

Carbon Capture Coalition Statement for the Record

United States House Committee on Energy and Commerce Subcommittee on Environment, Manufacturing, and Critical Materials Hearing: America Leads the Way: Our History as the Global Leader Reducing Emissions

November 29, 2023

The Carbon Capture Coalition (the Coalition) appreciates the opportunity to submit this statement for the record to the House Energy and Commerce Subcommittee on Environment, Manufacturing, and Critical Materials' hearing entitled "America Leads the Way: Our History as the Global Leader Reducing Emissions". As the US and nations around the globe incorporate climate and energy considerations into their broader policy agendas, the world's climate scientists agree: carbon management technologies are essential tools in a broader federal strategy to reduce greenhouse gas emissions. Carbon management, which includes carbon capture from industrial facilities and power plants, direct air capture, carbon reuse, transport and safe, permanent geologic storage, is not only a climate strategy, but simultaneously can provide benefits to affected communities and regional economies through associated air quality benefits as well as the preservation and creation of family-sustaining jobs. As the global leader in carbon management technology development and deployment, the United States has a unique role to play in sharing resources, technology, and knowledge of carbon management technologies worldwide, to ensure that low- and zero- carbon energy technologies are affordable and accessible as global economies set net-zero targets in motion.

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. 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.

Following the significant strides taken by the 117th Congress to provide a comprehensive portfolio of federal policy support for the economywide deployment of carbon management technologies, the US now boasts the most forward-looking policies in the world for the deployment of these climate-essential projects. Building off this historic support, lawmakers now have the opportunity to reinforce and grow the role of American leadership in the development and deployment of these technologies throughout the remainder of this decade. This statement details both the environmental benefits of carbon management technologies as well as a slate of near-term federal policy opportunities for the committee to consider to catalyze the deployment of these technologies. The below recommendations address the current economic, financing and project permitting challenges carbon management projects face in today's policy landscape. **Specifically, this includes indexing the federal Section 45Q tax credit for inflation prior to the statutorily mandated date of 2027, passing the Carbon Capture and Utilization Parity Act, and important considerations for improvements and reforms to aspects of the permitting process to provide clear and transparent parameters for project developers to abide by as this sector scales in a safe, efficient and responsible manner.** Enacting these recommendations would further enable these technologies to fulfill their emissions reduction potential, while strengthening American manufacturing and industrial production, and providing communities with tangible economic and health benefits.

Environmental Benefits of Carbon Management Technologies

The year 2030 is widely seen as a critical benchmark for meeting midcentury climate targets. Technologies and strategies for meeting 2050 goals need to be commercially available and deployed at a significant scale by the end of the current decade to meet these targets. Modeling done by the United Nation's Intergovernmental Panel on Climate Change (IPCC) and the International Energy Agency (IEA) to assess pathways to achieve 2050 climate goals continues to reaffirm the essential role that economywide and dramatically accelerated commercial deployment of carbon management technologies must play in managing emissions from existing industrial facilities and power plants, balancing emissions from emissions-intensive sectors, and removing legacy CO₂ emissions from the atmosphere. In fact, the IPCC's most recent report uses seven specific pathways to illustrate economywide decarbonization strategies; only one excludes carbon capture and requires global energy demand to decrease by nearly 50 percent by midcentury.

As far as deployment is concerned, scenarios examined in the IEA's [Net Zero Emissions by 2050](#) report estimates that the current slate of projects under development globally will be capturing and storing about 40 million tons of CO₂ in the next five years. That number must increase to 1.6 gigatons by 2030 and 7.6 gigatons by midcentury to reach net zero. Additionally, while most of this captured CO₂ is permanently stored, the IEA estimates there will be significant markets for carbon reuse, particularly for synthetic fuels. In terms of the number of facilities needed to reach these goals, a commercial-scale carbon capture and storage facility is typically considered to be storing 1 million metric tons of CO₂ per year, which would translate to multiple thousands of carbon management facilities in industry, power, and direct air capture deployed between now and 2030.

Additionally, while the primary objective of carbon management is to reduce and abate CO₂ emissions and mitigate the worst impacts of climate change, carbon capture and reuse at industrial facilities may also result in the significant reduction of conventional air pollutant emissions, including sulfur dioxide, nitrous oxides, and particulate matter. All of these emissions are criteria air pollutants regulated by the EPA and are recognized as harmful to human health and the environment. Therefore, while emissions reductions is the central intent of carbon management technologies, it should not be the only consideration when assessing the value and tangible benefits of these technologies. For example, carbon capture retrofits at industry and power facilities can reduce not only greenhouse gases but also harmful criteria air pollutants to provide tangible air quality benefits to communities in close proximity to these existing facilities.

One thing remains clear: though there is no silver bullet to address the impacts of our changing climate, carbon management technologies are an essential tool for decarbonizing the American economy and enabling the US to achieve net-zero emissions by midcentury.

Tax Policies Meant to Incentivize the Deployment of Carbon Management Technologies

Over the course of the 117th Congress, the Coalition and its members played a central role in ensuring that key carbon management priorities were reflected in broadly bipartisan pieces of legislation, and eventually included in larger legislative vehicles like the [Bipartisan Infrastructure Law \(BIL\)](#) and the [Inflation Reduction Act \(IRA\)](#). Today, [the U.S. policy framework](#) is now recognized as the most comprehensive and robust federal policy support for carbon management technologies in the world. The increased ambition and investment provided by these landmark laws are estimated to increase carbon management capacity in the U.S. by 13-fold, and result in annual CO₂ emissions reductions of 210-250 million metric tons by 2035. As such, this wave of increased federal policy support, including the 2018 restructuring of the 45Q tax credit and more recent 45Q enhancements passed in the prior Congress, has resulted in the public announcement of [198 announced or operational projects](#) in the US, bringing the total capture capacity in the United States to an estimated 1.3 gigatons of CO₂ per year. Since the 45Q enhancements were enacted last year, there have been 59 project announcements, with an estimated annual capture capacity of nearly 320 million tons per year.

These announced projects span the carbon management value chain and include projects at various stages of technology development and deployment—from pilot scale, feasibility (front end engineering and design studies) up to commercial scale projects, signaling that increased federal policy support for carbon management technologies will translate into real-world projects. 45Q is the foundational policy mechanism to incentivize the deployment of carbon management projects and serves as the anchor to ensure these technologies fulfill their full emissions reduction potential. The 45Q tax credit reduces the cost and risk to private capital of investing in the deployment of carbon management technologies and associated transport and storage infrastructure across a range of industries. By 2030, it is crucial to see further deployment of the technology in lower-cost sectors and to see significant demonstration and cost reductions in critical-to-decarbonize sectors. These include heavy industrial sectors, such as steel, cement, and basic chemicals production, electric power generation, and direct air capture.

With crucial enhancements to the 45Q tax credit now enshrined in law, along with a portfolio of complementary policies enacted throughout the course of the 117th Congress, project proponents have a strong foundation to bolster the widespread deployment of carbon management technologies. However, further adjustments to the tax credit will be necessary to ensure investment certainty and business model flexibility, including:

- **Indexing 45Q for Inflation:** Increased credit values provided to projects developed in the industry, power, and direct air capture sectors represent the cornerstone of the most recent enhancements made to 45Q. However, unlike other low- and zero-emissions technology tax credits recently reformed under the 117th Congress which adjust for inflation beginning in 2022 and 2023, the 45Q tax credit value is not adjusted for inflation until 2027, putting carbon management projects at a significant disadvantage. Already, much of the value increase realized in 2022 has been eroded due to significant inflation in both capital goods costs and energy prices. In numbers, the 2022 Consumer Price Index (a standard metric of inflation) rose by 7 percent. Therefore, value of an \$85 per metric ton 45Q credit would now be only \$74 per metric ton as measured in 2020 dollars, and early modeling suggests by 2026 the value of the credit could diminish by nearly 40 percent. Similarly, the decline in the value of 45Q lowers the emissions reduction potential of the credit by about 50% by 2037, or as much as 108 million metric tons of CO₂ annually. Ignoring these inflationary pressures on 45Q jeopardizes not just the bipartisan investments already made under the 117th Congress, but the economic and environmental returns expected from those investments, including the creation and retention of family-sustaining jobs and tangible health benefits from captured air pollutants.
- **Creating Parity Between Credit Levels for Carbon Storage and Carbon Reuse:** Increasing credit levels for the nascent carbon reuse sector, which is the conversion of carbon oxides to produce commercial products, is necessary to realize commercial viability for this portfolio of technologies. While enhancements to 45Q increased credit levels across the board in 2022, the credit was bifurcated between permanent storage of captured CO₂, and the utilization of CO₂ as a feedstock for commercially valuable products, or to produce additional oil in depleted oil and gas wells. Relative to using CO₂ for the purposes of producing additional oil, reusing carbon to produce valuable products is not yet cost competitive with incumbent technologies. Under the current statute, there is a \$25 per ton disparity between those projects that reuse carbon emissions versus those that securely and permanently store the captured carbon. This disparity effectively disincentivizes the development and deployment of relatively new carbon reuse technologies, acting more like a tax on such operations. This disparity rises to \$50 per ton in relation to direct air capture projects.

Luckily, there is already bipartisan support for creating parity between these two credit levels in the 118th Congress. In February 2023, the bipartisan [Captured Carbon Utilization Parity Act](#) was introduced by Representatives David Schweikert (R-AZ-01) and Terri Sewell (D-AL-07), aiming to increase the credit levels provided for carbon utilization to \$180/ton for products sourced from direct air capture and \$85/ton for those products sourced from industry and power – thereby matching credit levels provided for permanent geologic storage of CO₂ and making the carbon reuse sector more economically competitive. Properly incentivizing the deployment and innovation of carbon reuse

applications to create low- and zero-carbon products, including fuels, chemicals, and building materials is important to provide an alternative pathway to address sources of emissions that are too small to be economically captured and transported, or too far removed from appropriate storage sites. [Current estimates](#) on the potential uptake of CO₂ reuse to make valuable products range from 5 to 10 percent of global emissions, or several gigatons per year. Put simply, carbon reuse is an important, complementary effort to storing captured CO₂ in secure geologic formations. Federal tax incentives should more appropriately reflect carbon reuse's role in a broader portfolio of strategies to reduce greenhouse gas emissions, decarbonize and introduce circularity to the American economy, and create new manufacturing sectors resulting in the creation of family-sustaining jobs.

Permitting Challenges put Environmental Benefits of Carbon Management at Risk

Unprecedented federal bipartisan investments in carbon management technologies have set the stage to scale deployment, but building out associated infrastructure will require efficient and effective permitting, grounded in robust environmental protections and community engagement. Improvements and targeted reforms to the current permitting system will be central to help facilitate the build-out of climate-essential projects and encourage private investment. Though the Coalition understands that it is not true in all cases that federal and state agencies will have permitting and siting authority over carbon management projects, Coalition members have developed a set of [guiding principles](#) for consideration as permitting reform is discussed among lawmakers at the federal level. These six guiding principles are meant to represent important considerations for responsible and successful project deployment and would further ensure the benefits associated with deployment flow to the communities that host these diverse projects and the workers that build them.

The Coalition's permitting principles include:

- Ensuring federal and state agencies have the resources, staffing, technology, and training to efficiently complete a growing number of reviews and community engagement processes as carbon management projects scale in deployment.
- Ensuring early, robust, meaningful, and timely public engagement and input from affected communities is reflected in decision making.
- Ensuring environmental standards and protections are maintained, and environmental outcomes are strengthened.
- Directing agencies to appropriately use programmatic review and categorical exclusions for carbon management infrastructure.
- Creating a pathway for federal siting authority for interstate CO₂ pipelines, creating appropriate parity for all types of interstate linear infrastructure.
- Ensuring review of Class VI state primacy applications, as well as individual Class VI well applications, occur on a reasonable and predictable timeframe.

Robust infrastructure to safely transport and store captured CO₂ in secure geologic formations is an essential component of any broader strategy to put America firmly on a path toward net-zero emissions reductions. Carbon management projects, like many of their clean energy counterparts, are complex – and ensuring all pieces of a project come together is necessary to scale deployment of these technologies across the economy. While the nation's current permitting regime has been in place for decades, as this industry continues to expand in the near-term, gaps in policy for permitting clean energy projects, including CO₂ transport and storage infrastructure, have created delays and bottlenecks at critical junctures of project deployment.

While the federal government oversees the [safety of CO₂ pipelines](#) through the Pipeline and Hazardous Materials Safety Administration, currently, siting authority for interstate CO₂ pipelines rests with individual states while, in contrast, there is federal siting authority for interstate natural gas pipelines under the Natural Gas Act. Over the course of the past year there has been active discussion in the context of permitting reform over federal siting authority for interstate transmission lines and interstate hydrogen pipelines. Absent from the debate, however, has been providing similar siting authority for CO₂ pipelines. **Establishing a pathway for**

federal siting authority for interstate carbon dioxide pipelines to provide similar parity for all linear infrastructure types, where appropriate, that face similar siting challenges should be prioritized to allow recent federal historic investments dedicated to carbon management infrastructure to enable efficient and responsible buildout of the necessary CO₂ pipeline network. Such parity would also enable better coordination, planning, and siting across federal agencies to lower impacts for wildlife and local communities. However, lines that are well served by the current state by state regulatory siting authority should be allowed to continue with that process.

In addition to the responsible buildout of CO₂ transport systems, it is equally as important to ensure the timely and efficient review of Class VI state primacy applications and individual Class VI well applications to prevent project delays. Federal and state authorities are tasked with ensuring safe and permanent storage in appropriate geologic formations through the Environmental Protection Agency's (EPA) Underground Injection Control (UIC) Class VI injection well program. Class VI wells are used to inject CO₂ into deep geologic formations solely for the purpose of permanently storing CO₂. Before potential storage sites are allowed to move forward, they must provide highly detailed models to federal or state regulators, depending on which entity has authority over Class VI wells.

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. Granting primacy empowers states to manage and regulate Class VI injection wells within their jurisdiction, while upholding the same or more rigorous environmental and public engagement standards as the EPA. States, territories, or Tribal nations can be approved for this delegation of primacy only when their regulations meet or exceed the federal UIC requirements. A well-understood and commercial practice in the U.S. and in certain regions of the world, 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.

As stated earlier, there are now [198 announced or operational projects](#) in the US, bringing the total capture capacity in the United States to an estimated 1.3 gigatons of CO₂ per year. More than half of these announced projects are intending to store their CO₂ in dedicated saline storage sites. This enormous uptick in carbon storage projects reinforces the importance of ensuring that EPA's Class VI permitting program has adequate staffing and resources to permit worthy projects responsibly and efficiently. To date, EPA has permitted two Class VI wells, with two additional wells in the pre-construction phase; an additional 57 projects, along with a total 163 individual well applications are undergoing more preliminary review stages with the [EPA](#). Additionally, North Dakota and Wyoming have been granted primacy, with North Dakota having permitted two Class VI well applications, and Louisiana's final determination on primacy from EPA expected imminently. Additionally, the EPA recently announced the [allocation of \\$48 million](#) to 25 states and Tribal nations to establish or oversee existing Class VI primacy programs.

The notable increase in project applications to obtain Class VI Well permits, as well as the growing interest from states in applying for primacy, highlights the importance of federal and state efforts to prioritize the timely review of state primacy and individual Class VI well applications. Timely decisions on Class VI well applications are needed to provide the certainty to encourage necessary private investment. This private investment is, in turn, crucial to ensuring that carbon management technologies can play their intended role in meeting the administration's ambitious, but necessary, target to reduce emissions to net zero by 2050.

Conclusion

Carbon capture, removal, transport, reuse and storage technologies are critical to achieving net-zero emissions to meet midcentury climate goals and to strengthening and decarbonizing domestic energy, industrial production and manufacturing, all while retaining and expanding a high-wage jobs base. The groundbreaking policies to scale the deployment carbon capture and removal technologies, as well as associated CO₂ 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. Combined with responsible and timely permitting reforms, these incentives will provide certainty to investors in carbon management technologies and create a favorable environment for scaling necessary projects.

The Carbon Capture Coalition appreciates the opportunity to comment on the important topics of today's hearing and the Committee's continued support in advancing federal policies to enable greater deployment of carbon management technologies and associated transport and storage infrastructure. We look forward to working with the Committee in a bipartisan manner to ensure these technologies deploy at the pace and scale necessary to fulfill their emissions reduction potential, while providing environmental and other benefits to communities, preserving and creating jobs that pay family-sustaining wages, and safeguarding the long-term viability of America's domestic industries. 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.