

Kim Wm. Jeppesen  
21521 385th Ave  
Lamberton, MN 56152

**Subject: Written Testimony for Hearing March 6, 2024, in Opposition to House File 0342**

Honorable Rep. Erin Koegel, Committee Chair, Sustainable Infrastructure Policy, and Honorable Rep. Brion Curren, Committee Vice Chair, and Members:

Hello, my name is Kim Wm. Jeppesen and I live in Highwater Township, Cottonwood County, on the family farm where I grew up. I want to submit written testimony opposing House File 0342 because it is premature to promote an unproven solution to climate action.

At first glance, carbon sequestration seems like a good and noble idea, but once you look at the corporations currently proposing this solution, it quickly loses its luster. Giant energy corporations known as "Big Oil" are the primary investors hoping to reap billions of dollars in tax credits and billions more in carbon credits. These carbon credits will be sold to any company that wants to continue to produce and release more CO<sub>2</sub>, which will do very little to reduce CO<sub>2</sub> in the atmosphere. Therefore, I say again that this law is not needed.

Ironically, these companies say they are coming to the rescue of ethanol plants to help them reduce CO<sub>2</sub> emissions when, in the past, they opposed them. So, to entice farmers to sign easements, they claim to be helping ethanol plants. In reality, they will need as much water as an ethanol plant currently needs, doubling the water used. Depending on where they source their electricity, they could produce more CO<sub>2</sub> than they would remove from the ethanol plant.

Because our electric grid is aging, the demand placed on it by the carbon capture project will cause local residential rates to increase or even local outages as the electrical suppliers cannot keep up with the demand. Again, this rush to do something quickly to affect climate change will likely damage local economies by increasing their cost of living and allowing more companies to continue adding more CO<sub>2</sub> to the atmosphere.

Currently, the Public Utilities Commission (PUC) is reviewing the Draft Environmental Impact Statement for a portion of the proposed pipeline in Minnesota. We should let this body do its job and not circumvent the process. Again, this law is not needed.

A side note about the project: South Dakota and North Dakota PUCs have rejected Summit's pipeline applications.

Thank you for allowing me this opportunity to share why I am opposed to this proposed legislation,

Kim Wm. Jeppesen

Jeffrey Strand  
21521 385<sup>th</sup> Avenue  
(Highwater Township, Cottonwood County)  
Lamberton, MN 56152

**Subject: Written Testimony for Hearing March 6, 2024, in Opposition to House File 0342**

Honorable Rep. Erin Koegel, Committee Chair, Sustainable Infrastructure Policy, and Honorable Rep. Brion Curran, Committee Vice Chair, and Members:

I submit written testimony today, in an individual capacity as a Minnesota citizen, taxpayer and rural resident and landowner, in opposition to House File 0342, along with my regrets for being unable to travel 3 hours one-way today to personally appear to speak before you. The bill is couched in the language of positive climate action, but the methods of carbon capture and sequestration technologies do NOT accomplish what is claimed, are not cost-benefit effective, and place rural Minnesota residents on farms and communities at risk. Please do not advance this bill while the Minnesota PUC is conducting its quasi-judicial process for evaluation of the Draft Environmental Impact Statement for the Otter Tail to Wilkin Carbon Dioxide Pipeline Project (Docket 22-422). And unless I am mistaken, the bill authored by Rep. Igo does not have House or Senate authors representing the rural communities in the 10-county footprint of the proposed Summit CO2 pipeline project.

As a resident of rural Cottonwood County in Southwest Minnesota, my husband and I stand with others to have “Chosen People Over Profits” in opposing the proposed CO2 carbon pipeline proposed in our county. We have refused to sign easements across our farmland. We have friends who are DFLers, Independents, and Republicans who oppose carbon capture with dangerous CO2 pipelines. In fact, last week we brought a resolution to our DFL precinct caucuses to “Oppose construction in Minnesota Rural/Farming Communities CO2 Carbon Pipelines,” which was passed in 4 precincts and will be brought to the county convention. We hope the resolution can advance for party platform consideration. CO2 Pipelines are destructive to agricultural land, untested for safety of rural residents and the environment, and are hazardous to humans and animals at CO2 concentrations +10%, high-risk due to pipelines' high pressurization levels, and due to squandering scarce groundwater resources.

CO2 Pipelines are destructive and can wreck soil structure, disrupt drain tile, and have serious and long-term impacts on productivity of agricultural lands. Large-scale, multi-state CO2 pipeline networks are proposed by out-of-state corporations from various industrial facilities, but largely benefit the companies, investors and billionaires to reap windfalls from 45Q tax credits (26 U.S. Code 45Q - Credit for carbon oxide sequestration). The economic and environmental burdens, however, are shifted to surrounding rural communities, farmers and taxpayers. There is no actual cost-benefit for CO2 carbon capture pipelines is unproven as an effective way to reduce greenhouse gas emissions to combat global climate change.

Serious concerns are being raised about CO2 Pipelines tied to carbon capture and sequestration technologies consuming massive amounts of water. We oppose this squandering of scarce groundwater resources by the proposed carbon pipelines technology. As rural residents who rely on having sufficient clean and potable well water, and who also greatly value our proximate streams, we oppose devastation of water resources by that same carbon capture sequestration technology. This bill is an attempt to advance public policy of the state of Minnesota that is inconsistent with science. Please refer to Scientific American latest information on how carbon capture is a “false promise” or pipe dream so-to-speak: “Carbon Capture NOT a Climate Solution”  
<https://www.scientificamerican.com/article/the-false-promise-of-carbon-capture-as-a-climate-solution/>

Thank you for your consideration of the concerns raised.

Respectfully,  
Signed: Jeffrey Strand Dated: 4 March 2024

March 6, 2024

Chair Rep. Erin Koegel  
House Sustainable Infrastructure Policy  
445 State Office Building  
St. Paul, MN 55155

RE: HF 342: Carbon Capture and Sequestration

Dear Chair Koegel and Committee Members,

My name is Peg Furshong. I am here this morning as a landowner from Renville County who has been actively involved with the currently proposed CO2 pipeline project in Minnesota for the past 2 years. I am a parent, educator and farming has been part of our family for multiple generations. I appreciate the opportunity to share with you some concerns that our family has about HF 342.

As stated, HF 342 broadly supports the development and deployment of carbon capture and sequestration technologies in Minnesota as a method of reducing greenhouse gas emissions in order to achieve the state greenhouse gas emission-reduction goals established under section 216H.102, subdivision 1.

The bill implies that carbon capture technologies will reduce greenhouse gas emissions, and this simply is not the case. In fact, it does just the opposite – it actually will incentivize farmers to continue growing corn and the production of ethanol. (Keeping in mind that for every gallon of ethanol produced it is mixed with 8 to 9 gallons of gasoline adding to the greenhouse gas emission burden.)

The process of capturing the CO2 at the ethanol plant is highly energy and water intensive –it actually takes more energy to convert the CO2 gas to a liquid so that it can be transported in the pipeline. This process of distilling and compressing the gas is done at extremely high temperatures and requires more water than it does to make ethanol. The industry would like you to believe that CCS will actually lower the carbon intensity score of ethanol but because of the significant amounts of energy and water needed to facilitate this CCS process – it actually increases the carbon footprint significantly.

For more than two decades, the federal government has been pumping billions of dollars into research on CCS. The fact is that 85 percent of these projects have failed and shuttered and those handful still operating are only doing so with financial support from taxpayers. I caution you to not rush into a situation where Minnesota becomes a “pilot project” for a public, for profit company to make money again at the taxpayer’s expense.

Beyond this not being a well thought out strategy for reducing greenhouse gas emissions – there are risks to rural communities. The Pipeline and Hazardous Materials Safety Administration has

recognized that their guidelines do not address the risks associated with CO2 pipelines and have actively been working to update their safety standards.

I would strongly encourage you to look at what this infrastructure needs to operate and before we begin building infrastructure such as this, I would require the companies to be more transparent with their energy and water demands. The proposed 28.5 mile stretch in Otter Tail/Wilken Counties estimates an additional 12 million gallons of water a year for the Fergus Falls plant. Summit Carbon Solutions currently has contracts with 5 other ethanol plants in the proposed 10-county Minnesota footprint with the potential to add 3 additional plants. If I have done my math correctly – we can expect a demand for an additional 72 – 100 million gallons of water a year. In 2023, we had communities in the proposed footprint that did not have the water they needed to supply fresh drinking water to their rural residents.

Lastly, Minnesota does not have the geology required to sequester CO2 within our borders. If this CCS infrastructure is built in Minnesota, we have no assurance that the CO2 we have extracted will stay in the ground. The race for the 45Q dollars at the federal level is really just a “Carbon Ponzi Scheme.” We have no assurances this CO2 will stay in the ground after the 45Q incentives sunset.

While you may have the best of intentions of addressing greenhouse gas emissions the impacts are too great for rural Minnesota. This is a huge investment of Minnesota taxpayer dollars that could be put to better use in addressing your climate concerns.

Thank you to Representative Koegel and the committee for allowing me to testify today.

Peg Furshong  
Hawk Creek Prairie Farm  
Renville County

Additional resources: [www.carboncapturefacts.org](http://www.carboncapturefacts.org) and [www.carbonpipelinesmn.org](http://www.carbonpipelinesmn.org)

Mr. Ed Iverson

Lamberton, Mn

Re: HF 342

Dear Members of the House Sustainable Infrastructure Committee,

I am writing with concerns about the bill HF 342. Passing a bill stating "It is the policy of the state to support the development and deployment of carbon capture and sequestration technologies in Minnesota as a method of reducing greenhouse gas emissions in order to achieve the state greenhouse gas emission-reduction goals established under section 216H.02, subdivision 1." is reckless at best.

I'm not sure how, or why anybody would want to pass a bill that so blindly supports such a potentially dangerous activity. I have been to several meetings regarding the Summit CO2 pipeline, where they have been asked if the CO2 that is being sequestered can move up or down. The replies are always less than satisfactory in my opinion. There isn't a soul on Earth that knows if the gas will stay where it is supposed to. In general it seems that for every action there is a reaction. I can tell you what happens to a tire that is inflated with too much air pressure...it blows up! Common sense would say that if you over inflate the ground, something similar will happen.

There is just too much risk to human life and property to get behind this bill or a CO2 pipeline. I have yet to hear how much change in temperature there will be if we drop greenhouse gas emissions. It is impossible to know how much affect humans even have on greenhouse gases or global warming. I'm not trying to say global warming is a hoax, but I can't help but wonder, which human activity warmed up the Earth enough to melt the glaciers in Minnesota? According to Google, the last glacier melted between 10,500 - 12,000 years ago.

In closing, I'm only asking for two things 1. Please do not support this or any other CO2 pipeline in the state of Minnesota. 2. Please do not pass bills to support this or any other CO2 pipeline.

Thank you for your time.

Ed Iverson

Lamberton, Mn



Yazoo County Emergency Management Agency

# CARBON DIOXIDE PIPELINE SAFETY

In 2022, the Pipeline Safety Trust (PST) commissioned a report from an independent pipeline safety expert on the unique aspects of carbon dioxide pipelines.<sup>1</sup> This Summary for Policymakers presents the current state of safety risks and knowledge gaps associated with CO<sub>2</sub> pipeline transportation.

## SUMMARY OF CONCLUSIONS



### Regulatory Oversight

**Supercritical CO<sub>2</sub>** — Regulated by the Pipeline and Hazardous Materials Safety Administration (PHMSA)  
**Liquid CO<sub>2</sub>** — Not regulated  
**Gaseous CO<sub>2</sub>** — Not regulated



### Public Safety Concerns

Carbon dioxide is odorless, colorless, does not burn, is heavier than air, and is an asphyxiant and intoxicant. These factors increase the need for public awareness and emergency response training.



### Dispersion Modeling

The unique physical properties of CO<sub>2</sub> can dramatically increase the size and scope of the impacted area of a rupture. Weather, terrain, and atmospheric pressure affect how quickly CO<sub>2</sub> will dissipate and how far the product will migrate away from the failure site.



### Pipeline Integrity

Hydrogen sulfide, methane, carbon monoxide, oxygen, nitrogen oxides, sulfur oxides, hydrogen, and water are all impurities which can occur depending on the source of the CO<sub>2</sub> and have the potential to impact the integrity of the pipeline.



### Existing Pipeline Conversion

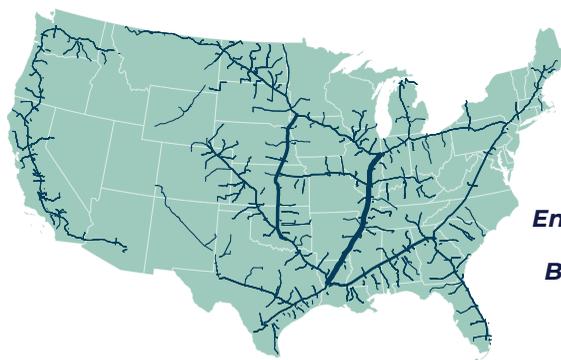
More research and consideration are needed to assess whether the conversion of existing pipelines to CO<sub>2</sub> service will impact public safety.

As government and the private sector seek to reduce greenhouse gas emissions that contribute to climate change, lawmakers have increasingly incentivized carbon capture utilization and storage (CCUS or CCS), as a tool for decarbonization. The 2021 Infrastructure Investment and Jobs Act appropriated \$12.2 billion for CCUS<sup>2</sup> and the 2022 Inflation Reduction Act (IRA) provided an even greater level of support for CCUS through the extension and expansion of the 45Q tax credit for carbon capture, utilization, and sequestration.<sup>3</sup>

Transporting carbon dioxide by pipeline poses serious public safety risks due to the fact that CO<sub>2</sub> is odorless, colorless, heavier than air, and is an asphyxiant and intoxicant. Furthermore, carbon dioxide has a narrow definition within the federal regulations, only encompassing CO<sub>2</sub> transported as a supercritical fluid consisting of over 90% carbon dioxide molecules.<sup>4</sup> This narrow definition has the potential to exclude new CO<sub>2</sub> pipelines built for CCUS from federal regulatory oversight.

With the potential for a massive buildout of CO<sub>2</sub> pipelines in the next decade,<sup>5</sup> the report highlights the regulatory challenges and remaining knowledge gaps which need to be addressed to ensure public safety. **This summary is intended to assist policymakers and other stakeholders to ensure that pipelines associated with the deployment of CCUS projects minimize community safety risks while accomplishing climate objectives.**

**Policymakers should be diligent and cautious in considering projects involving carbon dioxide pipelines, ensuring that pipelines will be a sufficient distance from people, that the pipelines will maintain their integrity, and that the project will indeed reduce greenhouse gas emissions.**



Department of Energy  
**Estimated CO<sub>2</sub> Pipeline Buildout by 2050**

6, 7, 8

*The Pipeline Safety Trust (PST) is the only national, public-interest nonprofit organization dedicated to pipeline safety and was founded in the aftermath of a pipeline tragedy in Bellingham, WA in 1999 that took the lives of three boys. The mission of the PST is to promote pipeline safety through education and advocacy; thus, the subject of carbon dioxide pipeline safety is critical to our organization.*

# CO<sub>2</sub> PIPELINE MILEAGE AND REGULATIONS



**Operators and regulators have little experience with CO<sub>2</sub> pipelines compared to hazardous liquid**

At present, there are just over 5,000 miles of carbon dioxide pipelines in the United States, compared to 229,287 miles of hazardous liquid transmission pipelines carrying products such as crude oil, gasoline, jet fuel, and other liquid commodities.<sup>9</sup> The majority of CO<sub>2</sub> pipelines are currently used for enhanced oil recovery (EOR) where supercritical carbon dioxide is pumped into existing oil wells to extract more product. Most of the CO<sub>2</sub> being transported through these existing pipelines comes from high pressure, higher purity, natural underground sources.

Regulation of carbon dioxide pipelines began in 1988, primarily driven by a natural CO<sub>2</sub> release in Lake Nyos, Cameroon which killed more than 1,700 people. The final rule issued by the federal regulator, the Pipeline and Hazardous Materials Safety Administration (PHMSA), simply added the words

“and carbon dioxide” to existing regulations developed for Hazardous Liquid pipelines. Due to the small number of existing and anticipated CO<sub>2</sub> pipelines at the time, regulators opted not to issue more specific standards for supercritical CO<sub>2</sub> pipelines.

As stated previously, carbon dioxide is currently defined by PHMSA as “a fluid consisting of more than 90 percent carbon dioxide molecules compressed to a supercritical state.”<sup>10</sup> With the uncertainty surrounding the physical state and concentrations of CO<sub>2</sub> being transported to support new CCUS projects, this definition, along with the federal standards written for hazardous liquid pipelines, is not appropriate to ensure proper federal oversight and public safety in the coming years.

## CARBON DIOXIDE: AN INVISIBLE THREAT

Carbon dioxide has unique physical properties which can make transporting it via pipeline extremely dangerous in the event of a rupture. The physical characteristics of carbon dioxide which augment risks include:



**Carbon dioxide is odorless and colorless**, making detection by first responders and the public difficult.

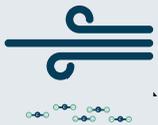
Unlike other hydrocarbon pipelines, **carbon dioxide does not ignite or dissipate quickly** in the event of a release. Depending on topography and weather, CO<sub>2</sub> can migrate far away from the rupture site and settle in low lying areas before detection or dispersion.



**Carbon dioxide is an asphyxiant.** The displacement of oxygen in the air by CO<sub>2</sub> has the potential to cause long-term health effects and casualties for both humans and animals.



**Carbon dioxide is heavier than air**, allowing the contents of a rupture to move along the ground and settle in low-lying areas.



**Supercritical CO<sub>2</sub> undergoes rapid phase changes upon a pipeline rupture.** These phase changes can exacerbate ruptures due to fracture propagation and cause large amounts of product to rapidly release into the environment.



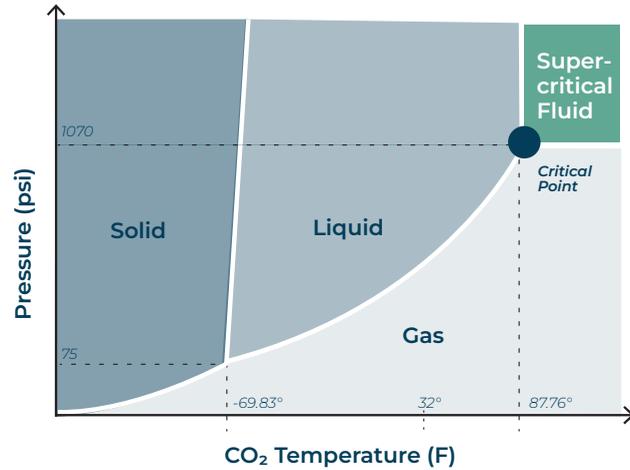
**Carbon dioxide’s interaction with impurities**, such as water and hydrogen sulfide, can compromise pipe integrity and increase the risk of corrosion and failure.



# PHASES OF CARBON DIOXIDE

Depending on temperature and pressure, carbon dioxide can be transported by pipeline in three phases; liquid, gas, or supercritical fluid. **Supercritical fluid carbon dioxide has properties of both gas and liquid and is the only phase currently regulated by PHMSA.**

Carbon dioxide pipelines often operate outside the pressure and temperature necessary to maintain supercritical fluid state. Some proposed projects are designed to transport CO<sub>2</sub> strictly as a gas.<sup>11</sup> Communities need assurances that safety regulations apply to all CO<sub>2</sub> pipelines.



## SITING OF NEW CO<sub>2</sub> PIPELINES

In addition to all the technical and regulatory challenges surrounding a safe buildout of CO<sub>2</sub> pipelines, there are also concerns with permitting and siting authority. Currently, there is no federal oversight for the siting and permitting of CO<sub>2</sub> pipelines. Hazardous liquid pipelines, including CO<sub>2</sub> pipelines, are permitted by either the state or local authorities tasked with this responsibility. Interstate natural gas pipeline projects are approved by the Federal Energy Regulatory Commission (FERC).

Because permitting and routing authority differ depending on the local or state jurisdiction, it is not uncommon to see differing standards of review, policies, and safety or other concerns among different jurisdictions. In addition, the ways in which these issues are addressed can be drastically

different depending on the jurisdiction. This may result in an inconsistent level of safety along the route of a pipeline and communities facing differing levels of risk from one jurisdiction to the next.

Environmental justice and equity concerns should also play a role in the permitting and routing process of CO<sub>2</sub> pipelines.<sup>11</sup> All too often pipelines are routed through underserved communities, targeting “the point of least resistance” along the proposed route.<sup>12</sup> Whether a CO<sub>2</sub> pipeline is permitted, and how the route is chosen, can have significant impacts on the surrounding community, and therefore all state and local agencies holding this authority should ensure they are well versed in the technical and safety risks posed by CO<sub>2</sub> pipelines.

## WATER IN CO<sub>2</sub> PIPELINES: POTENTIAL FOR CORROSION



*Historically, CO<sub>2</sub> pipelines have transported relatively dry and pure CO<sub>2</sub>. However, the expansion in different sources of CO<sub>2</sub> has the potential to lead to higher water content and more impurities introduced into pipelines. In addition, carbon dioxide mixed with water can form carbonic acid which is extremely corrosive to the internal surface of the pipe.*

## CONCLUSION

Policymakers should be diligent and cautious in considering projects that involve moving carbon dioxide by pipeline. Decisionmakers must ensure the pipelines will be fully regulated by an appropriate authority and constructed and operated in a way that does not compromise pipe integrity or public safety. Carbon Dioxide pipelines should only be part of CCUS projects that will truly help the country decarbonize and reach our shared greenhouse gas reduction goals. Decisionmakers must also ensure that the risks placed on communities from these pipelines will be borne in a just and equitable manner.

## KNOWLEDGE GAP RECOMMENDATIONS

- A** The appropriate fracture toughness and steel pipe quality is currently unknown to prevent CO<sub>2</sub> pipeline leaks or ruptures. More research is needed to develop pipe quality standards and strategies for the correct placement of fracture mitigation measures along these pipelines.
- B** Further research is needed to explore the effects of corrosion, dents, cracks, or gouges on a wide range of steel grades for CO<sub>2</sub> pipeline operation.
- C** Further research should address odorization strategies to ensure safe and effective interaction with CO<sub>2</sub> transport.
- D** There is currently no defined safe distance or plume dispersion model for developing a potential impact area along CO<sub>2</sub> pipelines.

## RECOMMENDATIONS FOR ADVANCING SAFETY IN FEDERAL REGULATION OF CARBON DIOXIDE PIPELINES

- 1** PHMSA should update the definition of carbon dioxide in current regulation to include all phases.
- 2** PHMSA needs to identify in regulation the potential impact areas for CO<sub>2</sub> pipeline ruptures.
- 3** PHMSA should identify how to incorporate fracture propagation protection on CO<sub>2</sub> transmission pipelines.
- 4** PHMSA should mandate the use of odorant injection into CO<sub>2</sub> transmission pipelines.
- 5** PHMSA should establish regulations setting specific maximum contaminant levels for CO<sub>2</sub> pipelines.
- 6** PHMSA should strengthen federal regulations for conversion of existing pipelines to CO<sub>2</sub> pipeline service.

### Endnotes

1. <https://pstrust.org/wp-content/uploads/2022/03/3-23-22-Final-Accufacts-CO2-Pipeline-Report2.pdf>
2. <https://crsreports.congress.gov/product/pdf/R/R47034>
3. <https://www.whitehouse.gov/wp-content/uploads/2022/12/Inflation-Reduction-Act-Guidebook.pdf>
4. [https://www.ecfr.gov/current/title-49/subtitle-B/chapter-I/subchapter-D/part-195/subpart-A/section-195.2#p-195.2\(Carbon%20dioxide\)](https://www.ecfr.gov/current/title-49/subtitle-B/chapter-I/subchapter-D/part-195/subpart-A/section-195.2#p-195.2(Carbon%20dioxide))
5. <https://crsreports.congress.gov/product/pdf/IN/IN11944>
6. <https://maps.princeton.edu/catalog/princeton-vx021q55d>
7. <https://maps.princeton.edu/catalog/princeton-8336hb34c>
8. [https://liftoff.energy.gov/wp-content/uploads/2023/05/20230424-Lift-off-Carbon-Management-vPUB\\_update2.pdf](https://liftoff.energy.gov/wp-content/uploads/2023/05/20230424-Lift-off-Carbon-Management-vPUB_update2.pdf)
9. <https://pstrust.org/wp-content/uploads/2022/03/3-23-22-Final-Accufacts-CO2-Pipeline-Report2.pdf>
10. [https://www.ecfr.gov/current/title-49/subtitle-B/chapter-I/subchapter-D/part-195/subpart-A/section-195.2#p-195.2\(Carbon%20dioxide\)](https://www.ecfr.gov/current/title-49/subtitle-B/chapter-I/subchapter-D/part-195/subpart-A/section-195.2#p-195.2(Carbon%20dioxide))
11. <https://www.eenews.net/articles/midwest-co2-pipeline-rush-creates-regulatory-chaos/>
12. <https://doi.org/10.1029/2021GH000442>
13. <https://cohen.house.gov/sites/evo-subsites/cohen-evo.house.gov/files/2021.2.22%20-%20Letter%20to%20Pres.%20Biden%20on%20Byhalia.pdf>

March 6, 2024

Sustainable Infrastructure Committee  
Minnesota House of Representatives

**RE: Letter of Opposition to HF342/SF298**

Chair Koegel and Members of the Committee,

The below signed organizations would like to state our opposition to HF342 (and its companion bill SF298) which seeks to establish Carbon Capture, and Storage (CCS) technologies as state policy to reduce greenhouse gas emissions (GHG) and reach state GHG emissions-reduction goals. As vocal advocates for climate and environmental justice, we know that Minnesota needs to take strong climate action now. Unfortunately, Carbon Capture technologies are quickly becoming the fossil fuel and other carbon polluting industries' favored distraction from the kind of real solutions we need to address the climate crisis. Not only is CCS an unfounded strategy for rapid decarbonization, but these processes are also dangerous because they delay an equitable clean energy transition, risk public health and safety, and provide the fossil fuel industry with a license to continue polluting.

**WORSENS POLLUTION AND ENVIRONMENTAL INJUSTICES**

Polluting facilities that use CCS still release health- damaging air pollution, which can become worse because 10-40 percent more fuel is required to power CCS equipment. CCS can also double water requirements and increase toxic wastewater discharge, and underground storage of carbon dioxide (CO<sub>2</sub>) can contaminate aquifers. Such air, water, and land pollution would disproportionately harm frontline communities, predominantly low-income people of color.

**DANGEROUS AND RISKY**

The dangers of transporting and storing carbon cannot be overstated, yet they are often overlooked in discussions of CCS as a climate solution. CO<sub>2</sub> pipelines have significant risks of ruptures or leaks that freeze over the surrounding area almost immediately and can injure and even suffocate nearby residents. Past incidents and ongoing discussions by state and federal agencies underscore how ill-prepared we are to regulate CO<sub>2</sub> pipeline safety and handle CO<sub>2</sub> accidents.

**NOT PROVEN TO MEANINGFULLY ADDRESS CLIMATE CHANGE**

CCS projects have repeatedly failed to deliver on promised climate targets. A recent study shows that CCS at a coal plant only captured around 10 percent of its carbon emissions over a 20-year period.

### **PROLONGS THE FOSSIL FUEL ECONOMY**

CCS enables polluting sources to continue operating, while creating additional risks and impacts. In 2021, only one out of 13 CCS facilities in the United States actually stored carbon underground; most captured carbon is used for “enhanced oil recovery,” which increases oil extraction and production. In other words, CCS enables existing fossil fuel operations and more oil production.

### **HIGH COSTS**

Adding carbon capture technologies to a power plant can more than double the construction costs and increase the cost of energy produced by up to 61 percent. Unless they are significantly subsidized, CCS projects are not economically viable.

### **PROPPED UP BY FEDERAL FUNDS**

Despite failed projects, missed targets, and documented risks, the CCS industry remains afloat due to billions of dollars in federal incentives each year.

### **DISTRACTS FROM PROVEN SOLUTIONS**

To promote climate policies and technologies that result in real change, governments must axe CCS subsidies and plans that prop up the fossil fuel industry. Instead, policymakers should invest in natural carbon capture, like reforestation and soil sequestration; zero-emission electricity, such as renewables and storage; and safer, cleaner ways to decarbonize the industrial sector.

Sincerely,

CURE

Center for Earth Energy & Democracy (CEED)

Climate Generation

Cooperative Energy Futures

Eureka Recycling

Institute for Agriculture and Trade Policy

Minnesota Center for Environmental Advocacy

Minnesota Division Izaak Walton League

Minnesota Interfaith Power & Light

Minnesota Zero Waste Coalition

MN350

Native Sun Community Power Development

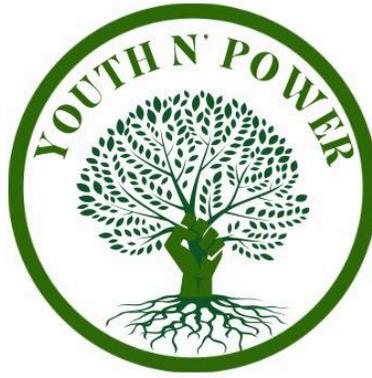
Northeastern Minnesotans for Wilderness

R.I.S.E. Coalition

Tamarack Water Alliance

Vote Solar

WaterLegacy



March 5, 2024

Chair Koegel  
House Sustainable Infrastructure Policy Committee

RE: H.F. 0342 – Opposition to Establishment of Carbon Capture as State Policy

Dear Chair Koegel and Committee Members,

Youth N' Power is a training program that brings youth of all ages together to learn about and act on issues at the intersection of climate and environmental justice. Over the past year we have been learning more about False Climate Solutions – the technologies or policies that sound good at the surface, but upon further digging turn out to be a distraction from the focused and rapid action we need to both address the climate crisis and reduce the pollution harms facing so many communities around the country. I have traveled to the international climate conferences and met youth from around the world. One consistent theme is that carbon pipelines are poised to harm not only the climate but the communities along the way.

The practice of capturing carbon sounds like a good idea. But the truth is that major greenhouse gas emission polluters see the act of capturing carbon as their ticket to continuing business as usual: burning fossil fuels.

What's worse, very often the "captured carbon" ends up being used for "Enhanced Oil Recovery" – the process of injecting CO<sub>2</sub> into marginally producing oil wells in order to push out more oil. *(Please see Exhibit 1, a March 1, 2024 article from Scientific American "The False Promise of Carbon Capture as a Climate Solution.")*

Did you know there are natural reservoirs of CO<sub>2</sub> in underground pockets around the country?

I was surprised to hear that instead of leaving these naturally sequestered greenhouse gasses alone in the ground, fossil fuel companies have connected pipelines to them to bring the CO<sub>2</sub> to their oil fields. *(Please see Exhibit 2.)*

These natural pockets of CO<sub>2</sub> were discovered by accident. But now strategic efforts to find more are underway. Since these natural sources are likely to be emptied in the next 5-7 years, the fossil fuel industry is looking for new and ongoing supplies. Carbon capture can provide an endless source of CO<sub>2</sub> for enhanced oil recovery – as long as polluting industries keep making the pollution.

As of December 2024, 13 of the 15 carbon capture operations in the United States were being used for enhanced oil recovery.

### **Network of Pipelines Facilitates Enhanced Oil Recovery**

Now I am concerned about the fossil fuel industry's plans to build out a network of pipelines that will carry CO<sub>2</sub> pollution from ethanol plants to the oil wells of North Dakota, inevitably to be used for enhanced oil recovery. (*Please see Exhibit 3.*) Summit Carbon Solutions is seeking to build the first one in Minnesota starting in OtterTail and Wilkin counties. We are concerned because no part of this plan is a climate solution:

- Monetizing the pollution from corn ethanol incentivizes its continued production. Now this asset needs to get where it is most valuable...via pipelines.
- Building pipelines destroys habitat and pollutes waters only to leave the rural communities and ecosystems nearby continually at risk.
- Using this CO<sub>2</sub> for enhanced oil recovery continues the fossil fuel cycle and its harms.

It should not be the state policy of Minnesota to

- 1) further invest in or incentivize fossil fuel and pollution infrastructure
- 2) invest in or incentivize CO<sub>2</sub> pipelines
- 3) facilitate enhanced oil recovery.

Thank you for your consideration,

Analyah Schlaeger dos Santos

Youth N'Power Team Director

*Encl:*

Exhibit 1: *Scientific American* "The False Promise of Carbon Capture as a Climate Solution,"  
March 1, 2024.

Exhibit 2: Natural Reservoirs of CO<sub>2</sub> and EOR

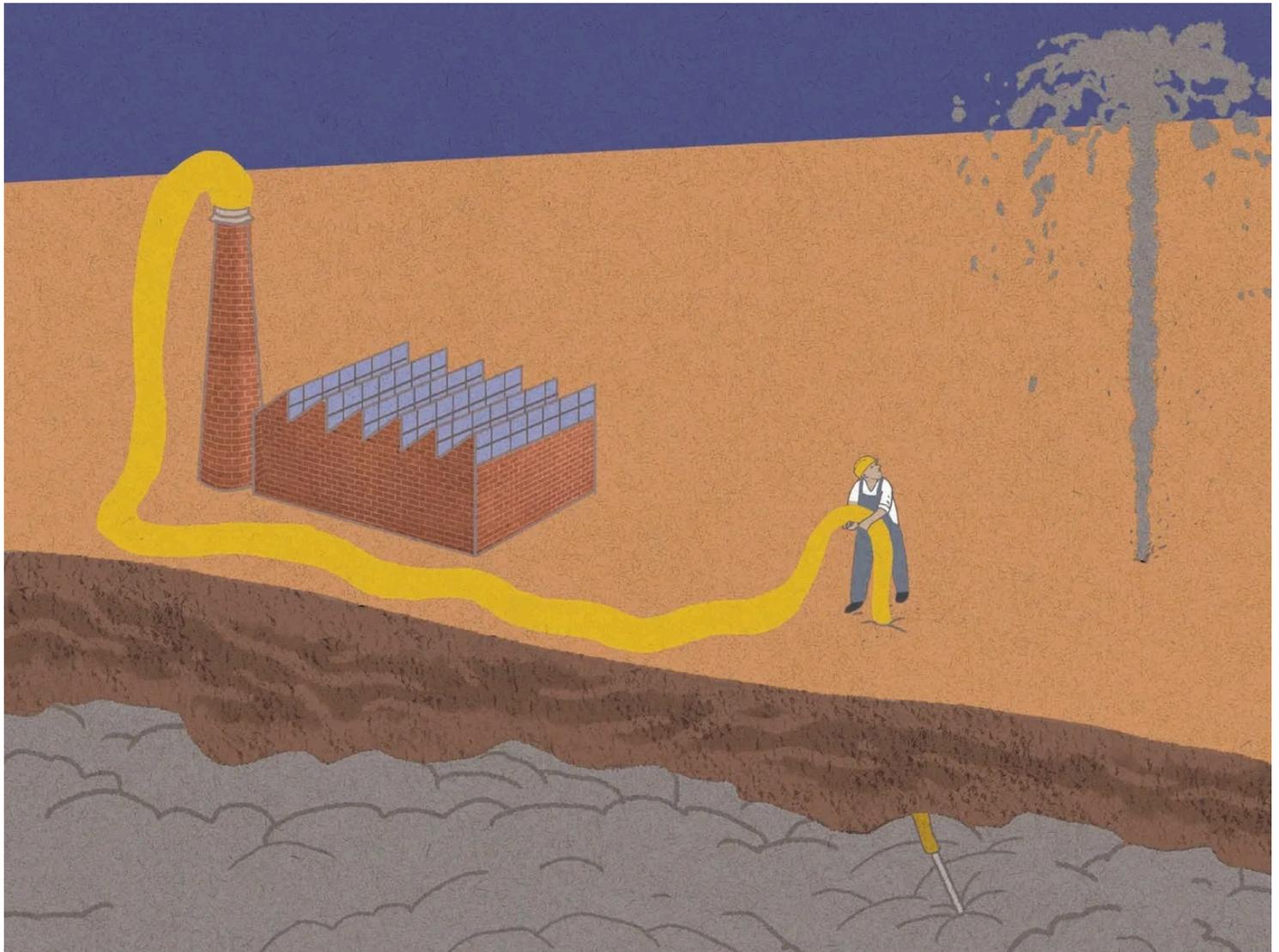
Exhibit 3: Fossil Fuel's Quiet Business Model

MARCH 1, 2024 | 4 MIN READ

# The False Promise of Carbon Capture as a Climate Solution

Fossil-fuel companies use captured carbon dioxide to extract more fossil fuels, leading to a net increase in atmospheric CO<sub>2</sub>

BY NAOMI ORESKES



Credit: Izhar Cohen

March 2024 Issue ▾

Fossil Fuels ▾

Last December the leaders of the United Nations Climate Change Conference (COP28) in Dubai declared victory as the parties agreed to “transition away” from fossil fuels. But there's a big issue that will remain contentious as countries try to define what counts as a transition: so-called unabated fossil-fuel use. Among its provisions, the agreement called for “accelerating efforts towards the phase-down of unabated coal power.”

Abatement in this context means carbon capture and storage (CCS). It's the idea that we can still use fossil fuels as long as the carbon dioxide emitted is captured and stored in the ground. In the U.S., the oil and gas industries have been pushing this approach as one of the key solutions to the climate crisis. But how realistic is it?

Let's start with a few facts. Oil is sticky stuff, and when you try to pump it out of a reservoir, most of it gets left behind, stuck to the rocks. But if you flood a field with water, detergents or gas (such as CO<sub>2</sub>), you can flush out much of the remaining oil. This technique is known as enhanced oil recovery, and it's been standard industry practice for a long time. According to the U.S. Department of Energy, gas injection accounts for more than half of the enhanced oil recovery in the U.S. and has helped to add decades of life to fields that would otherwise by now have run dry. The same approach is used in gas fields to maintain the pressure that keeps the gas flowing.

In recent years the oil industry has tried to pour this old wine into new bottles, casting the practice as a method of mitigating climate change because some of the injected CO<sub>2</sub> might otherwise end up in the atmosphere. In theory, it's a good idea. In practice, there are big problems.

We all know the saying that what goes up must come down, but the opposite is largely true, too (at least if the materials involved are liquid or gas), because

fluids migrate through the microscopic holes and fractures that are found in even the most solid of rocks. After the U.S. government spent billions evaluating a potential civilian nuclear waste disposal site at Yucca Mountain in Nevada, the proposal failed in part because scientists could not guarantee that the waste would stay put. That waste was mostly a mix of solids and liquids. The waste CO<sub>2</sub> that we would be storing to stop climate change would be a buoyant, low-viscosity “supercritical” fluid—that is, a fluid maintained at such a high temperature and pressure that distinct gas and liquid phases do not exist. Like all fluids, it would have the capacity to migrate through the ground and find its way back to the surface and, from there, the atmosphere.

Many geologists (myself included) believe there are places on Earth where long-term CO<sub>2</sub> storage could be safely achieved, but it would require what scientists call “site characterization.” That means studying the location in enough detail to be confident that things put there will stay there. For example, the U.S. currently stores military radioactive waste in low-permeability salt formations in New Mexico, and there are numerous pending proposals to store CO<sub>2</sub> in sandstones overlain by low-permeability shales in North Dakota.

But site characterization takes time that we don't have. The DOE spent more than 20 years evaluating Yucca Mountain. It spent some 14 years studying the New Mexico site. The Intergovernmental Panel on Climate Change concluded in 2018 that we have only until 2030 to stop irreversible climate damage, so it's urgent that we focus our attention on solutions that can be implemented right now.

We could jump-start the project by expanding existing carbon capture and storage sites. The problem, as Massachusetts Institute of Technology professor Charles Harvey and entrepreneur Kurt House have explained, is that nearly all

CCS projects in the U.S. are actually enhanced-recovery projects that keep the oil and gas flowing, and every new barrel of oil and cubic foot of gas sold and burned is putting more CO<sub>2</sub> into the atmosphere. So not only do these kinds of projects not help, but they perpetuate our use of fossil fuels at a critical moment in history when we need to do the opposite.

Despite the U.S. government having spent billions on failed CCS projects, under the Inflation Reduction Act (IRA), it is set to spend many billions more, a lot of it in tax subsidies to fossil-fuel companies. In theory, IRA tax credits are to be used for “secure” carbon storage, but the mechanisms for ensuring that CO<sub>2</sub> is not leaking back into the atmosphere are flimsy at best. And it gets worse: the Environmental Protection Agency has concluded that if the price of CCS falls—because of tax credits, for example, or economies of scale—some currently closed oil or gas fields might reopen.

There is another model for CCS: the Orca plant in Iceland, where CO<sub>2</sub> is taken directly from the air and dissolved in water, which then reacts with basalt—the rock that makes up both Iceland and the ocean floor—to create stable carbonate minerals. But it's wildly expensive: \$1,200 per metric ton of captured CO<sub>2</sub>. (Bill Gates has negotiated a bulk deal for Microsoft at “only” \$600 per ton.) The U.S. produces about 6,000 million metric tons of CO<sub>2</sub> per year. If for ease of arithmetic we assume a cost of \$1,000 per ton, then offsetting U.S. emissions would cost about *\$6 trillion every year*. In time these costs will probably come down, but time is what we don't have.

It is said that Mahatma Gandhi was once asked what he thought of Western civilization. He replied, “It would be a good idea.” The same could be said about carbon capture and storage as a solution to the climate crisis. Although it might be part of the solution down the road, right now it's mostly a dangerous

distraction. Our focus—and our tax dollars—should be trained on scaling up production of cost-competitive renewable energy, grid-scale batteries for storing that energy and efficiency measures to conserve it as fast as we possibly can.

---

**NAOMI ORESKES** is a professor of the history of science at Harvard University. She is author of [Why Trust Science?](#) (Princeton University Press, 2019). She also writes the Observatory column for *Scientific American*.

[More by Naomi Oreskes](#)

---



This article was originally published with the title “The False Promise of Carbon Capture” in *Scientific American Magazine* Vol. 330 No. 3 (March 2024), p. 80

doi:10.1038/scientificamerican0324-80

[View This Issue](#)

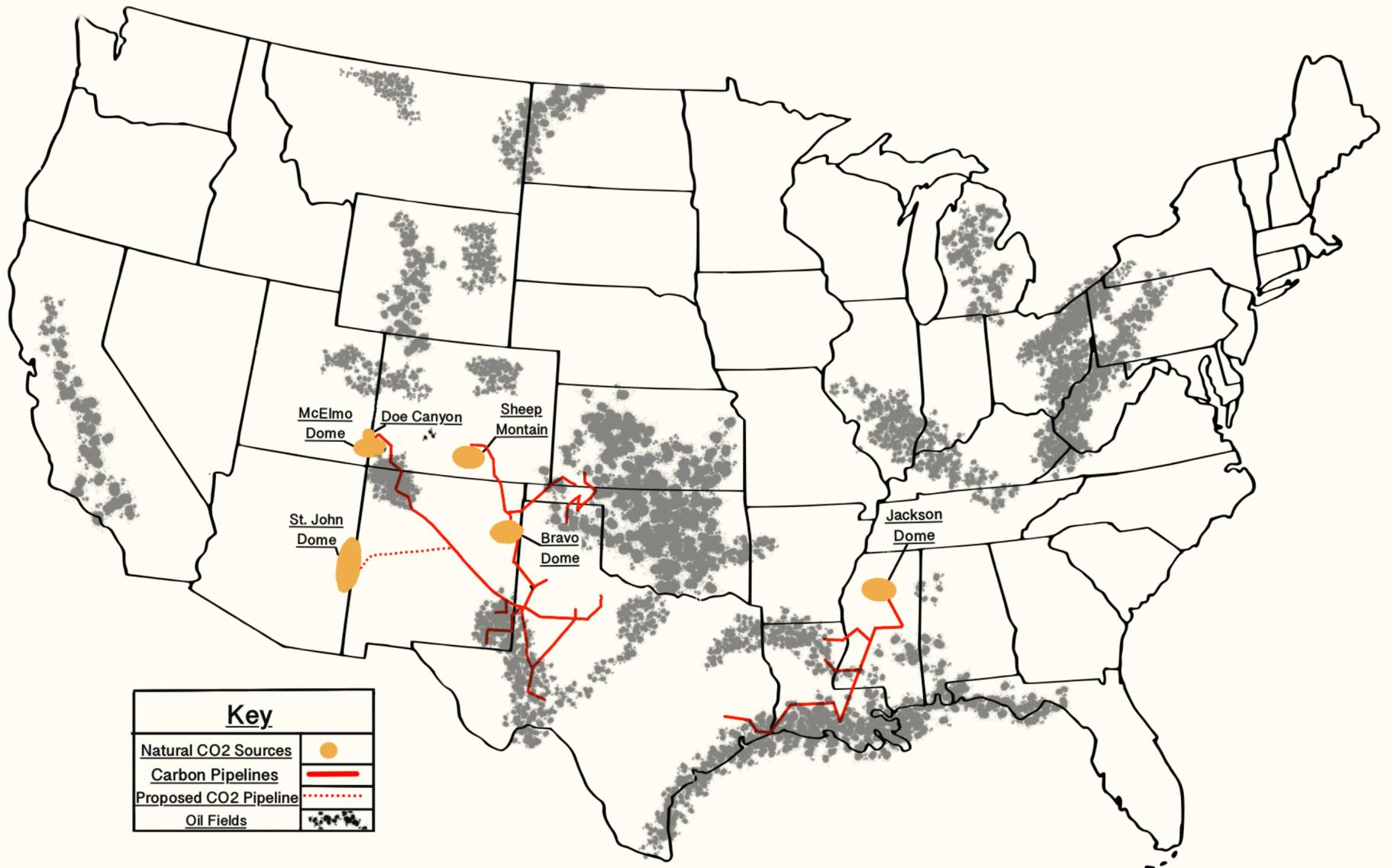
# Natural Reservoirs of CO2 and EOR

CARBON CAPTURE POLICIES FUND THE RELEASE OF MORE CARBON

At a time when we should be doing everything to keep CO2 in the ground – the Fossil Fuel industry is unearthing it

Reservoirs were accidentally discovered, but now are being strategically searched for

The Fossil Fuel Industry is already depleting the natural reservoirs of CO2 across the country



## MOST TERRESTRIAL CO2 DRILLING HAPPENS IN THE US

- 10.05 TCF (Trillion Cubic Feet) of CO2 from natural sources is extracted per year
- Only an estimated 76 TCF of natural CO2 has been discovered and is available for extraction
- This leaves approx. 7 more years of natural sources in the ground

As of 2019, Natural carbon dioxide was the source of over 80% of the CO2 for CO2 EOR in the United States

Carbon pipeline networks deliver the carbon directly to oil fields

## The Reality of CO2 Extraction

### Discovered Sites

- Five active sites:
- Jackson Dome
  - Bravo Dome
  - McElmo Dome
  - Doe Canyon
  - Sheep Mountain
- One discovered site with a proposed pipeline plan
- St. John Dome

### Affects on Communities and Land

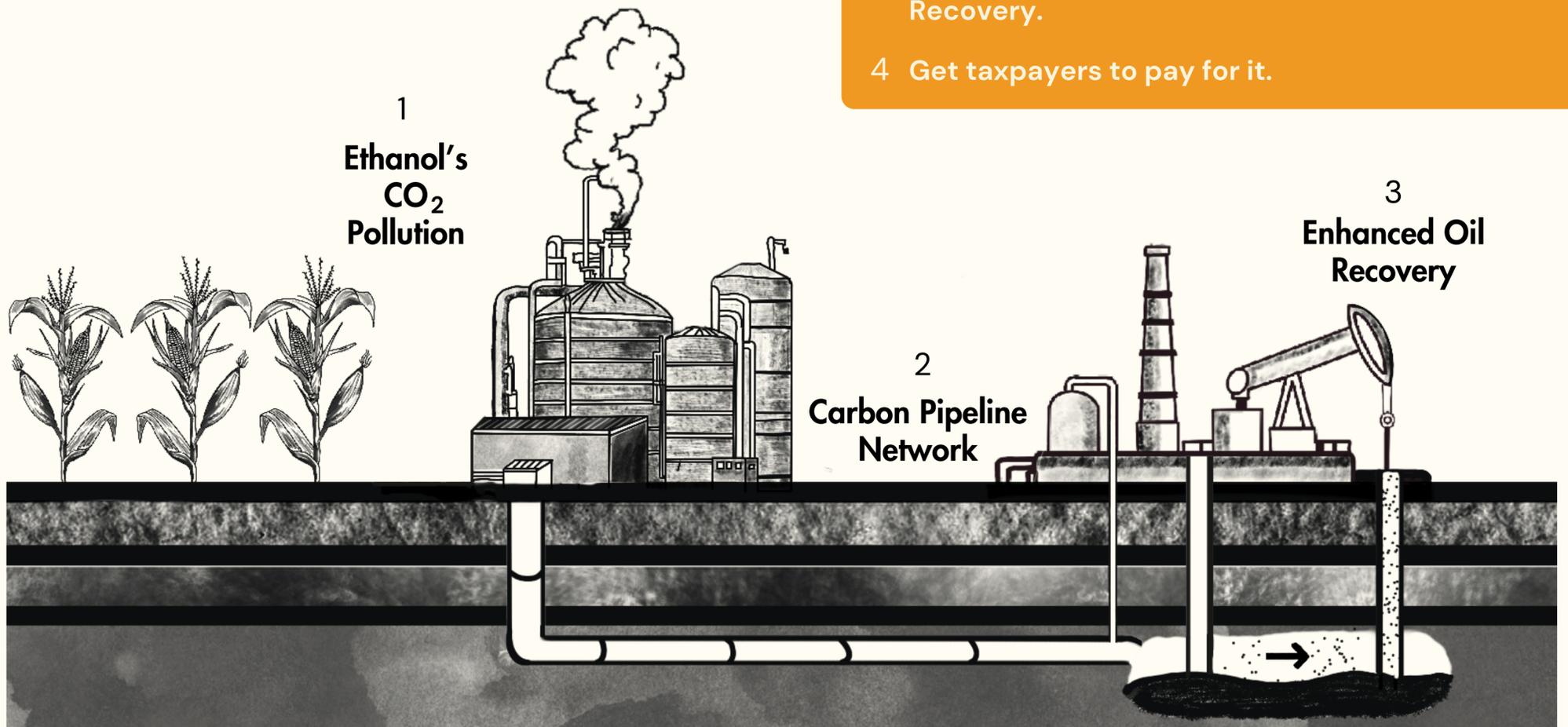
- Communities near McElmo Dome and Doe Canyon have documented complaints including:
- noise complaints about the Yellow Jacket Compressor Station
  - local road damage
  - grievances about power lines on agricultural properties
  - the sensing of foul-smelling odors which have led to public health impacts

### The Myth of Sequestration

- Taxpayer money is funding the Fossil Fuel Industry's efforts to sequester CO2 in the ground through Carbon Capture policies
- while the Fossil Fuel Industry unearths it from natural sources for EOR

# Fossil Fuel's Quiet Business Model

THE MORE YOU BURN THE MORE YOU EARN



- THE BUSINESS MODEL:**
- 1 Capture CO<sub>2</sub> from ethanol production.
  - 2 Build a network of pipelines through the midwest to ferry the CO<sub>2</sub> through the ground.
  - 3 Don't tell people you will inevitably inject that CO<sub>2</sub> into low-producing oil wells to push out more oil -- something called Enhanced Oil Recovery.
  - 4 Get taxpayers to pay for it.

## 4 Policies supporting this business model

### Federal Level – 45Q Tax Credit

Section 45Q provides a tax credit for capture and storage of CO<sub>2</sub> that would otherwise be emitted.

Geologically sequestered: \$85/ton

Geologically sequestered w/ EOR: \$60/ton

### State Level – LCFS

A Low Carbon Fuel Standard assigns transportation fuels a CI (Carbon Intensity) score: Higher CI-scored fuels accrue deficits that fund credits for lower CI-scored fuels. One way to lower a CI score is to capture CO<sub>2</sub> pollution and move it by pipeline for “storage” or EOR.

## Fossil Fuel's Quiet Business Model Impacts our Water and Climate

### Ethanol

- 5% of MN's total surface area is dedicated to ethanol production
- Industrial farming practices – CAFOs and row crops – have led to rising nitrate levels in drinking water across the state
- Emissions from ethanol are likely up to 24% worse than gasoline
- CO<sub>2</sub> pollution from ethanol production is 99% pure – perfect for EOR

### Pipelines

- Building pipelines is inherently destructive to aquifers, surface water, trees, land, and family farmers.
- CI (carbon intensity) scores often fail to incorporate the emissions from EOR.
- 2000+ miles of Carbon Capture Utilization and Storage (CCUS) pipelines are proposed across the midwest, including in Minnesota.
- Once in operation, leaks and exposures present a constant danger to people and ecosystems

### Enhanced Oil Recovery

- Oil companies are desperate for CO<sub>2</sub> to inject into the ground to get more oil out of their marginally producing wells.
- 13 out of 15 Carbon Capture facilities are for Enhanced Oil Recovery.
- Both EOR and sequestration processes leak CO<sub>2</sub> into the atmosphere, adding to the lifetime emissions of these methods

# INTERNATIONAL UNION OF OPERATING ENGINEERS

LOCAL No. 49, 49A, 49B, 49C, 49D, 49E, 49L  
MINNESOTA • NORTH DAKOTA • SOUTH DAKOTA

---

EUGENE J. GROVER, President  
RYAN P. DAVIES, Vice President  
STEVE R. PIPER, Recording-Corresponding Secretary  
MARVIN J. HOSE, Treasurer



JASON A. GEORGE  
Business Manager/  
FINANCIAL SECRETARY

---

2829 Anthony Lane South, Minneapolis, MN 55418-3285  
Phone (612) 788-9441 • Toll Free (866) 788-9441 • Fax (612) 788-1936

Dear Chair Koegel,

On behalf of the International Union of Operating Engineers Local 49 (IUOE Local 49) and our 15,000 members we would like to express our support for HF 342. We thank Representative Igo for bringing forward this legislation.

The IUOE Local 49 is a construction labor union representing heavy equipment operators. Our members build and maintain infrastructure across all sectors of the economy, including heavy industry, energy, and transportation. As a union with expertise in the field, we recognize the challenges associated with decarbonization.

As Minnesota seeks to reduce its greenhouse gas emissions, carbon capture, utilization and storage (CCUS) technologies will become increasingly important to the ongoing decarbonization efforts. This is especially the case as we seek to decarbonize not just our power sector but also transportation and industrial sectors. In identifying various pathways to mitigate the impacts of climate change, the Intergovernmental Panel on Climate Change found that CCUS plays an important role in most scenarios. This legislation doesn't change environmental review or permitting criteria, it simply recognizes the reality of the importance of CCUS in achieving the state's climate goals and makes it state policy to encourage and support its deployment.

In addition to helping to meet the state's climate goals, CCUS has the potential to create new jobs for our members and other union construction workers installing the infrastructure needed to deploy the technology. It also has the potential to preserve jobs for workers in existing industries that are hard to decarbonize while also reducing emissions. As such, CCUS is a potential win-win for workers and the environment.

We thank Chair Koegel for her willingness to hear this bill and we would encourage members of the committee to support it.

John Pollard, Legislative Director