



Iowa Chapter
Physicians for Social Responsibility

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Laying pipelines...what could possibly go wrong? Image from public IUB meeting announcement

Carbon Capture in Iowa

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This series began with [Carbon Capture Basics](#). The second report reviewed [Carbon Capture and Public Health](#). This third report in the series examines several issues surrounding three potential CCS projects in Iowa.

A Lodestone

At this moment, three different carbon capture and pipeline projects have been proposed and are being debated in Iowa. The Iowa projects are significant at the national level because the adoption or rejection of the proposed projects will serve as a “[litmus test](#)” for a network of CO₂ pipelines and carbon capture developments across the U.S. The situation in Iowa is what those in the policy and advocacy arenas recognize as a [policy window](#), or in other words, a [pivotal point](#).

Ethanol

Corn is about two-thirds starch, which is fermented to make ethanol (ethyl alcohol). After fermentation, the ethanol is concentrated through distillation, then dehydrated, and blended with about 2% denaturant, e.g., methanol, to render it undrinkable.

The federal [Renewable Fuel Standard](#) (RFS) requires that transportation fuel in the U.S. contains specified amounts of renewable fuel. Under the RFS, ethanol is one form of renewable fuel and is blended with gasoline typically at a 10% level. There are a variety of [incentives](#) designed to maintain a market for ethanol fuel; however, [recent studies](#) emphasize the detrimental environmental impact of ethanol use. The production of ethanol also emits CO₂ into the atmosphere. By [industry estimates](#), the fermentation of corn into 100 million gallons of ethanol generates around 300,000 metric tons of CO₂ per year.

Land Use, Agricultural Practices, and Food Production Changes

A recently published [study found](#) that due to the RFS mandate, corn cultivation increased 8.7% and expanded into 6.9 million additional acres of land between 2008 and 2016. These widespread changes in land use have contributed to a growing world food crisis that has now

been [made acutely worse](#) by the February 2022 Russian Invasion of Ukraine. The RFS has also led to changes in tilling and the increased application of nitrogen-based fertilizers. The enormous rise in nitrogen fertilizer use has increased nitrous oxide (N₂O) emissions. N₂O is a potent greenhouse gas—289 times as powerful as carbon dioxide. Finally, the study concluded that ethanol is at least 24% more carbon-intensive than gasoline.

Corn-Based Ethanol

Despite growing concerns, Iowa is the leading ethanol producer in the US. Iowa has 42 corn ethanol plants across the state that produce more than [4 billion gallons](#) annually. Using the industry figure above, the state of Iowa emits 12 million metric tons of CO₂ per year from its ethanol plants. This figure represents the CO₂ generated by the fermentation process only. These 42 ethanol plants and 12 million metric tons of CO₂ are the focus of the carbon capture and pipeline projects in Iowa.

Proposed Projects

1 - [Navigator CO₂](#)

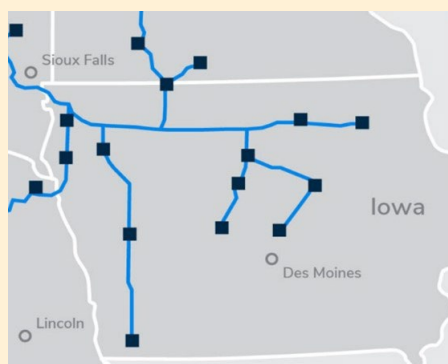
[Ventures](#) proposes a 1,300-mile pipeline network connecting ethanol facilities in Illinois, Iowa, Minnesota, Nebraska, and South Dakota. The Mt. Simon sandstone formation in central Illinois will be used to sequester the CO₂.



*Navigator CO₂ Ventures proposed CO₂ Pipeline Iowa route.
Image from Navigator brochure in public IUB Filing.*

2 - [Summit Carbon](#)

[Solutions](#)' Midwest Carbon Express pipeline system will run approximately 2,000 miles in total and connect 30 ethanol plants in Iowa, Minnesota, North Dakota, South Dakota, and Nebraska, leading to North Dakota where it will be injected underground in geologic storage sites.



Proposed Summit Carbon Solutions project in Iowa.
[View a map](#) of the project in the five-state region.

3 - [Wolf Carbon Solutions](#), in conjunction with ADM, proposes a 350-mile pipeline intended to transport CO₂ from ADM's ethanol facilities in Clinton and Cedar Rapids to be stored underground at ADM's sequestration site in Decatur, Illinois. Wolf Carbon Solutions and ADM have not released a publicly available map of their pipeline route.

Eminent Domain

Before a pipeline for the transportation of hazardous liquids can be built in Iowa, the company proposing the pipeline must obtain a permit from the Iowa Utilities Board (IUB) under [Iowa Code chapter 479B](#). There is no federal siting or permitting for hazardous liquids pipelines. The IUB has primary jurisdiction over the routing-siting of hazardous liquids pipelines in Iowa.

The IUB's authority to grant the power of eminent domain comes from Iowa Code chapter 479B for hazardous liquids pipelines. The process of taking private property for public benefit is called *condemnation*. The code states that a permit will not be granted unless the board determines that "the proposed services will promote the public convenience and necessity."

The first step in the process is an informational meeting to be held in each county affected by the proposed pipeline. At the meeting, a company representative explains the proposed project and landowner compensation, followed by a question-and-answer period. To construct a pipeline on private property, the company must obtain the rights from the owner of the land, typically by means of an easement. An easement grants specific rights to a party other than the landowner and generally includes the right to build a structure like a pipeline, as well as the right to enter the property for maintenance or repairs. An easement can be voluntarily negotiated or, it can be obtained through condemnation.

The company cannot begin to negotiate with landowners for easements until after the informational meeting. The IUB does not supervise or control negotiations for the purchase of voluntary easements. After the informational meeting is held, the company and the landowners begin to negotiate. If the company fails to obtain all needed easements voluntarily, it can then ask the IUB for the authority to take those rights through eminent domain. According to [federal and state laws](#), private property cannot be taken for public use without 1) a need to serve a public use and 2) just compensation to the landowner.

Under Iowa law, the IUB determines whether a company has demonstrated the public use requirement, but the IUB does not have jurisdiction over the question of compensation. If the use of Eminent Domain is required, compensation is determined in an entirely separate proceeding by a compensation commission in each county for which condemnation authority has been granted, under [Iowa Code chapter 6B](#).

Pipeline History Lessons: Dakota Access

Steve Roquet is a farmer in Keokuk County, Iowa. Against his wishes, a section of the Dakota Access pipeline was constructed across his land. Roquet was provided with a copy of an "[agricultural mitigation plan](#)" by the Iowa Utilities Board, which he assumed the pipeline installers would follow. Violations of the plan witnessed by Roquet and third-party pipeline inspectors included working in wet conditions and failure to preserve the entire layer of topsoil. These violations culminate in soil compaction, drainage issues, and a 60-90 percent reduction in crop yields all along the pipeline's route. The photo below shows rich, valuable topsoil dumped directly on the pipeline at the bottom of the ditch, resulting in disastrous mixing of topsoil and subsoil.



Rich Iowa topsoil at the bottom of the Dakota Access pipeline ditch.

Source: Steve Roquet

Roquet contrasts the pipeline projects with the wind turbines on other farmers' land in Iowa. Consenting to a wind turbine on your land is voluntary, and the landowner receives compensation each year, Roquet points out. In Roquet's case, he received a one-time payment for the easement right of way and diminishing funds over a five-year period for crop loss. That means no funds after the fifth year, despite facing reduced crop production to this day, which Roquet documents in crop yield reports. The compensation he did receive did not reflect the reduction Roquet has seen in his yields. Roquet emphasizes that he was not given a choice about the Dakota Access pipeline. He was told that if he signed the easement agreement, he would receive X amount of dollars, and if he refused to sign the easement, they would take the land anyway, through eminent domain. He says that the discussion surrounding the easement did not involve any kind of negotiation over terms or dollars. Indeed, when Roquet was informed of the amount that he would be compensated for the pipeline installation on his land, Roquet replied that he would pay Dakota Access that amount to stay away from his land.

Roquet's experiences with pipeline construction on his land are not isolated. In fact, a [study](#) done by researchers at Iowa State University corroborates Roquet's experiences. Farmers in [South Dakota](#) also faced similar problems. [Research](#) being conducted on farms in Ohio is documenting the impact of a series of smaller pipelines on soil degradation there.

Roquet's efforts to resolve his crop yield problems with Dakota Access have thus far been unsuccessful. To make matters worse, in early February 2022, Roquet received a letter from Navigator informing him that they would be surveying his property for the construction of their CO₂ pipeline. Unconfirmed reports are that the Navigator CO₂ pipeline will be constructed adjacent to the Dakota Access pipeline in some Iowa Counties.

Follow the Money

Navigator CO₂ Ventures is a Texas-based company. Navigator's "Heartland Greenway" project is being funded by [Valero](#) and [BlackRock](#). Valero is a transnational manufacturer and marketer of transportation fuels and petrochemical products. BlackRock is one of the largest institutional investors in the coal industry with share and bond holdings of US\$109 billion.

Summit Carbon Solutions is part of the larger Summit Agricultural Group in Alden, Iowa which is owned by Bruce Rastetter. Rastetter is the former president of the Iowa Board of Regents and is [well known](#) in Iowa as a high-dollar GOP donor. Jess Vilsack, son of USDA Secretary Tom Vilsack now serves as the [general counsel](#) for Summit Carbon Solutions and former Iowa governor Terry Brandstad is their Senior Policy Advisor.

Wolf Carbon Solutions is also a private company that is part of Wolf Midstream, a \$4 billion energy infrastructure business based in Calgary, Alberta. Wolf Midstream recently completed construction on a CO₂ pipeline in Alberta. The pipeline, known as the Alberta Carbon Trunk Line, carries captured CO₂ that is used for EOR in the [Alberta tar sands](#). Archer Daniels Midland (ADM) is a transnational food products corporation. Their joint project proposes to transport CO₂ to ADM's "fully permitted and already-operational" sequestration site in Decatur, Illinois. This site is a [CCS test project](#) being funded by the US Department of Energy. The total carbon capture and storage work at ADM is valued at \$441 million, of which \$281 million came from the Department of Energy. The project employs 11 people.

The key revenue stream for a CCS project is the [45Q tax credit](#), which provides a credit for CO₂ that is captured and stored. The Bipartisan Budget Act of 2018 set the rate for permanently stored CO₂ to \$31.77/mt in 2020 for new CCS facilities and raised the rate to \$50/mt in 2026, plus annual inflation adjustments. For storage plus enhanced oil recovery, the rate was \$20.22 in 2020 and will rise to \$35 in 2026. There is a proposal to increase the 45Q tax credit to \$85/mt for permanent storage in the Build Back Better legislation.

Additionally, the [Infrastructure Investment and Jobs Act](#) (IIJA) signed in November 2021, provides \$2.1 billion for low-interest loans for shared CO₂ transport infrastructure, as well as \$2.5 billion in grant funding for commercial large-scale carbon sequestration projects and associated CO₂ transport infrastructure. In all, more than \$12 billion in CCUS investments are funded by the IIJA.

California connection

A recent amendment to California's [Low Carbon Fuel Standard](#) (LCFS), a crediting mechanism intended to reduce California's fuel intensity by 20% by 2030, has created a [further incentive](#) for the ethanol industry to utilize CCS in their production of ethanol with the LCFS recognizing CCS as an acceptable strategy to reduce emissions from transportation fuels.

Resistance

As part of the Iowa permitting process, the public is allowed to file an objection, letter of support, or provide a comment on the IUB's online Open Docket Comment Form. Any information submitted is available for public viewing subject to the Iowa Open Records Act. Submissions regarding pipeline proposals are available [here](#). *(For comments regarding the Summit pipeline, use Docket Number HLP-2021-0001 in the search application. For comments regarding the Navigator pipeline, use Docket Number HLP-2021-0003.)*

The Boards of Supervisors in 20 Iowa counties have filed objections opposing the use of eminent domain for the pipelines. The Des Moines Register [reports](#) that the number of objections filed so far exceeds the number filed during the permitting process for the Dakota Access pipeline.

Conclusion

Apparently, the Biden administration has identified CCS as [necessary infrastructure](#) to meet climate goals. Certainly, the fossil fuel industry is pushing CCS to extend the lifespan of their activities. The rollout of CCS at these levels will require extensive construction of pipelines. According to [Reuters](#), the White House has "declined to comment on the use of eminent domain to construct those pipelines." Property rights, the just application of eminent domain, and the preservation of valuable farmland are not partisan issues. The Iowa projects are the first link in a network of CCS and pipeline projects across the U.S. and arguably hold a key to whether these projects move forward. We need effective climate solutions that will also preserve farmland for

food production. Our world needs energy, but it also needs food, clean water, and a livable climate.

Dear Reader

In our next installment, we take an in-depth look at hydrogen and its role in the carbon capture debate.

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