

The Digest's 2026 Multi-Slide Guide to the Midwest Ethanol Cluster Transition

Same corn, same technology, same region: plants on an operating CO2 line can earn about 60 cents a gallon more in modeled 45Z value than plants off it. The cluster's next stage depends on where the pipe runs.

One cluster, two futures

The Midwest is a mature ethanol cluster, but access to CO2 transport and storage creates a split: connected plants can capture more value; unconnected plants wait.

THE CLUSTER'S CONCENTRATION

94.5%

of US fuel ethanol nameplate capacity is in PADD 2 (the Midwest).

17,463 of **18,477** million gal/year

177 of **191** plants

Nameplate includes idled plants.

Source: US EIA, Fuel Ethanol Plant Production Capacity, Sept 2025 release.

THE VALUE GAP BETWEEN TIERS

Under 45Z (modeled values):

- Corn ethanol (CI ~52): \$0.00/gal
- Climate-smart ag (CI 37–42): \$0.16–0.25/gal
- CCS + climate-smart ag (CI 7–12): \$0.76–0.86/gal

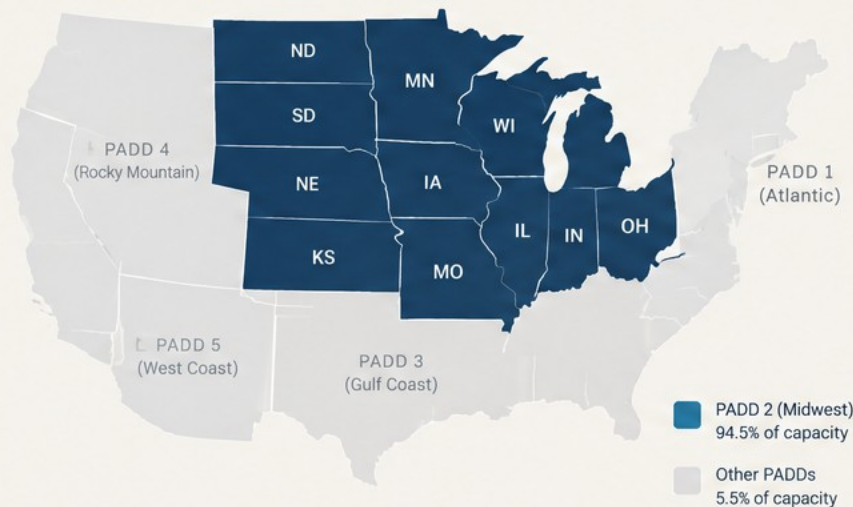
CCS alone ≈ 30 CI points ≈ \$0.60/gal.

Source: NCGA/US Grains Council ethanol booklet, March 2026 (industry analysis).

⚠ Modeled values depend on Treasury rules, credit's statutory end after 2029, credit-transfer pricing.

PADD 2 (MIDWEST) SHARE OF US ETHANOL CAPACITY

94.5% of nameplate capacity



Source: US EIA, Fuel Ethanol Plant Production Capacity, Sept 2025 release. Nameplate includes idled plants.

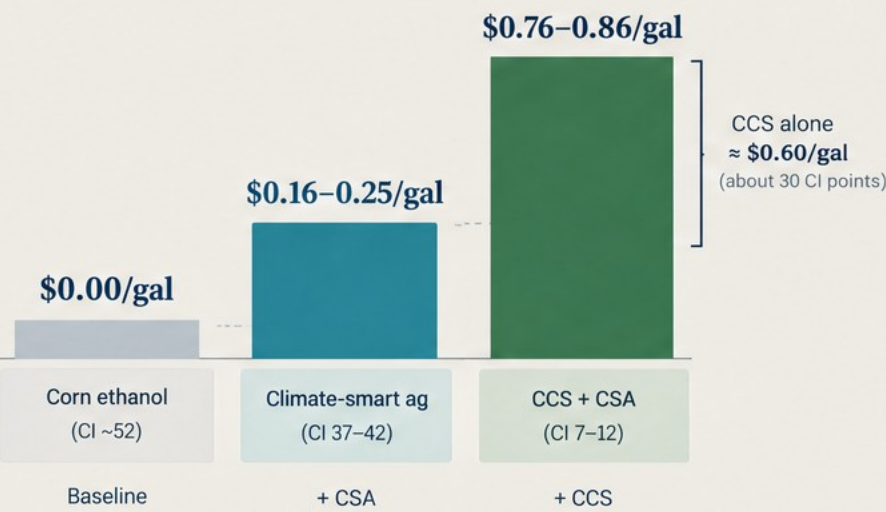
about \$0.60/gal

modeled 45Z value of CCS alone
(about 30 CI points)

⚠ Modeled values; depend on Treasury rules, credit's statutory end after 2029, credit-transfer pricing.

The value ladder

CCS and climate-smart agriculture move plants up the 45Z value ladder.
(modeled values)



Source: NCGA/US Grains Council ethanol booklet, March 2026 (industry analysis).

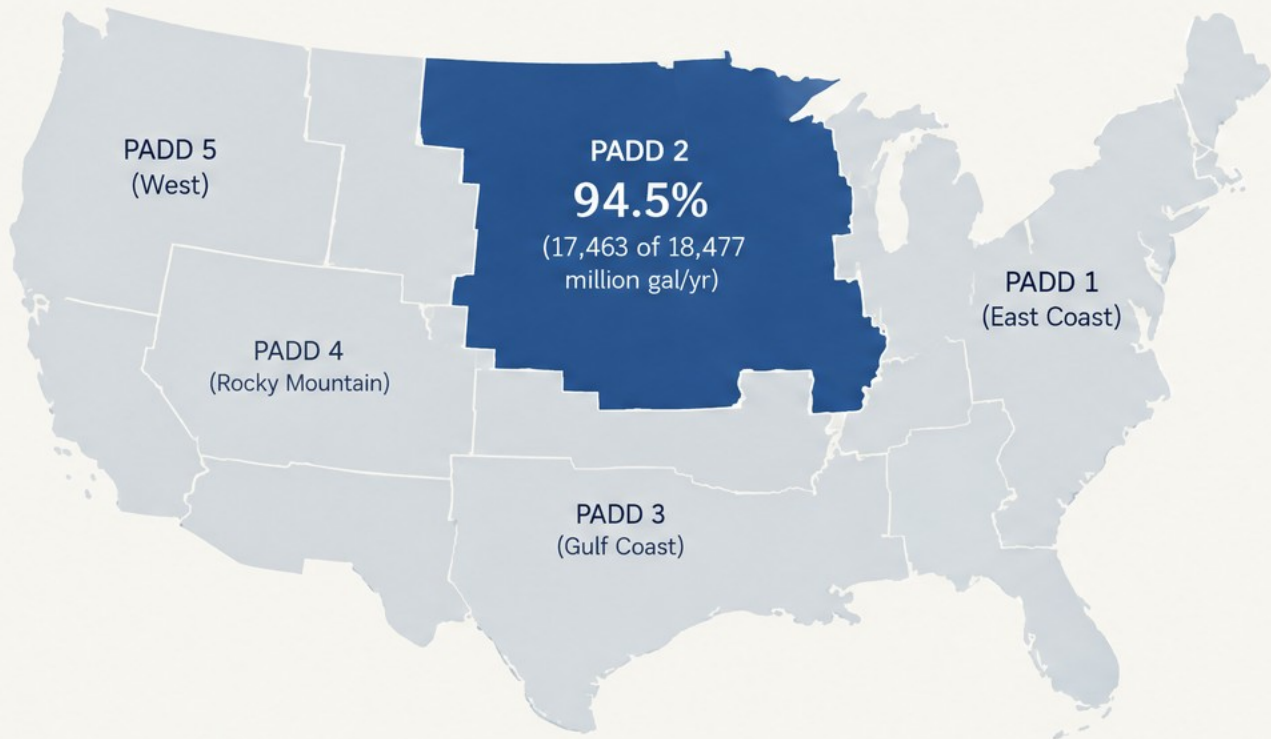
⚠ Modeled values depend on Treasury rules, credit's statutory end after 2029, credit-transfer pricing.

Where ethanol lives: the Midwest holds 94.5% of US capacity

PADD 2 (the Midwest) holds 17,463 of 18,477 million gallons a year, and 177 of 191 plants.

US fuel ethanol nameplate capacity by PADD

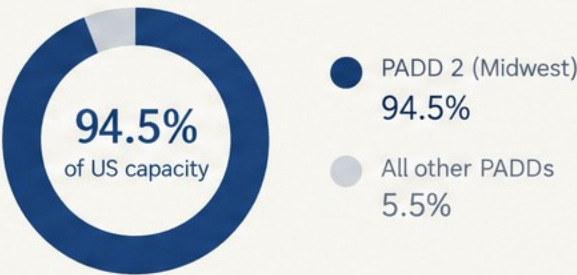
Share of total capacity (modeled)



PADD 2 CAPACITY

17,463
of 18,477 million gal a year

177
of 191 plants



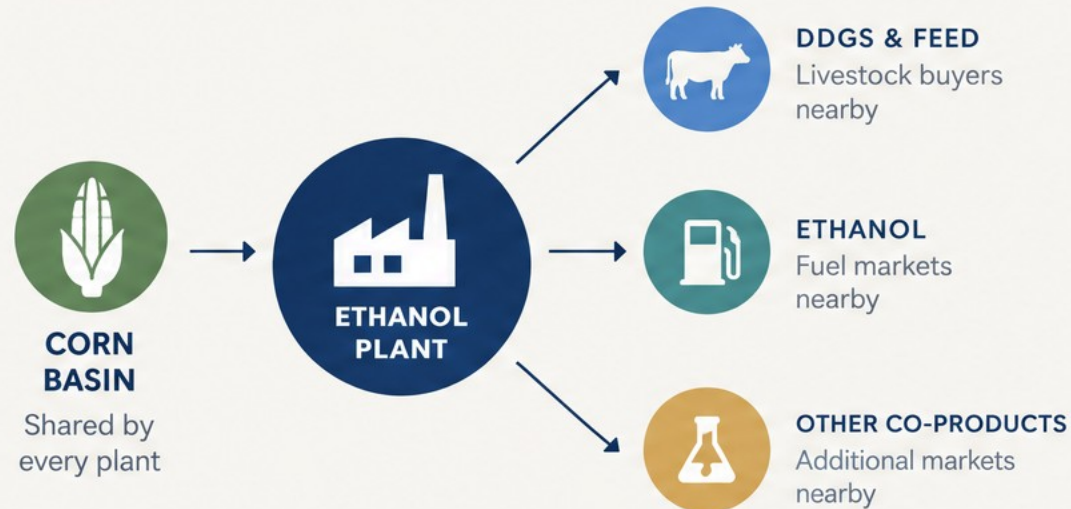
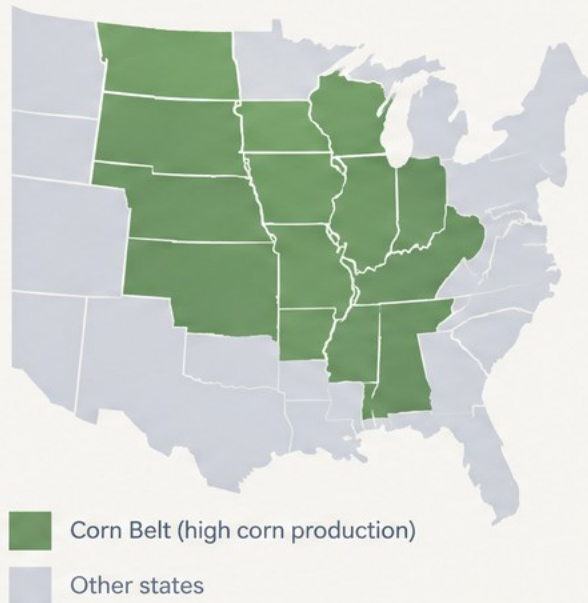
i Nameplate capacity includes idled plants.

What every plant inherits

A dense corn basin and nearby co-product markets give every plant in the cluster the same advantages — so they don't differentiate.

THE CORN BASIN FEEDS THE PLANT

The Midwest's dense corn production puts feedstock within reach of every plant in the cluster.



CLUSTER ANATOMY
Feedstock + plant + co-product markets

SHARED BY EVERY PLANT

These advantages are common to all plants in the cluster, so they don't differentiate.

- ✓ **CORN BASIN**
Reliable, local feedstock across the region.
- ✓ **CO-PRODUCT MARKETS**
Livestock, fuel and industrial buyers close by.
- ✓ **REGIONAL INFRASTRUCTURE**
Shared roads, rail, storage and logistics.

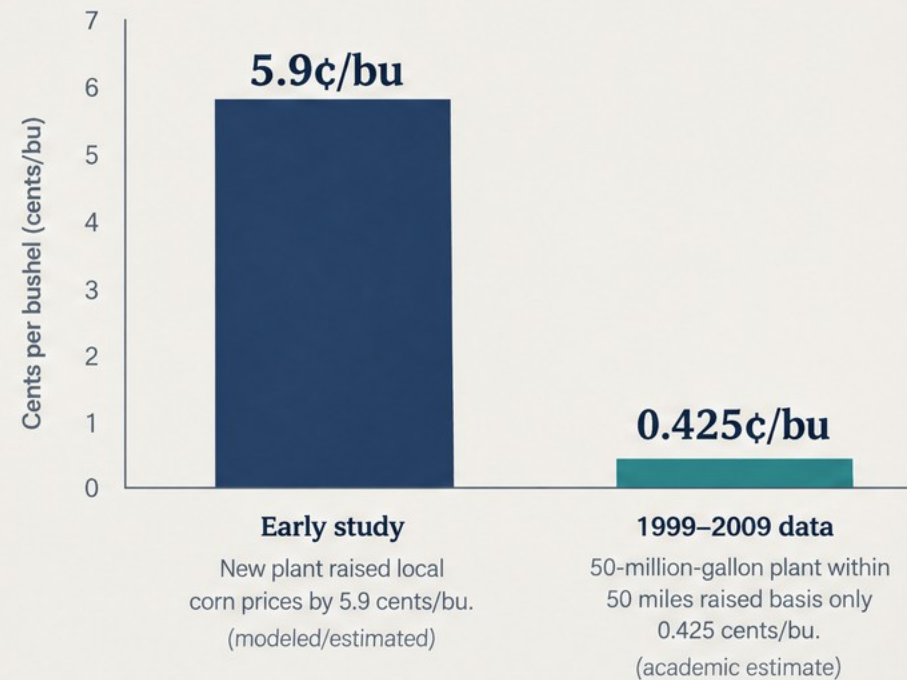
ANALYTICAL ILLUSTRATION

The premium that faded: local corn advantage shrinks as plants densify

Early studies found a new plant raised local corn prices about 5.9 cents/bu; in 1999–2009 data, a 50-million-gallon plant within 50 miles raised basis only 0.425 cents/bu.

Local corn price premium

From a meaningful boost in early studies to a minimal effect in later data.



Academic estimates

The local corn premium has largely faded as plants have become more dense in the region.



Academic estimates

5.9 cents/bu (early study)
0.425 cents/bu (1999–2009 data)



Keep in mind

- Academic estimates, not policy or industry values.
- Source: McNew & Griffith (2005); Behnke & Fortenbery (2011).

What this means



The old advantage

Once, a new plant could raise local corn prices by 5.9 cents/bu.



Now, it's minimal

In 1999–2009, the same effect was just 0.425 cents/bu.



Why it matters

With dense infrastructure and shared markets, local corn advantage is no longer a major driver of value.



The bigger shift

Lower carbon intensity — and access to CO₂ transport and storage — is now the key source of value.

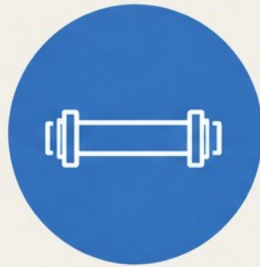
The new value driver: carbon intensity

Capture CO₂, move it to storage, lower carbon intensity, and earn 45Z value.



Capture CO₂

Capture CO₂ from ethanol plants and other sources.



Transport and storage

Move CO₂ via a shared pipeline network to geologic storage.



Lower carbon intensity

Reduce the plant's CI through CCS (and other practices).



45Z credit value

Higher CI value under the 45Z clean fuel credit.



Cheapest route to lower CI

Capture and storage is the lowest-cost way to reduce carbon intensity.



Storage needs a shared network

CO₂ storage requires a network crossing many counties and states.



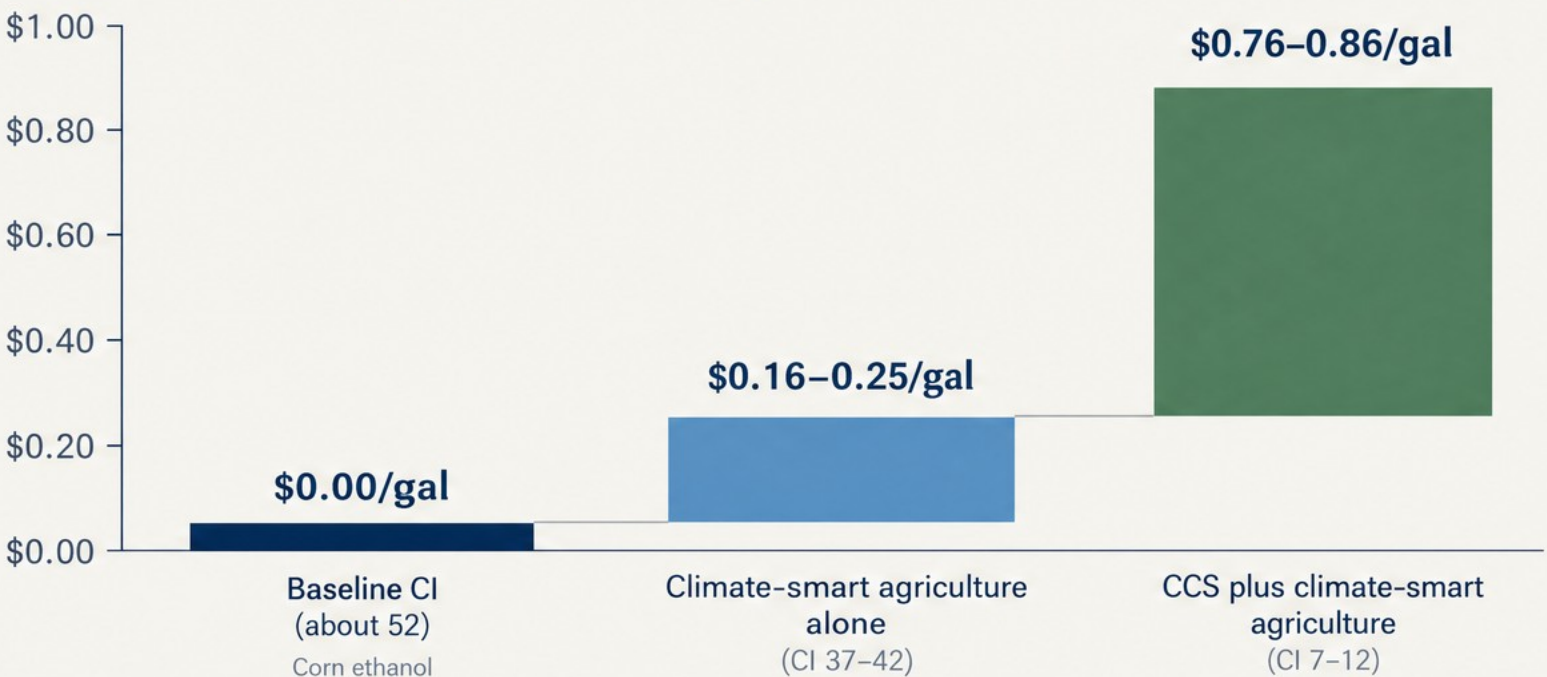
KEEP IN MIND

- 45Z values are modeled and depend on Treasury rules, credit-transfer pricing and the statutory end after 2029.

The value ladder: CCS is worth about 30 CI points, or about \$0.60 a gallon

Higher 45Z value comes from lower carbon intensity, with CCS plus climate-smart agriculture delivering the largest modeled lift.

Modeled 45Z values (per gallon of ethanol)



CCS alone is worth about 30 CI points, or about \$0.60 a gallon.
Modeled 45Z values.

! Key caveats

Modeled values depend on:

- Treasury rules
- The credit's statutory end after 2029
- Credit-transfer pricing



Source

NCGA/US Grains Council ethanol booklet,
March 2026 (industry analysis).



Keep visible: Modeled values depend on
Treasury rules, statutory end after 2029,
and credit-transfer pricing.

The network that was supposed to connect them

Summit Carbon Solutions originally planned about 57 ethanol plants in five states. The shared line was the intended path to storage.

~57
ethanol plants

in five states (original scope)

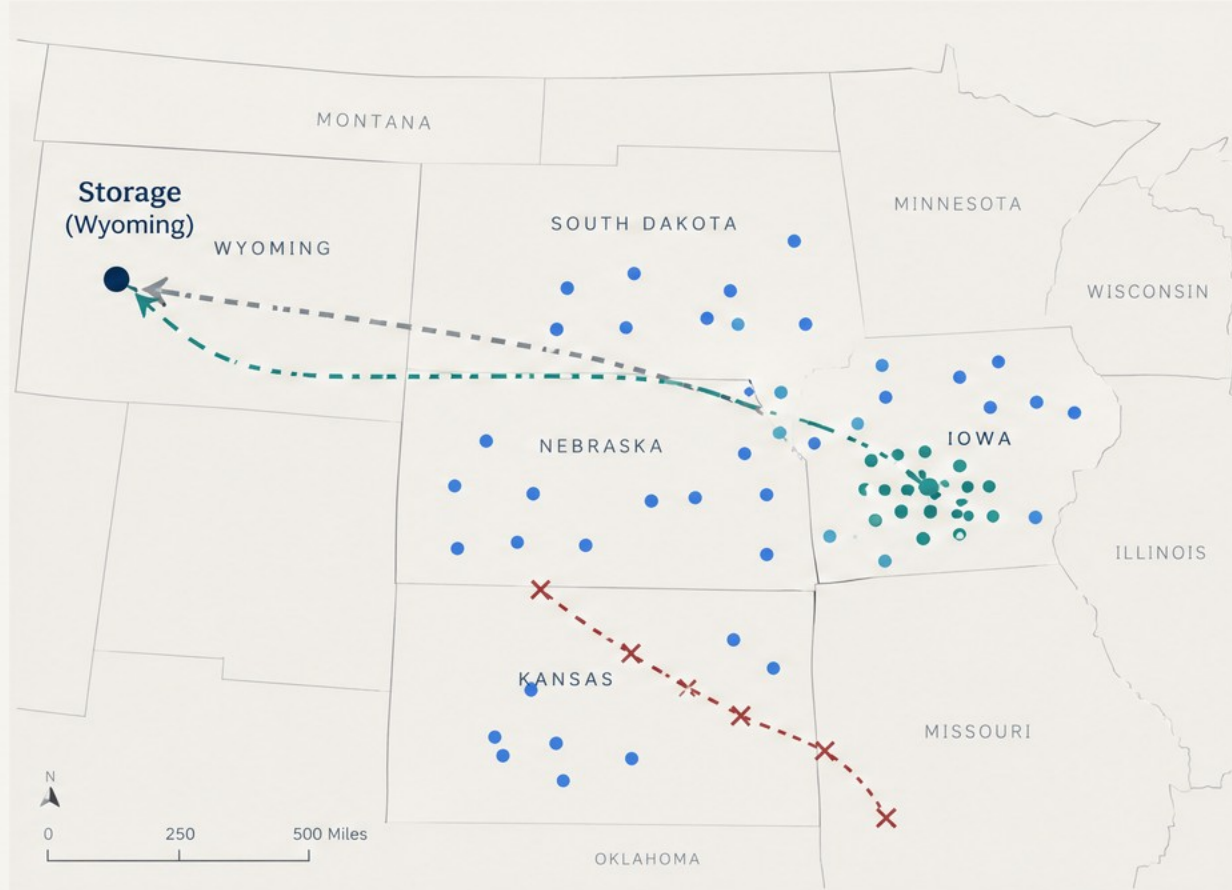
Network evolution

- Summit original scope
~57 plants, five states
- Summit revised route (May 2026)
27 Iowa plants, west to Wyoming
(announced, not operating)

--- Shared line (intended path to storage)

Other network

- ✗ Navigator network
1,300 miles (cancelled Oct. 2023)



What changed

Original plan (2024 and earlier)

Summit Carbon Solutions planned ~57 ethanol plants in five states.

Revised route (May 2026)

After South Dakota banned eminent domain for CO₂ pipelines (HB 1052, March 2025), Summit's May 2026 route serves 27 Iowa plants, running west to storage in Wyoming.

Navigator (cancelled)

Navigator's 1,300-mile network was cancelled in October 2023.

Summit's revised route is announced, not operating.

Analytical illustration

How it shrank: consent failure cut the network from about 57 plants to 27

South Dakota banned eminent domain for CO2 pipelines (HB 1052, March 2025).
Summit's May 2026 route serves 27 Iowa plants, running west to storage in Wyoming.
Navigator's 1,300-mile network cancelled October 2023.



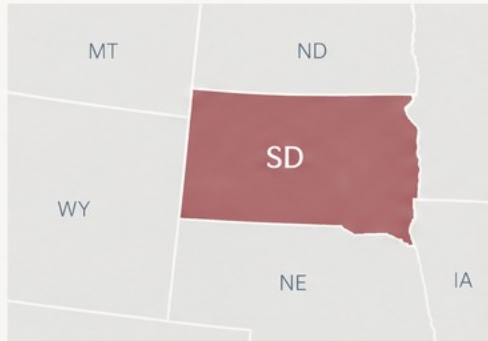
Key takeaway

Summit's revised route is announced, not operating.



South Dakota's consent failure

HB 1052 (March 2025) banned eminent domain for CO2 pipelines in South Dakota.



South Dakota banned eminent domain for CO2 pipelines (HB 1052, March 2025).



The result

It blocked Summit's original multi-state network and contributed to the network shrinking.



Before vs. after

From about 57 plants to 27, with a west-to-storage route.

Original plan (about 57 plants)



~57

ethanol plants
(five states)

Revised route (27 Iowa plants)



27

Iowa plants
(running west to storage
in Wyoming)



Navigator's 1,300-mile network

Cancelled in October 2023.



Key details



South Dakota

Banned eminent domain for CO2 pipelines (HB 1052, March 2025).



Summit's revised route

Serves 27 Iowa plants, running west to storage in Wyoming (May 2026).



Navigator

1,300-mile network cancelled (October 2023).



Important context

- Summit's revised route is announced, not operating.
- The full count of connected plants is not published.

The network that worked: reusing an existing corridor

An existing natural-gas line converted to CO₂ connects ethanol plants to storage, avoiding the consent problem and getting CO₂ moving.

- 1 Tallgrass Trailblazer**
Existing natural-gas line of about 392–400 miles converted to CO₂, with more than 10 million tonnes a year of capacity.
- 2 Began carrying CO₂**
Ethanol plant CO₂ began moving in October 2025.
- 3 Plants capturing by Q4 2025**
ADM Columbus and three Green Plains Nebraska plants were capturing by Q4 2025.
- 4 Reusing avoided the consent problem**
Reusing an existing right-of-way avoided the landowner and state consent problem.
- 5 Full count not published**
The full count of connected plants is not published.

The Tallgrass Trailblazer network (schematic)



-  **392–400 miles**
of existing natural-gas line converted to CO₂
-  **>10 million**
tonnes a year capacity
-  **Oct 2025**
began carrying ethanol plant CO₂
-  **ADM Columbus + 3 Green Plains plants**
capturing by Q4 2025
-  **Existing right-of-way**
avoided the consent problem
-  **Full count not published**
of connected plants

Source: Tallgrass; ADM; Green Plains, 2025–26 (company-reported).

Keep visible: full count of connected plants is not published.

Two tiers, one region

Same corn, same technology, same region — but access to a CO₂ line can mean about 60 cents a gallon more in modeled 45Z value. Not realized per-plant earnings.

● Connected tier

On an operating CO₂ line (Trailblazer)

\$0.76 – 0.86/gal

modeled value (CCS + CSA)



Trailblazer

Existing natural-gas line converted to CO₂ (392–400 miles, >10M tonnes/year capacity).

Connected: ADM Columbus + 3 Green Plains Nebraska plants capturing by Q4 2025.



Key advantages

- Reused right-of-way
- Avoided the consent problem
- Earlier start (Oct 2025)

Same corn. Same technology. Same region.
Different access. Different economics.

● Unconnected tier

Waiting on announced lines

\$0.00 – 0.25/gal

modeled value (without CCS)



Summit Carbon Solutions

Original plan: ~57 ethanol plants in 5 states. After SD banned eminent domain (HB 1052, Mar 2025), revised route serves 27 Iowa plants (west to Wyoming).

Navigator: 1,300-mile network cancelled Oct 2023.



Key headwinds

- Consent / landowner opposition
- State policy (SD HB 1052)
- Cancelled network (Navigator)

Same corn. Same technology. Same region.
But no pipeline — yet.

The gap

≈\$0.60/gal

modeled from CCS alone

Same inputs

- ✓ Same corn
- ✓ Same technology
- ✓ Same region

Remember



All values are modeled and depend on Treasury rules, the credit's statutory end after 2029, and credit-transfer pricing.



Modeled values — not realized per-plant earnings.

The bypass: plant-owned storage

Gevo cancelled its Lake Preston project in August 2026 after the Summit route failed there, then shifted to its North Dakota ethanol plant, which stores about 160,000 tonnes of CO₂ a year in its own well. A plant on storage geology can bypass the network. Alcohol-to-jet is not operating commercially in the Midwest.

1 Gevo cancelled Lake Preston project

In August 2026, Gevo cancelled its Lake Preston, South Dakota alcohol-to-jet project after the Summit route failed there.

2 Next project shifts to North Dakota

Gevo's next project is at its North Dakota ethanol plant.

3 Plant stores CO₂ in its own well

That plant stores about 160,000 tonnes of CO₂ a year in its own well, operating since 2022.

4 Storage geology can bypass the network

A plant on storage geology can bypass the network.

5 No commercial alcohol-to-jet in the Midwest

Alcohol-to-jet is not operating commercially in the Midwest.

Gevo's shift from Lake Preston to North Dakota



THE PLANT

~160,000

tonnes of CO₂ per year
Stored in its own well
(operating since 2022).

THE PROJECT

Lake Preston, South Dakota

Alcohol-to-jet project cancelled
in August 2026 after the
Summit route failed there.

THE NEXT STEP

North Dakota ethanol plant

Next project shifts to Gevo's
North Dakota ethanol plant.

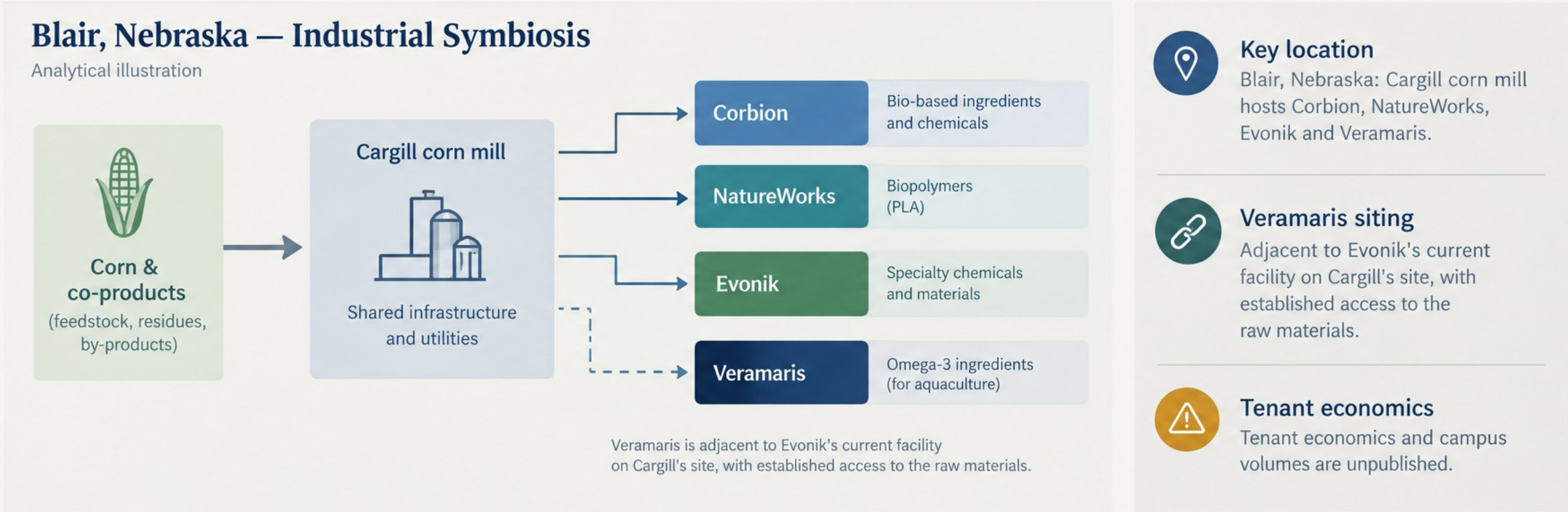
THE BIG PICTURE

Not operating commercially

Alcohol-to-jet is not operating
commercially in the Midwest.

A transition without CO₂: selling inputs to neighbors

Blair, Nebraska: Cargill corn mill hosts Corbion, NatureWorks, Evonik and Veramaris.
Veramaris sited adjacent to Evonik's current facility on Cargill's site, with established access to the raw materials.



⚠ Keep visible: Tenant economics and campus volumes are unpublished.

Who decides connection: state siting authorities

State siting and consent authorities are the cluster-level actor. Network owners propose lines; plants wait to connect.

1 **State siting and consent authorities are the cluster-level actor.**

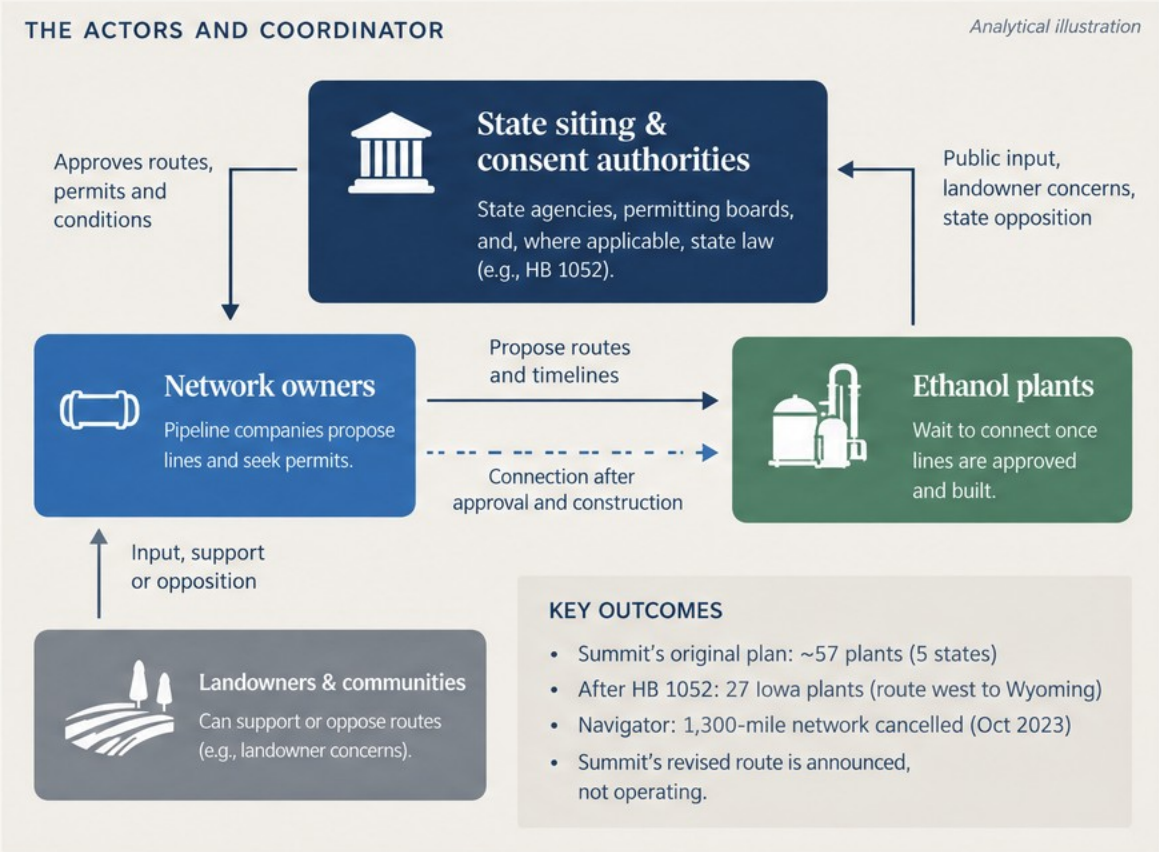
They decide whether and where CO₂ pipelines can be built, based on state law, landowner input and public opposition.

2 **Network owners propose lines; plants wait to connect.**

Pipeline companies (e.g., Summit, Navigator) propose routes and seek permits. Ethanol plants are ready to connect once the line is approved and built.

3 **Landowner and state opposition decided Summit's route; South Dakota HB 1052 banned eminent domain for CO₂ pipelines.**

Landowner concerns and state opposition reduced Summit's original plan from ~57 plants in five states to 27 Iowa plants. South Dakota's HB 1052 (March 2025) ended eminent domain for CO₂ pipelines.



THE CONTEXT MATTERS

Landowner and state opposition

Landowner concerns and state opposition reduced Summit's original plan.

South Dakota HB 1052

Banned eminent domain for CO₂ pipelines (March 2025).

Navigator cancelled

1,300-mile network cancelled (October 2023).

NOTE
Summit's revised route is announced, not operating.

The shared exposure: correlated drought risk

A major drought can hit the whole cluster — connected or not, plants share the same weather.



2012
drought



~9–10%
cut US ethanol
output



≥ 20
plants idled

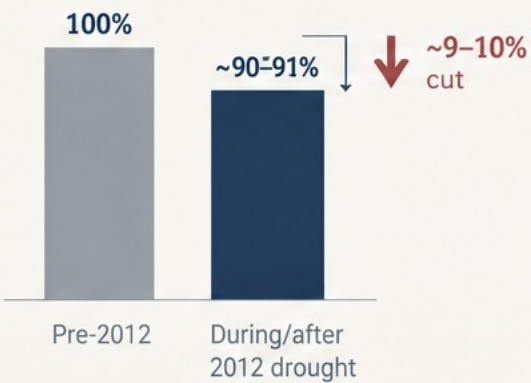


Same weather
for connected
and unconnected
plants

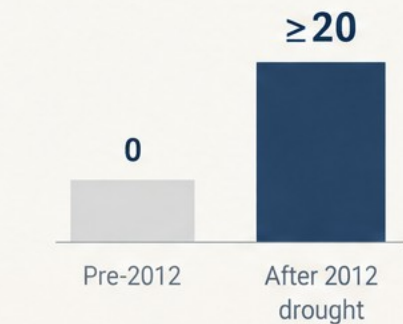
The 2012 drought hit the entire Midwest ethanol cluster

Lower corn yields, less feedstock, and reduced plant runs led to a sharp decline in US ethanol output and idled plants.

US ethanol output
(modeled change)



Plants idled
(minimum)

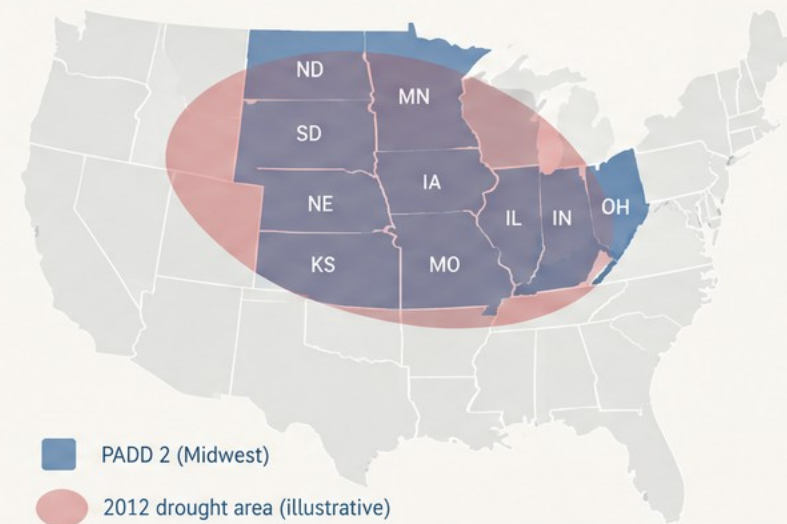


The shared risk

The drought didn't just impact a few facilities — it affected the entire Midwest ethanol cluster, connected or not.

The Midwest is a single weather system

Drought conditions reduced corn yields across the region, impacting all plants in the corn belt.



 Keep visible: modeled values and plant counts are minimums/estimates, not actuals.

Decision test: five questions for every plant

The right questions reveal the economics, the risks and the opportunities in the Midwest ethanol cluster transition.

1 Does this plant have a realistic route to storage: an operating line, its own geology, or neither?

- ☐ **Operating line**
Connected to an existing CO₂ pipeline (e.g., Tallgrass Trailblazer).
- ☐ **Own geology**
Can store CO₂ in a nearby geologic formation (e.g., Gevo).
- ☐ **Neither**
No line and no storage geology; relies on future networks (e.g., Summit).

Analytical illustration



2 Which jurisdictions must consent before a line reaches it?

- ☐ **State**
State agencies, permits, environmental review.
- ☐ **Local**
Counties, municipalities, land-use approvals.
- ☐ **Landowners**
Easements, property rights, compensation.

Analytical illustration



3 How much of the plant's value depends on modeled credits that end after 2029?

- ☐ **Currech value**
45Z clean fuel credit (modeled).
- ☐ **End date**
Credit ends after 2029 (per statute).
- ☐ **Uncertainty**
Depends on Treasury rules, credit-transfer pricing and future policy (modeled).

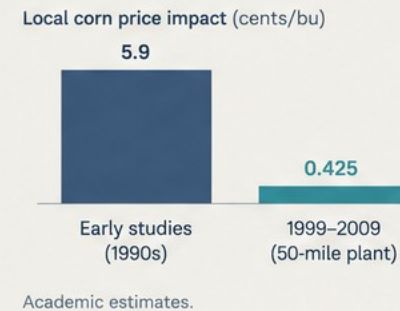
Analytical illustration



4 Is its local corn advantage still real, or shared by every neighbour?

- ☐ **Old advantage**
Early studies: +5.9¢/bu for a new plant (1990s).
- ☐ **Modern data**
1999-2009: +0.425¢/bu (within 50 miles).
- ☐ **Today**
High plant density and co-product markets have largely erased the local premium.

Analytical illustration



5 Could co-located manufacturing buy its outputs instead?

- ☐ **Existing campus**
Sell to nearby manufacturers (e.g., Cargill/Corbion/NatureWorks/Evonik/Veramaris).
- ☐ **New partners**
Attract co-located value chains (e.g., foods, chemicals, materials).
- ☐ **Not a given**
Tenant economics and campus-wide volumes are unpublished.

Analytical illustration

