

CARBON CAPTURE  
COALITION

# 2025 FEDERAL POLICY BLUEPRINT



# MEMBERSHIP LIST

## Participants

- 8 Rivers
- Accelergy Corporation
- AFL-CIO
- Aircapture
- AirMyne
- Air Company
- Air Liquide
- Air Products
- Alto Ingredients Inc.
- ArcelorMittal
- Arch Resources Inc.
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- Blue Planet Systems
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- Carbon America
- Carbon TerraVault
- Carbon Wrangler LLC
- Cemvita
- Center for Climate and Energy Solutions
- CF Industries
- Citizens for Responsible Energy Solutions (CRES) Forum
- Clean Air Task Force
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- Climeworks
- Conestoga Energy Partners LLC
- Core Energy LLC
- Dioxycle
- DTE Energy
- EBR Development LLC
- Energy Innovation Reform Project
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- FCM Carbon Solutions
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- Glenrock Energy LLC
- Graymont
- Great River Energy
- Green Plains Inc.
- Greene Street Capital
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- ION Clean Energy
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- New Energy Risk
- New Steel International Inc.
- NRG Energy Inc.
- Occidental
- Pennsylvania Environmental Council
- Prairie State Generating Company
- Remora
- Shell
- SMART (Sheet Metal, Air, Rail and Transportation Workers) Transportation Division
- Summit Carbon Solutions
- Svante
- The Nature Conservancy
- Third Way
- Thunderbolt Clean Energy LLC
- Topsoe
- United Airlines
- United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry
- United Mine Workers of America
- United Steelworkers
- Utility Workers Union of America
- Valero
- White Energy

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- Biomass Power Association
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- Elysian Carbon Management
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# ABOUT THE CARBON CAPTURE COALITION

## VISION

Carbon management technologies are a widely deployed emissions abatement strategy.

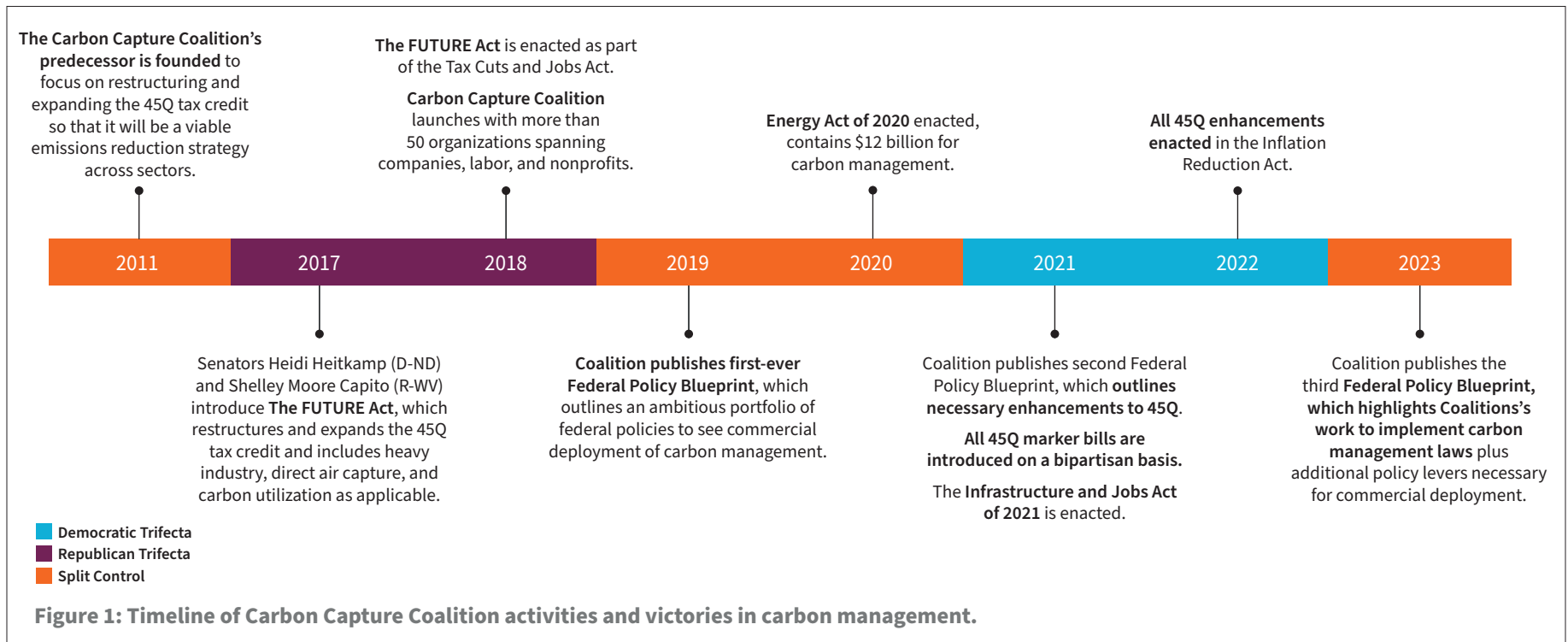
## MISSION

Build broad federal policy support for the nationwide deployment of carbon management technologies.

The Carbon Capture Coalition (the Coalition) is a nonpartisan collaboration of more than 100 companies, labor unions, and conservation and environmental policy organizations. Coalition members work together to lay the groundwork for the necessary portfolio of federal policies to enable nationwide, commercial-scale deployment of carbon management technologies. The full suite of carbon management technologies is crucial to bolstering domestic energy and industrial

production, driving down emissions across sectors, and supporting workers with a broad range of skill sets. **Carbon management includes carbon capture, removal, transport, reuse, and secure geologic storage from industrial facilities, power plants, and ambient air.**

The nationwide adoption of carbon management technologies is critical to maintaining and strengthening domestic energy and industrial production, boosting US global competitiveness,





retaining and expanding a high-wage jobs base, and achieving net-zero emissions. Successful commercial deployment of these technologies requires supportive policies and effective regulatory frameworks, as well as prioritizing meaningful engagement and consultation with local communities and associated workforce development.

### **Introduction**

Since its founding, the Coalition and its members have advanced an ambitious federal policy framework for carbon management deployment. We have played a decisive role in enacting and implementing landmark bipartisan laws that have established the US as the global leader in developing and deploying these essential technologies.

The Carbon Capture Coalition's Federal Policy Blueprint is our foundational consensus document, updated at the beginning of each new Congress to reflect legislative and regulatory policy priorities developed by the Coalition's full membership.<sup>1</sup> The Coalition's previous iterations, including the [2023](#) and [2021 Federal Policy Blueprints](#), laid the

groundwork for introducing and eventually enacting the current federal policy framework for carbon management technologies. This includes, but is not limited to, enhancements to the landmark Section 45Q tax credit (45Q), included most recently in the Inflation Reduction Act (IRA), and groundbreaking funding for demonstration, cost-reduction, and deployment through the Infrastructure Investment and Jobs Act of 2021 (IIJA).

Building on the successful enactment of this comprehensive suite of carbon management policies, championed by a diverse cohort of bipartisan lawmakers, the 2025 Federal Policy Blueprint outlines a framework of next-generation policies necessary to ensure that these technologies:

- Achieve commercial liftoff in this crucial demonstration and deployment decade.
- Help to provide reliable, affordable domestic energy for American families and businesses amidst growing demand for energy.
- Continue driving innovation in domestic industry and manufacturing sectors.
- Help to maintain American competitiveness in global markets.

# CARBON MANAGEMENT AS AN ESSENTIAL SUITE OF TECHNOLOGIES FOR JOBS, AMERICAN COMPETITIVENESS, AND INNOVATION

Carbon management technologies, including carbon capture, removal, reuse, transport, and storage, are crucial tools for balancing the increasing need for affordable, reliable energy that drives the American economy with the global imperative to reduce carbon emissions. Together, they are an enabling technology platform for the production of cleaner energy and materials and are important in the effort to continue growing our economy and providing Americans with family-sustaining jobs.

## What is carbon management?

Carbon capture, removal, transport, reuse, and storage technologies, commonly referred to as carbon management, are a portfolio of safe, reliable, and increasingly cost-effective technologies to manage, abate, and remove carbon emissions from industrial facilities, power plants, and directly from the air. Captured carbon is then reused to manufacture valuable products or transported to appropriate sites for geologic storage. As American businesses continue to innovate sustainable solutions across the economy, carbon management technologies must continue to be a central part of a broader federal strategy in providing affordable, reliable energy for American businesses, industrial production, and families.

The following is a brief description of the individual sectors that make up the full value chain of the broader carbon management industry:

- **Capture:** Carbon capture refers to several technologies that separate carbon from a wide variety of emissions sources and then either store it permanently or reuse it to make commercial products.
- **Removal:** Carbon dioxide removal (CDR or removal) refers to a variety of pathways to remove carbon dioxide (CO<sub>2</sub>) directly from the atmosphere, including direct air capture (DAC) technology.<sup>2</sup>
- **Transport:** Transport refers to methods of transporting captured CO<sub>2</sub> to appropriate storage sites or points of reuse, as not all emitting facilities are near sites for secure geologic storage. The safest, most cost-effective method of transporting captured carbon emissions is via CO<sub>2</sub> pipelines. However, additional modes of transport for CO<sub>2</sub> include cargo ships, rail, and trucks.<sup>3</sup>
- **Reuse:** Also referred to as carbon utilization or conversion, refers to the reuse of CO<sub>2</sub> or carbon monoxide (CO) to produce valuable products, such as low- and zero-emissions fuels, building materials, and other products.
- **Storage:** Compressed CO<sub>2</sub> is injected deep into suitable geologic formations upon being transported to storage sites for secure

and permanent storage, typically over a mile underground.

## Why is carbon management necessary?

Consumers and US trade partners are increasingly demanding goods and power produced with less carbon-intensive processes. Staying competitive on the global stage means leading the charge in commercializing innovative sustainable energy technologies and meeting the demand for less carbon-intensive products. Carbon management is a platform of enabling technologies that support the production of cleaner products, including hydrogen, ammonia, aviation fuel, chemicals, power, and building materials. While current policies combined with federal and private sector investments will help the US realize additional emissions reductions, it is not enough for the US to meet net-zero emissions by midcentury and keep domestic industries and energy production competitive without sacrificing economic growth.<sup>4</sup> By employing carbon management to reduce our emissions from these sectors, the US is responding to this demand.

Continued and expanded policy support is needed to grow a domestic carbon management industry that will create jobs, increase American industrial global competitiveness, and grow the American economy. Moving forward, they serve as useful

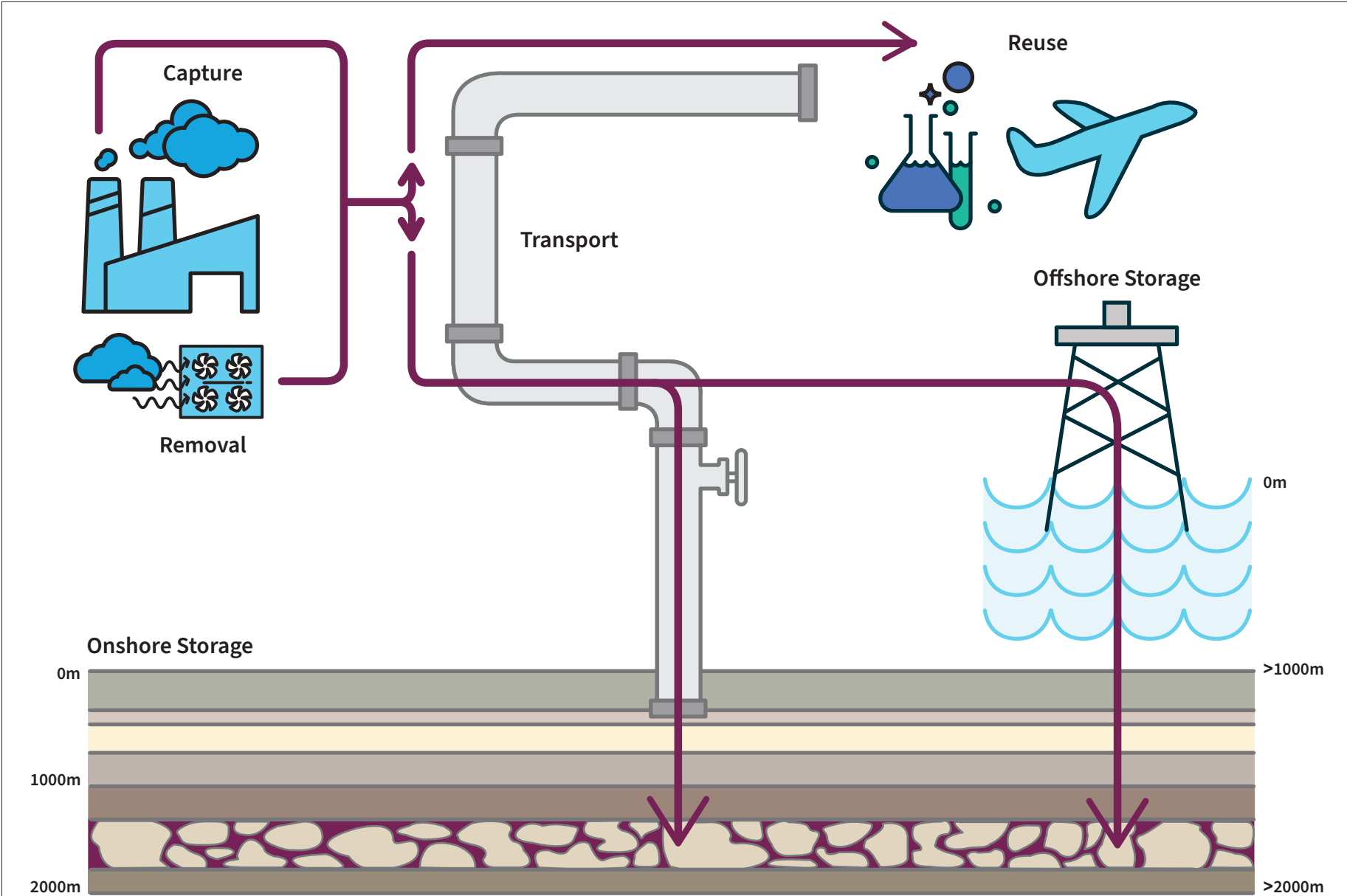


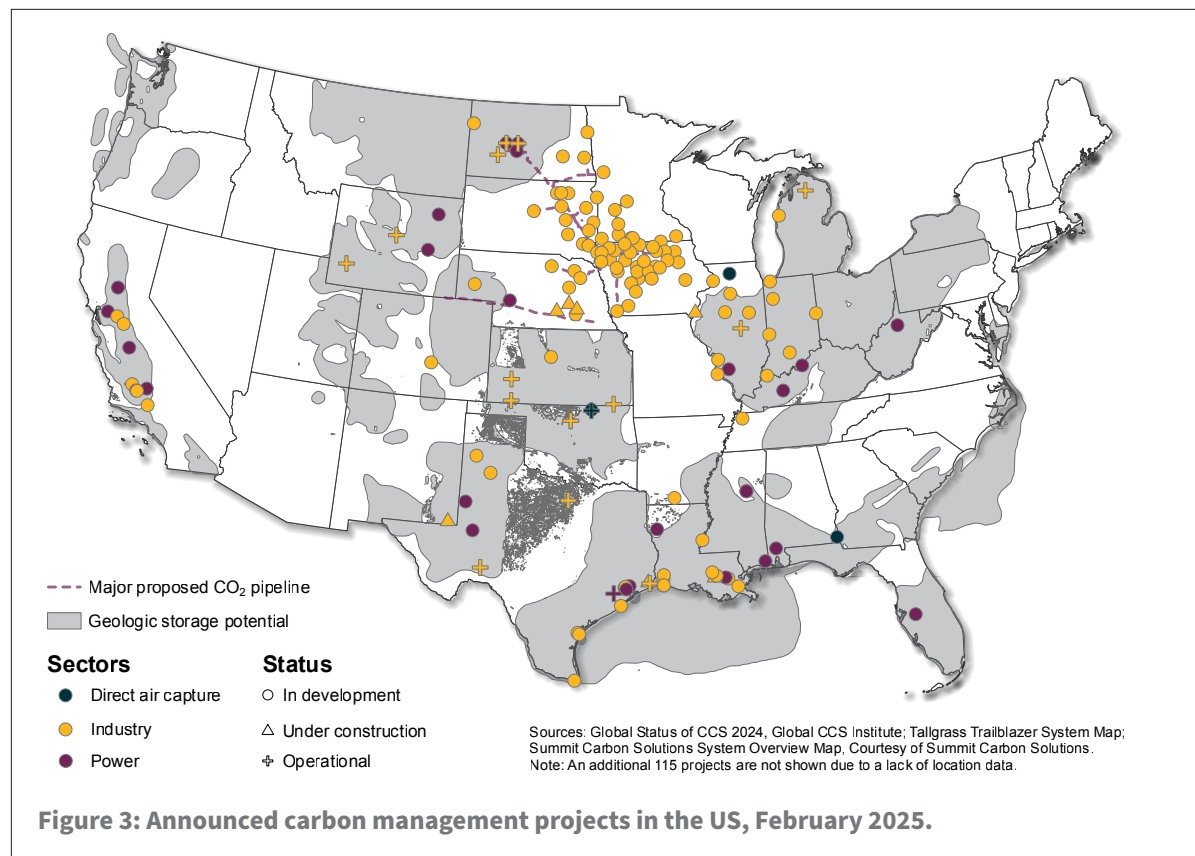
Figure 2: The carbon management value chain.

tools to continue onshoring industry and manufacturing while continually lowering the US' emissions profile.

### Carbon management projects in the United States

The US remains the global leader in the deployment of carbon management technologies, with 19 commercial-scale facilities operating with the capacity to capture over 22 million metric tons of CO<sub>2</sub> per year.<sup>5</sup> Thanks to the supportive policy framework in place, there has been unprecedented interest in carbon management deployment, with an ever-growing list of announced projects in the last several years.<sup>6</sup> In 2023, there were 154 announced carbon capture, removal, reuse, and storage projects throughout the US; today, there are 276 and counting, with a total capture capacity of nearly 200 million metric tons per year (see Figure 3).

Announced capture projects also span multiple industry sectors: electric power, heavy industry, hydrogen, transportation fuels, and DAC technologies, plus projects to reuse or transport and store captured CO<sub>2</sub>. More than half of the announced carbon capture and DAC projects have expressed their intent to store captured CO<sub>2</sub> in saline geologic storage sites. However, despite this impressive progress in a few short years, we are still not on track to meet global carbon management



**Figure 3: Announced carbon management projects in the US, February 2025.**

deployment goals, which require about one billion metric tons of carbon capture capacity deployed by 2030, or more than three times the current capture capacity.<sup>7</sup>

The scope and pace of announced domestic projects demonstrate the value of the investments made by Congress in carbon management technology. Looking forward, Congress and the

administration must address gaps in the current portfolio of available federal policies to ensure that announced projects proceed to construction, ensuring that dollars already invested translate to actual projects. That is the surest way projects can deliver tangible economic and air quality benefits to communities across the nation while sustaining our domestic energy, manufacturing, and industrial competitiveness.

# BOLSTERING COMMUNITIES WITH CARBON MANAGEMENT

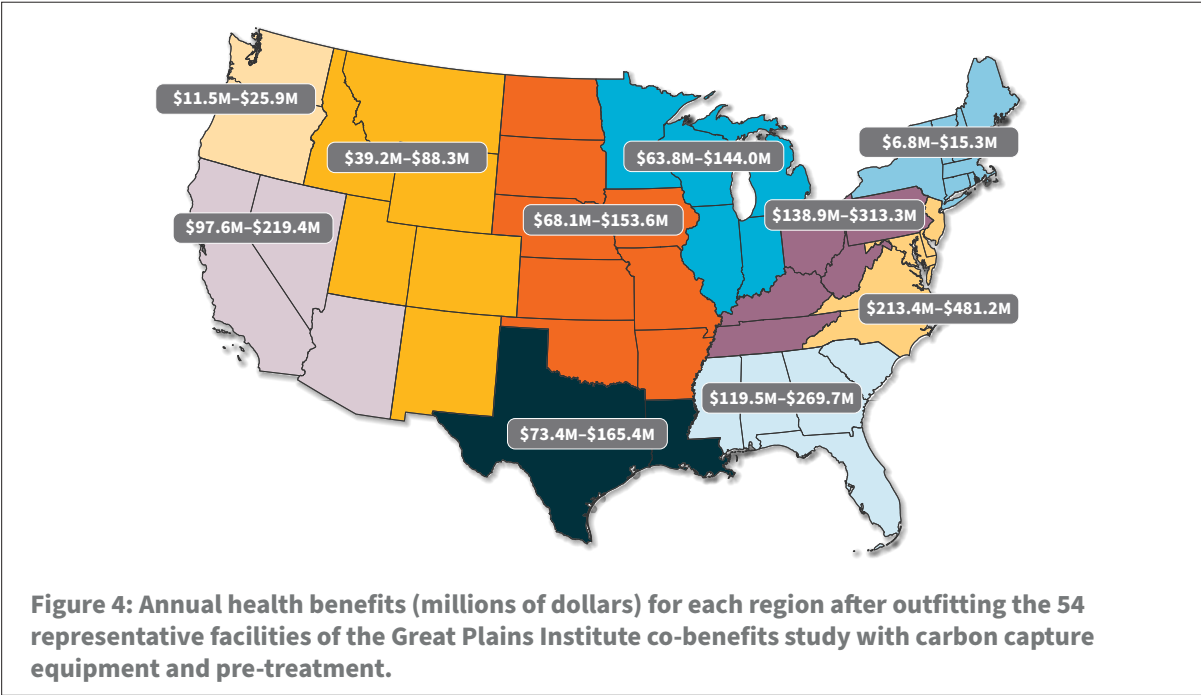
Deployment of the full value chain of carbon management technologies must be centered on engagement with and considerations from local communities, landowners, and Tribal Nations. Doing so ensures that benefits—in jobs, economic development, and potential co-benefits of project development—flow to the people and workers who will host and build these diverse projects.

## Principles for equitable, responsible deployment of carbon management technologies

While the focus of the 2025 Policy Blueprint is on addressing gaps in the available federal policy framework surrounding carbon management, the Coalition recognizes that if carbon management technologies are to fulfill their potential as part of a broader set of solutions for continued innovation, maintaining global competitiveness, increasing energy demand, and economywide decarbonization, it is critical that project proponents, governments, and stakeholders work together to ensure that benefits associated with project deployment flow to the communities that host them and the workers with a range of skill sets that build and operate them.

To that end, the Coalition has developed the following principles that guide both our work in general and the specific policy recommendations contained in the 2025 Federal Policy Blueprint:

- Community Engagement:** Carbon management project proponents must promote transparency and open dialogue by actively involving local communities, Tribal Nations, and stakeholders early in the project development process. This approach fosters a trusted environment, enhances public and community buy-in, and promotes the formation of valued partnerships. Moreover, a transparent yet timely community engagement process leads to the identification of designs that mitigate local impact and ultimately lead to better project planning.
- Jobs, Workforce, and Economic Development:** Carbon management technologies are a central component of a national strategy for job creation and retention, workforce development and training, and regional economic renewal. Project proponents and stakeholders must work together to ensure that project deployment supports workers with diverse skill sets and that, more broadly, the development of these projects supports the growth of the communities that host them.





## Carbon capture co-benefits

Reducing carbon emissions is just one benefit of deploying carbon capture technologies at heavy industrial and power generation facilities. In addition to CO<sub>2</sub>, point source emissions at these facilities are accompanied by other air pollutants that are regulated by the Environmental Protection Agency (EPA). These co-pollutants decrease air quality and have negative health impacts, including contributing to the development of respiratory illnesses, heart disease, and cancers.<sup>8</sup>

In a 2023 [study](#), the Great Plains Institute (GPI) evaluated the health benefits and economic value of capturing those other air pollutants beyond carbon dioxide at 54 representative facilities in seven industries across 10 regions in the contiguous United States (see Figure 4).

As referenced in Figure 4, the health benefits of economywide carbon capture deployment in different regions ranged from \$6.8 million to \$481.2 million per year, substantial amounts that translate to improved health outcomes.<sup>9</sup>

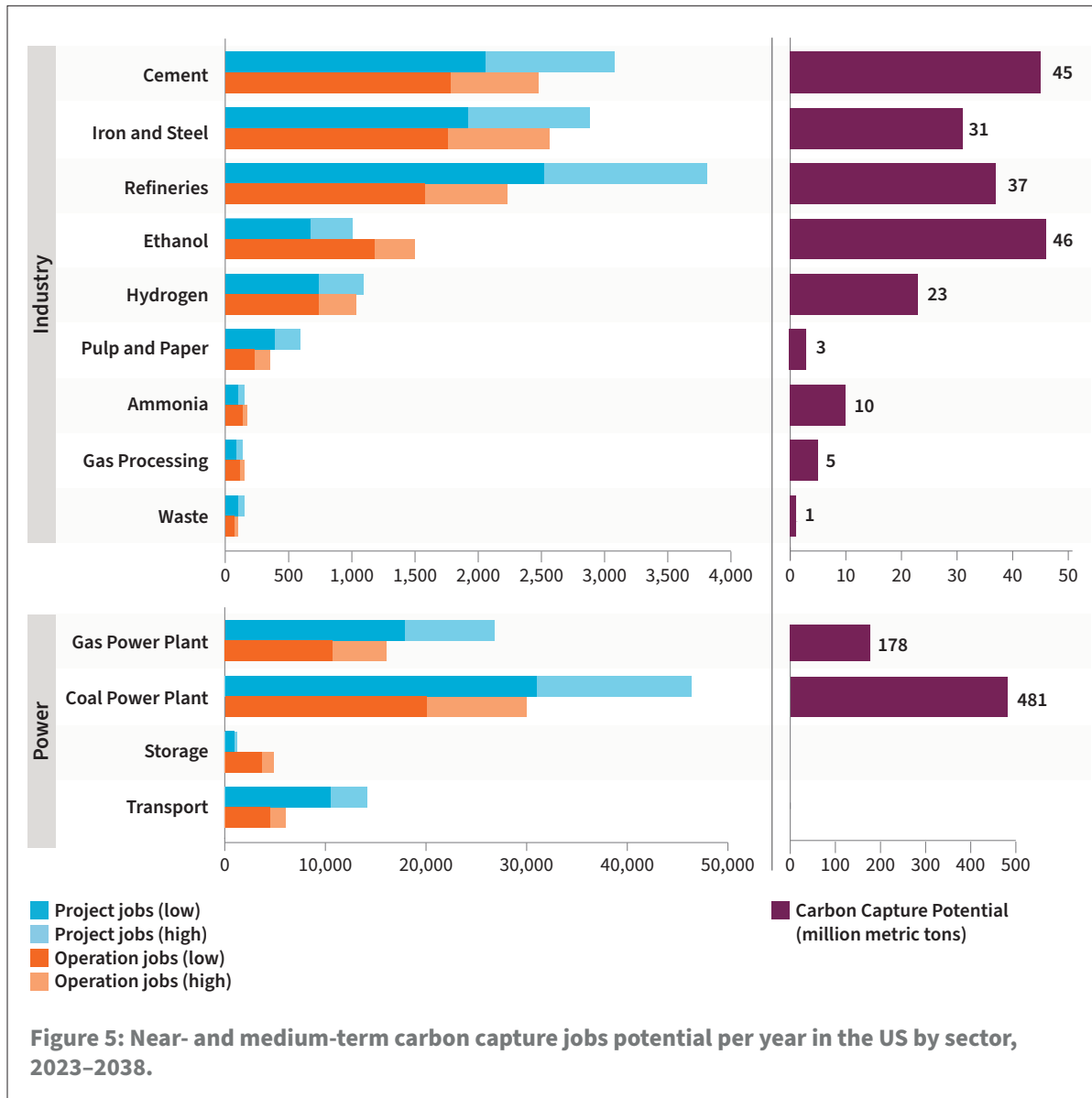
## Carbon management and workforce development

The widescale deployment of carbon management technologies will safeguard and create highly skilled jobs that sustain local economies and the families that depend upon them. Retrofitting industrial and power facilities with carbon capture equipment allows for continued operation, avoiding plant closures and preventing the offshoring of jobs.

Traditionally, the jobs associated with installing existing facilities with carbon capture retrofits or constructing DAC facilities, in conjunction with accompanying CO<sub>2</sub> transport, reuse, and geologic storage projects, rely upon existing labor forces, trades, and skill sets present in oil and gas, mining, and key industrial and manufacturing sectors. These jobs can bring significant benefits to communities and regions through high wages that have long been a traditional pathway to the middle class for many American families.

In a 2023 report commissioned by the Great Plains Institute, the Rhodium Group found that retrofitting industrial and electric power generation facilities in the 21-state Midcontinent region has the potential to create an annual average of 88,320–129,300 total jobs over the next 15 years.<sup>10</sup> Additionally, Rhodium Group projected the Mid-Atlantic region would need 26,600–39,470 total jobs related to carbon capture, storage, and transportation over the same 15-year period.<sup>11</sup> Together, these combined efforts in carbon management could bring 168,770 total jobs across both regions. A separate recent analysis conducted by Rhodium has shown that the construction and operation of a DAC facility, on average, has the potential to create and sustain nearly 2,000 jobs per year during the investment phase of the project and over 700 jobs per year during operations.<sup>12</sup>

These analyses underscore the considerable employment opportunities that carbon management can bring to both regions, reinforcing the important role of sustainable practices in driving economic growth.<sup>13</sup>



# EXISTING DOMESTIC FRAMEWORK FOR CARBON MANAGEMENT DEPLOYMENT

Over the last several Congresses, a group of diverse, bipartisan lawmakers has introduced and enacted federal policies that subsequently leveraged significant private investment in carbon management technologies. This has, in turn, helped spur continued innovation, increased scalability, and improved performance while driving down costs and attracting further investment.

**The existing domestic policy framework for carbon management technologies**

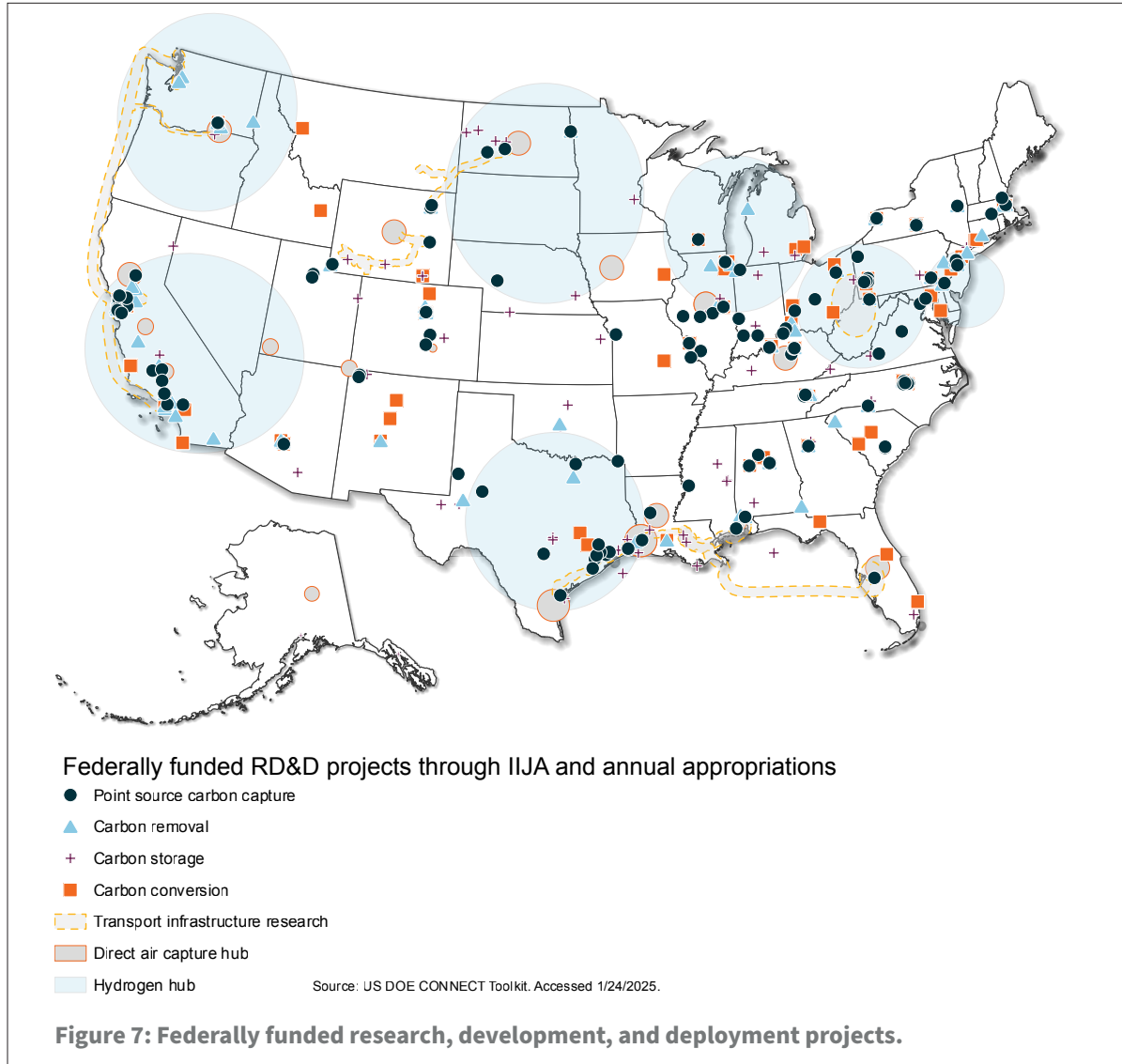
Existing laws and regulations provide a strong foundation that has launched the industry toward commercial deployment and support sustainable, competitive domestic manufacturing, industry, and energy production.

For more information specific to the framework of the 45Q tax credit, please reference our [45Q Primer](#).

Thanks to this broadly bipartisan framework, robust policies are in place to encourage the development of a diverse, thriving domestic carbon management sector. The progress of the carbon management industry since implementation of these enacted laws began is evident: there are more than 270 announced domestic projects across the carbon management supply chain—more than double the amount in 2023. This

Title	Year Enacted	Main Carbon Management Provisions
Inflation Reduction Act (IRA)	2022	Contained crucial enhancements to the foundational section 45Q tax credit, including increased credit values, a direct pay mechanism, extension of the commence construction window and reduced capture thresholds.
Creating Helpful Incentives to Produce Semiconductors Act (CHIPS and Science Act)	2022	Created authorizations for several relevant carbon management programs.
Infrastructure Investment and Jobs Act of 2021 (IIJA)	2021	Appropriated \$12.1 billion for large-scale demonstration and commercial deployment of carbon management technologies.
Utilizing Significant Emissions with Innovative Technologies Act (USE IT Act)	2020	Made carbon transport and storage infrastructure eligible for the permitting review process created under Title 41 of the Fixing America’s Surface Transportation Act (FAST-41).  Directed Council of Environmental Quality to address federal permitting of carbon management, including creation of two permitting task forces.
Furthering carbon capture, Utilization, Technology, Underground storage, and Reduced Emissions (FUTURE Act)	2018	Restructured and significantly expanded the 45Q tax credit, increasing credit levels, extending the commence-construction deadline, and making 45Q accessible to a wider variety of technologies, including heavy industry, carbon reuse, and DAC.

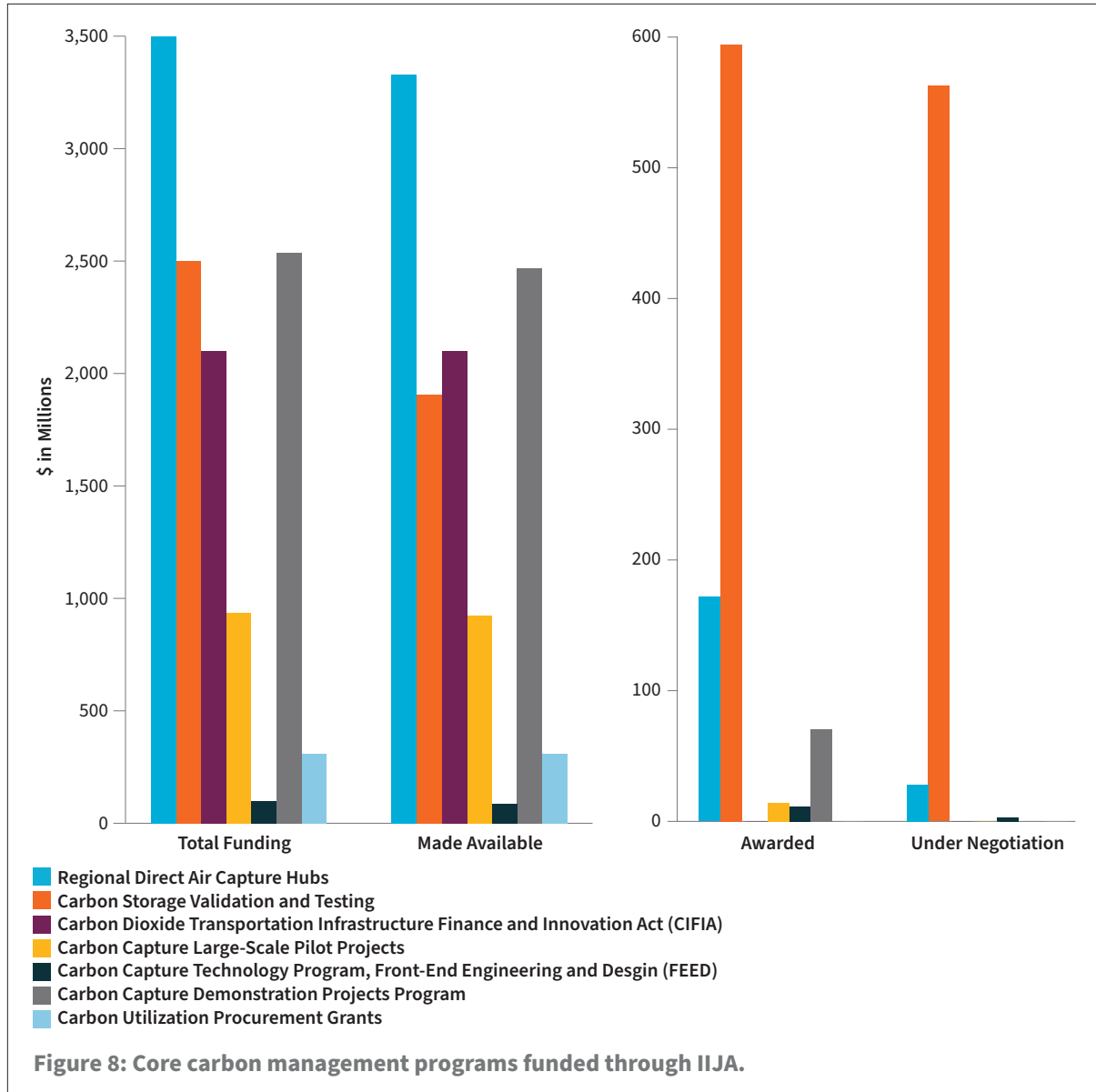
**Figure 6: Existing supportive framework for carbon management.**



includes federally funded demonstrations, pilot-scale projects, DAC Hubs, and those initiated using funded research to scale secure geologic storage locations through the Department of Energy's (DOE) CarbonSAFE program.<sup>14</sup>

Still, the sectors that make up the carbon management value chain face significant headwinds to maturing and deploying nationwide. These policies, therefore, mark the beginning, not the end, of the efforts to build the portfolio of necessary federal policies for economywide deployment of carbon management technologies.

Historically, the federal government has played a central role in derisking crucial energy technologies prior to significant private sector investment, for example, in commercializing shale gas drilling (fracking), nuclear energy technologies, and others. Through IIJA and IRA, Congress has set a course toward continued derisking and further commercialization of the carbon management industry.



IIJA included groundbreaking, widely supported, bipartisan provisions necessary to commercialize carbon management, industrial innovation technologies, and associated infrastructure. These programs included funding to demonstrate large-scale carbon capture technologies at commercial power generation and industrial sites, deploy four regional DAC Hubs, conduct necessary engineering and design studies, build regional CO<sub>2</sub> pipelines, characterize and scale suitable geologic storage, and more.

Of the funding made available in IIJA for the demonstration and commercial deployment of carbon management technologies, \$860 million has been awarded to 59 carbon management projects spanning vital industries and projects that will directly deliver jobs and economic benefits to diverse regions and communities across the US. An additional \$600 million of funding to American businesses is under negotiation, and \$9 billion has been made available through funding opportunity announcements (see Figure 8).

### Permitting frameworks for carbon management projects

Carbon management projects are subject to applicable state and federal environmental review and permitting processes, including land use, endangered species, and air permits, as well as processes more specific to carbon management



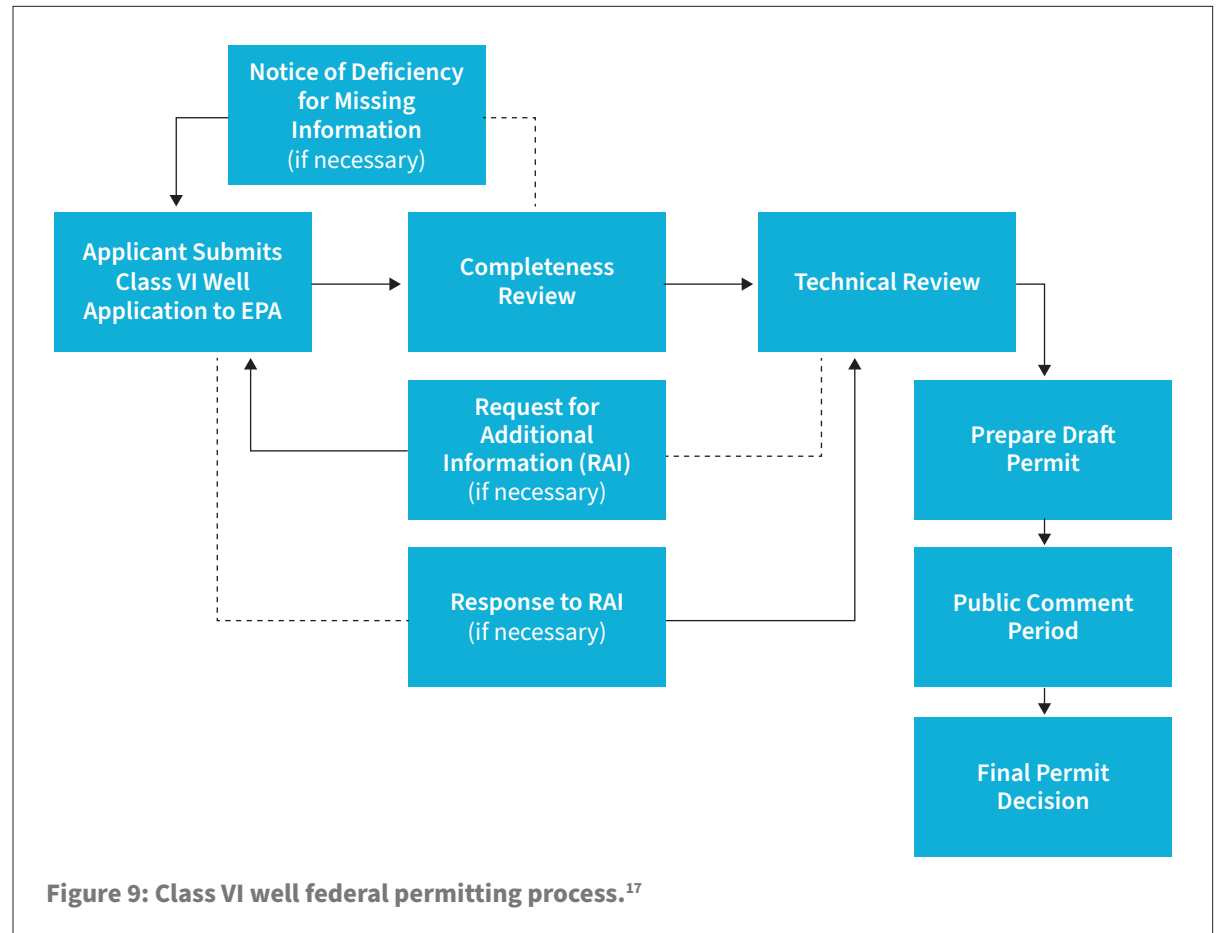
The Coalition put forward a set of permitting principles to ensure that any federal legislation improving the federal permitting process aligns with carbon management project deployment timelines and incorporates robust community consultation.

projects, which include CO<sub>2</sub> pipeline safety and siting, pore space ownership, mineral rights, and permits for CO<sub>2</sub> injection and secure storage.

Announced carbon capture and DAC projects cannot deploy without being underpinned by effective and timely permitting processes. Using the permitting principles referenced above as a framework, the Coalition urges Congress and the administration to address barriers to the efficient and responsible deployment of carbon management projects and put in place the infrastructure necessary to achieve nationwide deployment.

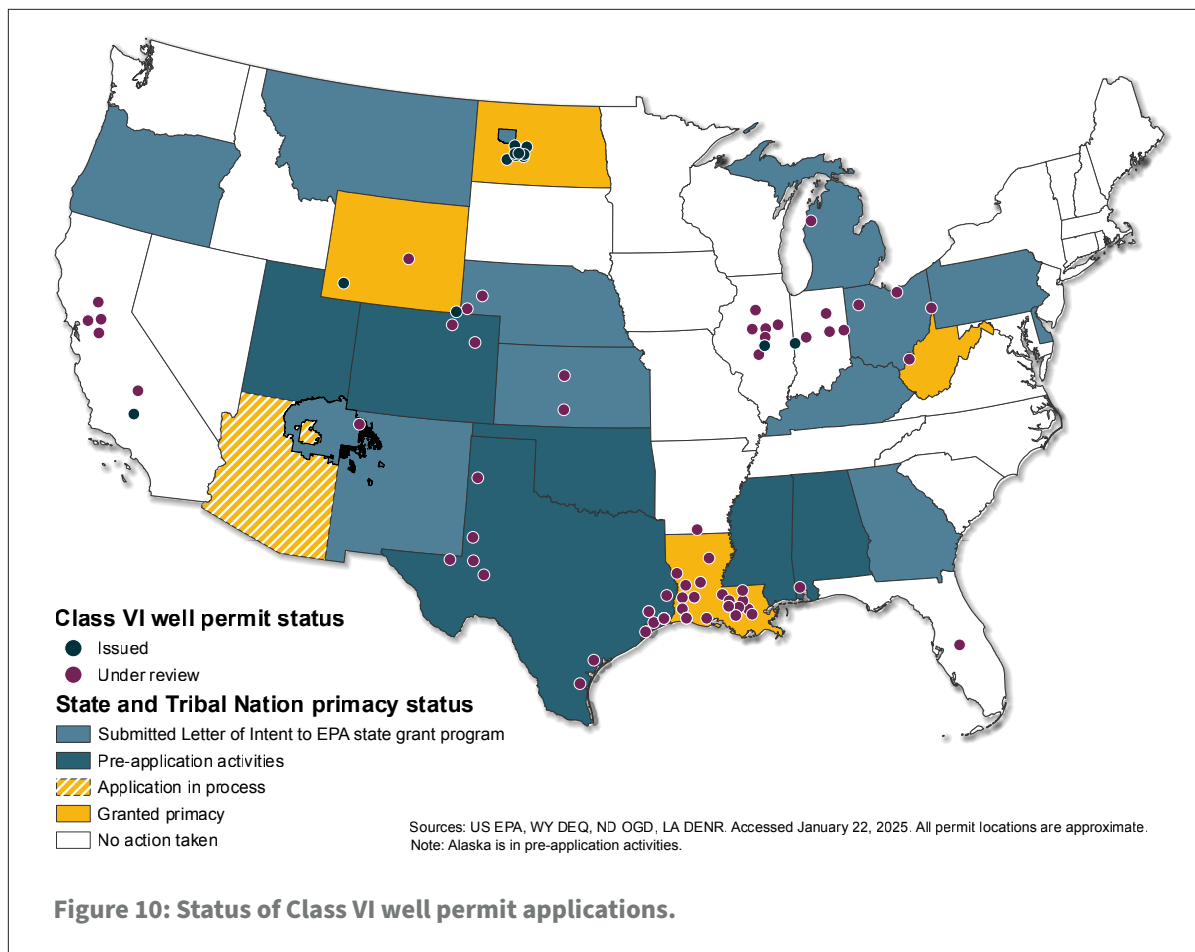
### Class VI wells

EPA's underground injection control (UIC) program oversees US permitting of secure geologic storage through its Class II and Class VI well programs.<sup>15</sup> Class VI wells are used to inject CO<sub>2</sub> into appropriate geologic formations solely for the



purpose of permanently storing CO<sub>2</sub>.<sup>16</sup> The Class VI program rules address the permanent storage of CO<sub>2</sub> and ensure that wells are appropriately sited, constructed, tested, monitored, funded, and closed once CO<sub>2</sub> injection activities are completed.

EPA can also grant primary enforcement authority (also known as primacy) to individual states, territories, or Tribal nations, which delegate authority to administer certain injection well classes under the UIC program in accordance with



federal regulations. Importantly, states, territories, or Tribal Nations can be approved for this delegation of primacy only when their regulations meet or exceed the federal UIC requirements.

Due to the expressed interest in carbon management broadly, and specific industry intent to utilize Class VI wells to store captured CO<sub>2</sub> in saline geologic formations, the queue of federal

Class VI well permit applications under review at EPA is ever growing. As of February 2025, that queue includes 56 projects with 161 total well applications across 14 states under review at EPA. An additional 88 total well applications are under review in states that have received Class VI primacy (Louisiana, North Dakota, West Virginia, and Wyoming). The largest number of projects and individual wells (30 and 84, respectively) is in Louisiana.<sup>18</sup> Timely and efficient review of Class VI well permit applications and state primacy applications is critical to ensure the development of a robust carbon management industry, which is a top priority for the Coalition.

### CO<sub>2</sub> pipelines

Unlike interstate natural gas pipelines, which have federal siting authority, the siting and permitting of CO<sub>2</sub> pipelines occurs on a state-by-state basis, subject to any regulations put forth by states impacted by their construction.<sup>19</sup> The federal government oversees the safety of construction and operation of existing and proposed CO<sub>2</sub> pipelines through the Pipeline and Hazardous Materials Safety Administration (PHMSA), an agency within the US Department of Transportation (DOT). Ensuring the continued safety and reliability of CO<sub>2</sub> pipelines as this network expands is a Coalition priority.

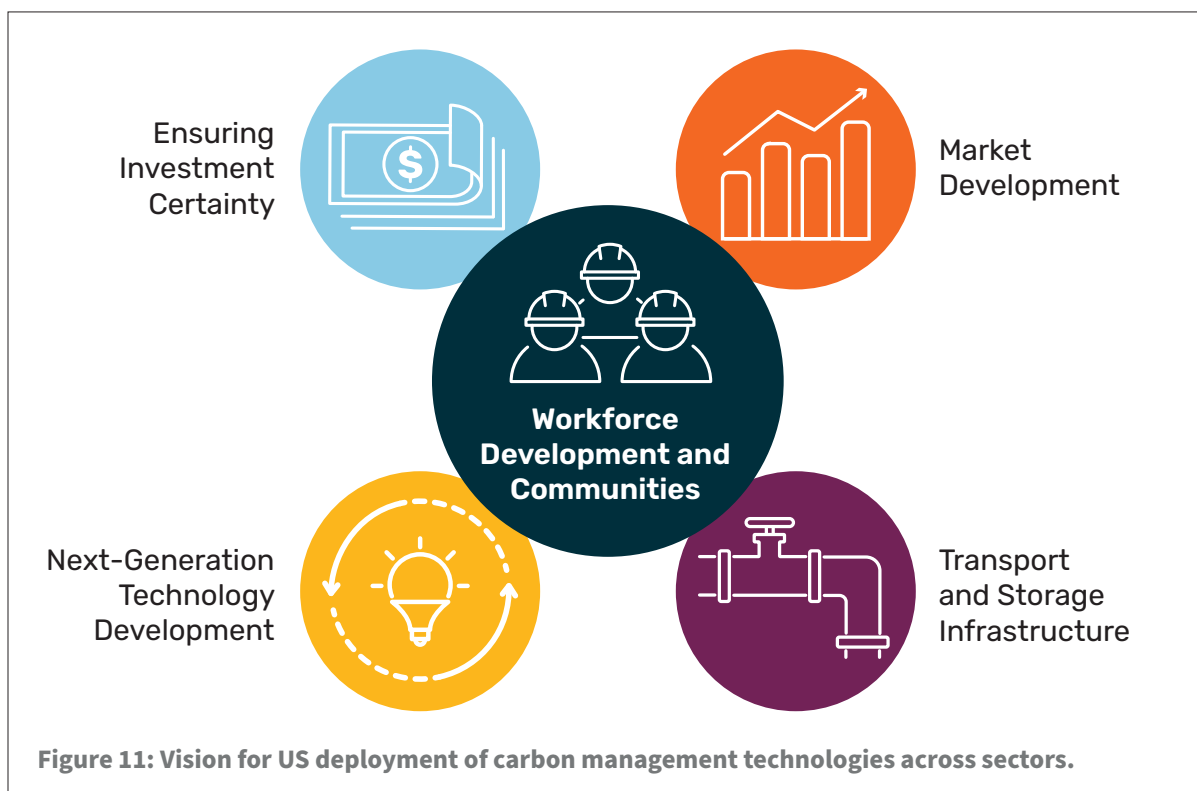
# THE 119TH CONGRESS – AN OPPORTUNITY TO BOLSTER AMERICAN ENERGY, GLOBAL LEADERSHIP, AND COMPETITIVENESS

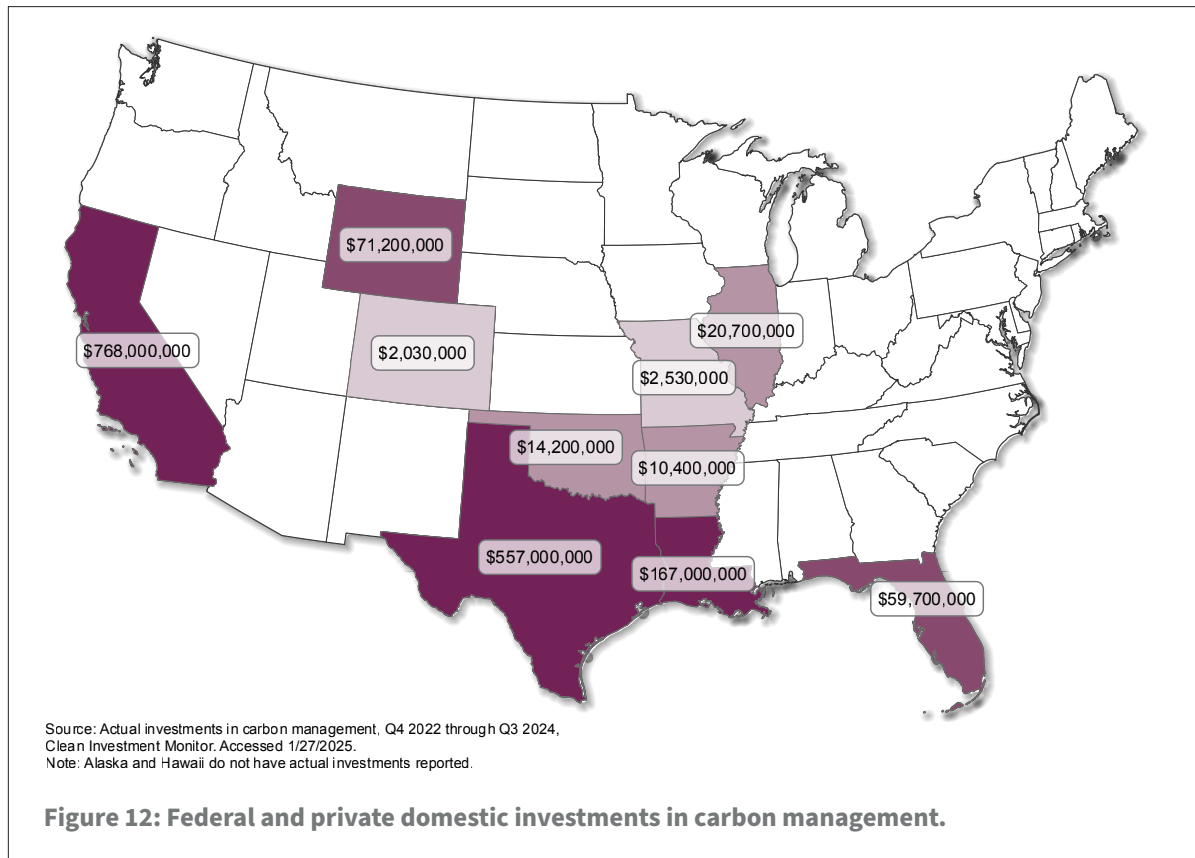
Carbon management technologies are not optional if we are to continue providing reliable, affordable domestic energy, protecting and expanding family-sustaining, high-wage jobs, and reducing emissions from vital US industries.

Economywide deployment of carbon management in the US plays a valuable role in providing reliable, affordable domestic energy for American families and solidifying the country's role as a global leader in sustainable energy production as well as industry and manufacturing.

The 45Q tax credit remains the key federal policy mechanism to incentivize carbon management projects. Important investments made through a suite of bipartisan policies enacted over the last several years have provided additional drivers to demonstrate, reduce costs, and deploy these technologies across sectors. The 119th Congress and the administration must now solidify and grow the role of American leadership in developing and deploying these technologies so they can scale economywide throughout the remainder of this decade and beyond.

Bipartisan-supported enhancements to the 45Q tax credit made in 2022, coupled with historic policy support included under IIJA, have resulted in almost \$1.7 billion in federal and private investments being injected across ten states representing diverse regions of the country.





### Identifying challenges with current carbon management project deployment efforts

Thanks to sustained public and private support for carbon management over the last several decades, the US is the global leader in the development and

deployment of these technologies. Recent federal and private sector investment, in particular, has helped spur the announcement of more than 270 carbon management projects across the nation at various development stages and technology readiness levels. However, the US

is at serious risk of being outpaced as other regions of the world invest significantly in their clean industry, manufacturing, and energy sectors through robust policy support of carbon management technologies.

Increasingly, the world’s most developed countries, which drive the majority of the global economy, are advancing policy and regulatory frameworks to attract investments, reduce emissions, and deploy carbon management at scale. While the US has been the leader in the deployment of these technologies, the world is catching up. As one example, in 2024, 64 projects outside the US reached final investment decision (FID)—compared to 55 in the US.<sup>20</sup> While these developments are positive, without sustained federal policy support, the US risks losing private investment and projects to other nations with more favorable policy frameworks that are available for first-of-a-kind and earlier-stage projects.

Country	Relevant Policies	Maturity of Policy Framework
Australia	<ul style="list-style-type: none"> <li>• Early stage permitting and regulatory regime in Western Australia for onshore and offshore CO<sub>2</sub> storage.</li> <li>• Regulatory regime for import and export of CO<sub>2</sub> under consideration.</li> <li>• <a href="#">Report</a> on the future of net zero in the region.</li> </ul>	Nascent
Brazil	<ul style="list-style-type: none"> <li>• Fuels of the Future Bill 528/2020 signed into law; names a carbon capture, reuse, and storage (CCUS) regulatory authority and establishes obligations for operators to access geologic storage sites.</li> </ul>	Maturing
Canada	<ul style="list-style-type: none"> <li>• Clean Economy Investment Tax Credit (ITC) provides refunds for expenditures incurred in four categories: CCUS, clean technology, clean hydrogen, and clean technology manufacturing.</li> <li>• Refund levels per technology (eligible capital expenditures): <ul style="list-style-type: none"> <li>– Direct air capture (DAC)—60 percent</li> <li>– Industrial—50 percent</li> <li>– Transport, storage, and reuse—37.5 percent</li> </ul> </li> <li>• Implementation of carbon tax on emissions.</li> </ul>	Mature
China	<ul style="list-style-type: none"> <li>• Implementation <a href="#">plan</a> for green and low-carbon technology demonstration.</li> <li>• Action plan to decarbonize coal power plants.</li> <li>• Relaunching the voluntary carbon market.</li> </ul>	Maturing
European Union (EU)	<ul style="list-style-type: none"> <li>• Adopted the <a href="#">Industrial Carbon Management Strategy</a>, which calls on EU Member States to implement a comprehensive suite of initiatives in support of capturing approximately 450 million tons of CO<sub>2</sub> from industrial sources and the atmosphere by 2050.</li> </ul>	Maturing
Japan	<ul style="list-style-type: none"> <li>• Developing export regime for CO<sub>2</sub> in countries with abundant storage space.</li> <li>• CCS Business Act calls on agencies to identify and designate specific areas for CO<sub>2</sub> storage and to operate a permitting system under which businesses will be given exploratory drilling and storage rights.</li> <li>• Implementation of a 10-year climate bond valued at \$130 billion for climate transition.</li> </ul>	Nascent
Saudi Arabia	<ul style="list-style-type: none"> <li>• Joint development agreement with Saudi Aramco, SLB, and Linde to establish a CCUS hub at Jubail with a capacity to store up to 9 million tons per annum (Mtpa) of CO<sub>2</sub> later this decade.</li> <li>• Overall target of capturing and storing 44 Mtpa CO<sub>2</sub> by 2035.</li> <li>• Establishing a domestic carbon crediting scheme, the Greenhouse Gas Crediting and Offsetting mechanism, which will enable companies to offset emissions by purchasing credits compliant with Article 6 of the Paris Agreement.</li> </ul>	Maturing
United Kingdom	<ul style="list-style-type: none"> <li>• £21.7 billion of funding over 25 years to support the Teesside and Merseyside clusters (2 of 4 planned carbon hubs).</li> <li>• Establishment of a national permitting regime.</li> </ul>	Maturing

**Figure 13: Selected global frameworks for carbon management technologies.**<sup>21</sup>



The American framework for deploying carbon management is one of the most ambitious in the world; however, announced and future projects still face significant headwinds on the road to commercialization. The rising cost of deployment coupled with serious challenges in permitting, a lack of markets for products and services sourced from carbon management, and incomplete implementation of the available policy framework could jeopardize American global leadership in demonstrating and deploying these technologies.

### **Defining the opportunity—addressing obstacles to carbon management project implementation**

Given the challenges of widescale commercial deployment, the 119th Congress has the opportunity and responsibility to reinforce the favorable policy landscape for carbon management technologies to thrive and reach

commercial liftoff. This means ensuring these technologies remain part of the broader national energy and environment strategy by:

- Strengthening the available portfolio of tax credits to incentivize and ensure investment and business model flexibility, as intended by Congress.
- Enabling the development of appropriate transport and storage of CO<sub>2</sub> by swift and coordinated federal action.
- Creating market development for products and services sourced from carbon management.
- Providing resources for the next generation of federal research, development, deployment, and demonstration activities to enable the carbon management sector.

Specific strategies for achieving these goals are discussed in more detail in the 2025 Blueprint Recommendations.

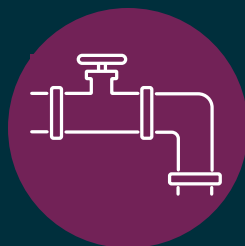
# 2025 FEDERAL POLICY RECOMMENDATIONS

## Ensuring Investment Certainty



1. Adjust 45Q for inflation starting immediately.
2. Secure the diversity of carbon management projects needed.
3. Achieve increased commercial deployment and reduce regulatory barriers to reused carbon.
4. Ensure direct pay mechanisms work as intended.
5. Implement the full range of enhancements to the 45Q tax credit.

## Transport and Storage Infrastructure



1. Improve the efficiency of our permitting system.
2. Create an optional federal siting authority pathway for CO<sub>2</sub> pipelines.
3. Enact further commonsense safety measures for CO<sub>2</sub> pipeline operators.
4. Ensure Class VI program provides regulatory certainty to project developers.
5. Clarify regulations for geologic storage of CO<sub>2</sub> on federal lands and the Outer Continental Shelf (OCS).
6. Retool the Carbon Dioxide Transportation Infrastructure Finance and Innovation (CIFIA) program to increase its appeal to investors.

## Market Development



1. Collect data on the emissions intensity of domestically produced goods.
2. Explore trade mechanisms and how they can help the US capitalize on its carbon advantage.
3. Establish standards to expand the use of carbon marketplaces.
4. Support procurement efforts for carbon management technologies.

## Next-Generation Technology Development



1. Implement carbon storage provisions from the IIJA.
2. Provide targeted support for crucial technologies to achieve commercial liftoff.
3. Create a technical assistance program for carbon reuse project developers to engage with communities.
4. Provide adequate funding through appropriations for next-generation carbon management technologies.

# ENSURING INVESTMENT CERTAINTY



To ensure that public and private investments in carbon management technology are as impactful as possible, the Coalition recommends the federal government:

1. Adjust 45Q for inflation starting immediately.
2. Secure the diversity of carbon management projects needed.
3. Achieve increased commercial deployment and reduce regulatory barriers to reused carbon.
4. Ensure direct pay mechanisms work as intended.
5. Implement the full range of enhancements to the 45Q tax credit.

The most recent enhancements to the 45Q tax credit, enacted in 2022, alongside a portfolio of complementary measures, represent the single largest federal investment in developing and deploying carbon management technologies in US history. These federal investments provide a strong foundation to bolster the widespread deployment of carbon capture, removal, reuse, transport, and storage technologies across sectors central to the US economy, including high-emitting industrial sectors, power, and DAC. **Moving forward, the administration must work to swiftly implement the most recent changes to the section 45Q tax credit and issue corresponding final guidance to provide US businesses the certainty needed to reach final investment decisions.**

### Adjust 45Q for inflation consistent with bipartisan congressional legislation

The current economics for project deployment are challenging due to a combination of inflationary pressures on raw materials and components, labor, and higher interest rates for securing capital. This is particularly true in sectors that have higher costs to deploy carbon management technologies, which include coal and natural gas-fired power generation, diverse industrial sectors including steel, cement, basic chemicals, and fertilizer, and capturing CO<sub>2</sub> directly from the atmosphere. Importantly, announced projects in these sectors

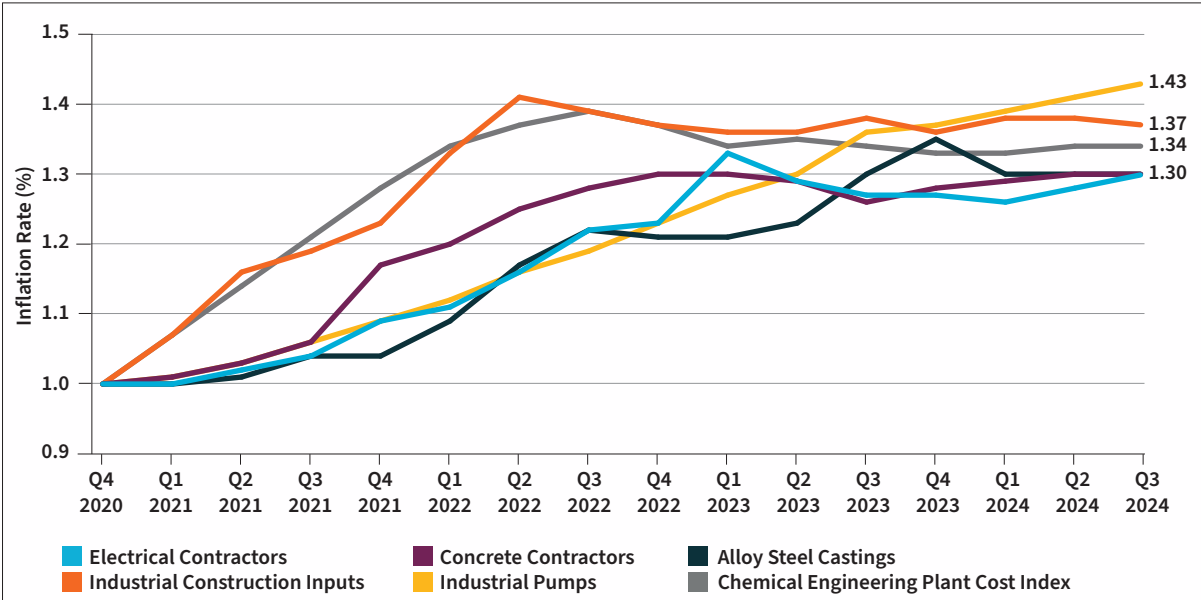


Figure 14: Key heavy industry producer price indexes and inflation over time.

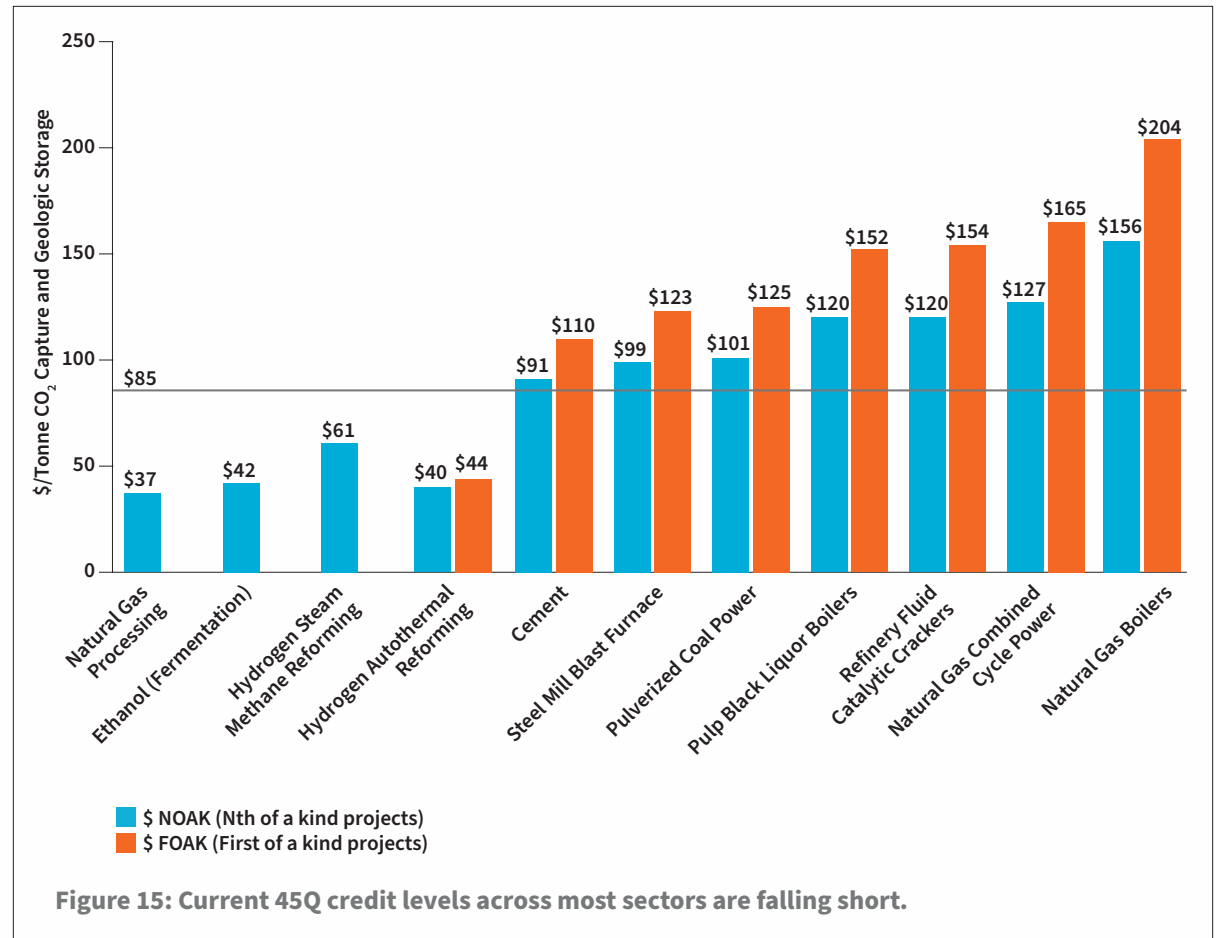
make up more than half of the total domestic project announcements to date.

Between 2020 and 2024, prices of basic commodities, equipment, metals, construction labor, and engineering contractors increased between 30 and 40 percent across heavy construction and capital equipment sectors (see Figure 14).

Increased credit values provided to projects developed in the industry, power, and DAC sectors are the cornerstone of the most recent enhancements made to the 45Q tax credit. However, high inflation rates from 2020 to 2022, coupled with rising rates to borrow capital, dramatically shifted the economic feasibility of energy and industrial project deployment, affecting both capital goods costs and energy prices. As a result, the cost to deploy carbon management technologies, even with higher 45Q credit levels, changed rapidly over a short period of time.

These high inflation rates already consumed more than half of the value increase of the credit for carbon capture retrofits in power and industry with geologic storage.<sup>22</sup> Make no mistake: this loss in value puts the majority of the more than 270 publicly announced carbon management projects in this country at risk of being canceled altogether.<sup>23</sup>

**It is clear that the gap between the value provided by 45Q and project deployment costs**



is widening. To prevent further erosion of the credit value and sustain projects already in the development pipeline, 45Q must be immediately adjusted for inflation, using 2021 as the base index year for the dollar figure. Adjusting the base index year to 2021 would provide a nearly 25

percent nominal value increase to the credit by 2026, consistent with the real credit levels intended by Congress through the introduction of bipartisan marker bills in 2021. While this doesn't address the total erosion in value to 45Q that has occurred due to inflationary pressures plus rising rates for

borrowing capital, it is an immediate course correction available to Congress.

### **Enable broader carbon management project deployment**

Increased credit values, as part of enhancements to the credit in 2022, have resulted in a significant uptick in project announcements. However, due to inflationary pressures and subsequent rising costs of labor, materials, and other project inputs over the past few years, the cost to deploy these technologies increased rapidly over a short period of time, ultimately eroding the real value provided by 45Q. At its current nominal value, the cost of installing carbon management technologies exceeds the support provided by the tax credit for 80 percent of total domestic stationary emissions.<sup>24</sup> Although the markets could shift, the current costs complicate decisions to invest in carbon management technologies in many sectors, therefore reducing the use and utility of the 45Q tax credit.

While inflation adjustment is essential to prevent further erosion of the credit value and help sustain projects already in the development pipeline, it is not sufficient to enable broader deployment of carbon management technologies across all sectors of the US economy. As such, the Coalition is exploring opportunities to work with Congress in a bipartisan manner to further enhance the value of tax credit.

### **Increase investment certainty for projects**

In addition to addressing increased costs, policymakers must consider the impact of unexpected circumstances during project operations and seek to create a risk mitigation framework for taxpayers. Unforeseeable and unavoidable events outside an operator's control can cause extended outages at either the point source, capture facility, or storage location and result in loss of revenue and credits for carbon management projects. Significant loss of operational time within the credit period can have major financial impacts for projects. The Treasury has previously issued notices to extend and modify the beginning of construction requirements for section 45 and 48 tax credits to account for and address unforeseen circumstances and interruptions. Policymakers should consider measures to mitigate the financial impacts of unforeseeable and unavoidable operational disruptions, through the 45Q tax credit or other policies. Doing so would increase developer confidence in executing projects and support broader deployment of carbon management projects.

### **Achieve increased commercial deployment of reused carbon**

In 2023, the Coalition endorsed the bipartisan Captured Carbon Utilization Parity Act ([CCU Parity Act](#)), which would fill a key remaining gap in the

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**Carbon reuse is recycling captured carbon to produce low- and zero-carbon feedstocks and products, including fuels, chemicals, and building materials. Increasingly, carbon reuse is seen as an important complement to large-scale carbon storage, as it provides value-added markets and carbon reuse opportunities for carbon capture operations. The National Academies of Science has estimated that globally, reuse pathways could use up to 2–8 billion metric tons of captured CO<sub>2</sub> per year by 2050. This growing carbon-to-value market could be worth an estimated \$0.5–\$2 trillion annually by 2050.**

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federal policy framework dedicated to the scale-up of the full value chain of carbon management technologies. The bill, supported by a bicameral, bipartisan group of lawmakers, establishes parity for reuse of CO<sub>2</sub> or CO to produce valuable products with those projects seeking to safely and permanently store captured CO<sub>2</sub> in geologic formations.<sup>25</sup>



In 2022, Congress increased 45Q credit values across the board. As currently structured, however, the credit is bifurcated between secure geologic storage of captured CO<sub>2</sub> and the reuse of CO<sub>2</sub> to manufacture commercially valuable products or to recover additional oil from depleted oil and gas wells. This creates a \$25 per metric 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 nascent carbon reuse technologies, acting similarly to a tax on such operations. This disparity rises to \$50 per metric ton for carbon reused from DAC.

**To ensure carbon reuse technologies can complement a broader portfolio of strategies to reduce greenhouse gas emissions, it is important to provide parity between the credit levels for saline geologic storage and reusing captured CO<sub>2</sub> in the manufacturing of value-added products.**

The CCU Parity Act supports carbon reuse technologies and products that are not yet cost-competitive with other incumbent, well-established products and processes.

**Unlock the full potential of carbon reuse by reducing regulatory barriers**

In 2021, the US Department of the Treasury issued regulations for claiming the 45Q tax credit,

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**A lifecycle analysis (LCA) is the measurement and analysis of greenhouse gas emissions associated with a particular process or product. It helps producers and purchasers understand the greenhouse gas impacts of a particular process and can be used to compare the emissions profile of different products and technologies.**

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including outlining steps taxpayers must take to elect the reuse pathway. As part of the FUTURE Act, which made sweeping changes to the 45Q tax credit in 2018, those taxpayers wishing to claim 45Q for the utilization or reuse of valuable products must perform a cradle-to-grave life cycle analysis (LCA) of the project to demonstrate the permanent displacement or storage of qualified carbon oxides as compared to an incumbent product or process.

Under final regulations issued in 2021, carbon reuse project developers must prepare the LCA using retrospective or real-world operating data and submit it in parallel to the Internal Revenue Service (IRS) and DOE. They must receive approval of the LCA from the Treasury before claiming section 45Q credits. By comparison, to elect the

Section 45V tax credit for the production of hydrogen, taxpayers must include a verification report attesting to the lifecycle emissions data with their annual tax return—no preapproval process is required.

The pre-approval requirement for 45Q significantly diminishes the incentive the tax credit intends to offer reuse project developers: taxpayers must make significant investments in carbon reuse activities and complete an LCA to claim 45Q prior to knowing if they will, in fact, be eligible to claim the credit. Put simply, no projects will be built without knowing if they will or will not qualify for 45Q.

**With that in mind, the administration should direct Treasury to eliminate the current LCA pre-approval requirement in guidance and give taxpayers an option to perform an LCA using estimated data and then submit an annual verification report, thereby allowing them to claim section 45Q credits as a risk management tool.**

**Ensure direct pay has the intended impact**

Currently, the 45Q statute allows for-profit entities to receive the full value of the tax credit at no extra cost to the American taxpayer for the first five years of the election, and nonprofit entities to receive direct pay for the full lifetime of the credit.

Currently, a for-profit entity electing direct payment for the first five years of the credit would encounter

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**Direct pay functions as an optional mechanism for project developers to elect to receive the 45Q tax credit as an overpayment on their taxes. This mechanism allows project developers to leverage greater private capital for investment in projects, given that traditional tax equity investors in carbon capture, DAC, and other less commercially mature technologies typically require a significant portion of the value of the tax credit.**

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tremendous fiscal uncertainty as it looks to finance the remaining years of the credit. **To ensure that this policy has the intended impact, the direct pay mechanism for 45Q must be extended for all taxpayers for the full duration of the credit. Additionally, changes are needed to improve the operability of direct payment to ensure its utility to taxpayers as Congress intended.**

Doing so will ensure that direct pay’s potential meets congressional intent by unlocking broader financial markets and leveraging greater private

capital for project investment, thereby accelerating the deployment of these technologies. The certainty provided by this policy will also allow new business models to become profitable since tax equity markets demand a significant portion of the tax credit, thus reducing the real value of 45Q in financing innovative technologies.

For every dollar expended by the federal government through the 45Q incentive, direct pay will deliver greater value for the American taxpayer by yielding more deployment of carbon capture, removal, and reuse technologies—and thus greater economic, workforce, energy, and environmental benefits.

**Swiftly implement the most recent changes to the 45Q tax credit**

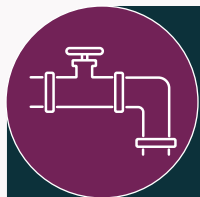
**As the administration identifies priorities for energy production, one of its first actions should be to issue and finalize guidance for the most recent enhancements to 45Q.** Since these enhancements were enacted in 2022, project developers have already lost more than two years of the current commence-construction deadline of January 1, 2033. Complex, capital-intensive carbon management projects can take close to a decade to reach the construction stage.<sup>26</sup> Absent final IRS regulations, much of the industry lacks the certainty to move toward final investment decision

(FID) on announced projects, particularly for the power sector, which saw significant additional reporting requirements enacted in 2022.

Moreover, while Treasury and IRS have since issued final guidance on some issues raised in [comments](#) submitted by the Coalition in 2023, the Coalition requests additional clarity for industry on the following:

- What criteria the agency uses to determine whether multiple qualified facilities can be aggregated and considered a single project for purposes of qualifying for Sec. 45Q tax credits.
- How disaggregation applies to defining a “qualified facility” for facilities that contain multiple process trains, where key components of carbon capture equipment designed for multi-process train capacity are shared across process trains.
- Whether a municipal solid waste landfill facility using a flare as a fuel combustion source producing a stream of CO should qualify as an industrial facility under section 45Q, as long as that CO is then captured.
- Clarification that point-source capture of a separate industrial CO stream within a DAC facility qualifies for a point-source capture 45Q credit.

# TRANSPORT AND STORAGE INFRASTRUCTURE



**Congress and the administration must strengthen our permitting and safety practices for carbon transport and storage projects; as such the Coalition recommends they:**

- 1. Improve the efficiency of our permitting system.**
- 2. Create an optional federal siting authority pathway for CO<sub>2</sub> pipelines.**
- 3. Enact further commonsense safety measures for CO<sub>2</sub> pipeline operators.**
- 4. Ensure Class VI program provides regulatory certainty to project developers.**
- 5. Clarify regulations for geologic storage of CO<sub>2</sub> on federal lands and the Outer Continental Shelf (OCS).**
- 6. Retool the Carbon Dioxide Transportation Infrastructure Finance and Innovation (CIFIA) program to increase its appeal to investors.**

A substantial build-out of safe, reliable CO<sub>2</sub> pipeline infrastructure is necessary to scale the carbon management industry and enable the transport of large quantities of CO<sub>2</sub> from industrial facilities, power plants, and DAC facilities to points of reuse or permanent geologic storage. This infrastructure build-out is essential to a broader, comprehensive strategy to deploy carbon management technologies across domestic industries, secure US technology leadership, and mitigate emissions.

Over the last decade, Congress and prior administrations have taken steps to lay the groundwork for carbon management project deployment. The current administration and Congress must strengthen and continue implementing the available permitting framework, which includes: issuing long-delayed rulemaking on additional safety regulations for CO<sub>2</sub> pipelines; issuing long-delayed guidance on storing CO<sub>2</sub> on federal lands; regulations for CO<sub>2</sub> storage on the Outer Continental Shelf (OCS); finalizing and

publishing recommendations for improving permitting practices from the USE IT Act's carbon management permitting task forces; and making commonsense updates to class VI regulations.

With the available policy foundation in place, Congress and the administration must recognize that investing in coordinated carbon management infrastructure planning today will reduce costs and land use impacts while helping these technologies realize necessary economies of scale. Doing so ensures the coordinated build-out of these essential infrastructure systems so they can scale to meet anticipated demand from carbon capture and DAC in the coming years.

To that end, the Coalition makes the following recommendations to Congress and the administration: reform the permitting system, clarify CO<sub>2</sub> transport provisions, and improve the safety regulations surrounding geologic storage.

## **Improve the efficiency of the permitting system**

Carbon capture, removal, reuse, transport, and storage projects and associated infrastructure must be responsibly deployed at the pace and speed of growing investor and developer interest in these technologies. This, however, requires efficient and effective permitting grounded in robust environmental protections and community engagement.

In its current state, the available permitting framework is falling short, causing delays in the siting and construction of interstate CO<sub>2</sub> pipelines and the permitting of geologic storage wells. In some cases, these delays have led to wholesale cancellation of projects.

Congress now has the opportunity to address these shortfalls and ensure that announced projects can move toward construction. This includes but is not limited to a timely and efficient Class VI permitting process, directing agencies to appropriately use programmatic review and categorical exclusions, and making federal mechanisms available for siting CO<sub>2</sub> pipelines.

As Congress negotiates any modifications to the nation's current permitting regime, a vital component to ensuring the future success of carbon management federal policy rests in fostering full public and policymaker confidence in the safety and reliability of these systems.<sup>27</sup>

### Transporting CO<sub>2</sub>

It is estimated that domestic CO<sub>2</sub> transport and storage infrastructure will need to expand to between approximately 30,000 to 96,000 miles to enable the economywide deployment of carbon capture technologies and reduce emissions by midcentury.<sup>28</sup> In addition to this interconnected

transport and storage network, trucking and shipping will be important complements to transport CO<sub>2</sub> from sites that are not economical to connect to pipeline systems.<sup>29</sup> For comparison, nearly 385,000 miles of operational pipelines in the US currently carry petroleum, natural gas, oil, and other products.<sup>30</sup>

### Create an optional federal siting authority pathway for interstate CO<sub>2</sub> pipelines

Congress should establish an optional federal siting authority pathway for interstate CO<sub>2</sub> pipelines to provide similar siting parity for all linear infrastructure systems. Overcoming pipeline siting challenges is paramount to translating federal investments to steel in the ground.

Currently, interstate CO<sub>2</sub> pipelines are sited on a state-by-state basis while, in contrast, there is federal siting authority for interstate natural gas pipelines under the Natural Gas Act.

Creating parity for the permitting and siting authority of these infrastructure systems will allow for better community and land use planning and lay the groundwork for effective future build-out of the entire network. The Coalition supports projects that are well served by the current state-by-state regulatory siting authority being allowed to continue that process.

### Continue to foster confidence in the safety of CO<sub>2</sub> pipelines

Since reporting began, safety data collected by PHMSA shows that CO<sub>2</sub> pipelines can and have been operated at the highest level of safety. CO<sub>2</sub> pipelines have a strong safety record, having been operating safely in the United States for more than 50 years. However, a rare but serious CO<sub>2</sub> pipeline failure occurred in Satartia, Mississippi, in 2020, increasing public and policymaker scrutiny about pipeline safety and the overall reliability of these systems as they scale. In response, PHMSA released the incident report in 2022, which provided insights into probable operator violations that led to the incident.

Along with the report, PHMSA announced in January of 2025 that the agency would issue a Notice of Proposed Rulemaking (NPRM) on additional safety requirements for CO<sub>2</sub> pipelines, but these rules were not published in the Federal Register before the end of the prior administration.

**The Coalition urges the administration to release the proposed rule to provide long-overdue regulatory certainty to project developers and urges the administration and Congress to consider the following additional commonsense safety measures:**

- Expand first responder training for CO<sub>2</sub> pipeline safety incidents.

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The US Department of Transportation (DOT) has regulated the safety of CO<sub>2</sub> pipelines since the Hazardous Liquid Pipeline Act of 1979. The Pipeline and Hazardous Materials Safety Administration (PHMSA), the agency charged with overseeing CO<sub>2</sub> pipeline safety, was established in 2004 as an agency within DOT.

Under current regulations, there are [multiple steps](#) that CO<sub>2</sub> pipeline operators must take to ensure pipelines are operated safely, including:

- Installing pressure monitors on pipelines.
- Submitting an annual report to PHMSA.
- Requiring all newly constructed CO<sub>2</sub> pipelines include automatic shut-off valves.

PHMSA's current authorization expired in September of 2023. Congress must work to reauthorize the agency to ensure that the available safety regime remains rigorous and to ensure continued adequate staffing and resources for PHMSA.

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- Require that project proponents more rigorously consider potential geohazard impacts on CO<sub>2</sub> pipelines during design, siting, construction, and maintenance.
- Request that PHMSA conduct additional reporting on the public safety record of CO<sub>2</sub> pipelines.

The Carbon Capture Coalition has long supported rigorous safety design, inspection, and maintenance protocols associated with carbon capture, transport, and storage infrastructure. Full

confidence from the public and policymakers in the safe design, construction, and operation of CO<sub>2</sub> pipelines is essential to scaling these infrastructure systems. The Coalition also supports the administration carrying out a national assessment of the CO<sub>2</sub> network necessary to meet nationwide deployment goals and reduce emissions.

### Geologic storage

The Environmental Protection Agency (EPA) regulates and permits long-term geologic storage of CO<sub>2</sub> under the EPA's Underground Injection

**Geologic storage of captured CO<sub>2</sub> has a long track record of safety and reliability. Suitable storage locations are separated from underground drinking water sources and occur below impermeable rock layers, ensuring the CO<sub>2</sub> is permanently trapped in the target geologic formation and that underground sources of drinking water are protected.**

**For taxpayers to claim 45Q, projects must demonstrate to relevant regulatory authorities that the captured carbon is permanently stored or otherwise reused to receive the credit, enabling confidence in the available regulatory framework.**

Control (UIC) Program’s Class II and Class VI injection wells. Through the UIC Program and EPA’s Greenhouse Gas Reporting Program (GHGRP), EPA and states with primary enforcement authority (primacy) maintain a robust system of regulatory oversight.

### **Make commonsense updates to class VI regulations**

The current Class VI regulations—promulgated in 2010 and not updated since—outline the rules for injecting CO<sub>2</sub> into the subsurface for the primary purpose of storing man-made CO<sub>2</sub>. These rules were designed to be periodically updated as technology improves and project demands grow. The Coalition supports EPA revisiting Class VI well regulations under the UIC Program to make commonsense updates consistent with knowledge gained by the industry in the last 15 years. **As project deployment moves forward, two specific areas of the Class VI regulations need to be revisited to ensure the full complement of available storage locations is available:**

#### **1. Allowing aquifer exemptions for Class VI wells.**

This would harmonize the Class VI regulations with other well classes (I–V), in turn allowing injection of CO<sub>2</sub> into aquifers that are unsuitable for drinking water or agricultural purposes, as is already the case for well classes I–V.

**2. Supporting depth exemptions for in-situ mineralization in the Class VI program.** In-situ mineralization is a process where CO<sub>2</sub> chemically reacts with silicate minerals present in basalt rock formations to form carbonate minerals, leading to permanent geologic storage of CO<sub>2</sub>.<sup>31</sup> Due to the location and depths of these formations, the process may require aquifer exemptions, as in-situ mineralization will typically occur at shallower depths than sources of drinking water. Treasury should clarify the available pathway under 45Q for in-situ mineralization. Similarly, EPA should clarify that in-situ mineralization qualifies as secure geologic storage to further incentivize this safe, available technology and increase storage options in diverse US regions that are not close to saline aquifers.

#### **Review class VI and state primacy applications in a timely manner**

Moving forward with geologic storage and project deployment is paramount so that the review of Class VI state primacy applications and individual Class VI well applications occurs in a reasonable and predictable timeframe. Predictable timelines for reviewing permitting applications are critical to maintaining investor confidence in a project’s ability to reach FID.

While EPA has publicly stated its commitment to a 24-month application review process for individual well applications, around 16 percent of the projects under review are now past that mark.<sup>32</sup> Delays in the permit review process jeopardize private investment and project deployment. **The Coalition recommends that EPA commit to reviewing and providing final decisions on individual Class VI injection well applications within 18 months of those applications having been deemed “administratively complete.”**

### **Provide clarity for CO<sub>2</sub> storage projects on federal lands**

The federal government owns and manages approximately 30 percent of the total surface area of the country’s land, with the US Geologic Survey (USGS) estimating that roughly 130 million acres of potentially suitable storage capacity are overlaid by federal lands.<sup>33</sup>

At the same time, the Bureau of Land Management (BLM) and the Department of the Interior (Interior) have authorized mineral extraction projects that have impacted the subsurface of federal lands for nearly a century. However, a Class VI well on federal lands has yet to be authorized. In June 2022, BLM took a step forward in unlocking America’s CO<sub>2</sub> storage potential by issuing a new policy



Federal lands are an important national resource, and agencies must carefully balance often competing demands placed on these resources. Public benefits provided by federally managed lands include culturally important sites for Tribal Nations, sites for recreation, biodiversity and natural habitats, sources of renewable and non-renewable resources, agriculture, and other public benefits. If properly sited and done in a manner that protects public access and benefit and minimizes surface disturbance, the geologic storage of CO<sub>2</sub> beneath federal lands offers a significant opportunity to catalyze a domestic carbon management industry that will bolster existing domestic industries and create and maintain high-paying jobs.

authorizing the use of federal lands for the geologic storage of CO<sub>2</sub>. Despite this step, uncertainty remains for CO<sub>2</sub> storage developers, including questions surrounding pore space ownership, land use plans, and interaction with other regulatory agency authorizations. Until BLM has the capacity to implement this new policy and address uncertainties, it is unlikely the US will meet CO<sub>2</sub> storage volumes significant enough to retain its position as the global leader in carbon management deployment.

**The Coalition urges the administration to advance a comprehensive framework across federal land agencies for the safe, secure storage of CO<sub>2</sub> on federal lands in a manner that balances competing demands on these important resources, promotes transparency and accountability to maintain confidence in these technologies, and provides additional economic opportunities to communities, regions, and Tribal Nations.**

### **Promulgate regulations for storage on the Outer Continental Shelf (OCS)**

As mandated by the Infrastructure Investment and Jobs Act of 2021 (IIJA), Interior has the authority to grant a lease, easement, or right-of-way on the OCS for long-term sequestration of CO<sub>2</sub>. IIJA specifically

tasked the Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE) with promulgating those regulations; however, the final rule is now more than two years overdue. **Beyond providing strong, robust regulations, the agencies must provide clarification on topics relevant to CO<sub>2</sub> storage in the OCS, including transboundary issues between state waters and the OCS, lease sales, project review and approval, injection protocols, monitoring and reporting, and site decommissioning.**

Until Interior releases and finalizes these rules, the industry cannot move forward with offshore storage opportunities that have already been identified, as several projects have been announced that plan to store CO<sub>2</sub> in the OCS. Therefore, the Coalition urges the administration to issue an NPRM that aligns with the available onshore storage framework where possible. While there are key differences between the offshore and onshore storage environment, EPA's Class VI regulations provide a framework for developing storage rules for the OCS that are both protective of marine habitats and enable the long-term storage of CO<sub>2</sub> in the OCS.

## **Retool the Carbon Dioxide Transportation Infrastructure Finance and Innovation Act (CIFIA) to increase its appeal to investors**

CIFIA is a DOE Loan Programs Office (LPO) administered program containing \$2.1 billion in lending authority for building large-scale interstate CO<sub>2</sub> pipelines and also a \$500 million grant program, overseen by the Office of Fossil Energy and Carbon Management (FECM), to oversize interstate CO<sub>2</sub> pipelines. Despite the need for these pipelines, we are unaware of any developer receiving funding under either program. Therefore, **the Coalition proposes retooling aspects of the program to make it more attractive to project developers** and ensuring the original congressional intent of the program to build the scale and scope of CO<sub>2</sub> pipelines needed to move the industry forward and deliver on the 270-plus announced projects. The Coalition is actively exploring available mechanisms to restructure the program.



# MARKET DEVELOPMENT



**Increasing demand signals to the market for carbon management technologies ensures continued American leadership in the sector. Therefore, the federal government should:**

- 1. Collect data on the emissions intensity of domestically produced goods.**
- 2. Explore trade mechanisms and how they can help the US capitalize on its carbon advantage.**
- 3. Establish standards to expand the use of carbon marketplaces.**
- 4. Support procurement efforts for carbon management technologies.**

With a global marketplace increasingly prioritizing the production and purchasing of lower-carbon products and carbon removals, Congress must expand its efforts beyond tax-based incentives for carbon management technologies.<sup>34</sup> This means building market demand for products and services derived from carbon capture, removal, reuse, and storage. Growing domestic demand for the production of low-carbon commodities will foster greater competitiveness in global trade and help industries reach commercial maturity without being wholly reliant on federal support.

Over time, consumer and private sector momentum has driven the adoption of products and services from the carbon management

industry. This includes a range of activities from purchasing low- and zero-embodied emissions materials, such as steel and concrete, to significant investment in advanced market commitments for the purchase of carbon removal credits. Creating market pull for the industries that make up the broader carbon management sector is critical to maintaining domestic industries' role as a global leader in energy innovation, industrial production, and manufacturing, all while supporting regional economies.

Thanks to the available federal incentive framework, demand for carbon capture, removal, transport, reuse, and storage solutions has grown over the past several years. Looking forward,

Congress should provide targeted support to help the private sector build additional markets and demand for these technologies. Doing so will improve our strategic position in international markets that are increasingly prioritizing low- and zero-emissions manufacturing and processes as well as carbon removals.

Already, the US is engaged in less emissions intensive production when compared to average global production. US-manufactured goods are, on average, 40 percent more carbon-efficient than the global average.<sup>35</sup> Carbon advantage varies by sector, with food and beverage being 10 percent more carbon efficient than the global average, and sectors such as computer, electronic, and optical products being 300 percent more efficient.<sup>36</sup> Carbon management technologies are a suite of technologies that enable this domestic innovation. However, the US currently lacks a framework to quantify the carbon advantage of American businesses and subsequently reward them for it.

Below are the Coalition's recommendations to Congress and the administration to grow domestic private sector-led markets for the production of low-, zero- and net-negative carbon commodities in the US, fueled by carbon management technologies as an enabling platform of this marketplace.

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Carbon capture and removal is an enabling technology platform to produce low-carbon materials and remove emissions directly from the atmosphere. Examples of private sector-led demand for carbon management technologies include carbon removal credits, off-take agreements, and purchase agreements for low-, zero-, or negative-carbon baseload electricity, liquid fuels including aviation fuels, as well as hydrogen, an important component in industrial processes and ammonia, a building block for fertilizer.

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### **Collect data on the emissions intensity of domestically produced goods**

**Congress should direct DOE to lead efforts in collecting data on the emission intensity of products manufactured in the US.** A

comprehensive understanding of emissions associated with highly traded goods is essential for ensuring transparency in their carbon intensity and subsequently incentivizing and rewarding cleaner domestic production, including projects that utilize carbon management technologies.

Such data would provide insights into the US' emissions advantage by comparing the carbon intensity of domestic products with that of specific countries or the global average for similar goods. A database detailing the emissions intensity of US-made materials will be crucial to showcase the

nation's competitive advantage in producing low-carbon products. Additionally, this resource could inform decisions about potential tariffs on foreign goods based on their carbon intensity compared to domestic alternatives.

### **Support domestic manufacturing and cleaner industrial production through trade mechanisms**

Foreign products often gain a competitive edge in the US market due to lower manufacturing costs, enabled by less stringent environmental policies and higher emitting inputs in producing countries. This undercuts US production and harms domestic manufacturing and industrial production, which in turn can negatively impact regional economies and family-sustaining jobs in these sectors.

One option available to Congress to address these imbalances and continue supporting the reshoring of manufacturing and sustainable domestic industries is to impose tariffs based on the carbon intensity differences of specific products. Several bills in Congress have proposed different frameworks for either applying tariffs or utilizing a carbon border adjustment mechanism (CBAM) to impose a financial penalty on more carbon-intensive foreign-made products to support domestic industries and properly recognize the environmental benefit of domestic manufacturing. Tariffs on high-emission imports would level the playing field for domestic producers who already demonstrate significant carbon efficiency and present a unique opportunity to generate additional revenue for the US Treasury.

### **Establish federal standards to drive private investment in carbon marketplaces**

As private-sector markets for products and services sourced from carbon management continue to develop, businesses and purchasers need confidence that what they're purchasing provides real emissions reductions. The federal government should take a central role in establishing standards for accounting, monitoring, and verifying purchasing standards for carbon management

There are two primary measurement and reporting aspects for carbon management projects that are necessary to create durable, verifiable purchasing standards for the goods and services sourced from these processes: lifecycle analysis (LCA) and monitoring, reporting, and verification (MRV).

An LCA is the measurement and analysis of greenhouse gas emissions associated with a particular process or product throughout its entire lifecycle.

MRV is the subsequent reporting and independent verification of LCAs and other types of verifications of information collected related to the measurement of carbon captured, stored, or reused. MRV is already embedded into the [45Q tax credit](#).

### Support market development for innovative carbon management products and services

To sustain American leadership in carbon management, federal procurement must complement and help build private sector demand. Congress should continue supporting targeted procurement programs at DOE for goods and services produced from carbon management technologies and build upon these early learnings to launch a billion-dollar industry.

As the world's largest purchaser of goods and services, the US federal government is uniquely positioned to support the purchase of innovative carbon management assets. By leveraging its procurement power to purchase goods and services from the carbon management sector, the federal government can drive market growth and innovation. Historically, US leadership in technological advancements, such as computing and pharmaceuticals, has been propelled by strategic federal procurement, enabling the successful launch of transformative technologies. DOE should build on this legacy by utilizing the learnings from existing programs like Carbon Utilization Procurement (UP) Grants, the CDR Purchase Pilot Prize, and the Hydrogen Hubs market development program. These federal programs are critical to drive the economy, encourage innovation, create jobs, and fulfill American energy demand.

products. **Congress should direct DOE to develop standards incorporating both measurement and reporting elements, as well as different reporting protocols to accurately quantify the net emissions benefit of particular carbon management technology pathways.** (See information box above for further information.)

While the US Department of the Treasury and IRS have established MRV processes for qualifying for the 45Q tax credit, federal agencies should assist in establishing MRV for less commercially mature technology pathways to assist in the development of private, voluntary carbon markets.

In addition to developing reporting frameworks that can be used by the private sector, **DOE has a particular role in assisting project developers using less mature carbon reuse by publishing databases of the lifecycle carbon benefit for various production pathways.** DOE has published some LCA databases, such as those for nitrogen fertilizer and corn ethanol. There is a pressing need to establish baseline LCA databases for additional emerging carbon utilization pathways. Developing these databases should involve close collaboration with industry stakeholders to ensure they reflect current practices and produce accurate results.

# NEXT-GENERATION TECHNOLOGY DEVELOPMENT



In developing the next generation of carbon management technologies, the Coalition recommends Congress:

1. **Implement carbon storage provisions from the IJJA.**
2. **Provide targeted support for crucial technologies to achieve commercial liftoff.**
3. **Create a technical assistance program for carbon reuse project developers to engage with communities.**
4. **Provide adequate funding through appropriations for next-generation carbon management technologies.**

The groundbreaking bipartisan policies enacted over the past several years are crucial to deploying carbon management technologies at the scale required across emitting sectors, delivering reliable, affordable power to American families and businesses, and ensuring that American industries remain globally competitive.

This is evidenced by the continued investment from IJJA as well as authorizations provided by the CHIPS and Science Act, which have paved the way for the US to maintain its leadership in the commercialization of carbon management technologies. Thanks to the policy framework in place, between 2022 and 2024 there have been

approximately 110 new projects announced across the carbon management value chain within the US.<sup>37</sup>

While these investments demonstrate the strong foundation for commercial demonstration of carbon management technology nationwide, more targeted support for large-scale deployment is needed to achieve commercial liftoff across sectors and ensure that American industries remain globally competitive. This is especially true for harder-to-abate industries that produce critical goods and materials such as energy, cement, steel, and industrial products, as well as for technologies that directly remove CO<sub>2</sub> from the atmosphere.

Congress last updated the nation's essential energy framework in the 2020 Energy Act and should look to reauthorize and reframe the country's approach to energy innovation every five years. In addition to any potential energy innovation package, Congress must focus on strengthening the nation's energy infrastructure and technology deployment through robust annual appropriations to support developing innovative new technologies and cost reductions for core carbon management technologies and earlier scale carbon removal and reuse technologies at DOE.

As such, we offer the following recommendations for actions Congress could take to ensure continued American leadership in the innovation of carbon management technologies.

## **Continue building momentum by swiftly and efficiently implementing IJJA**

Of the funding made available in IJJA for the demonstration and commercial deployment of carbon management technologies, \$860 million has been awarded to 59 carbon management projects spanning vital industries and projects that will directly deliver jobs and economic benefits to diverse regions and communities across the US. An additional \$600 million of funding to American businesses is under negotiation, and \$9 billion has

been made available through funding opportunity announcements (see Figure 7 on page 11).

Already, thanks to the federal framework for carbon management that is currently in place, billions in private investments for project deployment in communities and regions across the nation have been made. Pulling back on the swift implementation of these programs would risk both the deployment of the technology as well as the jobs and economic investments already made and planned by US businesses.

### **Provide targeted support to achieve commercial liftoff of crucial technologies**

The funding from IIJA has been instrumental in laying the groundwork for energy innovation efforts through further de-risking and deployment of the full suite of carbon management technologies. With that foundation now in place, to achieve the scale of carbon capture, removal, transport, reuse, and storage needed to meet the growing demand for sustainable, reliable supplies of energy and inputs for industry and manufacturing, it is essential to continue providing targeted support to research and development efforts across the carbon management value chain.

In particular, heavy-emitting sectors require sustained and increased research funding. These

sectors, which include cement, steel, ammonia, and chemicals, have historically received less focus and attention from federal research dollars and are only now beginning to catch up relative to other energy innovation frameworks that have been advanced, thanks to DOE. Such targeted investments are key to maximizing taxpayer dollars and deploying next-generation technology.

### **Any future energy package advanced in Congress should, therefore, consider the following**

#### **Coalition recommendations:**

- Scale research for developing next-generation technologies related to CO<sub>2</sub> pipeline development, including but not limited to materials development and advanced leak detection.
- Continue supporting large-scale demonstration projects and pilot projects across emitting sectors.
- Support the federal government's role in scaling more nascent carbon management technologies.
- Increased federal support for the development of robust monitoring, reporting, and verification protocols for the full suite of carbon management and CO<sub>2</sub> removal technology pathways for use in qualifying for voluntary markets.
- Create a DOE pilot program to close the cost gap between 45Q and first-of-a-kind projects for heavy industrial sectors.

### **Provide technical assistance to carbon reuse project developers**

DOE should assist developers in preparing LCAs, which are currently a prerequisite for electing 45Q. Doing so would help ensure developers comply with LCA requirements from the start, making the overall qualification process more efficient. Additionally, DOE should consult with industry stakeholders to ensure that existing and future technical resources and databases reflect real-world data and industry practice.

Local benefits planning, which includes but is not limited to Community Benefits Plans (CBPs) and community benefit agreements (CBAs) are among the most common strategies for carbon management developers to partner with local and Tribal governments and community organizations. The two are similar in that they pave the way for a cleaner and more equitable energy transition and are one mechanism available to help ensure that energy projects and associated infrastructure deliver benefits to affected stakeholders.

### **Provide technical assistance for community engagement**

**DOE should continue to provide technical assistance for community engagement to project developers receiving federal funding.** This support from federal agencies is key to ensuring that host communities have a fair understanding of and sufficient engagement with project developers.

Information sharing between communities, Tribal Nations, local governments and project developers can be mutually beneficial, as the best solutions can be implemented when community expertise is treated with the same value as technical expertise. If carbon management technologies are to fulfill their potential as part of a broader solution set for economywide decarbonization, responsible and effective deployment relies upon meaningful and continued public engagement.

Providing guidance on local benefits planning, on which DOE has built a significant body of work and guidance to assist project developers, host communities, and Tribal Nations to engage in a meaningful, two-way dialogue that results in tangible benefits to the community associated with the project.<sup>38</sup>

Providing technical assistance to developers in formal CBPs, CBAs, and, more broadly, community engagement practices ultimately means projects have a greater chance of success, applications are submitted and approved more quickly, and benefits from building a project begin to accrue sooner.

### **Provide adequate funding through appropriations for next-generation carbon management technologies**

In addition to the robust funding contained within IIJA, annual appropriations for core carbon management programs across government agencies represent a fundamental source of federal support for the research and development of next-generation, innovative technologies and further cost reductions for more nascent technologies that are not yet ready for widescale adoption by the private sector. While the robust growth of the carbon management sector is promising, annual funding levels for these technologies must keep pace with the growing need and interest in deploying carbon management across the economy.

# CONCLUSION

Carbon management technologies, which include capturing carbon from power generation facilities and heavy industrial sites as well as directly from the atmosphere, paired with carbon reuse, transport, and storage, are crucial tools for balancing the increasing need for affordable, reliable energy that drives the American economy with the global imperative to reduce carbon emissions. Together, they are an enabling technology platform for the production of cleaner energy and materials and are important in the effort to continue growing our economy and providing Americans with family-sustaining jobs.

The Coalition's 2025 Federal Policy Blueprint draws on the consensus of our more than 100 members spanning companies, labor unions, and conservation and environmental nonprofits to outline a necessary federal policy and regulatory agenda for the nationwide deployment of carbon management technologies. These recommendations are needed to close the growing deployment gap for carbon management technologies domestically and retain the United States' global leadership in the development and commercial deployment of these technologies. Congress and the administration now have the imperative to ensure that the more than 270 publicly announced carbon capture, direct air capture, CO<sub>2</sub> transport, and storage projects move toward construction by addressing gaps in the available policy framework.

# GLOSSARY

45Q – Section 45Q of US Internal Revenue Code— tax credit for CO <sub>2</sub> storage or reuse from CO <sub>2</sub> or CO which is captured from industrial sources, power generation or through direct air capture	CO – carbon monoxide	IRS – Internal Revenue Service
BLM – Bureau of Land Management	CO <sub>2</sub> – carbon dioxide	ITC – Investment Tax Credit
BOEM – Bureau of Ocean Energy Management	DAC – direct air capture	LCA – lifecycle analysis
BSEE – Bureau of Safety and Environmental Enforcement	DOE – US Department of Energy	LPO – Loan Programs Office
CBA – community benefit agreement	DOI – US Department of Interior (Interior)	MRV – monitoring, reporting, and verification
CBAM – carbon border adjustment mechanism	DOT – US Department of Transportation	Mtpa – million tons per annum
CBP – community benefit plan	EPA – US Environmental Protection Agency	NPRM – Notice of Proposed Rulemaking
CCU – Captured Carbon Utilization (CCU Parity Act)	FAST-41 – Fixing America’s Surface Transportation Act, Title 41	OCS – Outer Continental Shelf
CCUS – carbon capture, reuse, and storage	FECM – Fossil Energy and Carbon Management (Office of FECM)	PHMSA – Pipeline and Hazardous Materials Safety Administration
CDR – carbon dioxide removal	FEED – Front-End Engineering and Design	RAI – Request for Additional Information
CHIPS – Creating Helpful Incentives to Produce Semiconductors (CHIPS and Science Act of 2022)	FID – final investment decision	RD&D – research, development, and deployment
CIFIA – Carbon Dioxide Transportation Infrastructure Finance and Innovation Act	FUTURE – Furthering carbon capture, Utilization, Technology, Underground storage, and Reduced Emissions (2018 FUTURE Act)	UIC – Underground Injection Control [Program] (EPA regulations)
	IIJA – Infrastructure Investment and Jobs Act of 2021 (Bipartisan Infrastructure Law)	USE IT Act –Utilizing Significant Emissions with Innovative Technologies Act
	IRA – Inflation Reduction Act	



# ENDNOTES

- 1 This Blueprint focuses on federal policy priorities for carbon management technology deployment. It does not address policies specifically aimed at the production of hydrogen, though it recognizes that carbon management can be an enabler of low-cost, low-carbon hydrogen production. Additionally, it does not address state-level policies, which have an important role to play in complementing federal policies to support commercial deployment of the full suite of carbon management technologies.
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