

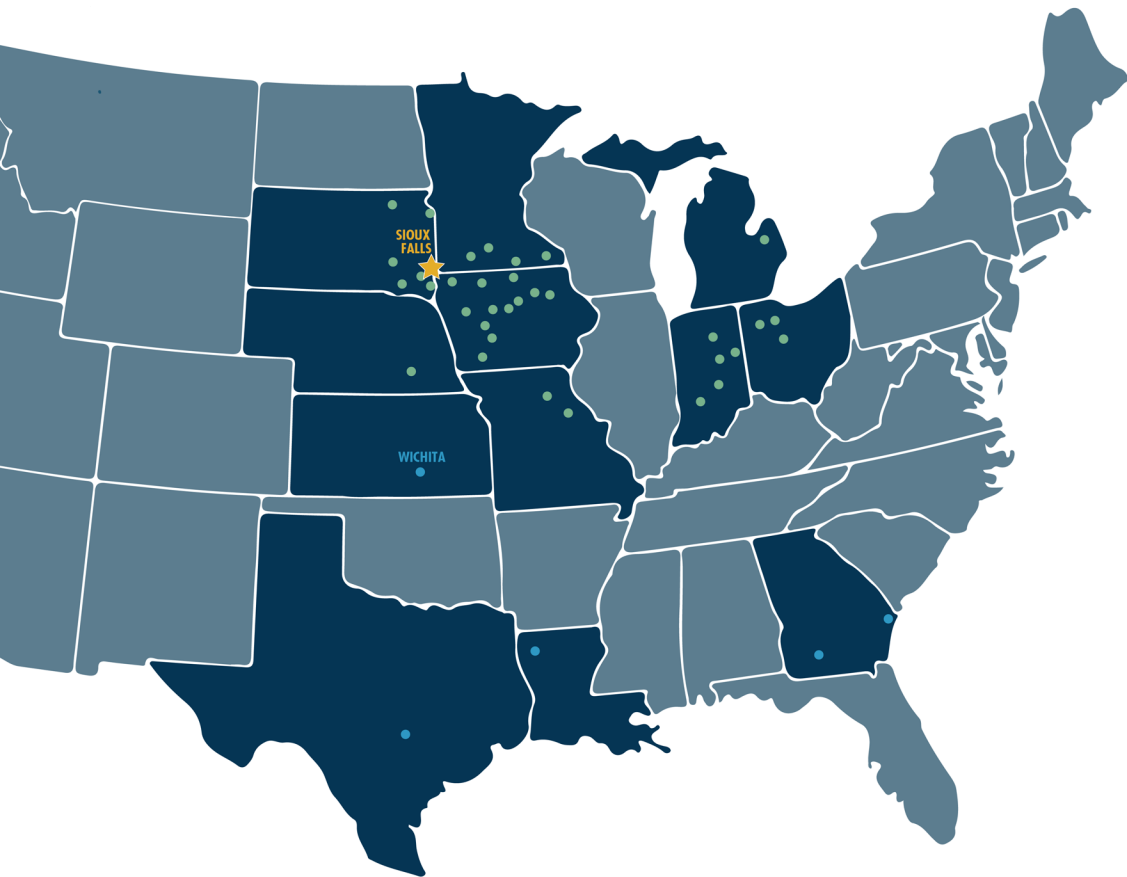
Ethanol Decarbonization Road Maps: Co-product Perspective

DGTC 2024 Symposium

11/12/2024

Topics

- Biofuel Policy
- Supply Chain Pressures & Climate Disclosures
- Lifecycle Assessment
- Making Progress



WORLD'S LARGEST PRODUCER OF BIOETHANOL

34 PLANTS

2,400 TEAM
MEMBERS



3 Billion gal.

PRODUCTION
CAPACITY



1 Billion Bu.

OF CORN PURCHASED
ANNUALLY



14 Billion lbs.

DISTILLERS DRIED GRAINS
PRODUCED ANNUALLY



975 Million lbs.

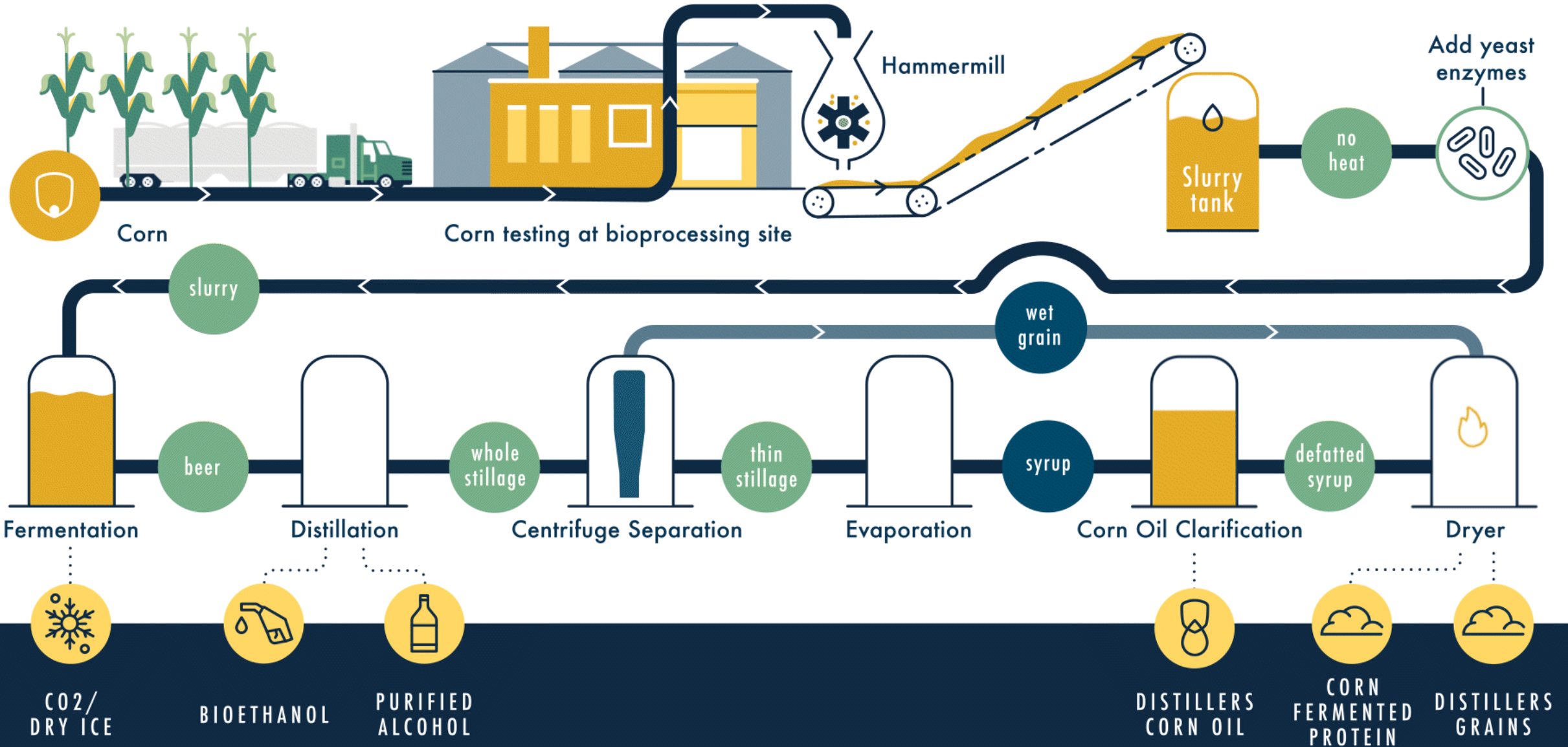
CORN OIL PRODUCED
ANNUALLY



**8.6 Million
Metric Tons**

OF BIOGENIC CO2 PRODUCED

POET'S PRODUCTION PROCESS



Biofuel Policy

Traceability Requirements and Incentivizing Decarbonization

TRACEABILITY & SUSTAINABILITY



CANADA CFR

- Traceability Program for U.S. Biofuels
- Legislative Recognition and Deference to U.S. Federal Environmental Law



EU RED II PROTOCOL

- Substantive Sustainability Standards
- Feedstock Tracing/Mass Balancing



INFLATION REDUCTION ACT

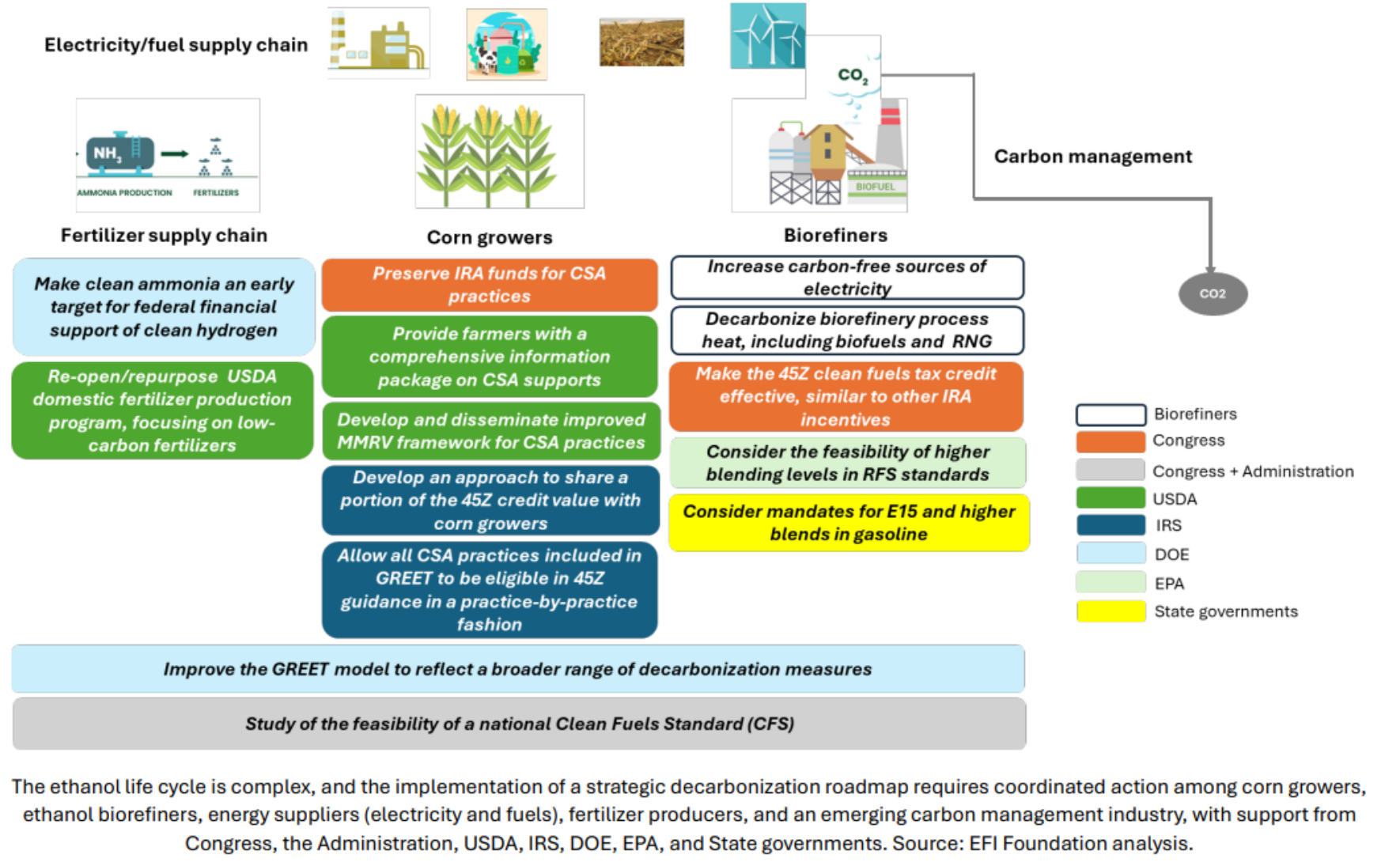
- Recognizes Climate Smart Agriculture
- 40B SAF Tax Credit

INCENTIVES DRIVING SUSTAINABILITY

- Federal Tax Credits
- LCFS Crediting
- Favorable Export Economics

EFIF's: A Strategic Roadmap for Decarbonizing Ethanol

Figure 3. Whole of government recommendations to implement the Ethanol Decarbonization Strategic Roadmap

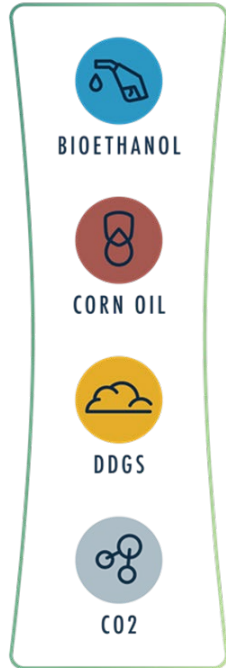


Supply Chain Pressures & Climate Disclosures

Pressures

Prefer Carrots

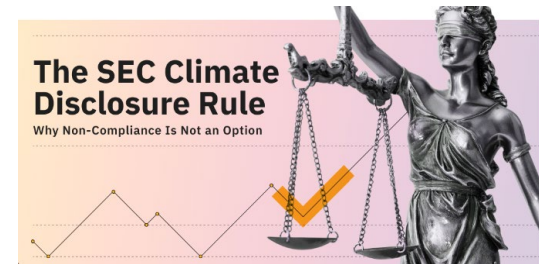
POET PRODUCTS



MARKET EXPECTATIONS



Over Sticks



California Approves Groundbreaking Climate Disclosure Law



The New York State Senate

Senate Bill S897A

2023-2024 Legislative Session

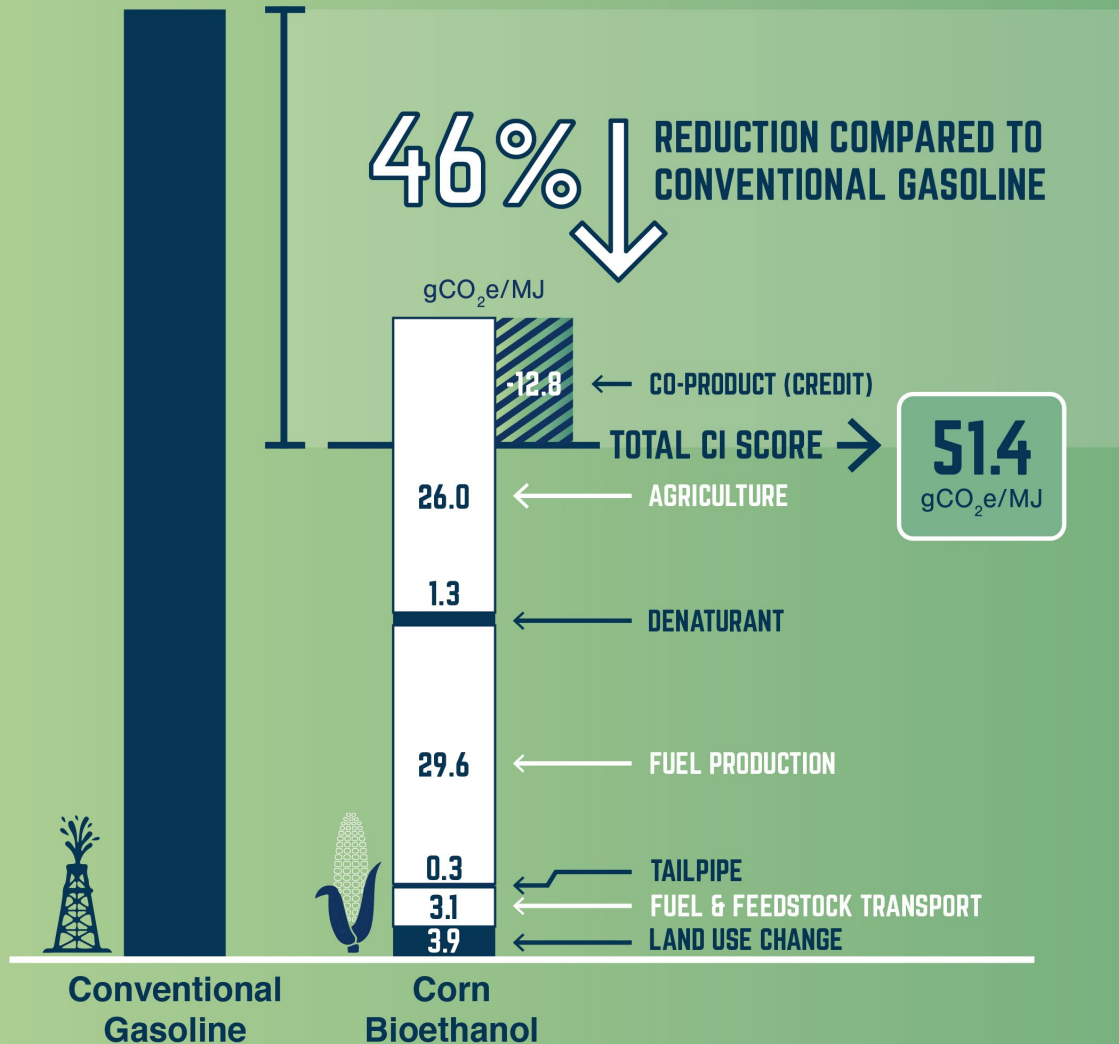
Establishes the climate corporate accountability act

Washington bill would mandate corporate GHG emission disclosures

Life Cycle Assessments

BIOETHANOL CARBON INTENSITY

TODAY & TOMORROW



The Path to Zero Carbon

-5
gCO₂e/MJ
Wind/Solar

-65
gCO₂e/MJ
Dairy/Swine Biogas

-10
gCO₂e/MJ
100% Wet Distillers' Grain

-30
gCO₂e/MJ
CO₂ Sequestration

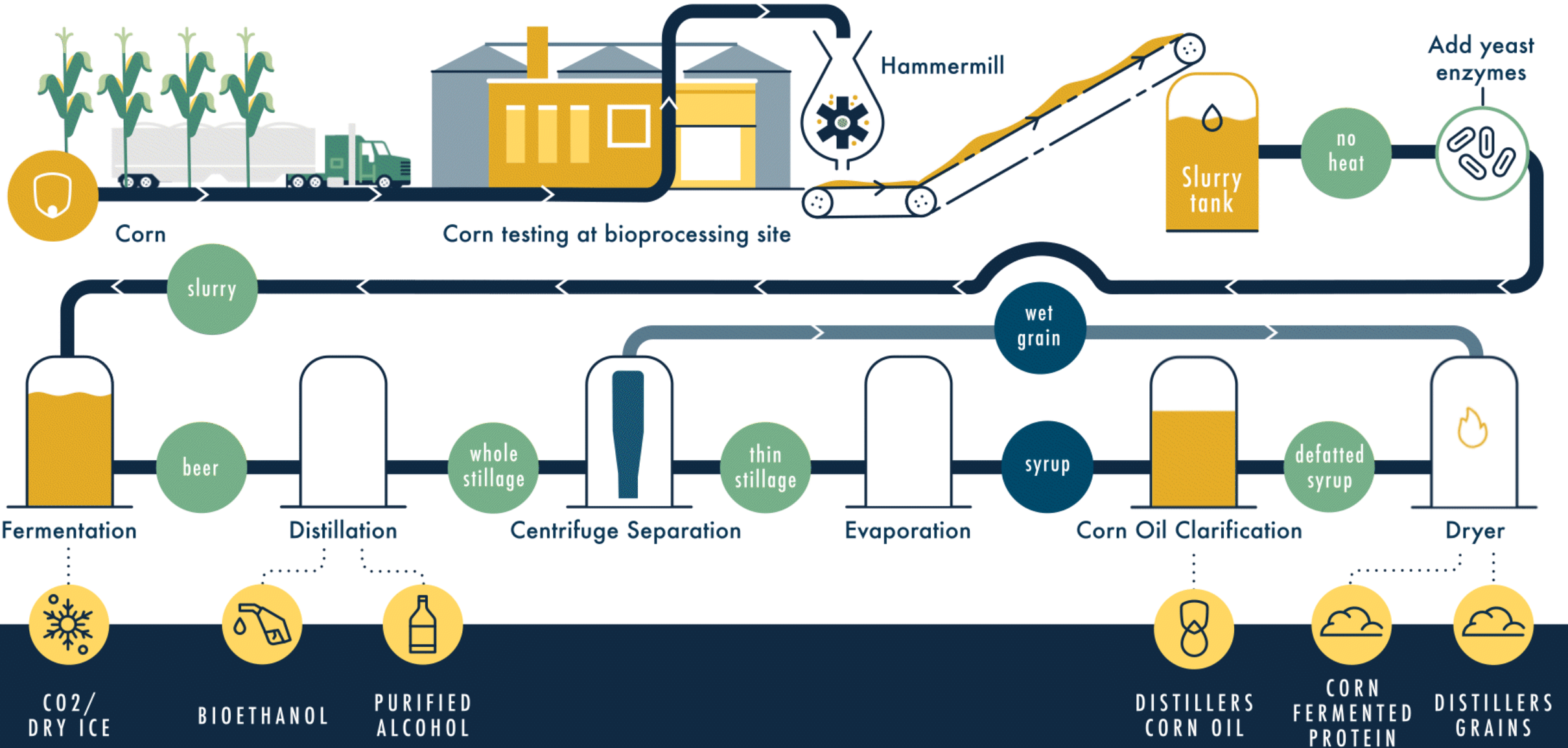
-10
gCO₂e/MJ
Fertilizer

-30
gCO₂e/MJ
Corn Farming Soil Organic Carbon

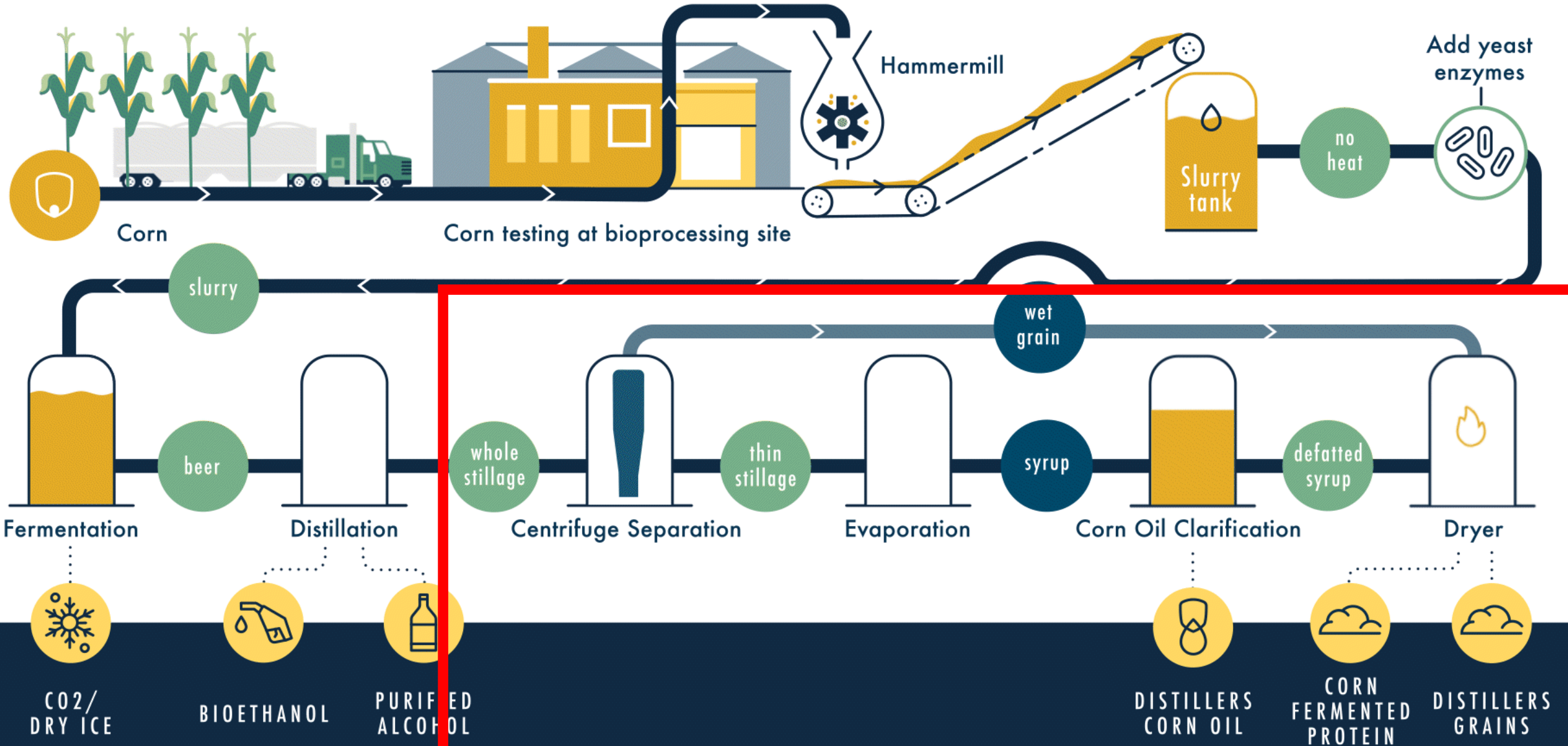
Co-Product LCA Requests

- More than just Carbon Intensity
- LCA to include measurements of:
 - GHG Emissions
 - Water Withdrawal
 - Land Area
 - GHG Emissions related to LUC
 - CCS reported separate to emissions
 - Attributional
 - Economic and Mass
- Standards:
 - PEF/PEFCR
 - ISO 14040/44

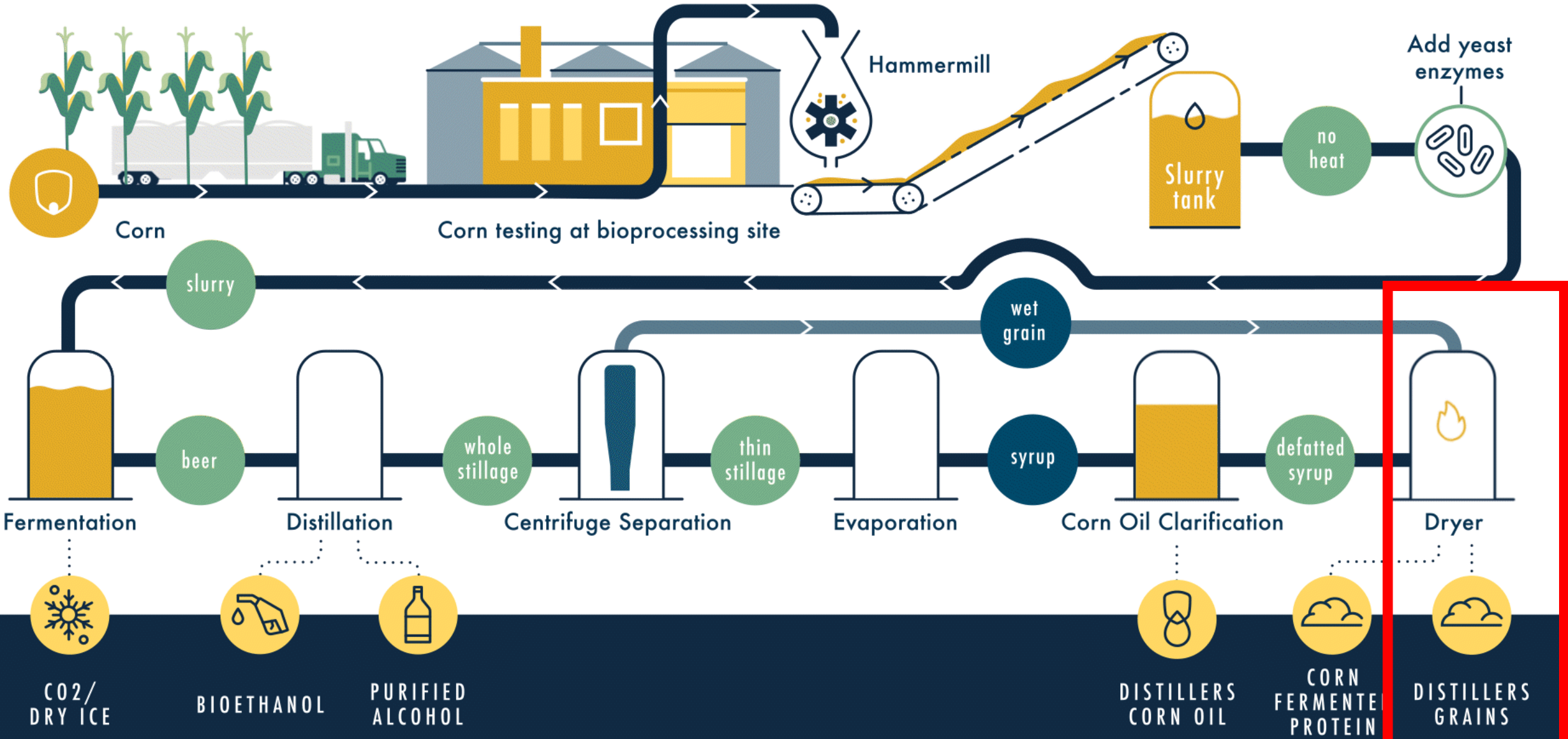
POET'S PRODUCTION PROCESS



POET'S PRODUCTION PROCESS

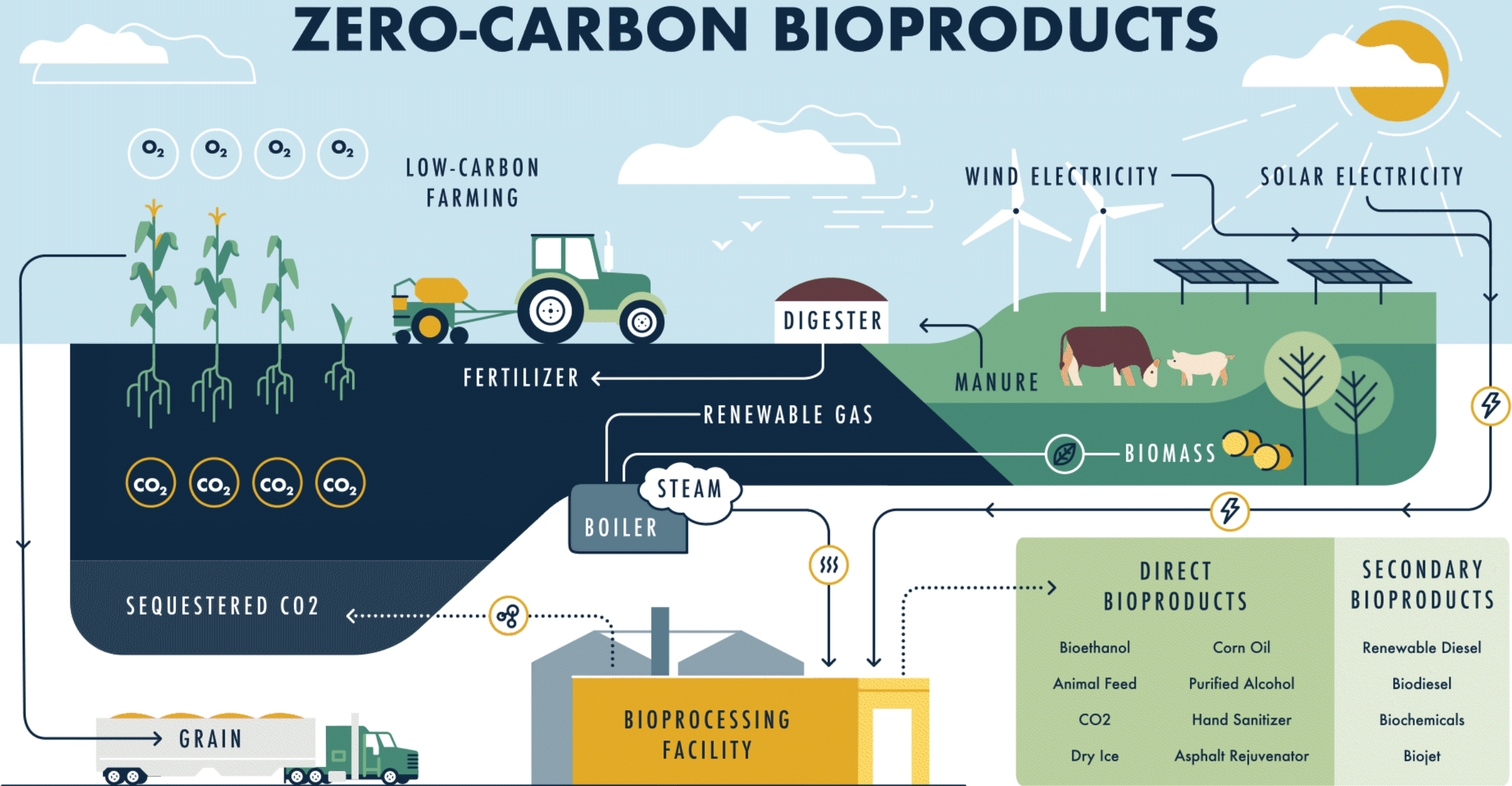


POET'S PRODUCTION PROCESS

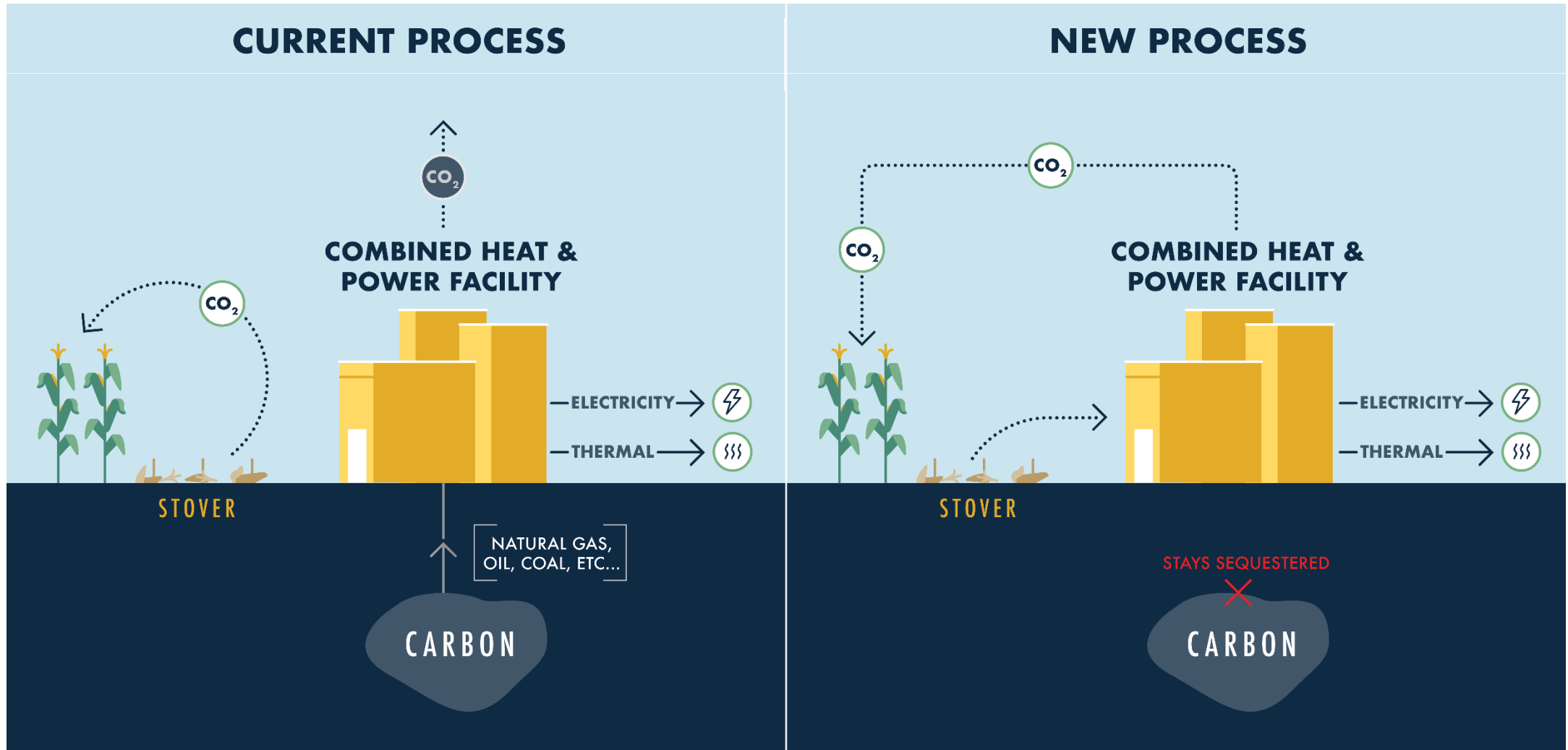


Making Progress

ZERO-CARBON BIOPRODUCTS



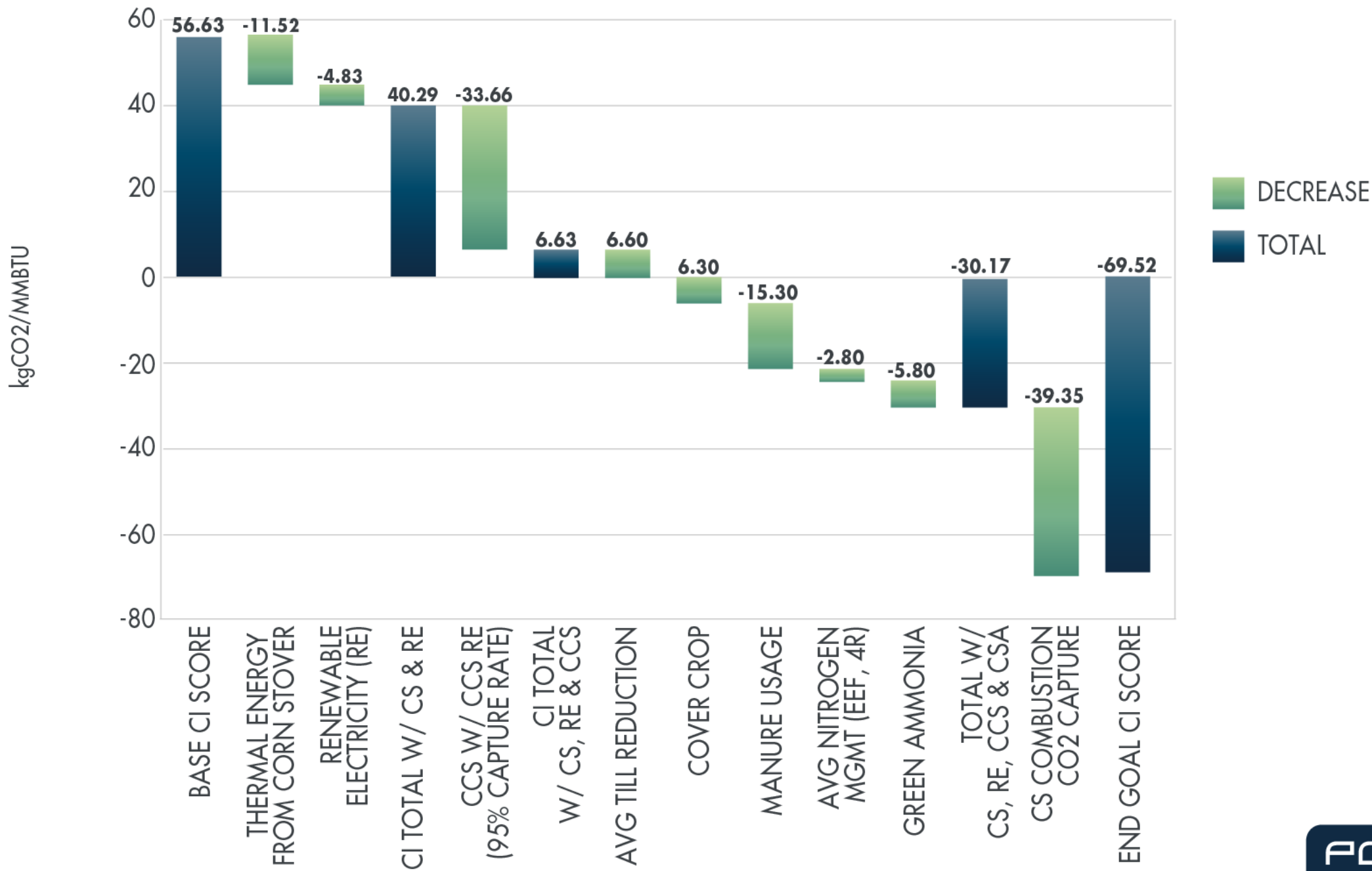
POET: Biomass for Heat and Power



Biomass to Bioenergy



CARBON INTENSITY REDUCTION ROADMAP



Making Progress Together

- Consider Co-Product Perspective in Decarbonization
- Work with Industry Associations on LCA modeling approach
- Continue to monitor different policy that may help incentivize decarbonization, make public comment
- Continue to educate the supply chain on co-products

QUESTIONS?

THANK YOU!

POET®