SME Society for Mining, Metallurgy & Exploration
TECHNICAL POSITION STATEMENT

Mitigation of CO_2 Emissions from Coal Fired Electric Generation

SME Statement

Greenhouse gas emissions related to human activity, including CO_2 emissions from burning fossil fuels, is considered by many governments as partially responsible for observed climate change. Beginning as early as 1997, the U.S. Department of Energy (DOE) has proven through many research, development, and demonstration projects that capturing and preventing the release of CO_2 emissions from fossil-fired power plants can be done safely, effectively, and permanently in a number of beneficial ways. Captured CO_2 can be used for enhanced oil recovery, fuel production, concrete enhancement, power generation, or sequestered in geologic formations for long-term storage. Since FY2010, Congress has provided $2.7 billion in funding for Carbon Capture and Storage (CCS) projects and research, and more recently, the Infrastructure Investment and Jobs Act of 2021 provided $8.5 billion (nominal dollars) in funding for CCS for the years 2022 to 2026. If CCS is implemented successfully, fossil resources can continue to be a fuel resource asset to our society – producing low cost, reliable, base load electricity and providing many jobs.

Background

In 2009 John Quigley, Acting Secretary of Pennsylvania Department of Conservation and Natural Resources, stated:

> *"Pennsylvania is the 4th largest coal producing state in the United States. More than 40 percent of the state's electricity is coal-fired, and 30 percent of the energy generated in Pennsylvania is exported to other states. If the Commonwealth is to reduce its global warming emissions, it must find ways to burn coal as cleanly as possible. One technology that offers great promise and that is particularly appropriate for consideration by the Commonwealth is CCS – a process of capturing carbon dioxide emissions from coal-fired electric power plants and other industrial facilities to prevent them from going into the atmosphere, and then storing them permanently underground in safe geological formations. According to Midwest Regional Carbon Sequestration Partnership (Now the Midwest Regional Carbon Initiative), Pennsylvania has an estimated geologic capacity to store hundreds of years' worth of carbon emissions at present rates. If that resource can be proven, and appropriately and safely developed along with all of the other technological requirements of CCS, the Commonwealth may be able to substantially reduce its global warming emissions and protect our environment, our economy, and public health – while preserving its position as a net energy exporter and creating jobs in the process."*

The development of the Marcellus Shale natural gas field in Pennsylvania and the resulting conversion of some coal power plants to natural gas slowed down the need for CCS from coal fired power plants but the geologic potential to store CO_2 is still there. The West Virginia legislature recently passed State Bill 162 which would allow the WV Department of Natural

Resources to lease "state-owned pore spaces underlying state forests, natural and scenic areas and wildlife managements" for carbon sequestration.

Senator Joe Manchin of West Virginia introduced the Carbon Capture, Utilization and Sequestration (CCUS) bill in March 2021. During the bill's introduction Manchin stated:

> *"Carbon capture, utilization, and sequestration (CCUS) is one of the most critical technologies to combat climate change globally. As we transition to a cleaner energy future, increased investment in CCUS and carbon removal technologies will reduce emissions, keep our energy affordable and reliable, and ensure our continued climate leadership. Enhancing the 45Q and 48A tax credits will encourage increased commercialization of CCUS and Direct Air Capture technologies across the nation while supporting clean energy, infrastructure, and manufacturing jobs across the country, including in traditional energy producing communities like those in West Virginia. I look forward to working with my colleagues on both sides of this aisle to ensure this legislation becomes law."*

The Western Governors' Association (WGA) issued a report in June 2024, Decarbonizing the West, that calls for more federal cooperation and funding to help keep fossil fuels in the energy picture. Governor Mark Gordon of Wyoming said "It is important that we acknowledge that, if the concern is about CO_2 emissions in our atmosphere, then our focus must be on CO_2 more broadly, not just curtailing the use of fossil fuels," Gordon wrote in the introduction of the 32-page document: "This report will show effective efforts to manage carbon in the West are already within our grasp and can proceed without compromising our standard of living or hopes for the future."

The WGA report recommends the following:

- *The Department of Energy should fund pilot and commercial-scale industrial carbon capture projects.*
- *The Environmental Protection Agency should "promote, not impede" deployment of carbon capture technologies at electrical power plants, and streamline permitting for carbon dioxide injection wells.*
- *Congress should enact "technology neutral" tax policies and provide more research and development funding for carbon capture.*

The WGA's recommendations would go a long way in implementing CCS into the future plans for U.S. energy.

The National Carbon Center was established by the DOE in 1995 to conduct research and testing of carbon capture technology. Using pilot testing the projected cost to employ carbon capture technology from fossil-based power generation has been reduced by over 40% from initial estimates. These costs may be expected to drop even further. According to the International Energy Association about 45 commercial facilities are currently (2024) operating to apply carbon, capture, transportation and storage at processing facilities, transportation systems and power generation facilities in the U.S., Carbon Capture capacity by 2030 is also expected to increase by 35% and storage capacity by 70%. The Infrastructure Investment and Jobs Act of 2021 is funding CCS project development, including carbon capture demonstration projects and direct air capture hubs.

SME Position

SME supports the future use of CCS so that the use of fossil fuels can continue to be used as a future energy source but acknowledges that utility-scale CCS has not yet been proven to be technically or economically feasible. Consequently, SME has concerns that the Environmental Protection Agency's May 2024 Clean Power Plan 2.0 rule, which mandates adding CCS technology to existing coal and natural gas-fired power plants, will force many of these facilities to close. The 25 states and numerous other petitioners challenging this new regulation share this concern.

The U.S. is blessed with a large amount of fossil fuel resources and large areas potentially suitable for geologic CO_2 sequestration. Fossil fuels have been instrumental in our growth and prosperity, have provided enormous wealth to our nation, and greatly increased our standard of living. They also provide good paying jobs throughout our nation. Some of these resources are also located in areas where wind and solar potential is low. Geologic sequestration has proven success stories and its future development will help maintain a stable and cost-effective energy supply while reducing CO_2 emissions.

References

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