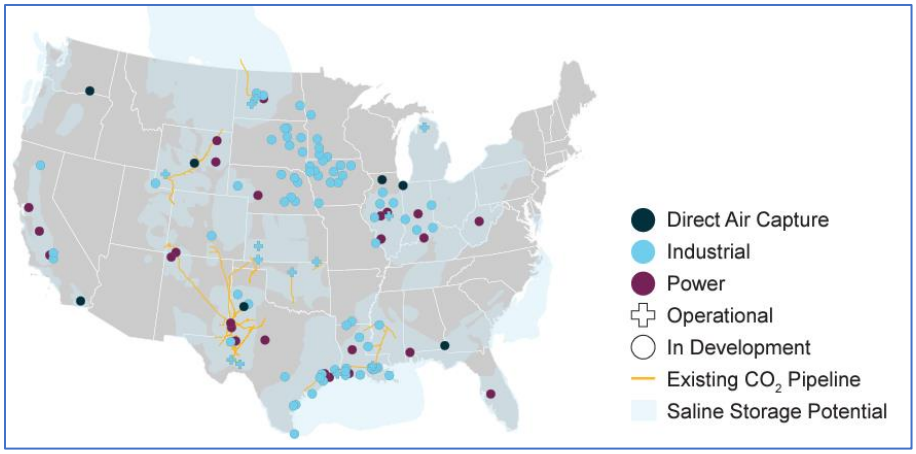

*Figure 1 - **Publicly Announced Carbon Management Projects**. These projects span the development cycle from early stages of development to project construction.*

What remains clear is that large-scale carbon management must play a central role in meeting midcentury global temperature targets, including through carbon capture at industrial facilities and power plants, and direct air capture facilities. In the *Climate Change 2022: Mitigation of Climate Change* report, the Intergovernmental Panel on Climate Change (IPCC) estimates that carbon capture, removal and storage technologies will account for up to 12 gigatons of CO_2 captured and stored annually by midcentury – further underscoring the urgent need to scale up carbon management technologies to capture and store CO_2 at scale by midcentury. **Additionally, of the seven pathways that IPCC uses to reflect different decarbonization strategies, only one excludes deployment of carbon capture and removal technologies. This same scenario estimates that global energy demand will be cut in half over the next 30 years, which is unrealistic and unachievable in a world where billions of people seek improved standards of living.**

In addition to being necessary to achieve midcentury climate goals, safe and permanent injection and storage of CO_2 in deep geologic formations represents a well-understood and commercial practice in the U.S. and worldwide. In the U.S., the Environmental Protection Agency (EPA) regulates and permits geologic storage projects using the Underground Injection Control Programs' Class II and Class VI wells. Through these programs, EPA and established state primacy programs maintain a robust system of monitoring, reporting, and verification to validate secure geologic storage to claim the 45Q tax credit, the cornerstone policy enabling the scale up of carbon management projects. Furthermore, 45Q is a performance-based tax credit, meaning that projects must demonstrate that the captured carbon oxide (CO_2 or it's precursor, CO) is permanently stored or utilized to receive the credit.

While commercially practiced today, scaling up development and responsible permitting of secure geologic storage at gigaton scale is key to getting industries on track to be able to reach net-zero emissions targets and midcentury climate goals. Domestically, the Great Plains Institute estimates that there is the potential to capture and store more than 300 million metric tons of CO_2 emissions per year from existing industry and power sources by 2035. Large-scale geologic storage of CO_2 is well understood. The world's longest operating CO_2 storage facility, the Sleipner carbon capture and storage project operating offshore of Norway in the North Sea, has successfully and permanently stored about 1 million tons of CO_2 per year since storage operations began in 1996. In the U.S. there are 14 commercial-scale facilities with the capacity to capture and store approximately 21.4 million metric tons of CO_2 per year, representing nearly half of the global deployment of the technology to-date.

With more than 70 publicly announced carbon management projects declaring their intent to store CO_2 through dedicated saline storage, ensuring that EPA's Class VI permitting program, which provides specific regulations for dedicated geologic storage of CO_2, has adequate resources to responsibly and efficiently permit projects is increasingly important. The notable increase in project applications to the Class VI Well program highlights the importance of federal and state efforts to provide key support for project development to meet midcentury climate goals. To date, EPA has permitted two Class VI wells, with two additional wells in the pre-construction phase and an additional 57 projects with a total 163 individual well applications pending. Furthermore, EPA can grant primary enforcement authority—referred to as primacy—to individual states, territories, or Tribal nations, which delegates authority to administer certain injection well classes under the UIC program in accordance with federal regulations. North Dakota and Wyoming have been granted primacy, with Louisiana's final determination from EPA expected imminently and several other states actively exploring Class VI primacy. Currently, North Dakota has permitted two Class VI wells under its state primacy program.

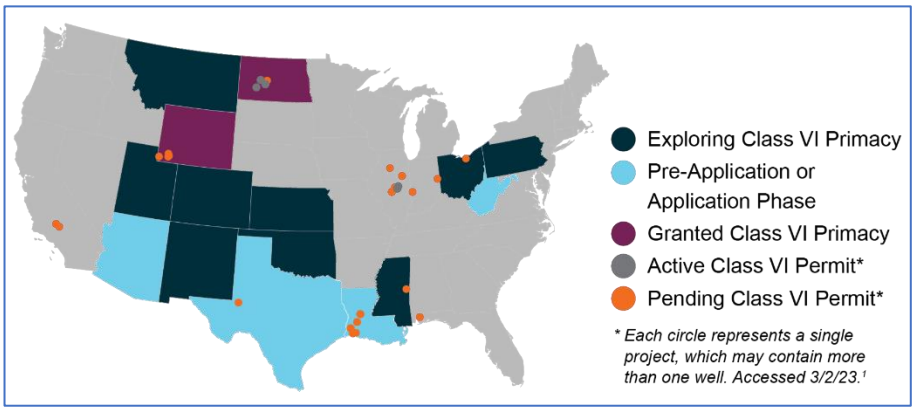

Figure 2 - ***Class VI Well State Primacy Status and Pending Well Applications at EPA***

While project deployment has expanded significantly over the past several years in response to historic levels of federal policy support for the technology, this has in turn, renewed interest in the development of CO_2 storage projects in suitable geologic storage formations on federally managed lands. According to the U.S. Government Accountability Office, the U.S. federal government owns and manages approximately 130 million acres of potentially suitable storage capacity overlayed by federal lands. However, federal regulatory authorities lack the proper procedures to authorize and manage the storage of CO_2 on federally managed lands, including those located offshore on the Outer Continental Shelf. Providing clarity on these procedures is critical to meeting CO_2 storage volumes that are in line with 2050 greenhouse gas emissions reductions targets. Until Congress and federal regulatory authorities provide clarity to CO_2 storage developers for projects on federal lands, including those offshore, it is unlikely that the U.S. will meet CO_2 storage volumes that are in line with 2050 greenhouse gas emissions reduction targets.

With respect to offshore storage, the Bipartisan Infrastructure Law gave the Secretary of the Interior the authority to grant a lease, easement, or right-of-way on the Outer Continental Shelf for long-term storage of CO_2 and tasked the relevant agencies with promulgating regulations within one year. Agencies should ensure these policies and processes are aligned to allow for a clear and workable pathway to realize CO_2 storage on public lands. The Coalition urges the Committee to work with the Department of Interior to finalize draft regulations for the Outer Continental Shelf. While there are marked differences between offshore and onshore environments, relevant federal agencies should support the same rigor of monitoring, reporting,

and verification for secure, permanent storage of CO_2 when promulgating rules governing the offshore environment. Moreover, these same agencies should follow the same transparency measures required by Subpart RR of the EPA Greenhouse Gas Reporting Program in the onshore environment. **Ensuring transparency and accountability mechanisms for the offshore storage environment are integral to maintaining public confidence in the integrity of the 45Q tax credit.**

Finally, in addition to playing a central role in decarbonizing domestic industry, manufacturing and energy, widespread deployment of carbon management technologies at industrial, power, and large-scale direct air capture facilities economywide is an essential tool to preserving and expanding a high-wage jobs base in key sectors across almost every state in the nation. Furthermore, following the historic investments in carbon management and associated infrastructure in the 117th Congress, we are now presented with the opportunity to place carbon management technologies at the heart of a national strategy for job creation and retention, workforce development and training, economic renewal, and climate stewardship. For example, through a 2021 report commissioned by the Great Plains Institute, Rhodium Group found that carbon capture retrofit opportunities at industrial and electric power facilities across a 21-state region have the potential to create 70,000 to 100,000 jobs per year over the next 15 years. Up to nearly 20,000 additional jobs would be created per year over this period by the buildout of a regional and national network of CO2 transport and storage infrastructure. Put simply, investment in carbon management technologies, including development of offshore storage capabilities on federally administered lands, presents an unprecedented opportunity for people, the economy, and the environment.

Conclusion

Carbon capture, removal, transport, reuse and storage technologies are essential tools for achieving CO_2 capture goals in critical-to-decarbonize sectors, increasing domestic energy production, protecting and growing a high-wage jobs base, and fulfilling our climate obligations. The groundbreaking policies to scale deployment of associated CO_2 transport and storage infrastructure enacted as part of the Bipartisan Infrastructure Law and subsequent enhancements to the foundational 45Q policy framework are essential to placing America's energy, industrial and manufacturing sectors on track to reach net-zero emissions by 2050. At the same time, these will ensure the long-term viability of vital industries that provide millions of existing high-wage jobs, which represent the lifeblood of American workers, their families and communities, and regional economies.

The Carbon Capture Coalition appreciates the opportunity to comment on the important topics of today's hearing and the Committee's support in advancing federal policies to enable greater deployment of carbon management technologies and associated transport and storage infrastructure necessary to meet midcentury climate goals. We look forward to working with the Committee in a bipartisan manner to participate in the rulemaking process for secure offshore geologic storage of CO_2. Should you have any questions about anything outlined in this statement, please contact Madelyn Morrison, Director of Government Affairs, Carbon Capture Coalition at mmorrison@carboncapturecoalition.org.