Adding revenue and addressing climate change by monetizing unquantified environmental attributes through carbon and greenhouse gas offsets.

Dentons' Environmental team has "stellar individuals that bring great experience and expertise. At the same time, they have an incredibly deep bench that they can call on from other parts of the firm. That ability to find someone in the Dentons network with proficiency in a new issue has been very valuable."

~ Client quote, Chambers USA

Carbon Sequestration

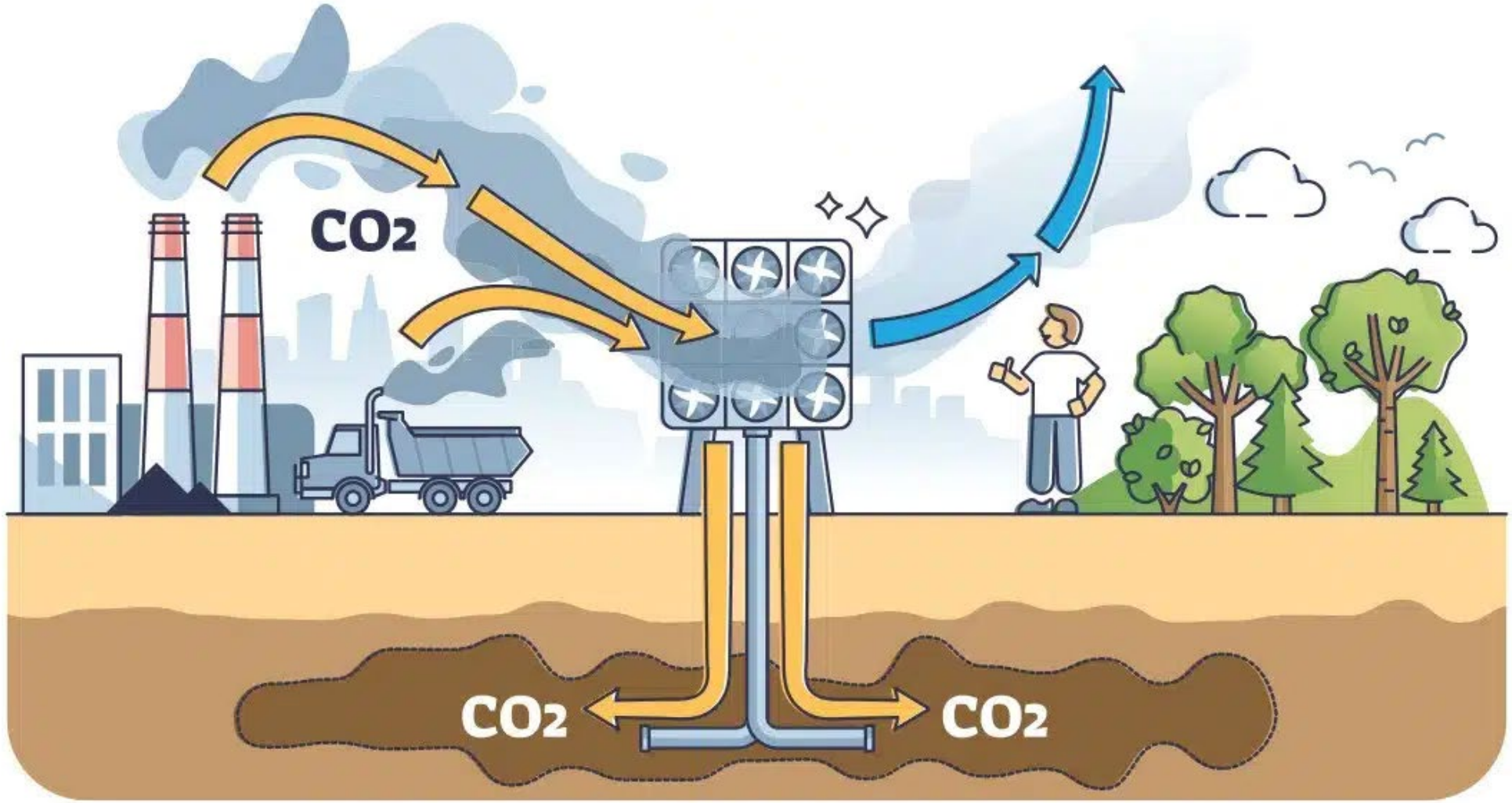
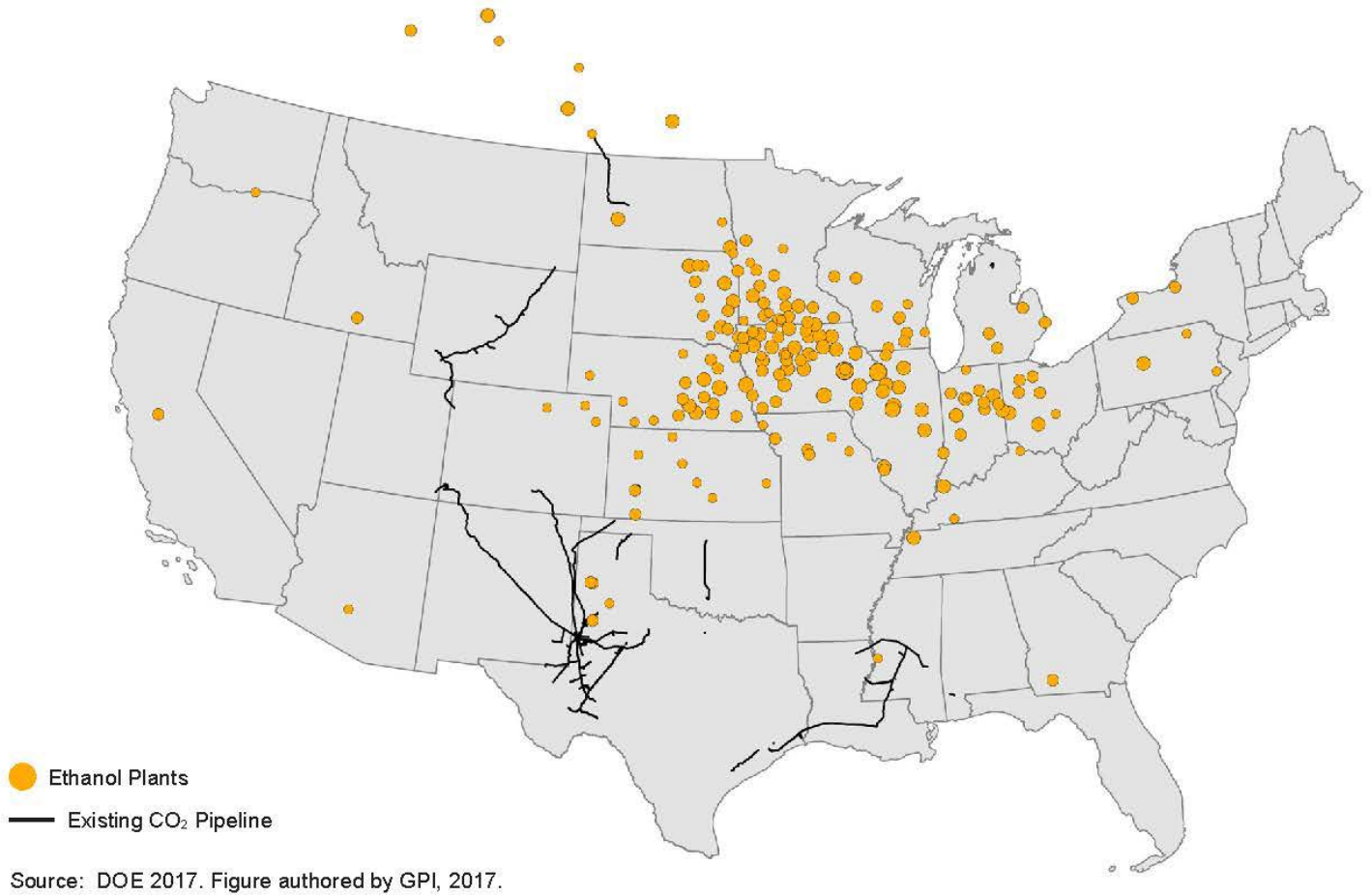


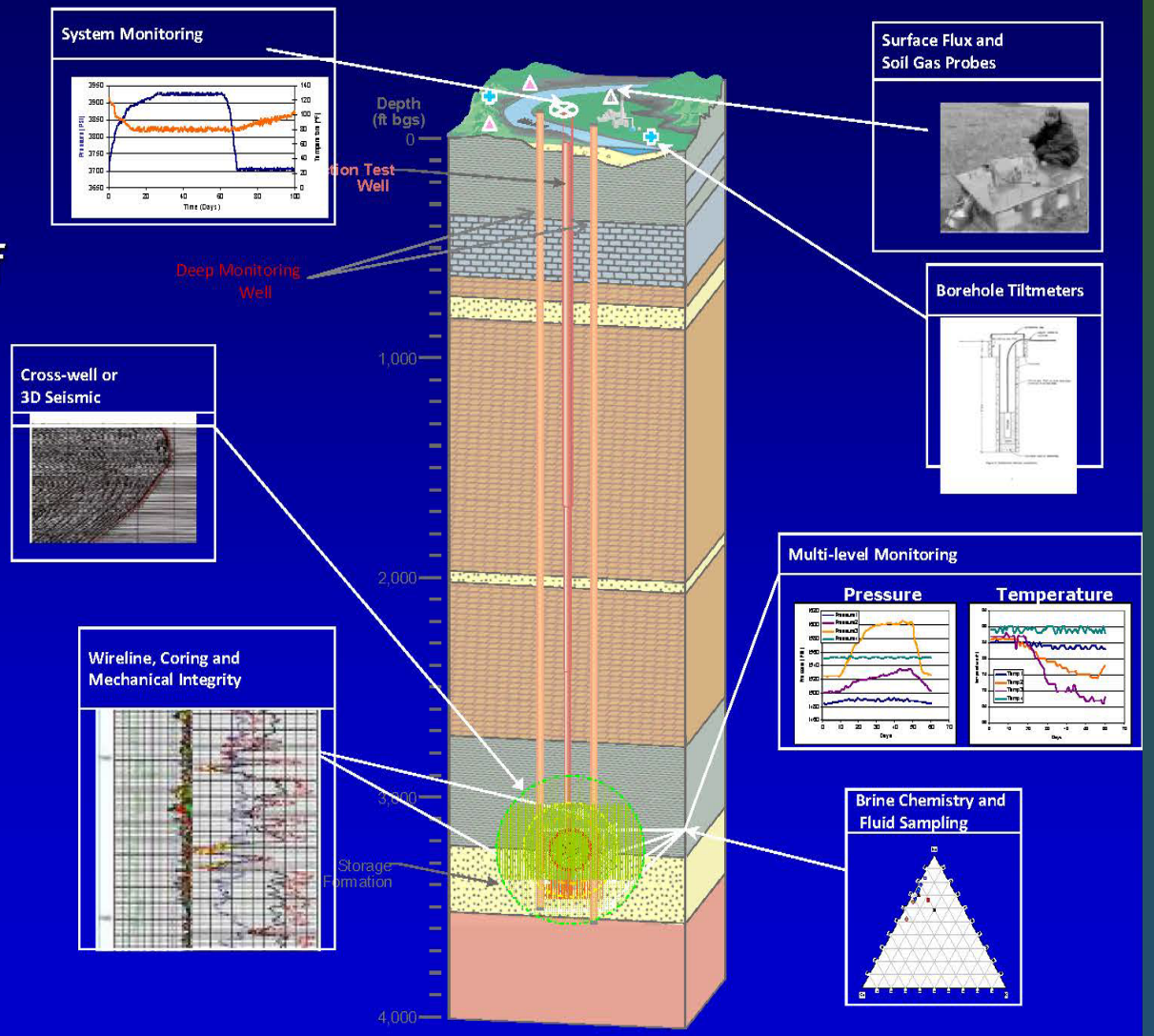
Figure 3: Ethanol Plants and Existing CO_2 Pipelines



Source: DOE 2017. Figure authored by GPI, 2017.

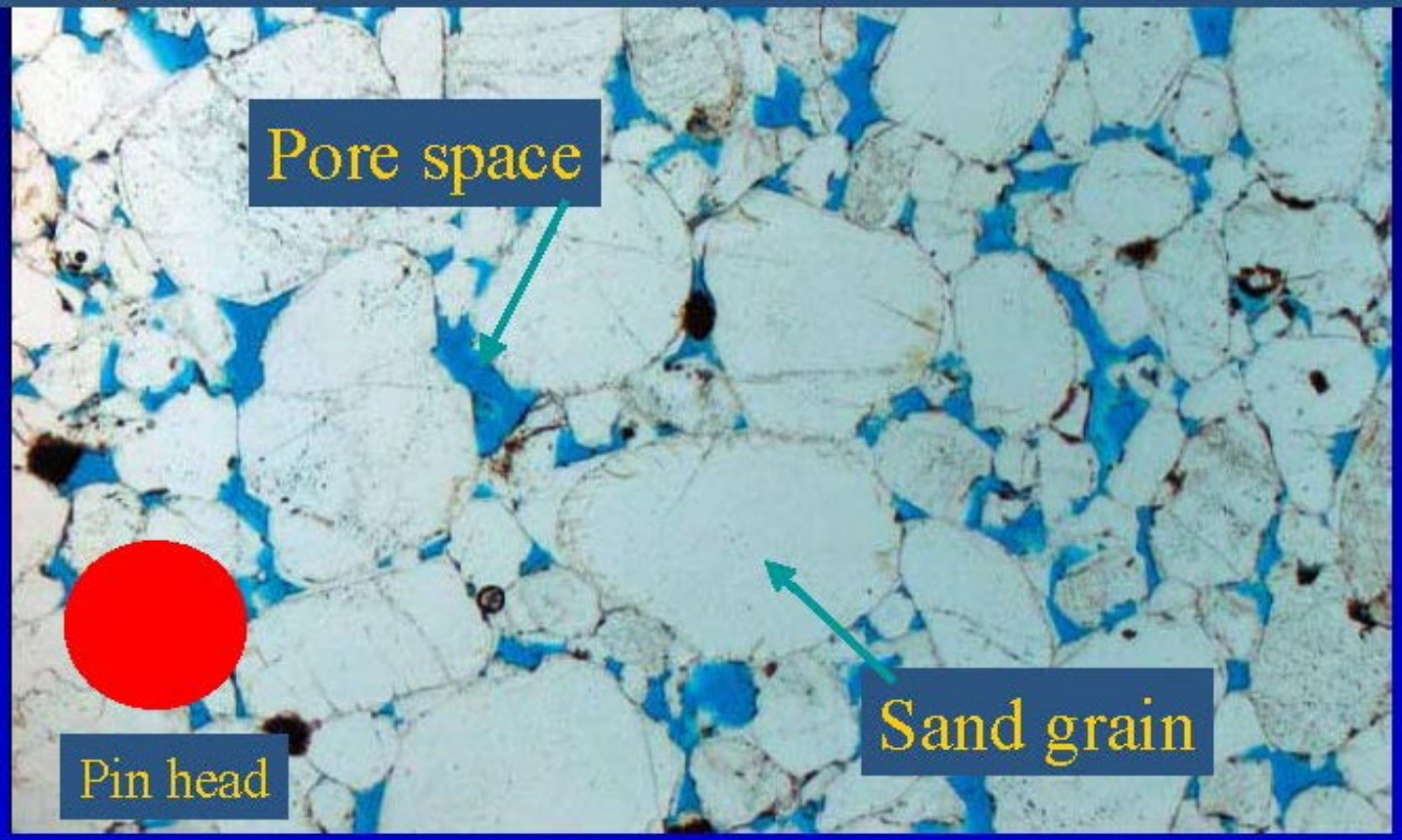
Monitoring, Measuring and Verification (MMV)

MMV is an important part of all field projects.



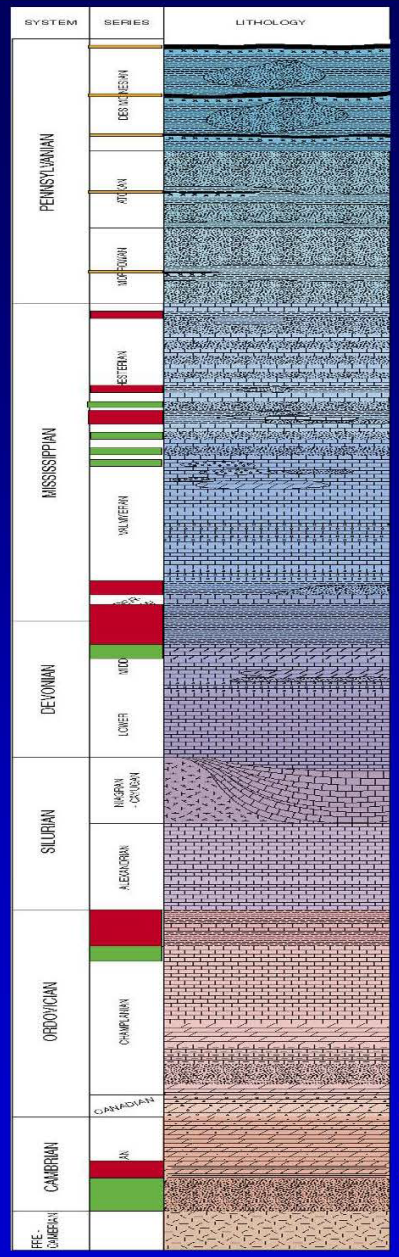
Mt. Simon Sandstone Reservoir

CO_2 Storage in Sandstone Reservoir Pore Space



Reservoir Caprock (shale seal)

Illinois Basin Stratigraphic Column



Pennsylvanian coal seams

Mississippian sandstone and carbonate oil reservoirs

New Albany Shale

Maquoketa Shale

St. Peter Sandstone

Eau Claire Shale

Mt. Simon Sandstone

Potential Seal

Potential Sink

Coal Bed Potential Sink and Seal

from Leetaru, 2004

Sequestration Capacities*

- Seven major coal seams: 2.3-3.3 billion tonnes
  - 6.7 trillion ft^3 incremental methane(?)
- Mature oil reservoirs: 140-440 million tonnes
  - 860-1,300 million barrels incremental oil
- St. Peter Sandstone: 1.6-6.4 billion tonnes
- Mt. Simon Sandstone: 27-109 billion tonnes

*DOE, 2007, Carbon Sequestration Atlas of the United States and Canada

Figure 2: NATCARB Atlas of Stationary Sources of CO_2. Anthropogenic CO_2 made up 20 percent of the estimated 68 million Mt of CO_2 transported via U.S. pipeline in 2014. Over the next few years, industrial capture is expected to increase the transport and storage needs of anthropogenic CO_2 by roughly 60 million Mt.

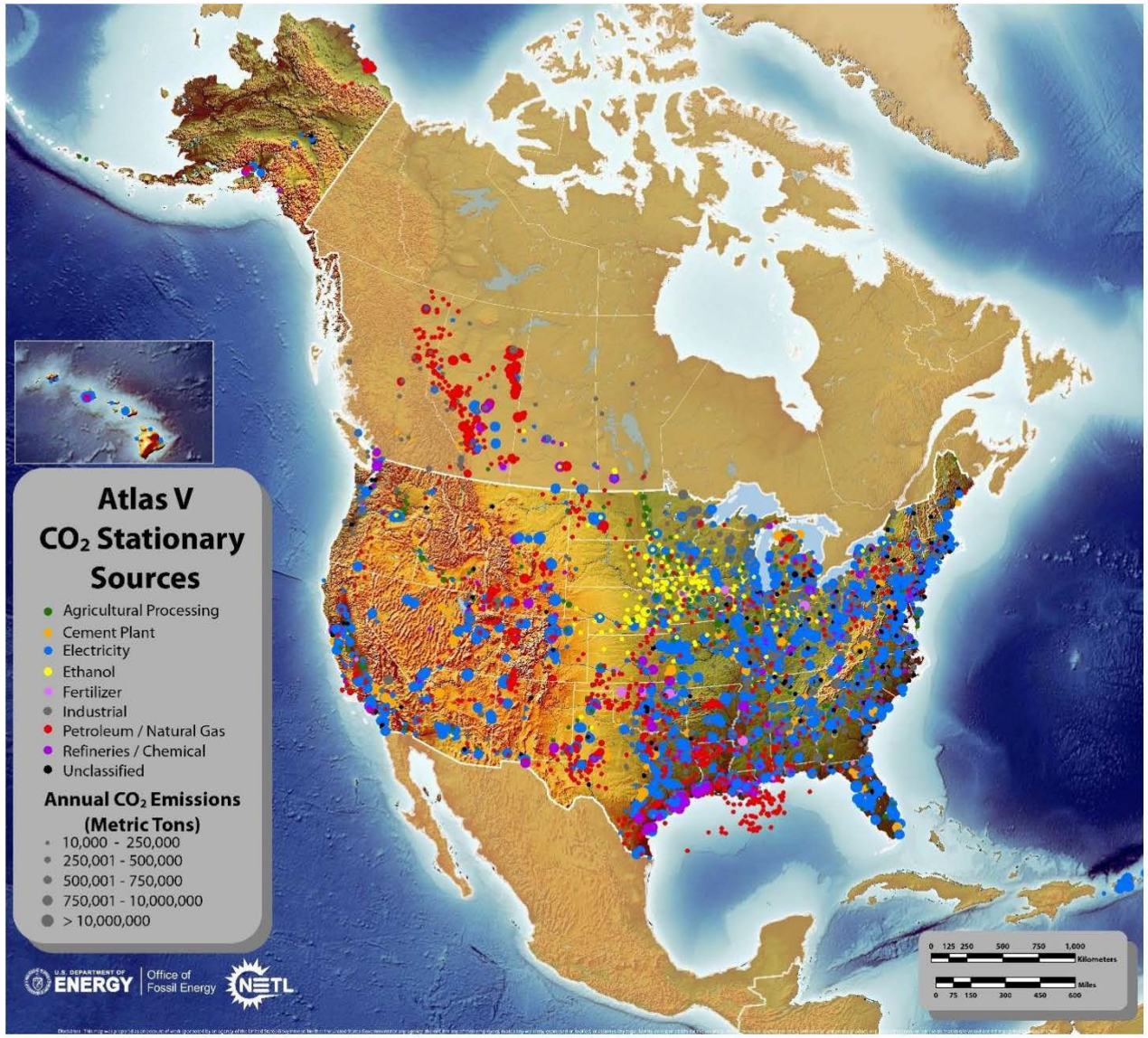
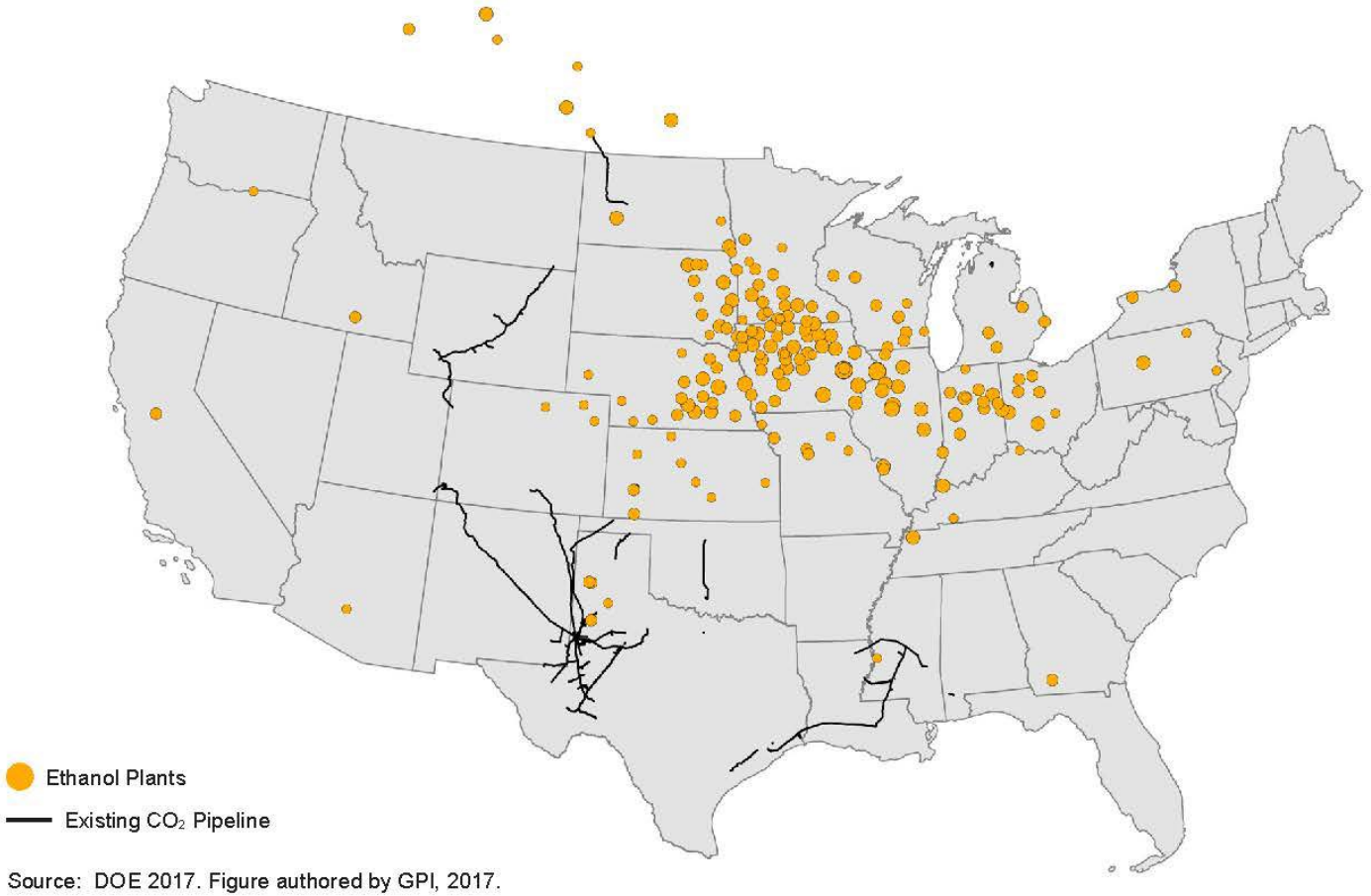


Figure 3: Ethanol Plants and Existing CO_2 Pipelines



Source: DOE 2017. Figure authored by GPI, 2017.

ADM and Carbon Capture and Storage

CCS is an important technology to help us meet the growing demand for low-carbon energy and ingredient solutions.

NEWS DETAILS

VIEW ALL NEWS ⟶

ADM Carbon Capture and Storage Project Earns Top Honors from Environment + Energy Leader

07/19/2022

CHICAGO--(BUSINESS WIRE)-- Environment + Energy Leader magazine has recognized the Illinois Basin – Decatur Project, a partnership between ADM (NYSE: ADM) and the Illinois Geological Survey at the University of Illinois, as a Top Project of the Year for 2022. The award recognizes exemplary work being done today in the fields of energy and environmental management.

The Illinois Basin – Decatur Project is the world's first successful completion of a pure storage carbon capture and storage (CCS) project. Led by the University of Illinois and funded by the U.S. Department of Energy, the project confirmed the ability of Mt. Simon Sandstone to safely store one million metric tons of CO_2 over a period of three years, the equivalent of annual emissions from about 200,000 passenger cars, according to the U.S. EPA calculator.

"ADM's project is fantastic," said one of the judges. "The world truly needs pure storage CCS projects in order to overcome climate change, and it is therefore incredible to learn that this has been the first successful completion of such a project."

2022 Inflation Reduction Act Boosts Tax Credits

Tax Credit Increases:

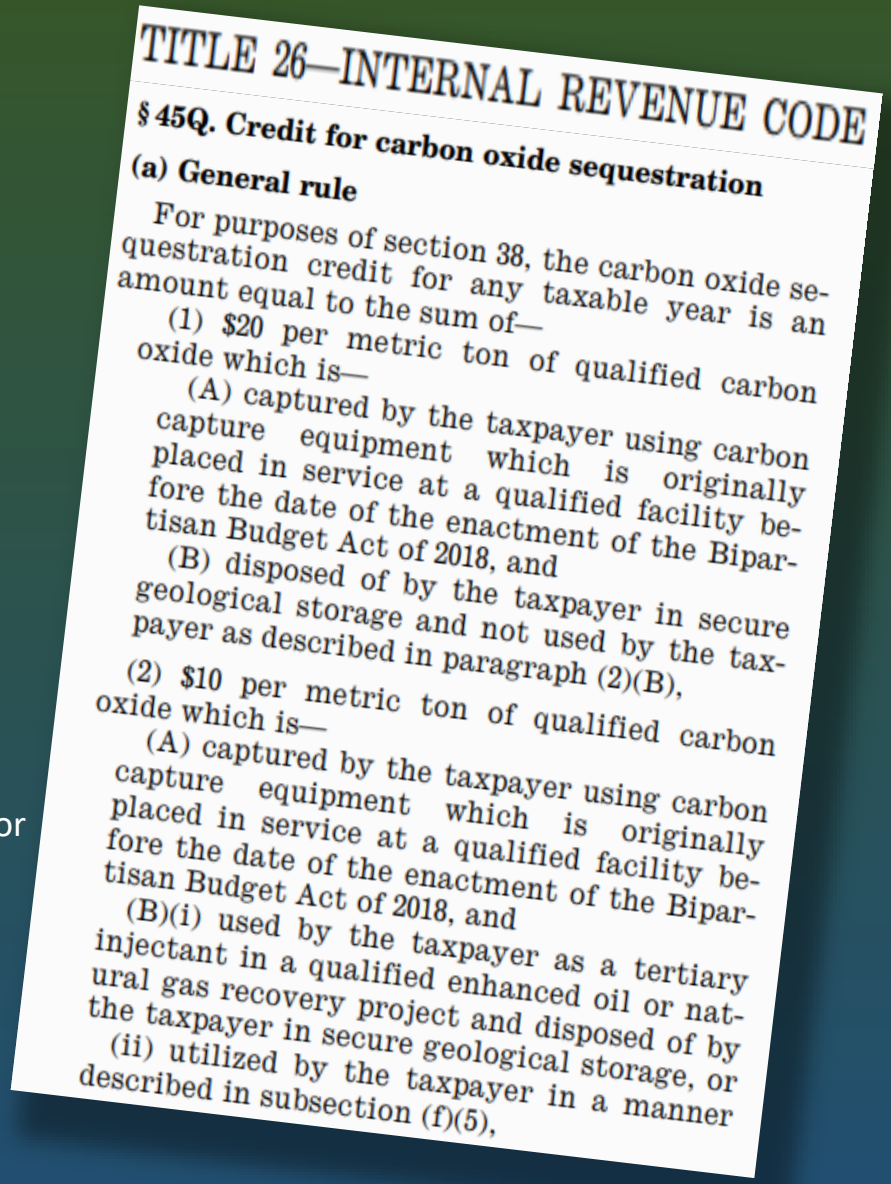
- $85/metric ton for captured QCO stored in geologic formations
- $60/metric ton for using captured carbon emissions
- $60/metric ton for QCO stored in oil/gas fields if certain wage and apprenticeship requirements are met
- $180/ton for CO2 captured from a DAC facility and used for saline storage
- $130/ton for EOR and utilization

Direct Pay: Allows for direct payment of the credit for the first 5 of the 12 years of eligibility

Transferability: Credits can be transferred annually to an unrelated taxpayer, must be exchanged for cash, are not included in the transferor's income, and not deductible by the transferee

Eligibility Expanded:

- Deadline extended for a qualifying project to begin construction from 2026 to 2033
- Lowered annual QCO project qualification threshold from 500,000 tons of CO2/year for a power plant and 100,000 tons of CO /year for industrial and DAC facilities to 18,750, 12,500, and 1,000 tons of CO2/year



TITLE 26—INTERNAL REVENUE CODE

§ 45Q. Credit for carbon oxide sequestration

(a) General rule

For purposes of section 38, the carbon oxide sequestration credit for any taxable year is an amount equal to the sum of—

(1) $20 per metric ton of qualified carbon oxide which is—

(A) captured by the taxpayer using carbon capture equipment which is originally placed in service at a qualified facility before the date of the enactment of the Bipartisan Budget Act of 2018, and

(B) disposed of by the taxpayer in secure geological storage and not used by the taxpayer as described in paragraph (2)(B),

(2) $10 per metric ton of qualified carbon oxide which is—

(A) captured by the taxpayer using carbon capture equipment which is originally placed in service at a qualified facility before the date of the enactment of the Bipartisan Budget Act of 2018, and

(B)(i) used by the taxpayer as a tertiary injectant in a qualified enhanced oil or natural gas recovery project and disposed of by the taxpayer in secure geological storage, or

(ii) utilized by the taxpayer in a manner described in subsection (f)(5),

Not Just 45Q:
Other Available Carbon Sequestration Incentives

Renewable Energy Production Tax Credit (PTC):

companies using CCS to enhance renewable energy production may be eligible for the PTC, which provides a credit for each kilowatt-hour of renewable energy generated

Clean Energy Standard (CES):

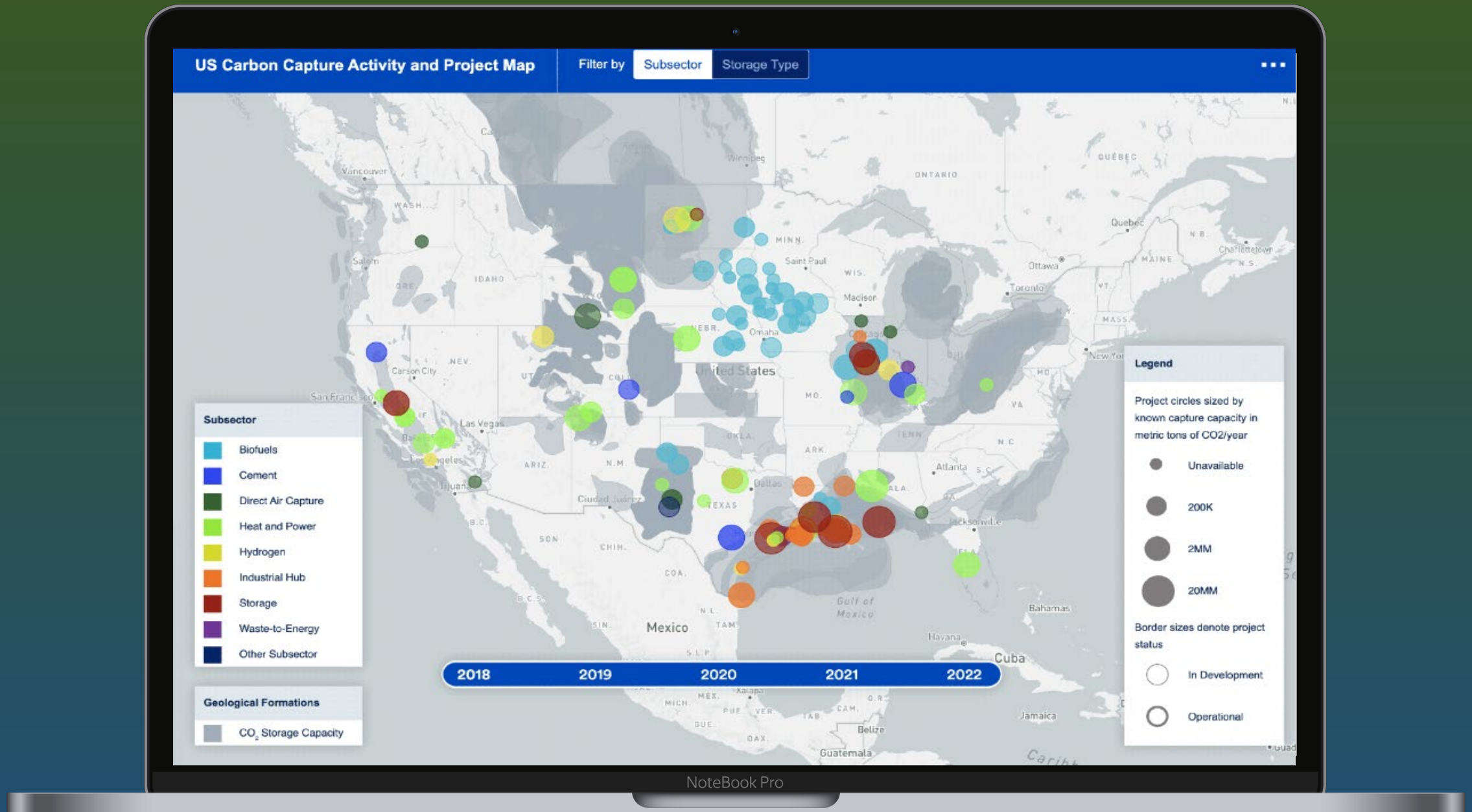
financial support for companies that generate low-carbon or carbon-free electricity, including those that use CCS technologies

Investment Tax Credit (ITC):

provides a tax credit for a portion of the cost of a qualifying project to companies investing in CCS technologies

Department of Energy (DOE) funding:

offers funding opportunities for companies engaged in CCS research and development, as well as pilot and demonstration projects


US Carbon Capture Activity and Project Map
Filter by
Subsector
Storage Type
Subsector
Biofuels
Cement
Direct Air Capture
Heat and Power
Hydrogen
Industrial Hub
Storage
Waste-to-Energy
Other Subsector
Geological Formations
CO2 Storage Capacity
2018
2019
2020
2021
2022
Legend
Project circles sized by known capture capacity in metric tons of CO2/year
Unavailable
200K
2MM
20MM
Border sizes denote project status
In Development
Operational
Mexico
United States
Cuba
Gulf of Mexico
NoteBook Pro

Contracts


Consulting
Labor Services
Real Property
Intra-affiliate
Operating
Government Relations
Construction
Development
AIMA
Public Relations
Technology & IP
Insurance
Source
Bonding & Surety
Tax Credit & Offset

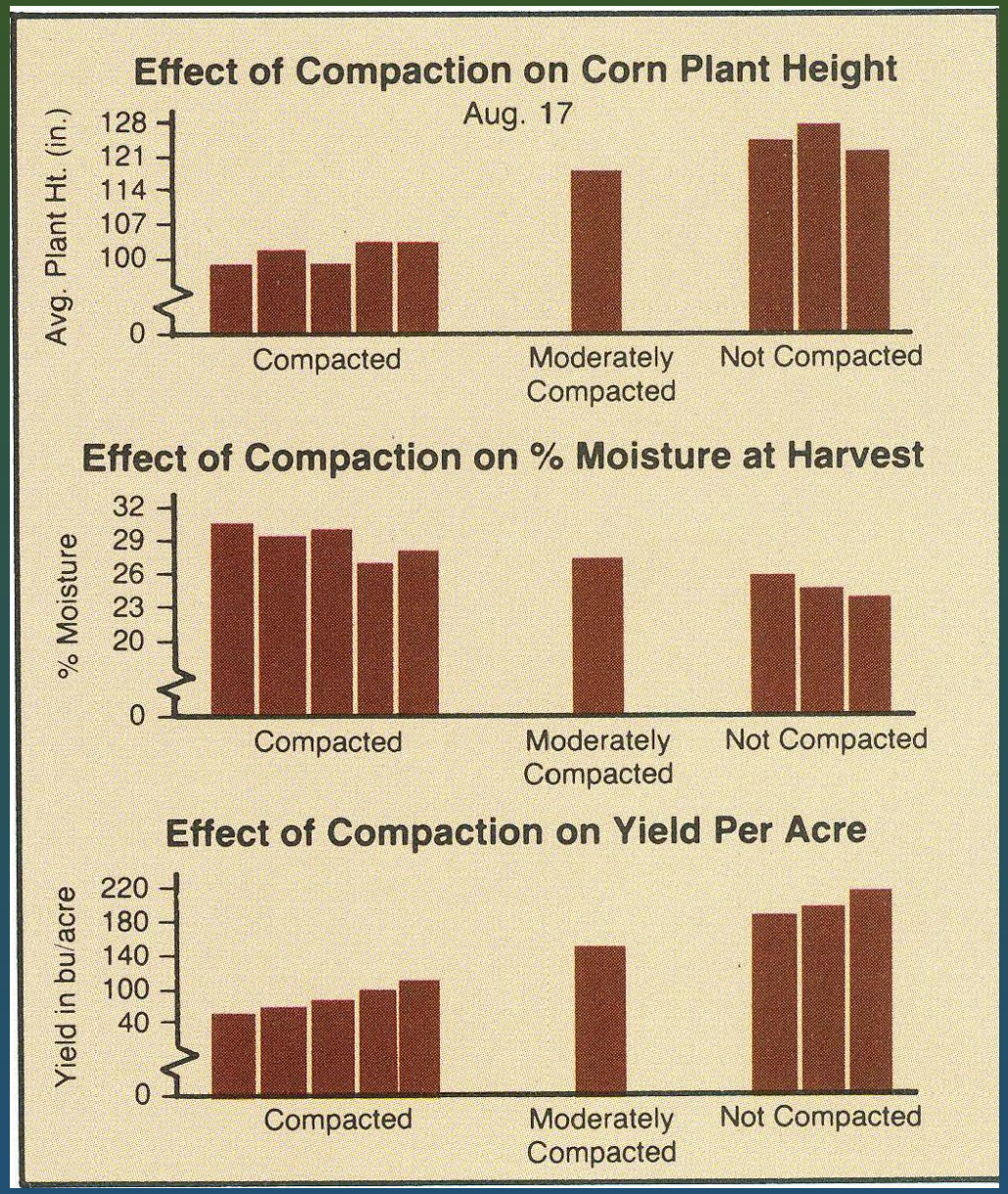
cuius est solum, eius est usque ad doelum et ad inferos

Pipeline study shows soil compaction and crop yield impacts in construction right-of-way

November 11th, 2021

AMES, Iowa — An Iowa State University study looking at the impacts of soil disturbance and early remediation practices from construction of the Dakota Access Pipeline finds significant soil compaction and gradual recovery of crop yield in the right-of-way over five years.

The research funded by Dakota Access Pipeline (DAPL) aimed to investigate construction influences of the underground pipeline on farmland. The pipeline transports crude oil over 1,172 miles from North Dakota to Patoka, Illinois, passing through South Dakota and about 347 miles in Iowa. The study's primary goal was to assess the extent of soil and cropping disturbances in the approximately 150-foot right-of-way caused by land clearing, topsoil removal and soil mixing, pipeline trenching and backfilling during the construction process.


Effect of Compaction on Corn Plant Height
Aug. 17
Avg. Plant Ht. (in.)
128
121
114
107
100
0
Compacted
Moderately Compacted
Not Compacted
Effect of Compaction on % Moisture at Harvest
% Moisture
32
29
26
23
20
0
Compacted
Moderately Compacted
Not Compacted
Effect of Compaction on Yield Per Acre
Yield in bu/acre
220
180
140
100
40
0
Compacted
Moderately Compacted
Not Compacted

Corn grown in compacted soil (left) on this Mansfield, Illinois, farm was shorter, had three percent more moisture at harvest and yielded 60 percent less than corn grown in non-compacted soil.

Monitoring, Measuring and Verification (MMV)

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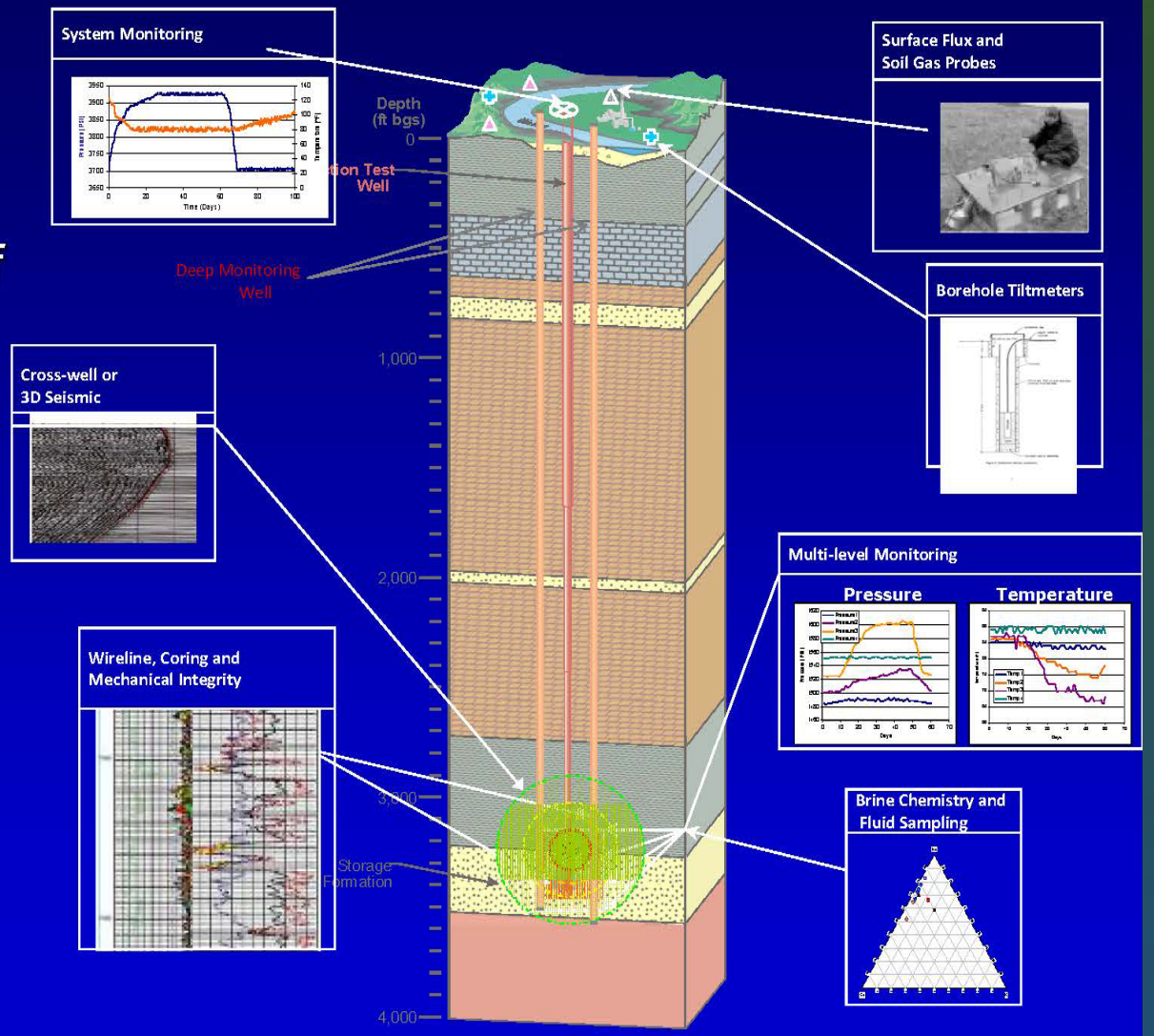

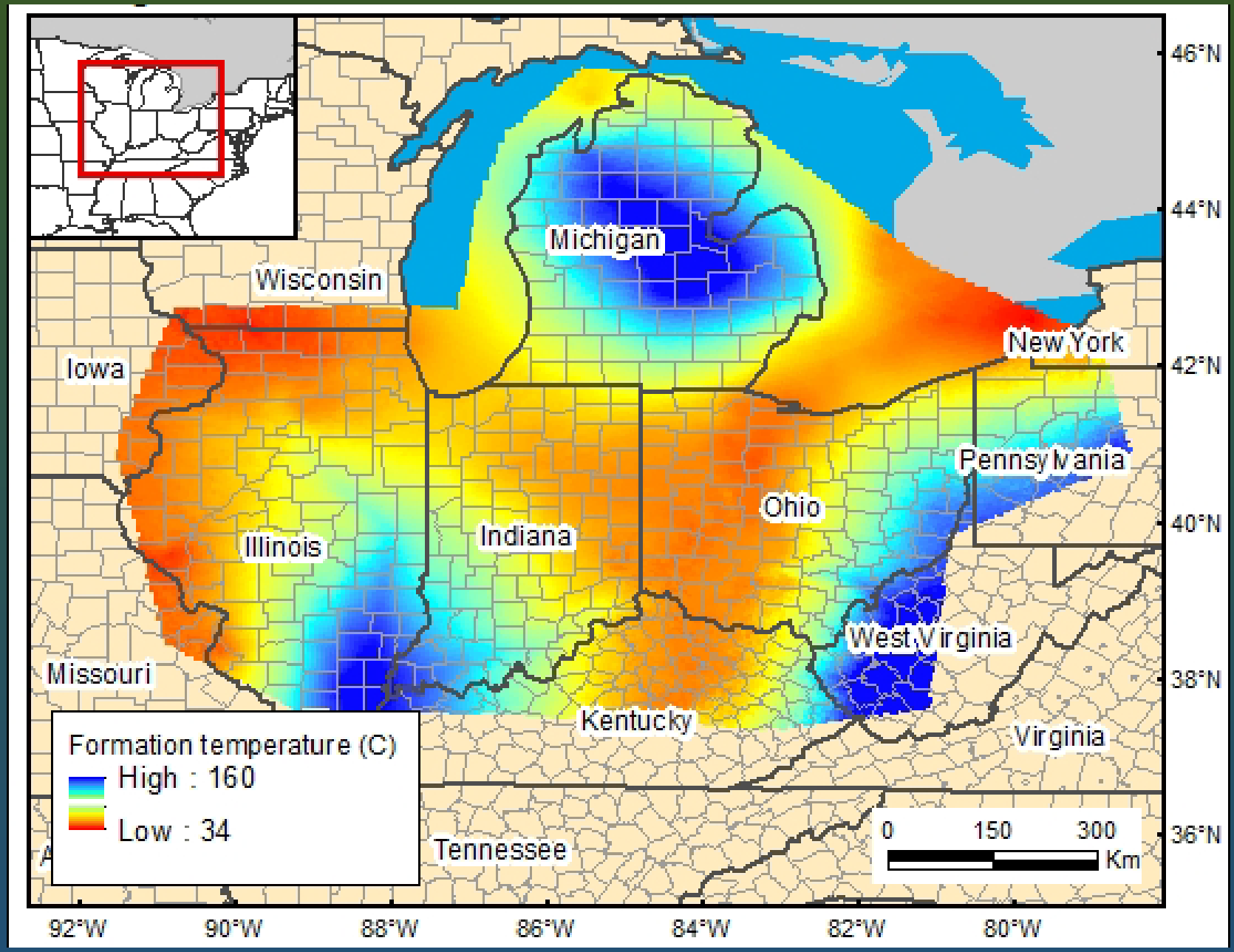
Michigan
Wisconsin
Iowa
New York
Pennsylvania
Ohio
Indiana
Illinois
West Virginia
Missouri
Kentucky
Virginia
Tennessee
Formation temperature (C)
High : 160
Low : 34
0
150
300
Km
46°N
44°N
42°N
40°N
38°N
36°N
92°W
90°W
88°W
86°W
84°W
82°W
80°W

INDIANA CARBON SEQUESTRATION ACT

Integration available (unitization) with a 70% threshold.

Eight (8) cent per ton state fee.

Limits underground trespass actions.

After project complete, state of Indiana takes over ownership and responsibility for the site, including any liability.

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