



Ohio Senate Energy and Public Utilities Committee

The Honorable Bill Reineke, Chairman

Jennifer Stewart | American Petroleum Institute

April 9, 2024

Chairman Reineke, Vice Chairman McColley, Ranking Member Smith, and members of the Ohio Senate Energy & Public Utilities Committee, thank you for the opportunity to provide testimony on carbon capture and storage (CCS).

The American Petroleum Institute (API) represents all segments of America's oil and natural gas industry. Its nearly 600 members produce, process, and distribute most of the nation's energy. API represents all segments of the U.S. oil and natural gas industry, and many of API's members are investors, operators, and developers of CCS projects and technologies. API supports efforts to drive economic development and greenhouse gas (GHG) emission reductions through sound policies that encourage innovation and the development and deployment of viable emission reduction technologies like CCS.

API shares Ohio's goal of supporting a robust economy by advancing both production of Ohio's vast oil and natural gas resources and its manufacturing base, while at the same time reducing GHG emissions. To achieve both goals will take a combination of policies, innovation, voluntary initiatives and partnerships between government and private sectors and API plays a key role in convening multiple stakeholders regarding CCS infrastructure and technology.

CCS is a proven emission reduction technology necessary to help the U.S. meet its climate goals. The International Energy Association (IEA) stated that CCS will play a major role in the global drive to reduce CO₂ emissions.¹ Policymakers recognize the need to drive CCS development and deployment forward, as evidenced by the 2021 Council on Environmental Quality (CEQ) report on CCS,² passage of the Bipartisan Infrastructure Investment and Jobs Act, the Inflation Reduction Act's expansion of the 45Q tax credit for carbon storage, and efforts in many states, including Ohio, to establish the necessary legal and regulatory frameworks enabling CCS deployment. Importantly, the CEQ report found that CCUS is a necessary means of reducing and removing CO₂ emissions, which "can reduce the costs of meeting climate goals, and maintain and create well-paying union jobs nationwide and globally."³

Despite these benefits, CCS deployment has been limited in part due to regulatory uncertainty. A lack of clarity surrounding key regulatory requirements and processes may hinder project development and limit investment into Ohio industries. CCS legislation would provide the predictability and clarity needed to support critical investment and assure project viability and success.

With that backdrop, let's focus on the three main ways CCS can help drive economic opportunities for Ohio:

First, by helping preserve the industrial base and helping provide jobs: Ohio has robust industrial and agricultural sectors, including power generation, steel manufacturing, cement production, fertilizer production, ethanol production, and chemical processing, all of which are significant sources of carbon emissions. By deploying CCS, these industries can continue to operate competitively while at the same time reducing their environmental impact, safeguarding and creating jobs, and supporting local economies. Ohio must protect its industry workers. Without CCS, hard to

¹ International Energy Association, "CCUS in Clean Energy Transitions," September 2020. <https://www.iea.org/reports/ccus-in-clean-energy-transition>

² Council on Environmental Quality, "Report to Congress on Carbon Capture, Utilization, and Sequestration," June 2021. <https://www.whitehouse.gov/wp-content/uploads/2021/06/CEQ-CCUS-Permitting-Report.pdf>

³ *Id.* page 6.

decarbonize sectors such as those just mentioned may be vulnerable to job losses from energy transition and diversification policies despite being key employers in the Ohio River Valley.⁴

Implementing CCS technology requires skilled, well-paid labor creating job opportunities in engineering, construction, maintenance, and research sectors. Decarbonizing industry in Ohio could expand regional jobs in these industries while at the same time reducing CO₂ emissions. According to a 2021 study, “Implementing CO₂ transport infrastructure requires boilermakers and construction trades...pipeline workers and welders to build or repurpose the network of pipes...and subsurface engineers, welders, rig operators, and roustabouts.”⁵ Ohio is the seventh-largest ethanol-producing state in the nation and holds immense potential for carbon capture deployment in the ethanol industry. Seven of the state's ethanol facilities have the potential to create an annual average of up to 45 project jobs and 60 ongoing operations jobs while capturing two million metric tons of CO₂ per year; nine of the state's steel facilities have the combined ability to create an annual average of over 500 project jobs and approximately 500 ongoing operations jobs while capturing four million metric tons of CO₂ annually. In the power sector, four of the state's coal plants and nine gas plants can create an annual average of approximately 5,000 project jobs and 3,000 ongoing operations jobs while capturing 43 million metric tons of CO₂ per year.⁶ And I caveat that this data is pre-IRA, when the 45Q credit was \$50 per metric ton (Mt) on a per-captured basis, where it is now \$85 and \$180 per Mt (for point source and direct air capture respectively) so the job numbers may be much higher.

Second, attracting investment and promoting Ohio's economy: CCS helps provide economic opportunities to Ohio as companies are increasingly prioritizing sustainability and carbon reduction targets in their investment decisions. By demonstrating a commitment to CCS deployment, Ohio can attract investment from energy companies, manufacturers, and financial institutions, driving economic growth and diversification. And Ohio is uniquely positioned to economically benefit from CCS. The Great Plains Institute calculated in 2021 that Ohio has 45 facilities that qualify for the 45Q tax credit, with 26 identified as feasible near-term CCS candidates with the potential to capture almost 45 million Mt of CO₂ annually – representing 45% of Ohio's total CO₂ emissions in the industrial and power sectors. Ohio is one of the top-ten coal-consuming states and can capture up to 23 million Mt CO₂ annually at 4 state facilities, and it has 9 gas power plants that could capture 14 million Mt CO₂ annually in the near-term.⁷

Finally, maintaining and increasing Ohio's role as a home to CCS academic and industry collaborations and as a partner to the Department of Energy in technology innovation. In addition to participating in multi-state collaborations that support CCS development,⁸ Ohio has over 20 years of CCS research experience through the Midwest Regional Carbon Sequestration Partnership. The Regional Initiative to Accelerate CCUS Deployment in the Midwestern and Northeastern USA project, led by Battelle Memorial Institute in Columbus, was [awarded](#) \$5 million of Department of Energy (DOE) funding in 2021. Ohio's colleges and universities are also leading the way: Case Western and Marietta College have active CCS technology research programs; other DOE CCS technology funding grants include Ohio University's \$2 million grant to study carbon capture;⁹ as part of a recent \$45 million grant THE Ohio State University is partnering with Holcim and GTI Energy to develop carbon capture technology;¹⁰ and finally the University of Cincinnati received a 1.8 million grant for carbon-capture technology research.¹¹

In conclusion, carbon capture and storage offer a promising pathway for Ohio to continue to take advantage of, and even grow, Ohio's vast oil and natural gas resources and its manufacturing base, while at the same time reducing CO₂ emissions. Thank you for allowing API to present to this Committee.

⁴ Ohio River Valley Hydrogen and CCS Hub Market Formation Report, 2021.

⁵ Labor Energy Partnership, Building To Net-Zero: A U.S. policy blueprint for gigaton-scale CO₂ transport and storage infrastructure, 2021

⁶ Regional Carbon Capture Deployment Initiative, Jobs and Economic Impact of Carbon Capture Deployment: Ohio

⁷ *Id.*

⁸ [ARCH2](#), the [Decarbonization Network of Appalachia](#), [TEAM](#) TriState Energy and Advanced Manufacturing Consortium, the [Tri-State Shale Coalition](#), the [Marshall Plan for Middle America](#): The Center for Sustainable Business at the University of Pittsburgh, [In-2-Market](#), and the [Roosevelt Project](#).

⁹ <https://www.ohio.edu/news/2023/02/u-s-department-energy-awards-2-million-grant-ohio-researchers-explore-carbon>

¹⁰ <https://techtransfercentral.com/2024/01/23/ohio-state-u-partners-with-gti-energy-and-holcim-us-to-develop-carbon-capture-technology/>

¹¹ <https://www.uc.edu/news/articles/2021/09/uc-to-lead-new-federal-project-that-addresses-climate-change.html>

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Jennifer is Director for API and has decades of executive experience in finance, climate, regulatory affairs, and policy. She leads all carbon capture and sequestration work at API at the state and federal levels, along with climate policy, financial reporting, and GHG emissions methodologies. After retiring as an executive of Southwestern Energy, serving in roles as Senior Vice President Finance, Interim Chief Financial Officer and Senior Vice President Legislative and Regulatory Affairs, she held roles as an independent board member for an environmental services company and an emissions detection technology company. She also served as Vice President for Baker Hughes Emissions Management providing methane monitoring and quantification technologies.

Jennifer is an attorney licensed to practice in Texas and has held leadership positions with the Natural Gas Supply Association, American Exploration and Production Council, and Marcellus Shale Coalition.

Jennifer is recognized by Hart Energy's Oil and Gas Investor Magazine as an Influential Woman in Energy for 2024, and she has been recognized as one of Texas' Most Powerful Women in Oil and Gas by the National Diversity Council, a Top Woman in Energy by the Houston Business Journal, and received the Greater Houston Women's Chamber of Commerce Trailblazer Award.

Jennifer is an Ohio native and is an active member of the Ohio Farm Bureau Federation and the Champaign County Farm Bureau.