

No False Solutions PA: Statement Regarding Emerging Technologies that represent False Solutions to the Climate Crisis

Carbon capture and sequestration: A False Solution to the Climate Crisis

Carbon capture and sequestration (CCS) is a technology that seeks to remove CO₂ emissions from fossil-fuel burning processes, capture the CO₂, and transport it by pipeline to CO₂ markets (usually enhanced oil recovery) or to underground geologic formations for very long-term storage.



Our concerns: Proponents of this technology seek to continue burning fossil fuels, using a technology that has been demonstrated to be extremely expensive, energy-intensive, technically difficult, less economical than renewables, and ineffective at reducing CO₂ emissions. In addition, the safety of CO₂ pipelines has not been established, and CO₂ sequestration in geological formations is untested, poses significant risks, and will require monitoring for generations to come.

Extremely expensive: Attaching CCS technology to an existing facility makes the running of that facility more expensive. The world has been experimenting with CCS technology for several decades. During that time, 68 projects have been terminated because they were found to be prohibitively expensive and incapable of meeting the set goals of carbon capture. At this time, only 37 CCS plants are in operation (or under construction) across the world, capturing only 0.1% annually of total global fossil fuel emissions [[Global CCS Institute 2023](#)].

For example, the largest carbon sequestration facility in the world – the Gorgon gas facility in Australia developed by Chevron – has declared its failure to capture its promised emissions of four million tonnes of CO₂ per year. Calling CCS “an expensive failure,” Climate Council Senior Researcher Tim Baxter said, “This result is no surprise. After decades of CCS research and billions of dollars of investment, there is little to show for it. Over the past decade, the costs of renewable energy like wind and solar have plummeted. Over the same period, CCS has remained extremely expensive. There are still no projects operating anywhere in the world that have delivered CCS on time, on budget, or in the quantities promised” [[Climate Council 2021](#)]. The Gorgon plant is now the single largest industrial emitter of greenhouse gases in Australia [[The Guardian 2023](#)].

Energy intensive: Any plant with adjunct CCS technology requires extra energy to capture its carbon emissions; at a gas-fired power plant with CCS, for example, the additional requirements of CCS can increase energy needs by between 11% and 22%. This means the plant will require more fuel to operate and will create more emissions that need to be captured.

As an example, the Petro-Nova coal-fired power plant with CCS, in Texas, that was partially funded by taxpayer money through the Department of Energy (DOE), required the construction of an additional gas-fired power plant to provide the energy for CCS. This additional gas-fired plant did not have CCS, so none of those additional emissions were captured [[IEEFA 2020](#); [US EIA 2017](#)]. The project shut down in 2020 amid questions concerning its economic viability and efficacy for removing CO₂. It was

set to reopen in August 2023 but that event has been delayed [[Reuters 2023](#); [IEEFA 2022](#)].

Wasting time and money: CCS is being touted as the next clean energy solution, and significant funding has been earmarked for its research and development in recent federal legislation -- at the expense of renewable energy projects that have been proven to be cheaper and to actually reduce carbon emissions.

Not effective at reducing CO2 emissions: Captured CO2 is often used for extracting more oil. While the technology was developed to render greenhouse gases harmless by storing them underground, in fact, a majority (81%) of captured carbon is being pumped into existing wells to extract more oil in a process called enhanced oil recovery [[Energy Mix 2021](#)]. If the intent is to reduce our carbon emissions, using captured carbon to produce more fossil fuels is simply not a reasonable solution.

Dangerous pipelines: Transporting carbon to storage facilities, such as underground rock formations or saline caverns, will necessitate further build-up of CO2 pipeline infrastructure, a project that, in addition to requiring huge financial investment, can produce its own problems. Pipelines transporting CO2 under high pressure may corrode and leak or rupture, as happened in Mississippi in 2020, presenting asphyxiation hazards to nearby human and animal populations [[NPR 2023](#)]. Nevertheless, DOE appears intent on subsidizing the carbon capture industry, issuing in August 2023 their “Intent to Fund [the] Buildout of a Carbon Dioxide Transportation System to Support National Decarbonization Efforts.” Using funds from the Inflation Reduction Act to support future growth, grants designed to expand our carbon dioxide infrastructure will, the Department believes, stimulate pollution emitters to incorporate CCS technology at their facilities, thereby ensuring the continued growth of an industry that many see as a false solution [[DOE 2023](#)]. Symptomatic of these infrastructure-expansion plans is the U.S. Forest Service’s willingness to consider allowing captured CO2 to be stored in our country’s national forests [[Reginfo.gov 2023](#)]. Environmentalists are concerned that this precious resource will be degraded and turned into a permanent dumping ground. Pennsylvania’s Allegheny National Forest could be targeted should these revisions be implemented.

Untested storage plans: Few long-term studies have been done to assess the environmental impacts of large-scale, long-term underground CO2 storage. Problems could include leakage, underground spread, contamination of drinking water, sinkhole formation, and tectonic activity. Researchers point out that current low-impact earthquake events associated with fracking's underground injection operations could be replaced by more destructive earthquakes as we attempt to store enormous amounts of carbon underground for thousands of years. The researchers state that “Even a fault slip of a few centimeters could allow stored CO2 to reach the surface – a serious concern, since . . . carbon repositories need a leak rate of less than 1 percent every thousand years to be effective” [[SCITECH Daily 2012](#)]. Carbon dioxide also converts to carbonic acid in the presence of moisture, which can result in the dissolving of rock and cement barriers meant to prevent leakage. Additionally, abandoned wells, boreholes and faults could present pathways for leakage, resulting in contamination of the atmosphere as well as of underground aquifers. These repositories will require constant long-term monitoring. The 9th edition of the Concerned Health Professionals of New York (CHPNY) and Physicians for Social Responsibility (PSR) Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking and Associated Gas and Oil Infrastructure states: “A 2023 investigation by the Institute for Energy Economics and Financial Analysis (IEEFA) found that CO2 storage projects may carry more uncertainty and risk than drilling for oil or gas, given the lack of knowledge about the capacity of subsurface geological formations to keep CO2 in the ground permanently. The IEEFA report notes that two long-running CCS projects in Norway, once hailed as success stories, are now mired in unexpected problems. In the Sleipner facility, operational since 1996, CO2 from the underground storage area is

now migrating upwards, while the Snøhvit facility, operational since 2008, has proven to have nine-fold less storage capacity than originally forecast and will fill up far sooner than predicted.” [[CHPNY 2023](#)].

In light of this evidence, it is clear that support for CCS cannot be justified. The dangers, energy requirements, economic concerns, and future uncertainties associated with CCS require that we shift our resources away from what is clearly an unreliable technology and invest in a new future for Pennsylvania. Investing in proven technologies for clean, renewable energy will enhance the health and economic well-being of Pennsylvania's communities.

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No False Solutions is a coalition of advocacy groups and concerned residents of Pennsylvania and other states in our region affected by the oil and gas industry. The group aims to educate and inform legislators and decision makers about emerging technologies that claim to be solutions to the climate crisis but in fact exacerbate the climate crisis, damage the environment, and/or harm public health and do not offer more effective or economically viable solutions than those offered by renewable energy and renewable energy storage technologies.