



Green Plains

Ingredients that matter

Investor Presentation

May 2024



Forward-Looking Statements

This presentation includes forward-looking statements that reflect management’s current views of company performance, industry conditions and future economic environment. These statements are based on assumptions and various factors that are subject to risks and uncertainties. Green Plains has provided additional information about such risks and uncertainties that could cause actual results to differ materially from those expressed or implied in its reports filed with the Securities and Exchange Commission.

Forward-looking statements are made in accordance with safe harbor provisions of the Private Securities Litigation Reform Act of 1995. These statements are based on current expectations which involve a number of risks and uncertainties and do not relate strictly to historical or current facts, but rather to plans and objectives for future operations. These statements include words such as “anticipate,” “believe,” “continue,” “estimate,” “expect,” “intend,” “outlook,” “plan,” “predict,” “may,” “could,” “should,” “will” and similar words and phrases as well as statements regarding future operating or financial performance or guidance, business strategy, environment, key trends and benefits of actual or planned acquisitions.

Factors that could cause actual results to differ from those expressed or implied are discussed in this report under “Risk Factors” or incorporated by reference. Specifically, we may experience fluctuations in future operating results due to a number of economic conditions, including: disruption caused by health epidemics, such as the COVID-19 outbreak; competition in the ethanol industry and other industries in which we operate; commodity market risks, including those that may result from weather conditions; financial market risks; counterparty risks; risks associated with changes to government policy or regulation, including changes to tax laws; risks related to acquisitions and disposition activities and achieving anticipated results; risks associated with merchant trading; risks related to our equity method investees and other factors detailed in reports filed with the SEC.

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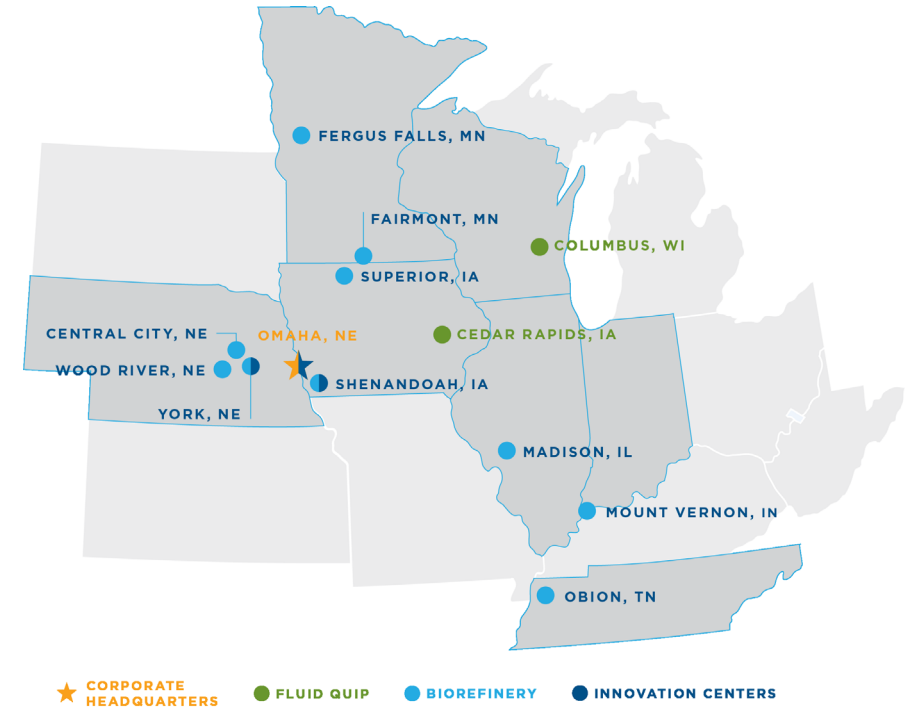
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Green Plains – A Technology Driven Producer of Low Carbon Ingredients

Operational Areas

Ethanol Production	<p>Produces -900MM gallons of ethanol annually across 10 biorefineries</p> <p>Produces -2MM of equivalent dried tons of distillers grain annually</p> <p>Originates more than 300MM bushels of corn annually through more than 5,000 farmer customers</p>
Fluid Quip Technologies	<p>Owens intellectual property driving the growth of DCO Tech™, MSC™ Ultra-High Protein and CST™; with over 40 patents approved and more pending</p>
Renewable Corn Oil	<p>Renewable corn oil capacity of -300MM lbs today and targeting higher yields through deployment of various corn oil technologies</p>
Ultra-High Protein	<p>MSC™ technology deployed at five Green Plains locations with 330K tons of Ultra-high Protein capacity, Tharaldson JV coming online in Q2 2024</p>
Clean Sugar Technology	<p>Expect to have over 200MMlbs / y of dextrose capacity in 2024 with opportunity to expand Shenandoah CST™ to 500MM lbs / y</p>
Carbon Reduction	<p>Opportunity to remove -1.7MM metric tons of CO₂ from the atmosphere through planned CCUS initiatives and potential upside from additional CCUS opportunities beginning as early as the second half of 2025</p>



Green Plains Today

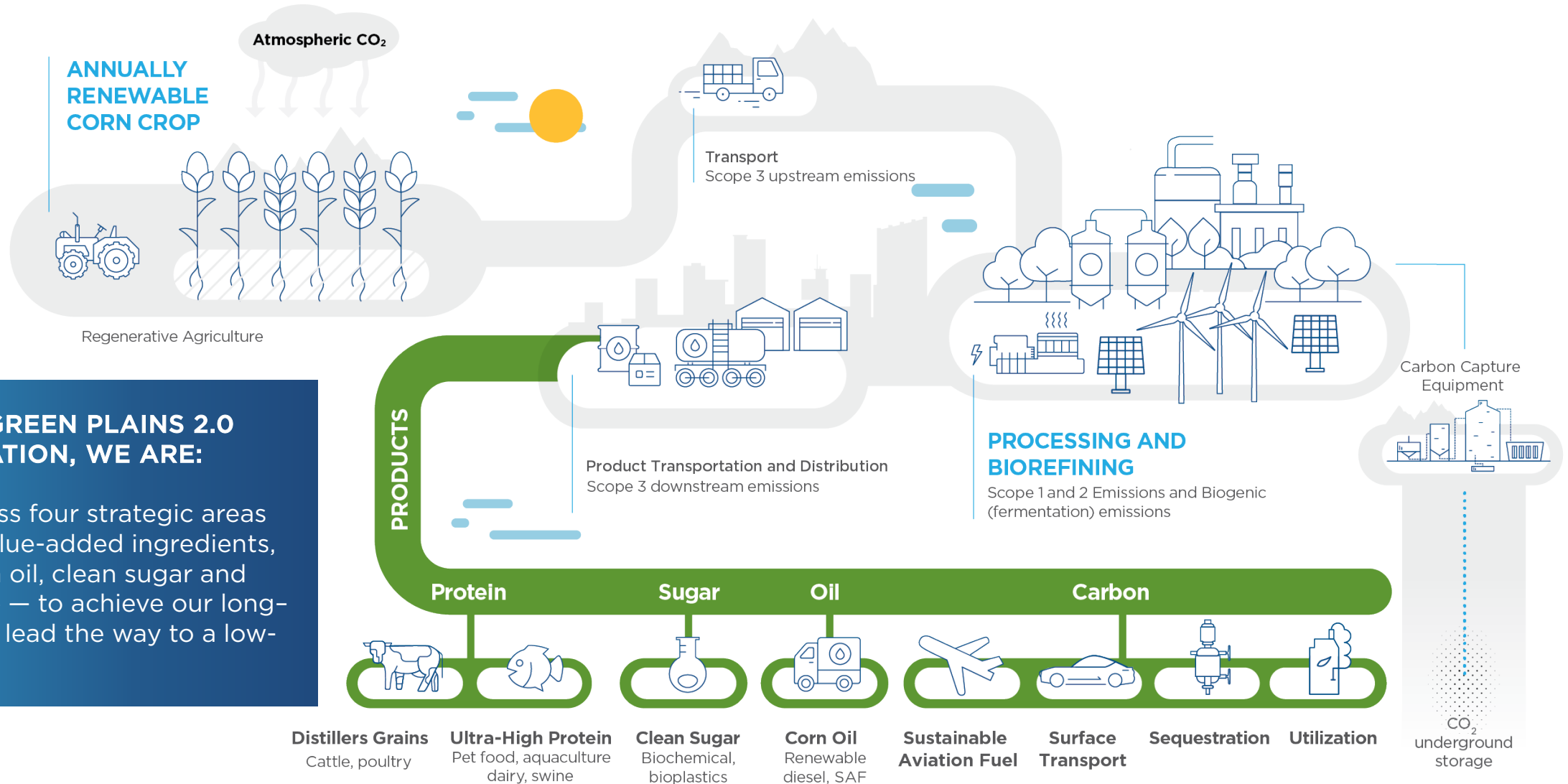
\$1.7Bn Enterprise Value ⁽¹⁾

\$1.3Bn Equity Value ⁽¹⁾

3 Innovation Centers

Own and Control Disruptive Ag-Tech IP Portfolio

We are transforming our assets for a low-carbon future

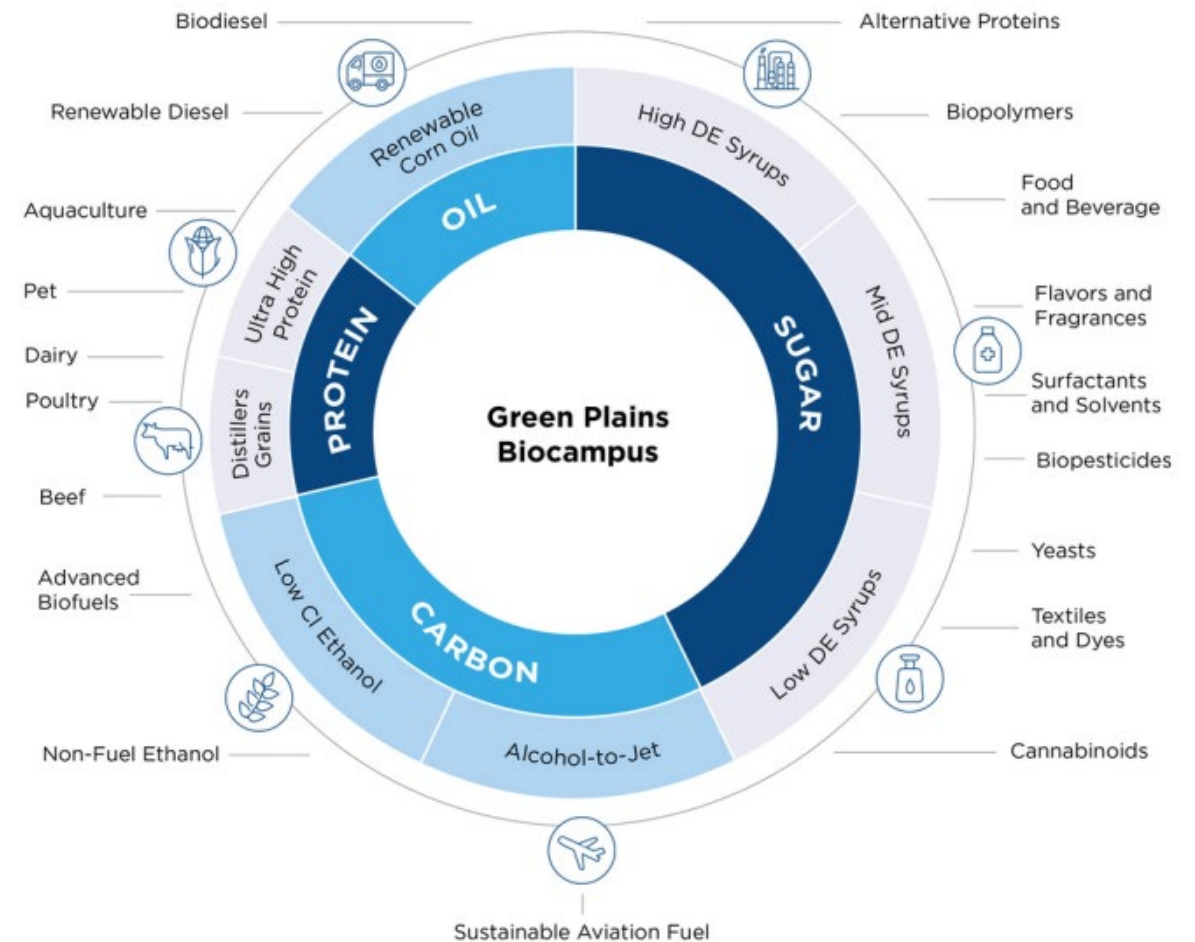


UNDER OUR GREEN PLAINS 2.0 TRANSFORMATION, WE ARE:

Executing across four strategic areas of growth — value-added ingredients, renewable corn oil, clean sugar and carbon capture — to achieve our long-term goals and lead the way to a low-carbon future.

Transformation in Biofuels is Happening Today

- Technologies, such as those provided by Fluid Quip Technologies, are driving the transition to a biocampus model
 - Low-carbon intensity proteins
 - Low-carbon intensity renewable corn oil
 - Low-carbon intensity dextrose syrups
 - Low-carbon intensity biofuels
- Biofuel is lowering its carbon intensity and is incentivized by provisions in the IRA to pursue
 - CCUS
 - Cogeneration / combined heat and power
 - Renewable energy sources
 - Regenerative farming
- Low carbon-intensity ethanol and renewable corn oil can serve as crucial feedstocks in the development of Sustainable Aviation Fuels



MSC™ Technology Can Significantly Reduce Volatility While Increasing Margins

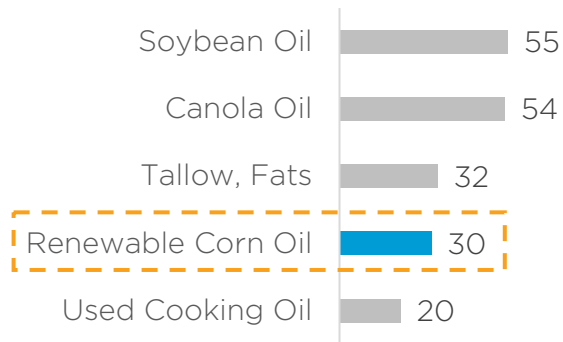
Biorefinery economics see significant improvement through deployment of MSC™ technology

- Five Green Plains locations operating MSC™ technology today
 - Increases yields of renewable corn oil – the most valuable component of corn today
 - Mechanically separates distillers grains into high-value Ultra-High Protein at 50% protein concentration
 - Up to **40% lower carbon intensity** compared to corn gluten meal globally
- Offers an **11 million ton market** at conservative inclusion rates with multiple sub-vertical pet, poultry, swine and aqua segments to diversify sales domestically and internationally
- **Commercial production of 60% protein concentration** in 3Q 2023
- **Sequence™** brand launched in early 2024 for our 60% protein product
- Targeting commercialization of **20-30% of platform capacity as 60% protein** by end of 2024



Taking Advantage of the Unique Drivers in Renewable Corn Oil

Average CI Pathways for Biodiesel and Renewable Diesel Feedstock ¹



Renewable Corn Oil Price ²
(Cents per Pound)



- MSC™ technology delivers a **sustainable structural advantage** by increasing renewable corn oil yields up to 50%
- Renewable corn oil is an advantaged feedstock for renewable diesel and SAF due to its low carbon intensity
- Continued growth in renewable diesel, and new demand from SAF, could drive demand for low CI feedstocks
- We believe the implementation of the **45Z Clean Fuel Production Credit in 2025** could drive further value for low CI feedstocks compared to competing vegetable oils

¹ Source: California Air Resources Board and company analysis of CARB pathways

² Source: Jacobsen

Clean Sugar Technology™ is a Disrupter to Traditional Dextrose Supply Sources

World's first commercial-scale Clean Sugar Technology™ facility is mechanically complete

CST™ - the reason we bought FQT - has the ability to upend traditional ethanol economics and increase margins on converted capacity significantly

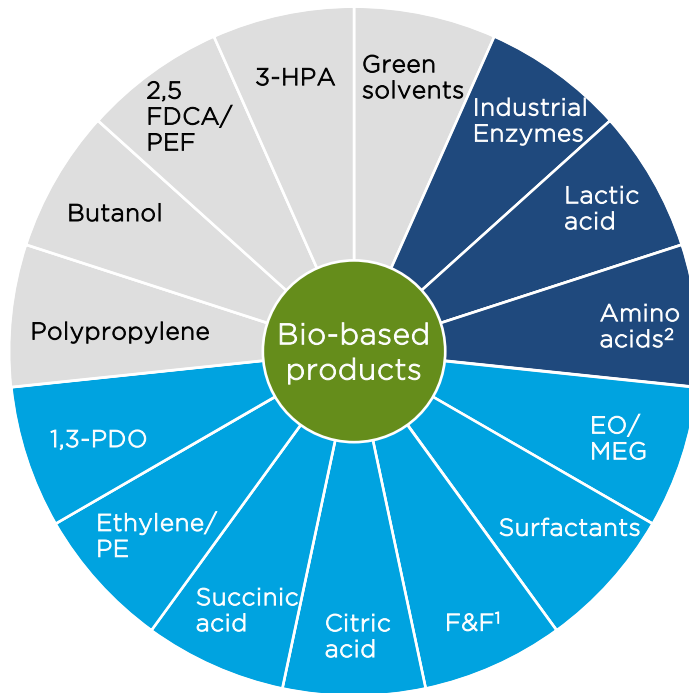
Opportunity Overview

- Green Plains owns and controls Fluid Quip's Clean Sugar Technology (CST™), which has the potential to disrupt to the traditional global dextrose and glucose syrup suppliers
- CST™ has the ability to convert grind (starch) at a traditional gen 1 production facility away from ethanol and into low-carbon intensity dextrose corn syrups at a significantly higher and more stable margin than historic fuel margins
- **Up to 40% lower carbon-intensity** than comparable products produced at a wet mill
- The CST™ system at Shenandoah, Iowa is **mechanically complete** and going through the commissioning process
- Potential sites for future deployment of CST are being evaluated



Clean Sugar Technology™ Opportunities

Disruptive Ag Technology Fueling the Growth of Bioproducts with Low Carbon Intensity Dextrose



- Currently commercially produced in bio-based method - largest growth opportunity
- Existing commercial markets, but at small scale - emerging growth opportunity
- Not yet commercial - future growth opportunity

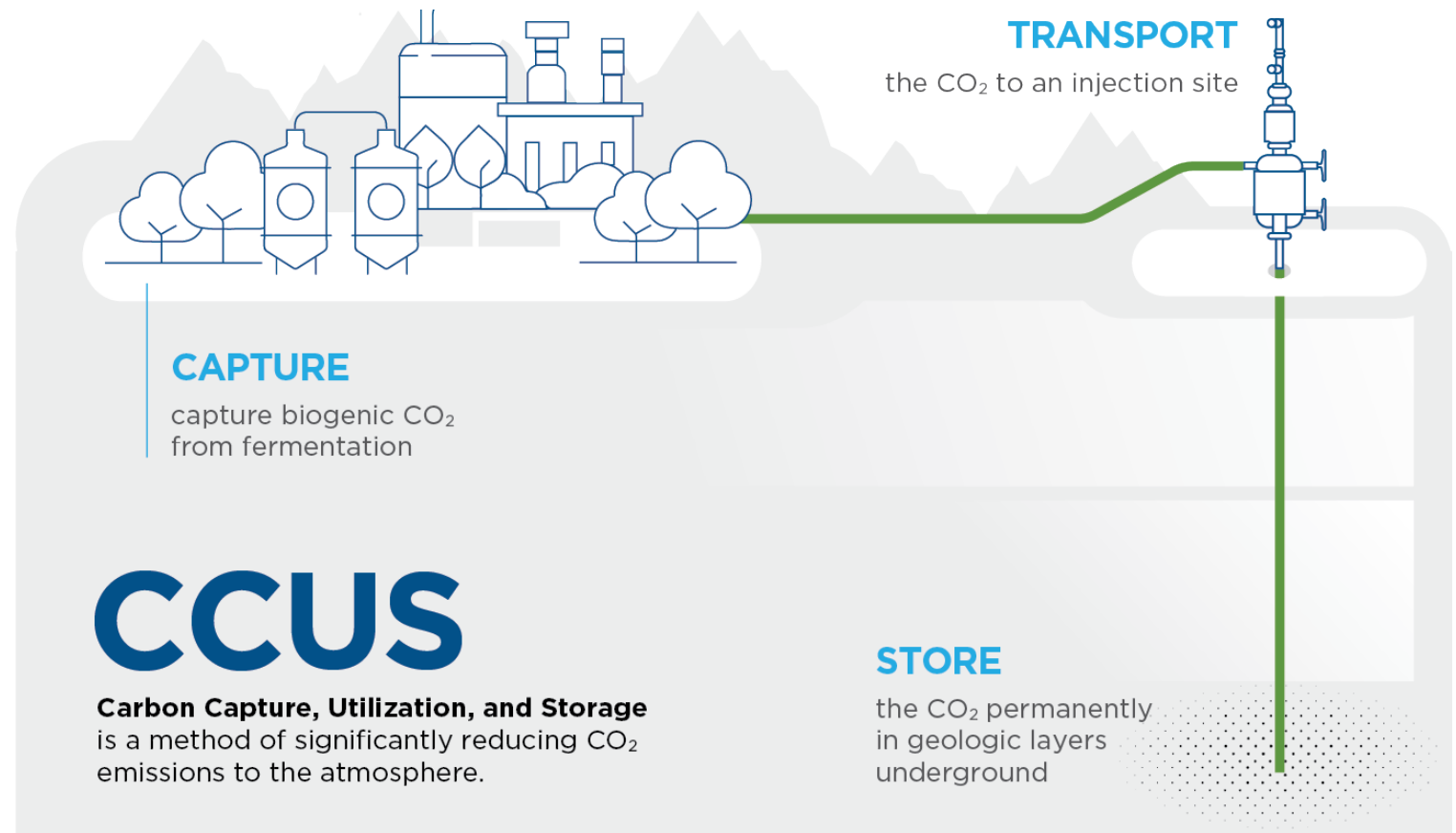
¹ Flavors and fragrances - E.g., vanillin, nootkatone, patchoulol, valencene ² E.g., glutamate and lysine

SOURCE: Expert interviews; press search, company websites, annual reports

- FQT's proven, commercialized technology transforms Green Plains from a Gen 1 ethanol producer to an integrated biorefinery with multiple sustainable technologies, including exclusive Clean Sugar Technology
- Fully scalable commercial CST™ production facility operating at the Innovation Center at York
- Produces an equivalent sugar quality to that of a wet corn mill process, with a production cost advantage and up to **40% reduction in the carbon footprint**
- 'Bio-revolution' use of fermentation to produce a variety of products without petroleum additives requires dextrose/glucose, **driving potential growth of 7-14 billion pounds in demand**
- Strong commercial interest from biochemical, biomaterials, synthetic biology and food and beverage industries with multiple ongoing counterparty discussions for first year production capacity

Carbon Capture, Utilization and Storage (CCUS) is the single largest opportunity for CI reduction

- Our biorefineries generate a pure stream of biogenic CO₂ emissions from fermentation that we plan to capture
- CCUS reduces the carbon footprint of each biorefinery by ~50% or ~29 CI points positioning these facilities to benefit from state and federal incentives such as 45Q, 45Z and LCFS markets
- Green Plains is utilizing a diversified strategy of CCUS and other initiatives including renewable energy and climate smart ag practices to decarbonize our platform



Our Advantage Nebraska approach to Decarbonization is Providing First Mover Opportunities

- Our existing platform represents ~2.6 million tons of biogenic carbon capture opportunities, with ~ 65% from plants committed to existing projects
- Nebraska plants anticipated to begin sequestering in second half of 2025, utilizing a repurposed existing pipeline with sequestration in Wyoming
- Reviewing options to further enhance our Advantage Nebraska initiatives to capture the early days of 45Z
- Our existing pipeline commitments are targeting to sequester in states that have primacy for permitting of Class VI wells, Wyoming and North Dakota, avoiding potential delays at the EPA
- Both North Dakota and Wyoming have already approved Class VI wells
- Iowa and Minnesota plants anticipated to begin in 2026 with sequestration in North Dakota



Opportunities For Green Plains Under Inflation Reduction Act

- **Biodiesel tax credit**
Extended \$1.00/gal blender credit through 2024 and ensures continued growth of biodiesel and renewable diesel industries, demand for renewable corn oil
- **Advanced biofuels credit**
\$1.00/gallon for cellulosic ethanol, including corn kernel fiber (CKF)
- **45Q - CCUS**
Provides an \$85 per-ton tax credit for carbon capture utilization and sequestration (CCUS) for 12 years
- **Blending infrastructure**
Allocated \$500 million to increase offerings of higher biofuel blends to consumers at the pump
- **Sustainable aviation fuel**
New tax credits to reduce the carbon footprint of the aviation industry using HEFA and alcohol-to-jet technologies
- **45Z — Clean fuel production credit**
Any fuel under a 50 CI threshold can qualify for \$0.02/gal for each point of CI reduction from 2025 to 2027, \$0.035/gal for SAF
- **CI-reducing opportunities for farmers**
Green Plains is working with farmer customers to measure and enhance on-farm carbon reduction



New GREET Model for 40B SAF Provides Path for Soy and Corn (With CCS)

- Treasury released guidance for the 40B SAF tax credit on April 30, 2024
- GREET approved as an alternative life cycle assessment model to CORSIA
- Indirect Land Use Change penalties for corn and soy were lowered
- Climate Smart Ag practices allowed to qualify – though very narrowly defined and restrictive
- U.S. Corn ethanol with CCS can qualify, as can soybean oil
- Lays the groundwork for 45Z Clean Fuel Production Credit Rulemaking



Maintaining our Commitment to Sustainability



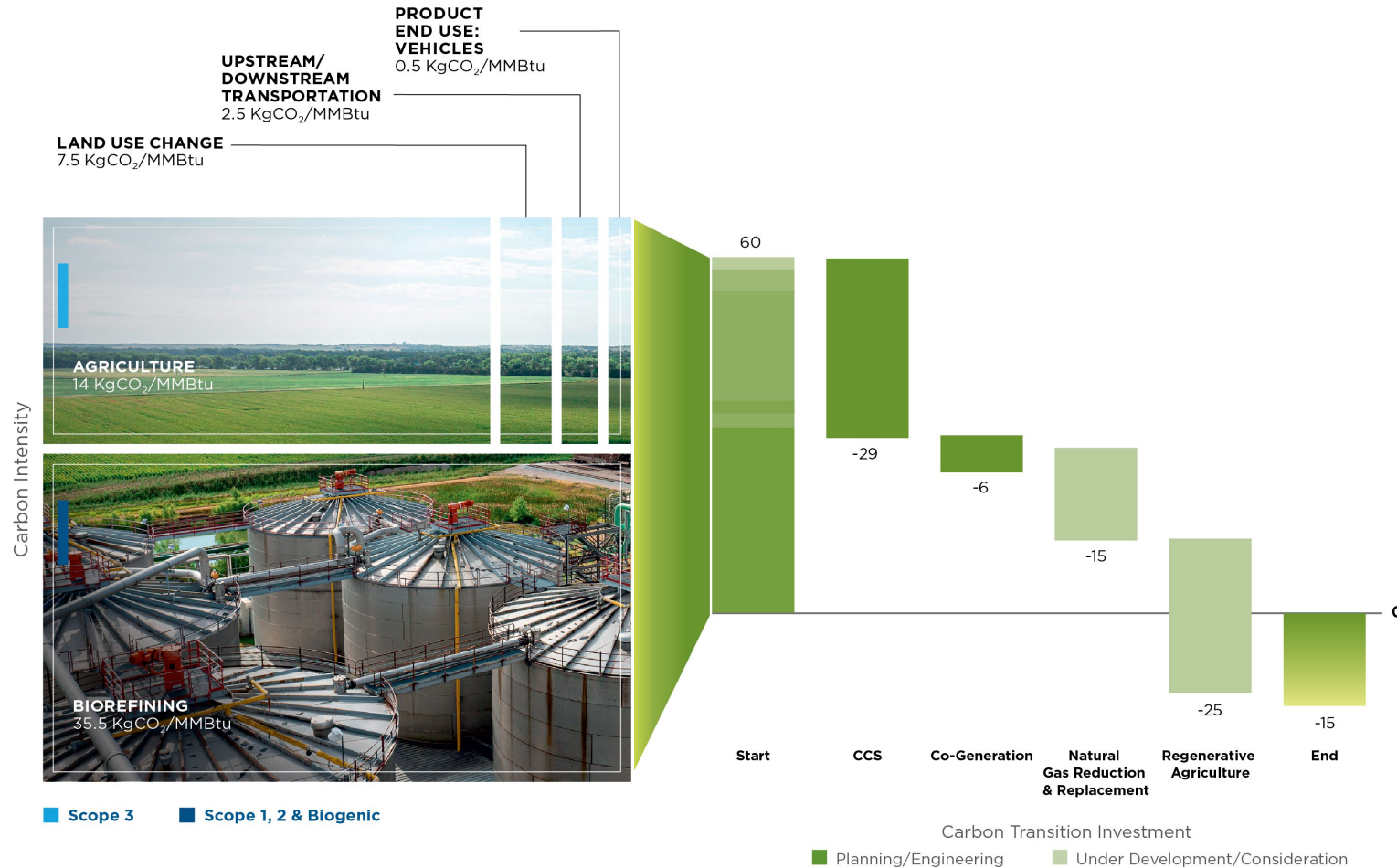
- Released 4th Annual Sustainability Report in April 2024
- 28% reduction in operational greenhouse gas emissions from 2018 baseline
- Achieved Food Safety Certification 22000 for Maximized Stillage Co-products™ processes at two biorefineries
- Achieved a sustainability certification from EcoVadis, one of the world's leading sustainability ratings companies
- Enhanced regenerative agriculture and data-collection programs to better track scope 3 emissions and lay the groundwork for incentivizing further emissions reductions across our supply chain
- Achieved a 56% reduction in our 2023 OSHA recordable injury rate over our 2020 baseline, far exceeding our goal of a 35% reduction by 2025



Our Assets Are Able to Achieve Carbon Neutrality and Beyond...

Every point of Carbon Intensity (CI) reduction now has a definitive value

Breakdown of 60 CI Ethanol and Carbon Reduction Strategy



- CCUS and Climate Smart Ag practices represent the lion's share of CI reduction potential
- Once under the 50 CI threshold, every point of CI reduction equates to \$0.02/gal of uplift from federal tax credits, plus uplift from LCFS or carbon credits

Developing SAF Technology Using Ethanol as Feedstock

Green Plains, Tallgrass, and United will invest up to a combined \$50 million in the joint venture – Blue Blade Energy – to develop the technology

Joint Venture – Blue Blade Energy



Transformation

- Blue Blade Energy formed for the purpose of developing and then commercializing a novel SAF technology using ethanol as its feedstock
- Pending achievement of key technology milestones, Blue Blade is expected to proceed with a pilot facility, and eventually full-scale commercial production
- The offtake agreement could provide for enough SAF to fly more than 50,000 flights annually between United's hub airports in Chicago and Denver

Game-changing Impact

- Transition to a decarbonized biorefinery model helps customers and partners reduce the carbon intensity of their products including decarbonized ethanol as a feedstock to produce SAF
- This partnership points to the untapped potential that lies in the Green Plains low-carbon platform
- The project is colossal for U.S. agriculture, centered on the alignment of a strong farm economy and a robust aviation transport industry

Unique Industry Expertise

- Green Plains will supply the low-carbon ethanol feedstock and use its ethanol industry expertise to manage operations at pilot and commercial facilities
- Tallgrass will manage research and development of the technology, including pilot plant development, and will manage the construction of the production facility
- United Airlines will assist with SAF development, fuel certification and into-wing logistics, and has also agreed to purchase up to 2.7 billion gallons of SAF produced from the joint venture

Why Green Plains?

Five locations with MSC™ technology producing high value animal nutrition driving higher margins with a flexible portfolio of ingredients

World's first Clean Sugar Technology™ facility commissioning providing a game-changing opportunity to supply up to 40% lower-Cl dextrose corn syrup feedstocks to diversified existing and growing end markets while significantly increasing margins on capacity deployed

Executing a robust carbon capture utilization and storage strategy with Nebraska locations anticipated to begin CCUS in 2025 – Advantage Nebraska initiative





Green Plains



Appendix

Reference Units - Operational Metrics

Products	Purchase / Sale Transaction Units	GP 1.0 (per bushel)	GP 2.0 (per bushel)	GP 2.0 (per gallon)	GPRE 2.0 Annual Production Capacity *
Corn	Bushels	56 pounds per bushel	56 pounds per bushel	19.3 pounds per gallon	311 million bushels
Ethanol	Gallons	2.9 gallons per bushel	2.9 gallons per bushel	-	903 million gallons
Clean Sugar – Glucose/Dextrose	Pounds	-	36 pounds per bushel	~12.4 pounds per equivalent gallon of capacity	For every 10 million gallons of ethanol capacity converted to CST results in ~ 124 million pounds of dextrose capacity
Dried distillers grains	Tons	15.2 pounds per bushel	11.3 pounds per bushel	3.9 pounds per gallon	2.0 million tons
Renewable Corn Oil	Pounds	0.8 pounds per bushel	1.2 pounds per bushel	0.414 pounds per gallon	325 million pounds
Ultra-High Protein	Tons	-	3.5 pounds per bushel	1.2 pounds per gallon	330 thousand tons

* Represents current deployment of MSC™ Ultra-High Protein at 5 Green Plains locations, but excludes MSC™ capacity at the Tharaldson JV



Thank you

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