

Initiate Carbon Removal Opportunities to Enhance Economic Prosperity and Job Creation for West Virginians, Says New Policymaker Guide

Carbon, in its many forms, has long provided economic development opportunities for West Virginia. The nature of those activities has changed over time, and today West Virginia has a new opportunity to leverage the competitive advantage of its natural resources: by capturing carbon out of the ambient air. Proactive policymaker and stakeholder actions to capture this burgeoning opportunity in the near-term can place West Virginia in the lead of long-term carbon management markets. So says a new policymaker guide, “Carbon Dioxide Removal and West Virginia: A Science and Technology Perspective,” released this month from West Virginia University’s Bridge Initiative for Science and Technology Policy, Leadership, and [Communications](#).

Carbon dioxide removal (CDR) removes the carbon dioxide (CO₂) already in the atmosphere, relying very heavily on natural resources – like those in West Virginia. Forests, agricultural land, and wetlands capture carbon dioxide naturally. Underground reservoirs and former oil and gas wells can store the CO₂ that is captured through bioenergy with carbon capture and storage (BECCS) and direct air capture (DAC).

With about 12 million acres of forestland, West Virginia is the 3rd most forested state in the United States. Over half of this land is owned by small family foresters (10% of West Virginia’s total population), 78% of whom wish to maintain their forests for future generations. Forest products facilitate CO₂ capture and provide long-lasting wood products that can substitute for high-carbon-intensity materials like concrete.

BECCS and DAC require a geological location that can store any CO₂ that is not turned into products. Luckily, the same geology that supports West Virginia’s fossil fuel industry, including former oil and gas reservoirs, unmineable coal seams, and saline formations, can potentially be used to store CO₂ and provide job opportunities for those in former coal communities. The study identified 66 possible sites just in Southern West Virginia - an area where jobs and economic development are very much needed.

In comparing the natural and technology options, the team found that the potential CO₂ removal in West Virginia by 2050 was about the same for natural, BECCS, and DAC. The cost of BECCS and DAC is, however, substantially higher for BECCS and DAC than the natural options. In addition, we need a better understanding of the ability to store CO₂ in West Virginia.

On the other hand, the total potential jobs and economic growth is greatest for DAC if the carbon storage challenge is solved. If proven feasible, DAC alone can contribute over 6,000 jobs to the state and over \$2.5 billion in economic output in one of the poorest areas of the state. “In addition to the technical hurdles we need to overcome, we also want to ensure that community concerns are addressed and residents benefit from DAC activities through infrastructure development, job opportunities, and training,” says Sam Taylor, assistant director of Strategic Partnerships & Technologies for WVU Energy Institute and the lead on DAC for the policymaker guide.

The policymaker guide also prioritizes resources for small family landowners in West Virginia. According to the guide, family landowners likely need more information and resources to manage their forests, wetlands, and farms to better remove carbon. If managed properly, these lands can generate carbon credits to be sold on the carbon market, bringing in some revenue.

“Very few small family landowners in West Virginia are participating in the carbon market. We are working to identify and remove barriers to market entry for small family forest owners who may be interested in participating,” says Eddie Brzostek, associate professor of biology and faculty lead on natural carbon sequestration for the report. Additionally, policy actions are needed to ensure that the wood products industry is supported in their role of CDR. Long-lived forest products are another pathway for long-term carbon storage, such as building materials which can hold carbon for over 100 years. Incentives for these companies to reduce carbon emissions and increase the longevity of their wood products can contribute to CDR and support this economically important industry in West Virginia.

The policymaker guide contains a number of recommendations for advancing CDR in West Virginia. Among these are:

- Increase resources for West Virginia University (WVU) Extension and West Virginia State University (WVSU) Extension and outreach representatives from colleges and universities throughout the state to advise small forest, farmland, and wetland owners on the economic potential
- Fund a study that examines both community and technical opportunities and challenges to identify suitable locations for DAC demonstration projects in West Virginia.
- Invest in economic incentives for CDR activities such as reforestation, improved forest management, forest products, bioenergy, DAC, and CO₂ storage in southern West Virginia and other disadvantaged communities in the state.
- Require that CDR companies negotiate a community benefit agreement that includes the design and use of a community fund and addresses community concerns and recommendations from stakeholders (i.e., both landowners and nonlandowners).

With strategic policy actions, CDR activities in West Virginia can create economic opportunities while protecting or improving the environment.

The Bridge Initiative identifies challenges and opportunities facing West Virginia and provides a bridge between the expertise of WVU and West Virginia’s policymakers. Over 40 faculty, staff, and students contributed to the policymaker guide, and 35 stakeholders provided feedback and helped prioritize the policy recommendations. The full “Carbon Dioxide Removal and West Virginia: A Science and Technology Perspective” report can be found, along with short explainers and policy briefs on the topic, at the Bridge Initiative website:

<https://scitechpolicy.wvu.edu/cdr>.

Contact: Dr. Joan Centralla, scitechpolicy@mail.wvu.edu