

## Carbon Capture Coalition Statement for the Record

### United States Senate Environment and Public Works Committee Hearing on “Examining the Development of Projects and Implementation of Policies that Support Carbon Capture, Utilization, and Storage (CCUS) Technologies”

July 27, 2022

The Carbon Capture Coalition appreciates the opportunity to submit this statement for the record for the Senate Environment and Public Works Committee’s hearing on carbon capture, utilization and storage. Carbon management technologies are essential tools to achieving midcentury climate goals, while preserving and creating middle class jobs that pay family-sustaining wages, providing environment and other benefits to communities, and supporting regional economies across the country.

The Carbon Capture Coalition is a nonpartisan collaboration of more than 100 companies, unions, conservation and environmental policy organizations, dedicated to building federal policy support to enable economywide, commercial scale deployment of the full suite of carbon management technologies, which includes carbon capture, removal, transport, utilization, and storage. Widespread adoption of carbon capture at existing industrial facilities, power plants and future direct air capture facilities is 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.**

This statement outlines the current opportunities and challenges to realizing the full potential of carbon management technologies in relation to midcentury climate targets, domestic energy production, and high-wage job growth. This includes the need for robust federal policy support to enhance the foundational economic incentive provided by the federal Section 45Q tax credit, the key role Class VI wells permitting and primacy play in achieving economies of scale, and critically, the inherent need to implement key carbon management policies the 2020-enacted bipartisan Utilizing Significant Emissions with Innovative Technologies Act (USE IT Act).

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<sub>2</sub>. Economywide deployment of the full value chain of these technologies (carbon capture, direct air capture, utilization, transport and storage) and associated infrastructure is essential to reach an economy of scale by 2030. Doing so will establish new benchmarks in technical maturity, ease of construction, affordability, and effective and timely permitting processes. Meeting these benchmarks will enable the industrial, power, and CO<sub>2</sub> transport and storage sectors to make the massive carbon capture investments necessary for achieving net-zero emissions by 2050.

Increased interest in the U.S. among members of Congress, both the current and recent administrations as well as key stakeholders to scale deployment of carbon management technologies paired with recent federal investments in carbon management and industrial decarbonization through the [Infrastructure Investment and Jobs Act \(IIJA\)](#), have provided a near-term opportunity to scale commercial carbon capture, direct air capture, associated infrastructure, and geologic storage. These investments put us on a path to deploy the technology at the rate necessary to play an integral role in enabling a clean energy economy,

however, more must be done. If we fail to commit to a broader portfolio of complimentary federal policies to enable significant carbon management project deployment by 2030 today, the U.S. and other countries risk being left without essential options needed to avoid the worst impacts of climate change.

Enhancements to the federal Section 45Q tax credit are critical to leveraging private investment and deploying projects at climate scale. The 45Q tax credit is the cornerstone federal policy for enabling economywide deployment of carbon management technologies. Further enhancing the 45Q tax credit is crucial to providing investment certainty, additional incentive value and the flexibility needed to drive greater private investment in carbon management projects.

- **Providing a direct pay option for the federal Section 45Q tax credit:** This is the most important next step Congress can take to realize the full emissions reduction and job creation benefits of the credit. Direct pay would address the current significant loss of tax credit value to burdensome, costly and inefficient tax equity transactions, creating an urgently needed alternative for most project developers, who otherwise lack sufficient taxable income to fully utilize the credits, or who are exempt from federal tax liability altogether.
- **Extending the commence construction window for the 45Q credit:** Extending the commence construction window to qualify for 45Q by an additional ten years, to the end of 2035, would establish a critically needed investment horizon to give carbon management projects the time required to scale up between now and midcentury.
- **Enhancing 45Q credit values for industrial and power plant carbon capture and direct air capture:** Recent analyses and commercial experience underscore that current 45Q credit values are insufficient to drive the early deployment needed in industry, electric power generation and direct air capture to bring costs down and reduce commercial risk. For industrial and power generation projects, credit values should be increased to \$85 per metric ton for CO<sub>2</sub> captured and stored in saline geologic formations, \$85 per ton for utilization of captured CO<sub>2</sub> and its precursor carbon monoxide to produce low and zero-carbon fuels, chemicals, building materials and other products, and \$60 per ton for storage in oil and gas fields. For direct air capture projects, credit values should rise to \$180 per ton for saline storage, \$130 for oil and gas field storage, and \$130 for carbon utilization. Boosting 45Q credit values would aid in safeguarding domestic production and high-wage, blue collar jobs and in maintaining U.S. technology leadership in this arena.
- **Eliminating annual carbon capture thresholds:** Current thresholds in the 45Q program are arbitrary, serve no policy purpose and reduce the overall technology innovation and emissions reduction potential of the incentive. Based on 2019 U.S. Environmental Protection Agency (EPA) data, approximately 54 percent of power plants and 75 percent of industrial facilities fall below eligibility thresholds, and many direct air capture and carbon utilization projects deploying emerging technologies simply lack the scale to meet these requirements.

Commercial interest in carbon management technologies and projects is growing rapidly, with nearly [120 publicly announced projects](#) in various stages of development throughout the United States. More than 70 percent of these announced projects intend to store captured CO<sub>2</sub> deep

underground safely and permanently in saline geologic formations. The potential for saline geologic storage is enormous and represents a long-term, scalable climate solution. While carbon capture and storage is only one piece of the climate solution, estimates of domestic saline storage capacity represent over 1,000 years' worth of U.S. CO<sub>2</sub> emissions.

Safe and permanent injection and storage of CO<sub>2</sub> in deep geologic formations represent a well-understood and commercial practice in the U.S. and worldwide. In the U.S., 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. To that end, 45Q remains the only energy technology which must demonstrate that the captured carbon oxide (CO<sub>2</sub> or it's precursor, CO) is permanently stored or utilized to receive a tax credit – wind, solar and other energy technologies receive federal tax credits based on production – regardless of total CO<sub>2</sub> emissions reduced.

With more than 60 of the publicly announced carbon management projects declaring their intent to store CO<sub>2</sub> through dedicated saline storage, ensuring that EPA's Class VI permitting program, which provides specific regulations for dedicated geologic storage of CO<sub>2</sub>, has adequate resources to permit projects properly and expeditiously is increasingly important. The anticipated increase in project applications to the Class VI Well program (DOE estimates that EPA will receive more than 100 applications from project developers by 2030) highlights the importance of federal and state efforts to provide key support for project development to meet midcentury climate goals. [EPA](#) has permitted two Class VI wells to date, with well permit applications for an additional 19 wells listed as pending, as of July 26, 2022.

Recent federal investments in carbon management and industrial decarbonization through the bipartisan IIJA provide a very near-term opportunity to scale commercial projects, associated infrastructure, and geologic storage. Among other critical policy mechanisms, the IIJA featured foundational investments in the buildout of regional CO<sub>2</sub> transport and storage infrastructure with the inclusion of the bipartisan Storing CO<sub>2</sub> and Lowering Emissions (SCALE) Act in its entirety. The SCALE Act provisions included funding for the EPA's geologic storage permitting program at \$25 million during fiscal year (FY) 22-26 and \$50 million during FY22-26 for state permitting program grants. Effective implementation of these modest, but vital, permitting resources will be transformative.

While industry has decades of commercial experience safely storing CO<sub>2</sub> geologically at large scale, increasing the pace of project development and permitting of secure geologic storage at gigaton scale is essential to getting industries on track to be able to reach both 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<sub>2</sub> emissions per year from existing industry and power sources in the mid-continent by 2035. Though only one dedicated saline geologic storage project exists in the U.S. today (the Illinois Industrial Carbon Capture and Storage Facility), the project stores approximately 1.1 million tons of CO<sub>2</sub> per year from ADM's corn processing facility in Decatur, IL, alone.

Currently, securing an EPA Class VI permit for saline geologic storage can take several years, yet to meet midcentury climate goals, we will need to remove and safely store billions of tons of CO<sub>2</sub> in appropriate saline formations that are captured from industry, power generation and

directly from the atmosphere through direct air capture. Even with the two-year extension of 45Q, thanks to the FY2021 Omnibus, bringing the commence construction window to the end of 2025, the timeframes required for saline geologic storage permitting may put carbon capture projects at greater risk of missing the deadline to qualify for 45Q, especially when considering the additional time required to undertake planning, complete engineering, secure financing and accomplish other necessary components of project development. Therefore, it is critical that EPA reaffirm its commitment to reviewing applications and announcing decisions in a timely and effective manner, including publishing an annual Class VI report Included in legislation passed by the House of Representatives to fund the federal government in FY23.

In addition to current efforts in Congress and federal agency regulations, the USE IT Act, enacted as part of the FY2021 Omnibus, required the Council on Environmental Quality (CEQ) to establish two regional task forces within 18 months of enactment to improve the performance of the permitting process for carbon management projects. We are pleased to see the recent announcement that CEQ is establishing these two task forces, and getting them up and running in short order will help to ensure the regulatory framework enables efficient, orderly, and responsible deployment of carbon management projects and infrastructure.

An area of particular focus for the task forces should be CO<sub>2</sub> transport infrastructure. Multiple analyses have found that to achieve net-zero emissions, a substantial buildout of CO<sub>2</sub> pipeline infrastructure will be needed to transport large quantities of CO<sub>2</sub> from industrial facilities, power plants and direct air capture facilities to points of utilization and/or permanent storage. CO<sub>2</sub> pipelines have operated in the United States for over 50 years and have a strong safety record. However, in anticipation of an expanding CO<sub>2</sub> pipeline network, we must be sure that the regulatory framework enables efficient permitting while also ensuring CO<sub>2</sub> pipelines are designed, constructed, managed and maintained at standards delivering the highest levels of reliability and safety. To achieve the necessary deployment of carbon management technologies in the timeframe needed to meet climate goals, it is imperative that the public has confidence in the safety of CO<sub>2</sub> pipelines and that diverse stakeholders have a chance to consider the current and any potential changes needed to ensure the regulatory framework enables both the efficient and responsible deployment of carbon management technologies. The task forces provide a timely opportunity to address this need.

Together, these resources will be critical to ensure adequate federal and state permitting capacity required for economywide deployment of carbon management projects at climate scale. Robust and efficient permitting of CO<sub>2</sub> storage is central to ensuring that the significant federal investments in these technologies contained in the infrastructure bill and the 2018 bipartisan reform and expansion of the federal 45Q tax credit achieve their full climate potential. However, while these incremental gains remain important to realizing economies of scale, Congress now must deliver the broad portfolio of federal policy support for carbon management in forthcoming budget reconciliation legislation, including direct pay and multi-year extension of the 45Q tax credit, increased credit values for industry, power and direct air capture, and dramatically reduced annual capture thresholds. Combined with the investments made in the infrastructure law, these enhancements to the 45Q tax credit would result in an estimated 13-fold increase in carbon management capacity and annual CO<sub>2</sub> emissions reductions of 210-250 million metric tons by 2035 as well as creating hundreds of thousands of jobs in the carbon capture and direct air capture industries.

## **Conclusion**

Carbon capture, removal, utilization, transport and storage technologies are essential tools to decarbonize the hardest-to-abate sectors, increase domestic energy production, protect and grow a high-wage jobs base, and fulfil our climate obligations. The groundbreaking provisions to scale deployment of associated CO<sub>2</sub> transport and storage infrastructure enacted as part of the bipartisan infrastructure law 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 industries that provide millions of existing high-wage jobs, which represent the lifeblood of American workers, their families and communities, and regional economies. Analyses by the Rhodium Group reveals the potential for creating tens of thousands and hundreds of thousands of jobs and generating hundreds of billions in investment from [carbon capture](#) and [direct air capture](#) deployment, respectively, if these technologies are deployed at levels needed to meet net-zero targets.

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 infrastructure to meet midcentury climate goals. We look forward to working with the Committee in a bipartisan manner to ensure carbon management technologies fulfill their emissions reduction potential. Should you have any questions about anything outlined in this statement, please contact Madelyn Morrison, External Affairs Manager, Carbon Capture Coalition at [mmorrison@carboncapturecoalition.org](mailto:mmorrison@carboncapturecoalition.org).