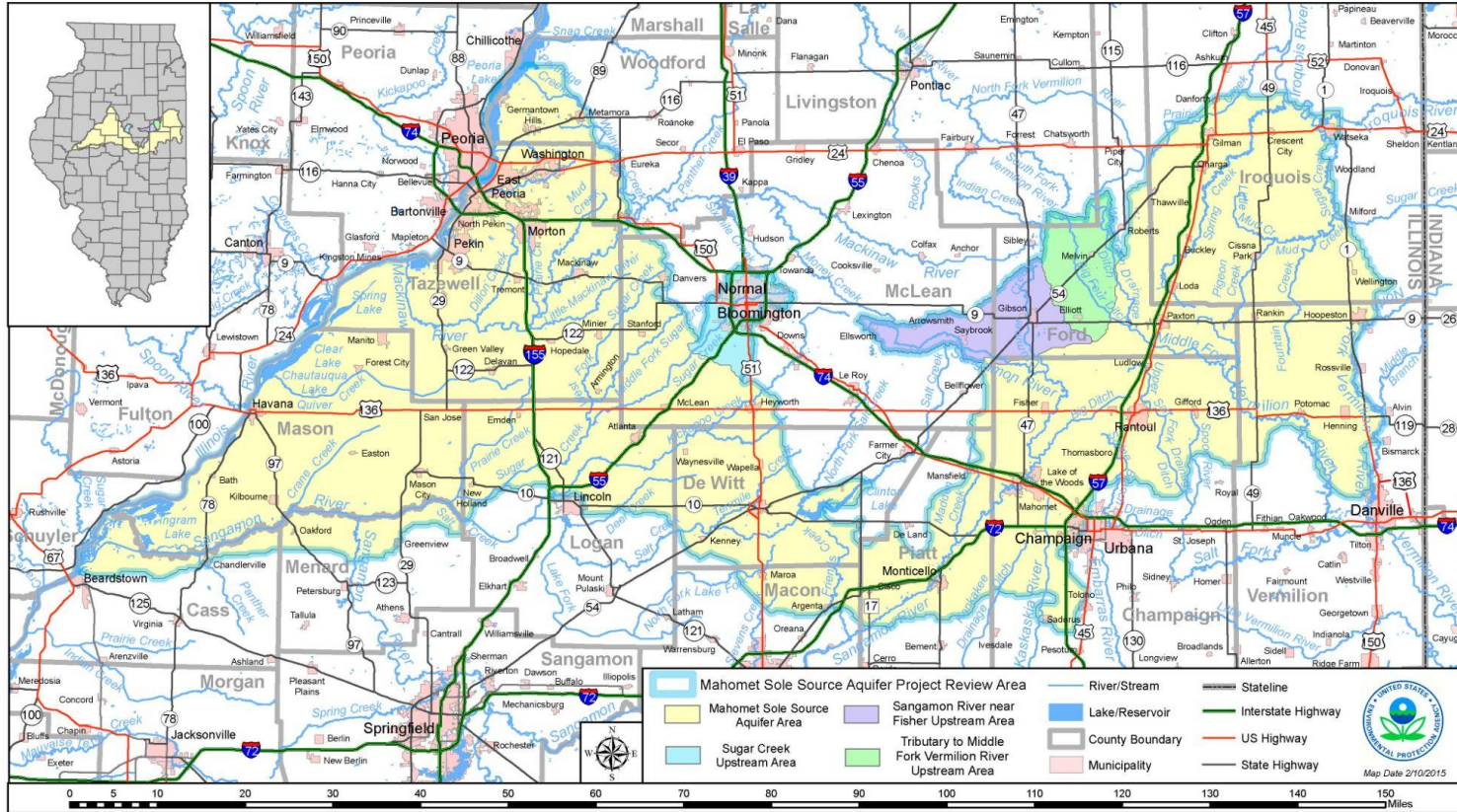


Protect the Aquifer

Ban CO₂ Injection Through & Storage Under the Mahomet Aquifer

Pam Richart, Eco-Justice Collaborative
Andrew Rehn, Prairie Rivers Network

Our Sole Source Aquifer



Mahomet Impacting Sequestration Wells Proposed (so far)

One Earth Sequestration, LLC

90 MMT CO₂

Heartland Greenway Carbon Storage - Vervain

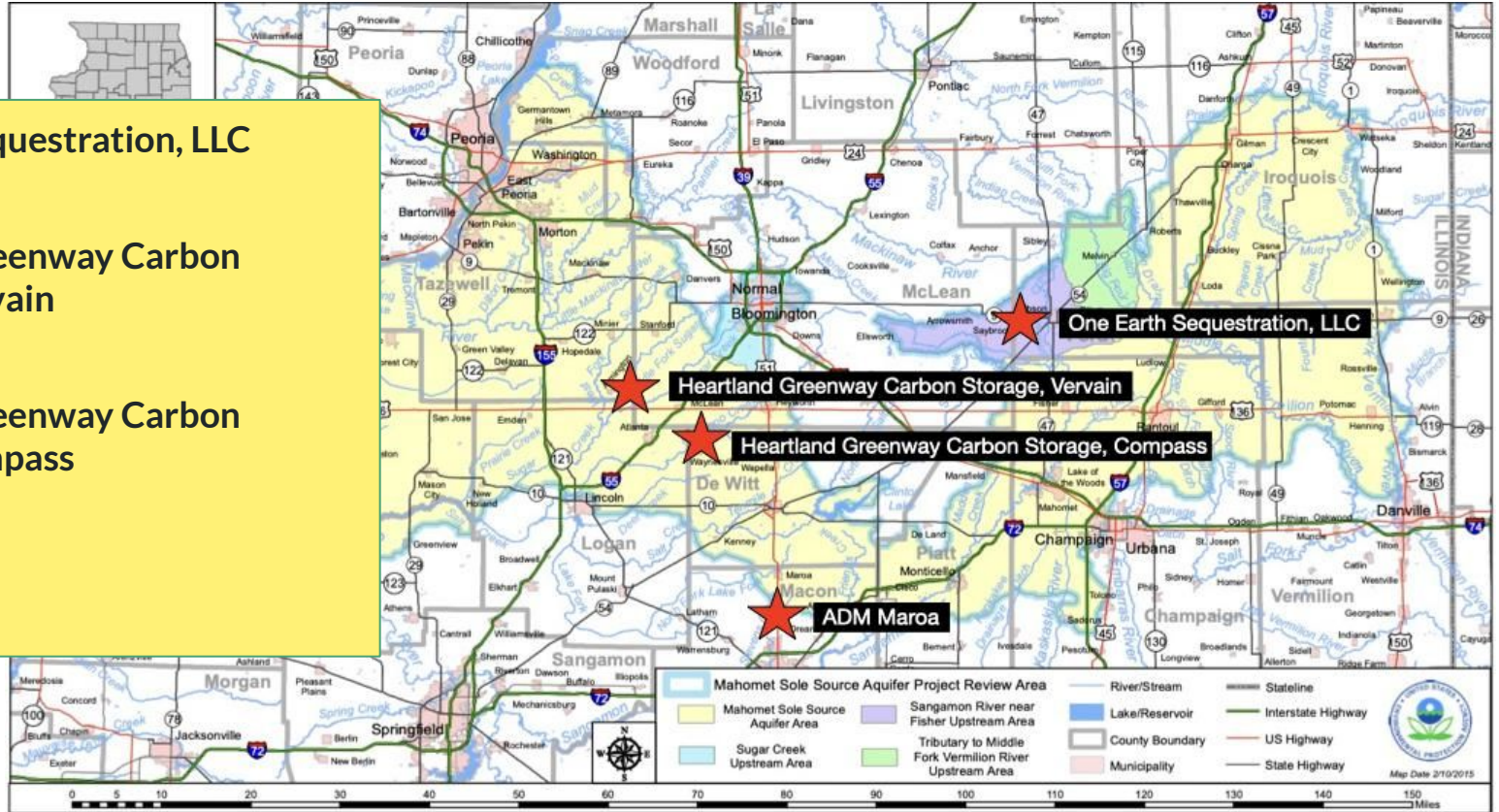
62.5 MMT CO₂

Heartland Greenway Carbon Storage - Compass

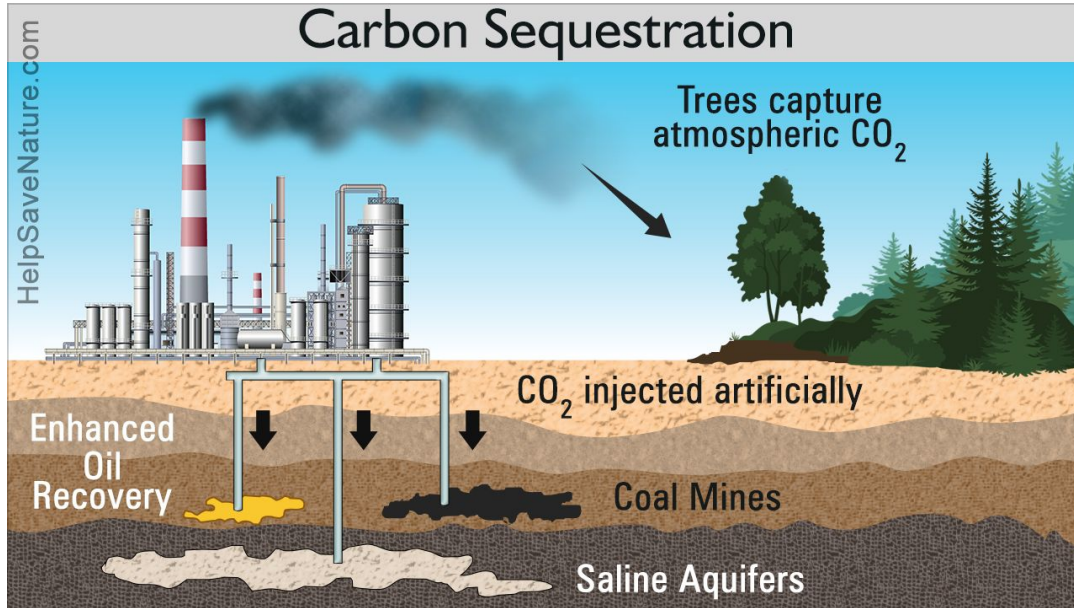
62.5 MMT CO₂

ADM Maroa

39.6 MMT CO₂



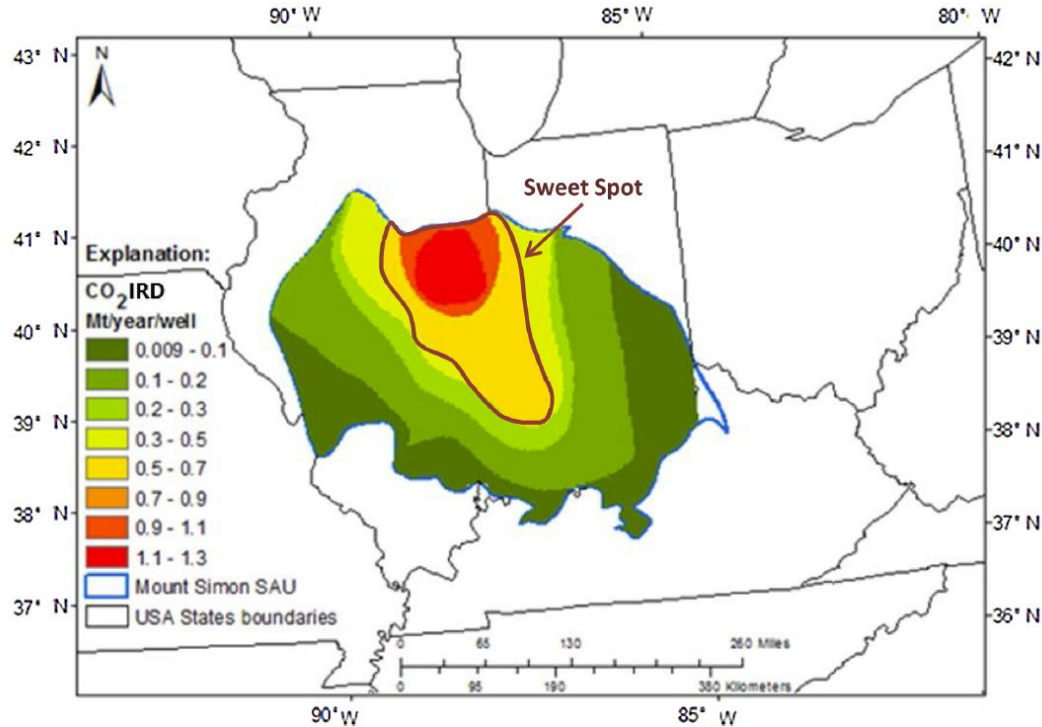
What is Carbon Sequestration?



Why now?

Inflation Reduction Act (2022) increased CO₂ sequestration incentives to \$85/tonne.

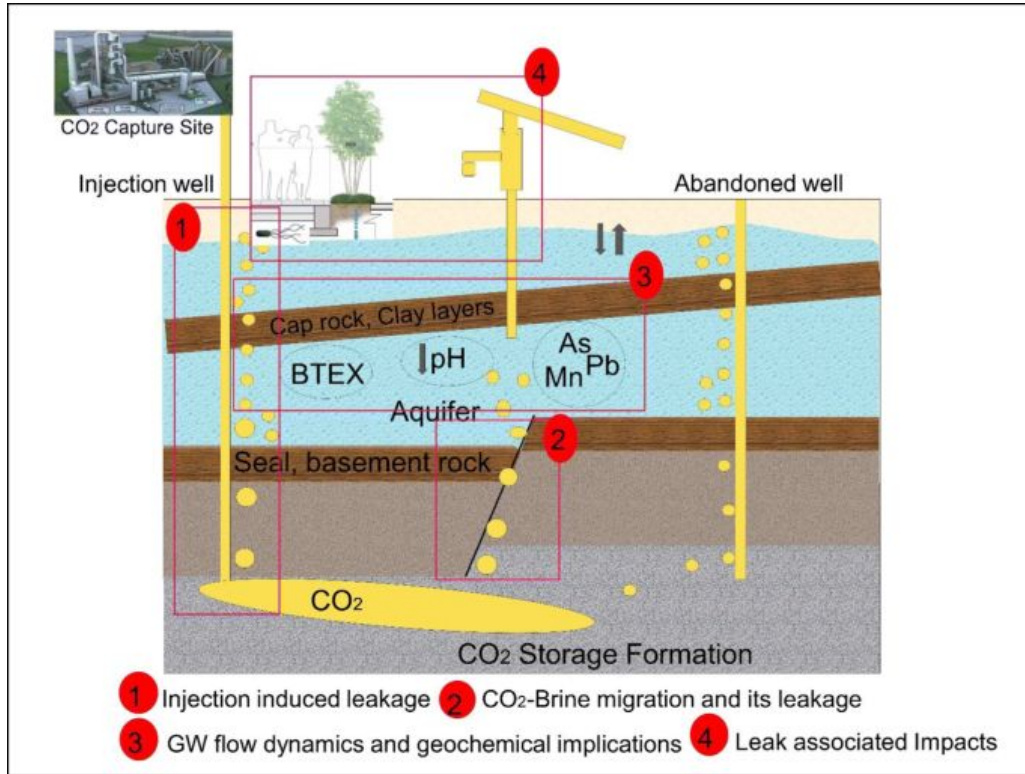
What is Carbon Sequestration?



Why here?

“Sweet spot” in the Mt. Simon Sandstone saline (salty) aquifer underlies the Mahomet.

Impact of CO2 on Freshwater Aquifers



Threats identified by Department of Energy:

“**Acidification of USDW** from CO2 infiltration, thereby affecting human, animal, and plant environments if the groundwater is produced and used”

“**USDW becoming saline** from displacement of natural brine into USDW thereby affecting human, animal, and plant environments if the groundwater is produced and used.”

“**USDW becoming contaminated with toxic heavy metals, colloids, or other particulates** dissolved and/or mobilized from CO2 infiltration within or into USDW; thereby affecting human, animal, and plant environments if the groundwater is produced and used”

Overview of Potential Failure Modes and Effects Associated with CO2 Injection and Storage Operations in Saline Formations
DOE & National Energy Technology Laboratory, 2020

Gupta, P.K., Yadav, B. Leakage of CO2 from geological storage and its impacts on fresh soil–water systems: a review. *Environ Sci Pollut Res* 27, 12995–13018 (2020). <https://doi.org/10.1007/s11356-020-08203-7>

Existing Regulation

Existing Regulation of Sequestration

- Federal - Class VI Well Permit
 - US EPA administered via the Safe Drinking Water Act
 - Site characterization, monitoring requirements, emergency plan, reporting, etc.
- State - Legislation passed - Public Act 103-0651 “SAFE CCS Act”
 - Illinois EPA administers Sequestration Permit
 - Soil gas monitoring, water impact report
 - Alternate water supply if there is a leak
 - Non-consenting landowner protections
 - Does not include a Mahomet Aquifer Sequestration Ban despite requests from Mahomet Aquifer legislators.

A Gap - No Alternative Source

- The SAFE CCS Act requires a sequestration operator to “provide an alternate supply of potable drinking water”
- The U.S. EPA **sole-source designation** means that “there are no physically available or economically feasible alternative sources of drinking water to serve the population that relies on the aquifer.”

Happening at Unprecedented Scale

Project Name	County	CO ₂ stored per year per well (MMT)	Number of wells	Years in operation	Total CO ₂ (MMT)
ADM Decatur					
Phase 1, pilot	Macon	0.33	1	3	1.00
Phase 2	Macon	0.42	1	7	2.94
Total CO₂ stored, to date					3.94
ADM Decatur, Phase 3	Macon	1.10	1	12	14.30
ADM Maroa*	Macon	1.10	3	12	39.60
One Earth*	McLean	1.50	3	20	90.00
HGCS Vervain*	McLean	1.25	2	25	62.50
HGCS Heartland Greenway	Christian	1.00	6	30	180.00
HGCS Compass*	DeWitt	1.25	2	25	62.50
Marquis Energy	Putnam	1.50	1	5	7.50
Total storage proposed					456.40

*Projections impacting the Mahomet Aquifer

Happening at Unprecedented Scale

Project Name	County	CO ₂ stored per year per well (MMT)	Number of wells	Years in operation	Total CO ₂ (MMT)
ADM Decatur					
Phase 1, pilot	Macon	0.33	1	3	1.00
Phase 2	Macon	0.42	1	7	2.94
Total ADM					3.94
Proposed storage (all projects) is 116 times that stored by ADM					
ADM Decatur, Phase 3	Macon	1.10	1	12	14.30
ADM Maroa*	Macon	1.10	3	12	39.60
One Earth*	McLean	1.50	3	20	90.00
HGCS Vervain*	McLean	1.25	2	25	62.50
HGCS Heartland Greenway	Christian	1.00	6	30	180.00
HGCS Compass*	DeWitt	1.25	2	25	62.50
Marquis Energy	Putnam	1.50	1	5	7.50
Total storage proposed					456.40

*Projections impacting the Mahomet Aquifer

Happening at Unprecedented Scale

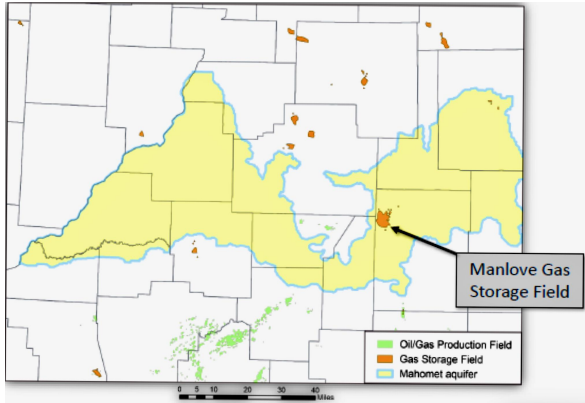
Project Name	County	CO2 stored per year per well (MMT)	Number of wells	Years in operation	Total CO2 (MMT)
ADM Decatur					
Phase 1, pilot	Macon	0.33	1	3	1.00
Phase 2	Macon	0.42	1	7	2.94
Total ADM Decatur					3.94
ADM Decatur, Phase 3	Macon	1.10	1	12	14.30
ADM Mahomet*	Mahomet	1.10	2	10	22.00
Oneida	Oneida	1.10	2	10	22.00
HGCC					
HGCS Heartland Greenway	Christian	1.00	6	30	180.00
HGCS Compass*	DeWitt	1.25	2	25	62.50
Marquis Energy	Putnam	1.50	1	5	7.50
Total storage proposed					456.40

Proposed storage (all projects) is 116 times that stored by ADM

Proposed projects under the aquifer and its recharge areas are 65 times that stored by ADM

*Projections impacting the Mahomet Aquifer

People's Gas Leak ... A lesson from natural gas storage



There is **just one** natural gas storage reservoir under the Mahomet... and it leaked!

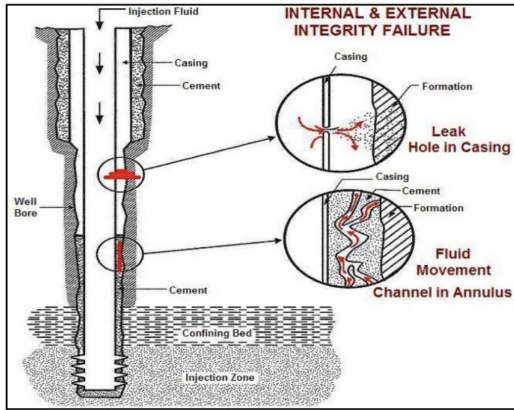
Discovered **December 16, 2016** by Peoples Gas employee.

AG filed a **complaint in October 2017** that led to a consent decree in 2022 requiring the company to:

By 2020, the estimate of providing replacement water to affected residents was **\$10,000,00**:

- In June of 2021, the state passed a **bill to provide taxpayer funds** in the amount of **\$3,800,000** to initiate construction and annex the territory to the Sangamon Valley Water District.
- In May of 2022, the Champaign **County Board allocated \$500,000** for design work.

Nearly 8 years later, residents still do not have replacement water.



Regulation is a Risk

But a Ban is Certain

Our Ask ...

- **Adopt a Temporary Moratorium:**

Adopt a 6-month moratorium on the injection of CO₂ through or storage of CO₂ under a sole source aquifer, while the county looks at the feasibility of a prohibition of these activities for a sole source aquifer and a special use permit for those activities in areas beyond the boundaries of a sole source aquifer. The moratorium **can be renewed** as needed.

- **Powers of counties are broad.** Can be more restrictive than state and federal.
- If a county prohibits CCS activities that could affect aquifer, it **must allow them elsewhere.** Can do this via **special use permit.**

- **Pass a Resolution** calling for a Ban from the Legislature.

- **Re-Engage with M3**

Champaign County is listed as a member of the Mahomet Aquifer Advocacy Alliance (M3). Join growing efforts to encourage other units of governments to protect the aquifer through local action (municipal resolutions, county moratoriums, and bans/special use permits). **Help pass a statewide Mahomet Aquifer CCS Ban.**

Mahomet Aquifer Advocacy Alliance (M3) Priorities



MAHOMET AQUIFER
ADVOCACY ALLIANCE

Monitoring and Research

The Alliance monitors surface activities to ensure compliance with existing regulations and laws, and any other **activities that may represent a potential threat** to the aquifer.

Legislative Advocacy

The Alliance will work cooperatively with elected representatives in Springfield and Washington DC to **introduce and support legislation designed to protect and preserve the Mahomet Aquifer**, and other underground water resources, from potential contamination.

Public Education and Engagement

Outreach and education are critical tools to promote promoting greater awareness of the aquifer's importance to our region. An educated and engaged public can help provide a strong and unified voice when action is needed. The Alliance provides a framework for **engaging partners and altering the public of impending threats** to the aquifer.