Opponent Testimony for HB 170 May 3rd, 2025 Dr. Randi Pokladnik

Carbon capture and sequestration (CCS) involves capturing carbon dioxide from industrial facilities or fossil -fueled power plants and injecting these emissions into Class VI injection wells. The process relies on enormous Federal subsidies; it doesn't sequester the carbon dioxide promised; it encourages more fossil fuel usage; it poses risks to local communities; and it isn't a solution to stop climate change.

Adding CCS technologies would significantly reduce electrical generation efficiency, further ramping up our electric bills. Ohio has tentative plans for 26 carbon capture projects across the state. Of the 15 CCS facilities currently in operation in the USA, only 0.4 percent (24 million tons) of the nation's total annual CO2 emissions have been captured.

Class VI wells, as well as CCS infrastructure, pose risks to local communities. Carbon dioxide is an asphyxiant. A pipeline break in the town of Sataria, Mississippi in 2020 caused 200 residents to be evacuated and 45 people were sent to the hospital. Many residents are still dealing with health effects today. There is no guarantee that the high-pressure carbon dioxide injected into the ground will remain underground. Class VI wells can leak CO2 back into the atmosphere and into aquifers; acidifying them. Leakage can occur due to injection well failure, undetected faults, fractures, seal failure, poor site selection, poor preparation and mineral dissolution. Southeastern Ohio's counties have thousands of orphan oil wells, fracking wells, and Class II waste brine wells, all of which can provide a path for CO2 leaks.

Additionally, studies show that the sandstone in Ohio is not as absorbent as sandstone in Texas and Illinois. In fact, it is suggested that CO2 be piped to these areas rather than trying to store it in Ohio. "The predicted median values of CO2 plume footprints range from 4500 km2to 11,000 km2for the Ohio and Pennsylvania sandstones compared to 320 km2 and 300 km2 for the thicker Frio and Mt. Simon Sandstones, respectively. We use these footprints to bound the cost to use pore space in Pennsylvania and Ohio and, alternatively, the cost of piping CO2 from Pennsylvania and Ohio to the Mt. Simon or Frio Sandstones for sequestration. The results suggest that pore space acquisition costs could be significant and that using thin local formations for sequestration may be more expensive than piping CO2 to thicker formations at distant sites."

In 2009, citizens living in Darke County, Ohio successfully mobilized over a 14-month period to stop a proposed carbon sequestration project. "The 35-member Midwest Regional Carbon Sequestration Project (MRCSP) cancelled a $92.8m proposal to inject one million tons of carbon dioxide over four years from an ethanol plant in Greenville, western Ohio."

Recently, Carbon Capture and Sequestration (CCS) bills were introduced in the Ohio House of Representatives and Senate. The bills are: H.B. 170, sponsored by Rep. Monica Robb Blasdel (R-Columbiana) and Rep. Bob Peterson (R-Sabina), and S.B. 136, sponsored by Sen. Tim Schaffer (R-Lancaster) and Sen. Brian Chavez (R-Marietta). These bills would "give the division of oil and gas sole and exclusive authority to regulate carbon sequestration and storage facilities within the state" and allow the ODNR chief to force non-consenting private property owners to surrender their "pore space" for CCS storage. Because of the dangers from asphyxiation, Class VI wells should be monitored in perpetuity but HB170 and SB136 only require a 50-year monitoring period.

The costs for CCS will be passed on to citizens. The Congressional Budget Office said, "Annual appropriations for CCS research and related programs totaled $5.3 billion over the 2011–2023 period". According to the Government Accountability Office, "only 3 projects were completed out of 11 CCS demonstration projects that were awarded money."

"GAO found The Department of Energy's (DOE) investment of $1.1 billion in carbon capture and storage (CCS) demonstration projects resulted in varying levels of success. Largely due to external factors that affected their economic viability, coal CCS projects were generally less successful than CCS projects at industrial facilities, such as chemical plants. Coal projects. DOE provided nearly $684 million to eight coal projects, resulting in one operational facility. Three projects were withdrawn—two prior to receiving funding—and one was built and entered operations, but halted operations in 2020 due to changing economic conditions. DOE terminated funding agreements with the other four projects prior to construction. Project documentation indicated and DOE officials and project representatives told GAO that economic factors— including decreased natural gas prices and uncertainty regarding carbon markets—negatively affected the economic viability of coal power plants and thus these projects. Industrial projects. DOE provided approximately $438 million to three projects designed to capture and store carbon from industrial facilities, two of which were constructed and entered operations. The third project was withdrawn when the facility onto which the project was to be incorporated was canceled." The costs for CCS equate to $600 per ton of CO2.

Tenaska, a company out of Omaha, Nebraska, has set up offices in the tri-state area and is creating what it calls a carbon hub. The amount of carbon dioxide they claim can be stored per year in this hub area is just over 5 million tons. This pales in comparison to the amounts of carbon dioxide emitted by local industry. Additionally, the company claims, "A CCS storage field can coexist with oil and gas production." But peer reviewed studies state the opposite. "Production of natural gas from shale and other tight formations involves fracturing the shale with the explicit objective to greatly increase the permeability of the shale. As such, shale gas production is in direct conflict with the use of shale formations as a caprock barrier to CO_2 migration."

Another consideration is that the Ohio Valley's geology is like Swiss cheese; containing hundreds of old vertical oil wells, unplugged orphan oil wells, and underground coal mines. The previous extraction of oil and coal has poked holes into the bedrock and now companies want to inject high pressure (1000+ psi) carbon dioxide in these areas hoping it will remain underground in perpetuity. These old wells will need to be permanently plugged before any carbon sequestration can occur. "The cost of plugging an oil or gas well varies, but states report average costs between $3,500 and $80,000 per well."

Although industries try to claim over 50 years of experience in CCS, the methods they have used are primarily enhanced oil recovery, not the injection of a known asphyxiant under farmlands and forests. Failures of two CCS projects run by Norwegian state-owned energy company Equinor ASA, shine light on the reliability of CCS. The Sleipner, running since 1996, and Snøhvit, running since 2008, were said to be success stories of CCS. "But Sleipner struggled with carbon dioxide unexpectedly migrating upwards by 220 meters from the original underground storage site, while Snøhvit saw storage capacity cut from an estimated 18 years to less than two years once the operation was underway, according to a review of studies by Grant Hauber of the Institute for Energy Economics and Financial Analysis."

One of the biggest failures of CCS in the USA was the Petro Nova coal power plant in Texas. The emissions were used for enhanced oil recovery. "The U.S. Department of Energy (DOE) sank $195

million into the carbon capture and storage plant, hoping to demonstrate the potential for the technology to counteract greenhouse gas emissions of coal plants." If one considers the methane emissions from mining the coal and the carbon dioxide emissions from the gas-powered capture facility, considerably less than the promised 90 percent capture rate was achieved.

In addition to funding these projects, citizens will also be picking up the tab for the taxpayer subsidies granted to companies capturing CO2 through legislation known as 45Q. Currently, the subsidy is $85 a ton. A large power plant might net over $1 billion per year for carbon credits. CCS projects will require energy for industrial facility retrofits as well as energy to compress, transport and inject emissions. Estimates say at least 30 percent more energy will be required and these costs would also be passed on to taxpayers. Charles Harvey, MIT professor of civil and environmental engineering said of CCS, "Removing CO2 is one of the hardest and most expensive ways to address climate change".

CCS is a gift to the polluting industries that are contributing to the climate crisis. This technology remains expensive and unproven. Do we want our rural communities subjected to dangerous Class VI wells and CCS infrastructure? Do we want to subsidize failing projects with our tax dollars and see increased fuel bills? We have an option; renewable energy, which is safe, cheap, and can be installed within months. And solar projects bring economic benefits to the host communities, unlike CCS which asks citizens to pick up the tab.

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