RENEWABLE FUELS NEBRASKA

U.S. ETHANOL PRODUCERS' EFFORTS TO REDUCE CARBON INTENSITY

NEBRASKA'S LEADERSHIP AND OPPORTUNITIES FOR JAPAN

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RENEWABLE FUELS NEBRASKA

DECARBONIZING LIQUID FUELS WITH LOWER ETHANOL

- CI

FROM VOLUME TO VALUE:
WHY CI IS THE NEW METRIC

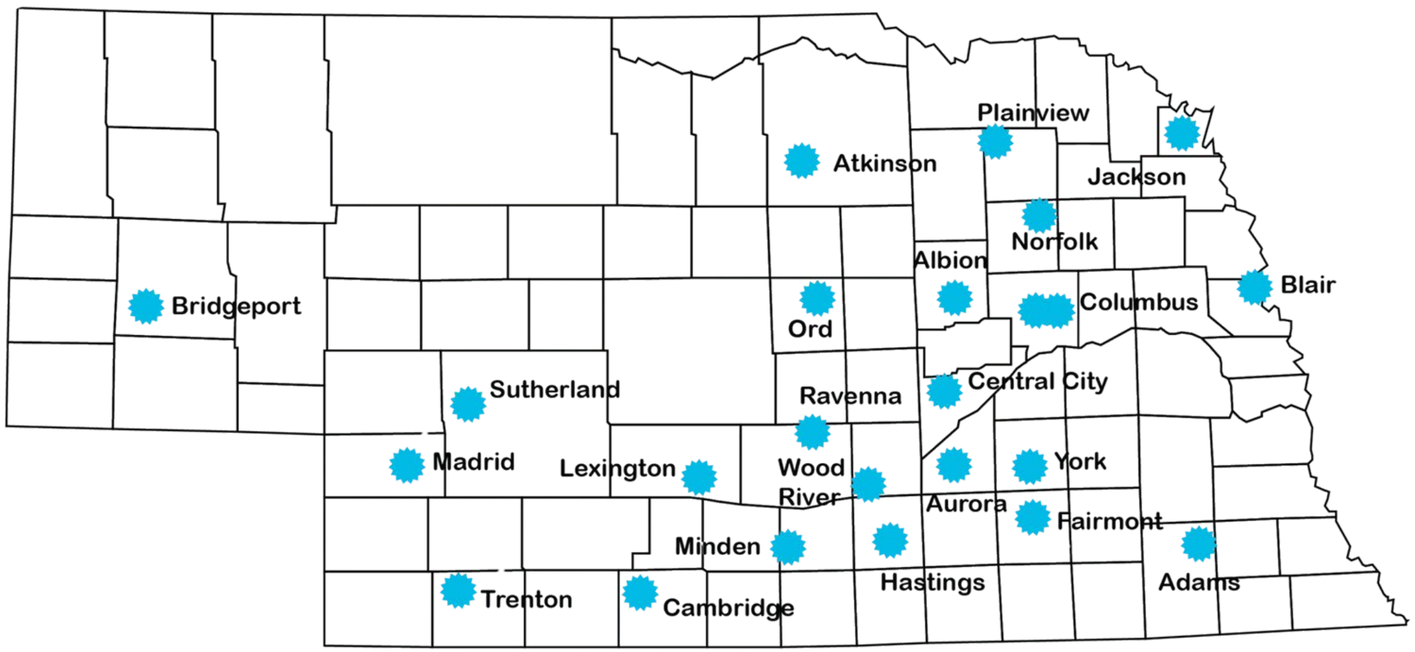
LIFE CYCLE ASSESSMENT (LCA) = EMISSIONS FROM “FIELD TO WHEEL”

U.S. PRODUCERS COMPETE ON CARBON PERFORMANCE,

NOT ONLY PRICE.

CI NOW DRIVES:

NEBRASKA'S ROLE IN U.S. LOW - CARBON ETHANOL



- ~24 ETHANOL PLANTS
- AMERICA'S SECOND LARGEST ETHANOL PRODUCER
- STRONG RAIL, PIPELINE, & EXPORT LOGISTICS
- LONG HISTORY OF SERVING INTERNATIONAL MARKETS

INSIDE THE BIOREFINERY:
CUTTING CI AT THE PLANT LEVEL

Energy efficiency upgrades

High-efficiency dryers, boilers, heat recovery

Process optimization

Enzymes, yeast, fermentation controls

Co-products & fuel switching

Lower-carbon steam & electricity + optimized DDGS & corn oil recovery

DECARBONIZING ENERGY INPUTS

LOWER -CARBON NATURAL GAS SYSTEMS

GROWING USE OF:

- RENEWABLE/CLEAN ENERGY (NUCLEAR/WIND/SOLAR)
- ON-SITE GENERATION WHERE FEASIBLE

POTENTIAL INTEGRATION WITH:

- THERMAL ENERGY STORAGE
- RENEWABLE STEAM SOLUTIONS

FROM STACK TO STORAGE: **CCU & CCS PROJECTS**

Fermentation

CO_2 is:

- Nearly pure stream
- Ideal for CCUS

Pathway to deep CI reductions:

- 20–30+ gCO_2e/MJ reductions possible with storage
- Critical for SAF & premium low-CI markets

Nebraska projects:

- Trailblazer / Tallgrass CO_2 pipeline concept

TALLGRASS TRAILBLAZER : NEBRASKA'S LOW-CARBON BREAKTHROUGH

CO_2 "HIGHWAY" FOR ETHANOL PLANTS :
Converts an existing pipeline to collect CO_2 from multiple Nebraska facilities.

SECURE UNDERGROUND STORAGE:
TRAnsports CO_2 to deep geologic formations in Wyoming & western Nebraska for permanent sequestration.

LARGE-SCALE CAPACITY:
DESIGned to move **up to 10 million metric tons of CO_2 per year.**

BROAD PLANT PARTICIPATION:
Expected to connect **nearly half of Nebraska ethanol plants** , with room for regional expansion.

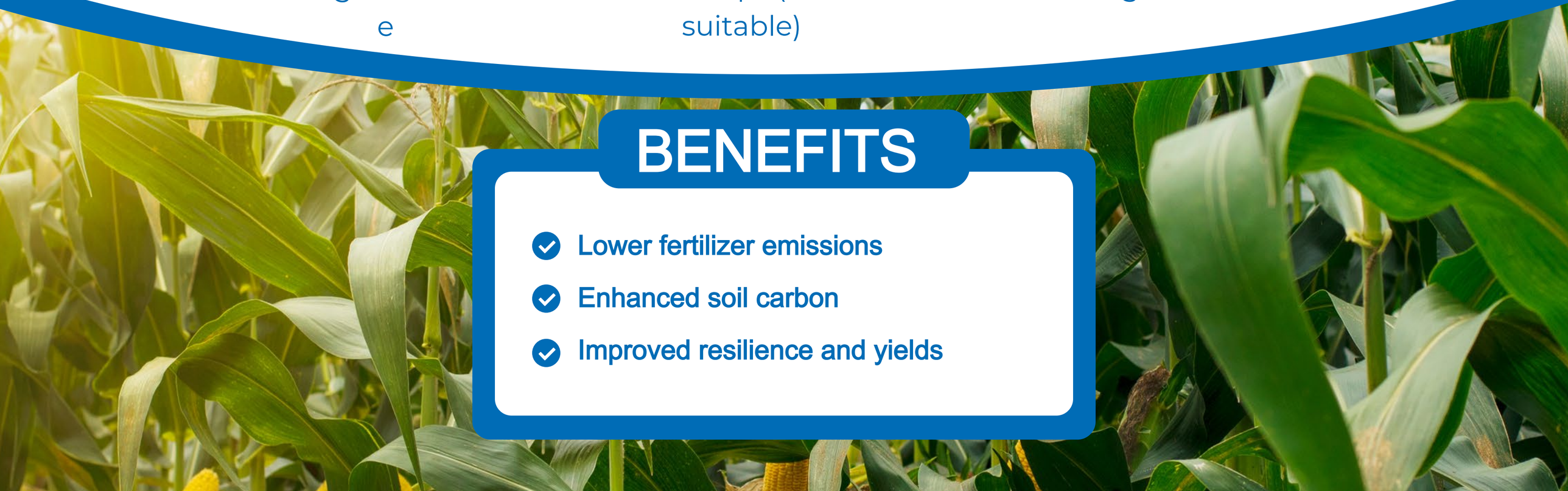
MAJOR CI REDUCTIONS:
Can lower carbon intensity by **20–30 points or more** , unlocking premium low-carbon markets.

ECONOMIC & MARKET IMPACT
STREngthens Nebraska's ethanol industry, supports rural economies, & expands access to LCFS, Canada CFR, SAF markets, & future Japan demand

LOWER -CARBON CORN:
THE FOUNDATION OF LOW-CI ETHANOL

NEBRASKA CORN GROWERS ADOPTING:

- Precision agriculture
- Reduced tillage, cover crops (where suitable)
- Improved nitrogen management



BENEFITS

- Lower fertilizer emissions
- Enhanced soil carbon
- Improved resilience and yields

HOW **NEBRASKA POLICY** DRIVES **CARBON INTENSITY REDUCTIONS**

E15 Access Standard & Higher Blend Incentives

- EXPANDS STATEWIDE AVAILABILITY OF E15 AND HIGHER BLENDS
- PROVIDES PER - GALLON TAX CREDITS TO RETAILERS

Sustainable Aviation Fuel (SAF) Tax Credit

- REWARDS SAF MADE FROM LOW -CI ETHANOL
- ENCOURAGES ETHANOL - TO-JET INVESTMENT & INNOVATION

Carbon Capture & Storage (CCS) Policy

- SETS CLASS VI CO_2 WELL RULES & ENABLES SECURE, PERMANENT STORAGE
- SUPPORTS MAJOR CCUS PROJECTS

NEBRASKA'S E15 ACCESS STANDARD & HIGHER BLEND TAX CREDITS E15 **INFRASTRUCTURE REQUIREMENTS**

JAN 1, 2024

New or significantly upgraded retail sites must sell E15 from at least 50% of qualifying dispensers.

JAN 1, 2028

All sites must offer E15 from at least one dispenser, unless exempted.

ENFORCEMENT: STATE MAY SUSPEND OR REVOKE PERMITS FOR NON-COMPLIANCE.

STATEWIDE ETHANOL BLEND REPORTING

- Starting 2025: Nebraska reports the statewide ethanol blend rate annually & Retailers must submit quarterly fuel sales and ethanol-content reports.
- If statewide blend < 14% in 2027: All stations must offer E15 from at least one dispenser.

2024	2025	2026	2027	2028
$0.08/GAL	**$0.09/GAL**	**$0.08/GAL**	**$0.07/GAL**	**$0.05/GAL**

NEBRASKA'S **SUSTAINABLE AVIATION FUEL** (SAF) **TAX CREDIT**

Nebraska SAF Incentive (2024 –2032)

- $0.75/gal tax credit for SAF achieving ≥50% GHG reduction
- Applies to SAF produced & sold in Nebraska
- Available through Dec 31, 2032

Why This Matters for Ethanol Producers

- Lower-CI ethanol = higher-value SAF
- Encourages ethanol-to-jet production & CCS/co-location investments
- Strengthens long-term competitiveness in aviation fuels

NEBRASKA CCS POLICY & CLASS VI FRAMEWORK

BUILDING A FOUNDATION FOR LARGE -SCALE CCS

CLEAR CLASS VI CO_2 STORAGE RULES

- Modern safety, monitoring, and pore-space standards
- Enables permanent, verifiable geologic storage

MOVING TOWARD STATE PRIMACY

- State-led permitting instead of federal EPA
- Faster timelines (≈1–2 years vs. several years)
- Greater certainty for investors & ethanol producers

SUPPORTING MAJOR CCUS PROJECTS

- Trailblazer / Tallgrass pipeline system
- Multi-plant CO_2 capture and storage network

IMPACT ON CARBON INTENSITY

- CCS can reduce ethanol CI by 20–30+ points
- Essential for SAF, LCFS markets, & international buyers
- Positions NE as a supplier of very low-CI ethanol

RFN'S POLICY ADVOCACY & FEDERAL PARTNERSHIPS

RFN INTERFACES WITH

- Nebraska Legislature & agencies
- Governor’s office, Nebraska Ethanol Board

FEDERAL ENGAGEMENT

- Nebraska congressional delegation
- U.S. EPA, USDA, DOE on fuel policy & CI

PRIORITIES

- Fair CI accounting
- Stable incentives (45Z, SAF credits)
- Infrastructure for higher blends & CCUS

REAL-WORLD DEMONSTRATIONS: **E30 & STATE FLEET**

E30 STATE FLEET DEMONSTRATIONS

- TESTING HIGHER ETHANOL BLENDS IN EVERYDAY VEHICLES
- MONITORING PERFORMANCE, EMISSIONS, & COST

LESSONS

- STRONG DRIVABILITY
- LOWER GHG EMISSIONS
- POTENTIAL MODEL FOR OTHER FLEETS

OPPORTUNITIES FOR JAPAN : RELIABLE, LOWER-CI ETHANOL

U.S. / NEBRASKA ETHANOL CAN OFFER:

- Secure, scalable supply
- Documented CI reductions

APPLICATIONS:

- Low-carbon gasoline pools
- SAF feedstock pathways

COLLABORATION IDEAS:

- Joint CI verification & data sharing
- Long-term off-take linked to CI targets
- Technology & policy exchanges

PARTNERING FOR A **LOW - CARBON FUTURE**

U.S. ETHANOL PRODUCERS ARE:

- Investing in CI reduction at every step
- Leveraging CCUS and farm innovations
- Supported by evolving state & federal policy

RENEWABLE FUELS NEBRASKA

THANK YOU

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