



2023 Annual Report



Green Plains

Who We Are



Green Plains is a leading ag-tech company using innovative processes to transform annually renewable crops into sustainable, high-value ingredients.

We are rapidly transforming into Green Plains 2.0, and we have only begun to harness the potential of our platform.

10 Biorefineries

Strategically located throughout the United States

310 Million

Bushels of corn processing capacity

Approximately

900

Dedicated employees

Forward-Looking Statement

This Annual Report contains “forward-looking statements” within the meaning of the federal securities laws. See the discussion under “Cautionary Statement Regarding Forward-Looking Statements” in our 2023 Form 10-K for matters to be considered in this regard.

Letter from Our Chief Executive Officer

Green Plains is in the midst of many exciting and game-changing accomplishments and 2023 was another year of key milestones across all our pillars - protein, renewable corn oil, clean sugar and decarbonization. Not only did we achieve record production in high protein and renewable corn oil, but we also successfully produced our exclusive 60% protein product and expanded our sales of protein to new countries; began construction on the world's first dry mill low carbon-intensity dextrose facility; announced a joint venture for sustainable aviation fuel (SAF) research and production; and announced a key technology collaboration that could reshape the ethanol and grain processing landscape as we know it. All this, while continuing to explore options to further reduce the carbon intensity and produce more low-carbon ingredients with existing resources.

As I write this, we are commissioning two key projects: the first commercial-scale dry mill Clean Sugar Technology™ facility in Shenandoah, Iowa; and our Shell Fiber Conversion Technology and Maximized Stillage Co-products™ technology collaboration in York, Nebraska. The Nebraska facility's grand opening attracted over 100 attendees, including Nebraska Governor Jim Pillen, U.S. Senators Deb Fischer and Pete Ricketts and USDA Acting Deputy Administrator of Farm Programs John Berge. Green Plains' biorefineries are bringing global partners and national attention to our communities.

We've been busy. But we're not done.

Transformation In Progress

As we continue our transition to a sustainable producer of ingredients that matter, we are shifting to a more customer-facing entity competing in high-value markets, distancing ourselves from

Green Plains' biorefineries are bringing global partners and national attention to our communities.



traditional ethanol market volatility. To that end, we have created a completely novel 60% protein product, which has proven successful and consistent in production runs through Fluid Quip Technologies' MSC™ system at multiple facilities. In addition to its superior characteristics in protein level and yeast content, this high-quality feed ingredient has achieved FSC 22000 certification, a testament to Green Plains' commitment to the highest food safety management standards. FQT's MSC™ system is also responsible for our record renewable corn oil yields, expanding the supply of this valuable low-carbon feedstock for renewable diesel, biodiesel and SAF.

The evidence is clear: We're making waves with our continued innovation in new and existing ingredients. While our first CST™ facility was still under construction last year in Shenandoah, Iowa, we were

already attracting potential new dextrose and glucose customers and partners who are eager to be a part of this revolution in sustainable ingredients with a carbon intensity up to 40% lower than our competitors' product. This will be our first foray into true food ingredients which is truly disruptive and represents the next frontier of the evolving bioeconomy.

We have diversified our carbon capture and storage strategy and believe our Nebraska plants will be among the first in the industry to decarbonize the ethanol molecule at scale. We believe decarbonized corn ethanol will be on the front lines of the SAF landscape in the future, and our JV, Blue Blade Energy, is a first-of-its-kind partnership, aligning interests in feedstock, technology, infrastructure and demand in development of alcohol-to-jet SAF processes. We are exploring a range of alternatives, but one thing is certain: decarbonized alcohol will be necessary for SAF production at scale worldwide, and our transformation to a true decarbonized biorefinery model has positioned Green Plains to help reduce emissions in the aviation sector.

Our collaboration with Shell combines Shell Fiber Conversion Technology with MSC™ for a pairing that boosts renewable corn oil yield, enhances high-protein production and generates cellulosic sugars for producing low-carbon fuels. The new facility will demonstrate this novel technology, our two teams integrating seamlessly as they forge this new industry segment and partnership. Through this collaboration, we expect to extract all available renewable corn



51.7 Million

metric tons of carbon reduction to date⁽¹⁾

100%

of corn purchased from non-deforested, US-domestic sources⁽²⁾

279,861,000

pounds of renewable corn oil sold in 2023

840,819,000

gallons of renewable biofuel sold in 2023

289,267,000

bushels of corn processed in 2023

2,156,000

tons of animal feed sold in 2023

10 biorefineries

2 fuel terminals

2 Fluid Quip locations

1 corporate office

⁽¹⁾ Estimated CO₂ amount to have been kept out of the atmosphere due to Green Plains-produced low-carbon fuel between 2007 and 2023.

⁽²⁾ Based on compliance with RFS regulations (40 CFR § 80.1401), which requires the use of "renewable biomass" as an ethanol feedstock and by definition means that planted crops cannot come from deforested land. Additionally, we use U.S. corn and have not imported corn from international markets where deforestation might be prevalent.



The people of Green Plains are going above and beyond for the company and for each other, and it shows.

oil from the kernel, produce cellulosic sugars for production of low-carbon second-generation ethanol, and liberate all of the protein for Ultra-High Protein feed ingredients.

In May 2023, we announced our intention to acquire the remaining public interest in Green Plains Partners and successfully closed this transaction in January 2024, streamlining our operations and improving efficiencies and cash flow.

The people of Green Plains are going above and beyond for the company and for each other, and it shows.

2023 Financial Highlights

Our EBITDA was \$54.0 million for 2023 and we ended the year with \$378.8 million in cash, cash equivalents, and restricted cash, along with approximately \$251.0 million available under our working capital revolver. The platform operated at 94% and 95% utilization in the third and fourth quarters with excellent financial results in the last half, while setting all-time records in safety performance. We are well positioned to continue to execute on our transformation.

Into The Future

We're starting strong in 2024, commissioning our SFCT/MSR and CST™ facilities, making headway in carbon capture and sequestration, starting up the world's largest MSR™ system with our JV partner Tharaldson in North Dakota, publishing another sustainability report and continuing to attract the best and brightest who are looking to make an impact on people and the planet.

Thank you for your continued support. Stay tuned - the future is bright for Green Plains.

Todd Becker
President and CEO

Selected Financial Data

Statement of Operations Data

(in thousands, except per share information)

| | Year Ended December 31, | | |
|---|-------------------------|--------------|--------------|
| | 2023 | 2022 | 2021 |
| Revenues | \$ 3,295,743 | \$ 3,662,849 | \$ 2,827,168 |
| Costs and expenses | 3,357,321 | 3,761,797 | 2,801,660 |
| Operating income (loss) ⁽¹⁾ | (61,578) | (98,948) | 25,508 |
| Total other income (expense) ⁽²⁾⁽³⁾ | (20,771) | 247 | (68,509) |
| Net loss | (76,299) | (103,377) | (44,146) |
| Net loss attributable to Green Plains | \$ (93,384) | \$ (127,218) | \$ (65,992) |
| Earnings per share: | | | |
| Net loss attributable to Green Plains - basic and diluted | \$ (1.59) | \$ (2.29) | \$ (1.41) |
| Other Data: (Non-GAAP) | | | |
| Adjusted EBITDA (unaudited and in thousands) | \$ 45,506 | \$ (822) | \$ 87,378 |

Balance Sheet Data

(in thousands)

| | December 31, | | |
|---------------------------|--------------|--------------|--------------|
| | 2023 | 2022 | 2021 |
| Cash and cash equivalents | \$ 349,574 | \$ 444,661 | \$ 426,220 |
| Current assets | 732,730 | 928,750 | 1,117,749 |
| Total assets | 1,939,322 | 2,123,131 | 2,159,755 |
| Current liabilities | 384,962 | 486,922 | 471,804 |
| Long-term debt | 491,918 | 495,243 | 514,006 |
| Total liabilities | 949,266 | 1,062,065 | 1,057,736 |
| Stockholders' equity | \$ 990,056 | \$ 1,061,066 | \$ 1,102,019 |

The following table reconciles net loss to adjusted EBITDA for the periods indicated:

| (in thousands) | Year Ended December 31, | | |
|---|-------------------------|--------------|-------------|
| | 2023 | 2022 | 2021 |
| Net loss | \$ (76,299) | \$ (103,377) | \$ (44,146) |
| Interest expense ⁽³⁾ | 37,703 | 32,642 | 67,144 |
| Income tax expense (benefit) | (5,617) | 4,747 | 1,845 |
| Depreciation and amortization ⁽⁴⁾ | 98,244 | 92,698 | 91,952 |
| EBITDA | 54,031 | 26,710 | 116,795 |
| Other income ⁽²⁾ | (3,440) | (27,712) | — |
| Gain on sale of assets, net | (5,265) | — | (29,601) |
| Proportional share of EBITDA adjustments to equity method investees | 180 | 180 | 184 |
| Adjusted EBITDA | \$ 45,506 | \$ (822) | \$ 87,378 |

⁽¹⁾ Operating income (loss) for the fiscal year-ended 2023 and 2022, respectively, include an inventory lower of average cost or net realizable value adjustment of \$2.6 million and \$12.3 million. Fiscal year-ended 2023 and 2021, respectively, include a \$4.1 million and \$29.6 million net gain on sale of assets.

⁽²⁾ Other income for the fiscal year-ended 2023 and 2022, respectively, includes a grant received from the USDA related to the Biofuel Producer Program of \$3.4 million and \$27.7 million.

⁽³⁾ Interest expense for the fiscal year-ended 2021 includes a loss on extinguishment of convertible notes of \$22.1 million and a loss on settlement of convertible notes of \$9.5 million.

⁽⁴⁾ Excludes the amortization of operating lease right-of-use assets and amortization of debt issuance costs.

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

☒ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(D) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2023

or

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from ____ to ____

Commission file number 001-32924

GREEN PLAINS INC.

(Exact name of registrant as specified in its charter)

Iowa

84-1652107

(State or other jurisdiction of incorporation or organization)

(I.R.S. Employer Identification No.)

1811 Aksarben Drive, Omaha, NE 68106

(402) 884-8700

(Address of principal executive offices, including zip code)

(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

| Title of each class | Trading Symbol | Name of each exchange on which registered |
|---|----------------|---|
| Common Stock, par value \$0.001 per share | GPPE | The Nasdaq Stock Market LLC |

Securities registered pursuant to Section 12(g) of the Act: **None**

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.

Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).

Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☒ Accelerated filer ☐ Non-accelerated filer ☐
Smaller reporting company ☐ Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10-1(b). ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☒

The aggregate market value of the company's voting common stock held by non-affiliates of the registrant as of June 30, 2023 (the last business day of the second quarter), based on the last sale price of the common stock on that date of \$32.24, was approximately \$1,869.1 million. For purposes of this calculation, executive officers and directors are deemed to be affiliates of the registrant.

As of February 5, 2024, there were 64,264,356 shares of the registrant's common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive Proxy Statement for the 2024 Annual Meeting of Shareholders are incorporated by reference in Part III herein. The company intends to file such Proxy Statement with the Securities and Exchange Commission no later than 120 days after the end of the period covered by this report on Form 10-K.

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Commonly Used Defined Terms

Green Plains Inc. and Subsidiaries:

| | |
|--|--|
| Green Plains Inc.; Green Plains; the company | Green Plains Inc. and its subsidiaries |
| FQT | Fluid Quip Technologies, LLC |
| Green Plains Commodity Management | Green Plains Commodity Management LLC |
| Green Plains Finance Company | Green Plains Finance Company LLC |
| Green Plains Grain | Green Plains Grain Company LLC |
| Green Plains Mount Vernon; Mount Vernon | Green Plains Mount Vernon LLC |
| Green Plains Obion; Obion | Green Plains Obion LLC |
| Green Plains Partners; GPP; the partnership | Green Plains Partners LP |
| Green Plains Shenandoah; Shenandoah | Green Plains Shenandoah LLC |
| Green Plains Trade | Green Plains Trade Group LLC |
| Green Plains Wood River; Wood River | Green Plains Wood River LLC |

Accounting Defined Terms:

| | |
|----------------|---|
| ASC | Accounting Standards Codification |
| EBITDA | Earnings before interest expense, income taxes, depreciation and amortization |
| EPS | Earnings per share |
| Exchange Act | Securities Exchange Act of 1934, as amended |
| GAAP | U.S. Generally Accepted Accounting Principles |
| LIBOR | London Interbank Offered Rate |
| Nasdaq | The Nasdaq Global Market |
| R&D Credits | Research and development tax credits |
| SEC | Securities and Exchange Commission |
| Securities Act | Securities Act of 1933, as amended |
| SOFR | Secured Overnight Financing Rate |

Industry and Other Defined Terms:

| | |
|---------------|--|
| ATJ | Alcohol-to-Jet |
| BlackRock | Funds and accounts managed by BlackRock |
| BTU | British Thermal Units |
| CARB | California Air Resources Board |
| the CARES Act | Coronavirus Aid, Relief, and Economic Security Act |
| CI | Carbon Intensity |
| COVID-19 | Coronavirus Disease 2019 |
| CST™ | Clean Sugar Technology™ |
| DOE | Department of Energy |
| DOT | U.S. Department of Transportation |
| E10 | Gasoline blended with up to 10% ethanol by volume |
| E15 | Gasoline blended with up to 15% ethanol by volume |
| E85 | Gasoline blended with up to 85% ethanol by volume |
| EIA | U.S. Energy Information Administration |
| EPA | U.S. Environmental Protection Agency |

| | |
|-------------------|--|
| EV | Electric Vehicle |
| FFV | Flexible-fuel vehicle |
| GHG | Greenhouse gas |
| IRA | Inflation Reduction Act |
| LCFS | Low Carbon Fuel Standard |
| Merger | Merger of GPLP Merger Sub LLC, a Delaware limited liability company and a wholly owned subsidiary of GPLP Holdings Inc. with and into the Partnership, with the Partnership surviving such merger |
| Merger Agreement | Certain Agreement and Plan of Merger, dated as of September 16, 2023, by and among Green Plains Inc., GPLP Holdings Inc., a wholly owned subsidiary of GPPE, GPLP Merger Sub LLC, a wholly owned subsidiary of Holdings, Green Plains Partners LP, and Green Plains Holdings LLC, the general partner of the Partnership (the "General Partner") |
| MmBtu | Million British Thermal Units |
| mmg | Million gallons |
| mmgy | Million gallons per year |
| MSC TM | Maximized Stillage Co-products TM produced using process technology developed by Fluid Quip Technologies |
| MTBE | Methyl tertiary-butyl ether |
| MVC | Minimum volume commitment |
| RFS | Renewable Fuels Standard |
| RIN | Renewable identification number |
| RVO | Renewable volume obligation |
| SAF | Sustainable Aviation Fuel |
| SRE | Small refinery exemption |
| TTB | Alcohol and Tobacco Tax and Trade Bureau |
| U.S. | United States |
| USDA | U.S. Department of Agriculture |

Cautionary Statement Regarding Forward-Looking Statements

The SEC encourages companies to disclose forward-looking information so investors can better understand future prospects and make informed investment decisions. As such, forward-looking statements are included in this report or incorporated by reference to other documents filed with the SEC.

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 that 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 may be identified by words such as “anticipate,” “believe,” “continue,” “estimate,” “expect,” “intend,” “outlook,” “plan,” “predict,” “may,” “could,” “should,” “will” and similar expressions, 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 in the forward-looking statements include, but are not limited to, those 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 and other factors, including: the status, expected timing, and expected outcome of our Board of Directors' ongoing review of strategic alternatives; the failure to realize the anticipated results from the new products being developed; the failure to realize the anticipated costs savings or other benefits of the Merger; local, regional and national economic conditions and the impact they may have on the company and its customers; disruption caused by health epidemics, such as the COVID-19 outbreak; conditions in the ethanol and biofuels industry, including a sustained decrease in the level of supply or demand for ethanol and biofuels or a sustained decrease in the price of ethanol or biofuels; competition in the ethanol industry and other industries in which we operate; commodity market risks, including those that may result from weather conditions; the financial condition of the company's customers; any non-performance by customers of their contractual obligations; changes in customer, employee or supplier relationships resulting from the merger; changes in safety, health, environmental and other governmental policy and regulation, including changes to tax laws; risks related to acquisition and disposition activities and achieving anticipated results; risks associated with merchant trading; risks related to our equity method investees; the results of any reviews, investigations or other proceedings by government authorities; the performance of the company; and other factors detailed in reports filed with the SEC.

We believe our expectations regarding future events are based on reasonable assumptions; however, these assumptions may not be accurate or account for all risks and uncertainties. Consequently, forward-looking statements are not guaranteed. Actual results may vary materially from those expressed or implied in our forward-looking statements. In addition, we are not obligated and do not intend to update our forward-looking statements as a result of new information unless it is required by applicable securities laws. We caution investors not to place undue reliance on forward-looking statements, which represent management's views as of the date of this report or documents incorporated by reference.

PART I

Item 1. Business.

References to “we,” “us,” “our,” “Green Plains,” or the “company” refer to Green Plains Inc. and its subsidiaries.

Overview

Green Plains is an Iowa corporation, founded in June 2004 as a producer of low-carbon fuels and has grown to be a leading biorefining company maximizing the potential of existing resources through fermentation and patented agribusiness technologies. We continue the transition from a commodity-processing business to a value-added agricultural technology company creating sustainable, high-value ingredients from existing resources. To that end, we are currently executing on a number of initiatives to develop and implement proven agricultural, food and industrial biotechnology systems that allow for product diversification, new market opportunities and production of additional value-added low-carbon ingredients, such as Ultra-High Protein, dextrose, renewable corn oil and more, as well as offering these technologies to the broader biofuels industry.

Green Plains Partners LP, a master limited partnership, is our primary downstream storage and logistics provider since its assets are the principal method of storing and delivering the ethanol we produce. As of December 31, 2023, we owned a 48.8% limited partner interest, a 2.0% general partner interest and all of the partnership’s incentive distribution rights. The public owned the remaining 49.2% limited partner interest. The partnership is consolidated in our financial statements, and we record a noncontrolling interest for the economic interest in the partnership held by the public common unitholders. On January 9, 2024, pursuant to the Merger Agreement, we completed the acquisition of all the publicly held common units of the partnership not already owned by us and our affiliates. As a result of the Merger, the partnership common units are no longer publicly traded. Refer to *Note 5 - Acquisition and Dispositions* included in the notes to the audited consolidated financial statements included herein for more information.

We group our business activities into the following three operating segments to manage performance:

- *Ethanol Production.* Our ethanol production segment includes the production of ethanol, distillers grains, Ultra-High Protein and renewable corn oil at ten biorefineries in Illinois, Indiana, Iowa, Minnesota, Nebraska and Tennessee. At capacity, our facilities are capable of processing approximately 310 million bushels of corn per year and producing approximately 903 million gallons of ethanol, 2.2 million tons of distillers grains and Ultra-High Protein, and 300 million pounds of renewable corn oil, a low-carbon feedstock for biodiesel and renewable diesel. We are one of the largest ethanol producers in North America.
- *Agribusiness and Energy Services.* Our agribusiness and energy services segment includes grain procurement, with approximately 20.2 million bushels of grain storage capacity, and our commodity marketing business, which markets, sells and distributes the ethanol, distillers grains, Ultra-High Protein and renewable corn oil produced at our ethanol plants. We also market ethanol for a third-party producer as well as buy and sell ethanol, distillers grains, Ultra-High Protein, renewable corn oil, grain, natural gas and other commodities in various markets.
- *Partnership.* Our master limited partnership provides fuel storage and transportation services through owning, operating, developing and acquiring ethanol and fuel storage tanks, terminals, transportation assets and other related assets and businesses. The partnership’s assets include 24 ethanol storage facilities, two fuel terminal facilities and approximately 2,180 leased railcars.

Business Strategy

We believe that global demand for protein for human consumption will continue to rise, requiring larger amounts of high protein feed for animals and aquaculture. Our transformation capitalizes on this market insight, in an effort to capture higher co-product returns.

As part of our transformation to a value-added agricultural technology company, we began producing Ultra-High Protein using FQT’s MSCTM technology in 2020 and are deploying this technology across various locations to help meet growing demand for protein feed ingredients and low-carbon renewable corn oil. As of December 31, 2023, we have installed and are operating FQT MSCTM technology at five of our biorefineries. Installation at additional biorefineries is expected over the course of the next few years, both at our other locations and across the broader industry. The biorefineries producing Ultra-

High Protein, a feed ingredient with protein concentrations of 50% or greater and yeast concentrations of 25%, also increase the production of renewable corn oil and produce other higher-value products, such as post-MSC distillers grains. We successfully completed full scale 60% protein production runs using FQT's MSC™ system.

In September 2022, we broke ground at our biorefinery in Shenandoah, Iowa, as the first location to deploy FQT's CST™ at commercial scale, which is expected to begin commissioning in the first quarter of 2024. FQT CST™ allows for the production of both food and industrial grade low-carbon glucose and dextrose at a dry mill ethanol plant to target applications in food production, renewable chemicals and synthetic biology. We also anticipate modifying additional biorefineries to include FQT CST™ production capabilities to meet anticipated future customer demands.

Ethanol has become a valuable blend component that comprises approximately 10.1% of the domestic surface transportation gasoline supply with the potential to grow with higher blending rates. Additionally, government incentives to produce SAF through ATJ pathways could provide additional demand for low-CI ethanol for conversion to SAF.

SAF is a drop-in fuel, chemically identical to petroleum-based jet fuel and can be blended into the fuel supply at varying levels. There is an increasing focus on using this fuel to reduce the carbon footprint of air travel. SAF can be produced from vegetable and waste oil feedstocks, such as our renewable corn oil. Additionally, ATJ technologies are emerging and being commercialized that use low-CI ethanol as a feedstock to produce SAF. In January 2023, Green Plains, United Airlines and Tallgrass formed a joint venture, Blue Blade Energy, to develop and then commercialize a novel ATJ SAF technology.

As part of our carbon reduction strategy, we committed our seven biorefineries in Nebraska, Iowa and Minnesota to carbon capture and sequestration projects through carbon pipeline transport, four with Summit Carbon Solutions and our three Nebraska biorefineries with another provider, which will lower GHG emissions through the capture of carbon dioxide at each of these biorefineries, significantly lowering their CI. We anticipate completion of our three Nebraska biorefinery carbon capture projects in 2025, and the Summit Carbon Solutions projects in 2026. In addition, we are collaborating with global partners to explore innovative options for carbon use, such as synthetic methane production at Madison and Obion. We intend to sequester the carbon from fermentation at Mount Vernon as well. Reducing the CI of our fuel ethanol could allow us to benefit from state and federal clean fuel programs, including LCFS and federal tax credits under the IRA, and could position our low-carbon ethanol as a potential feedstock for ATJ pathways to produce SAF.

In July 2023, we announced a technology collaboration with Equilon Enterprises LLC, which allows us to use FQT's precision separation and processing technology with Shell Fiber Conversion Technology. The two technologies will combine fermentation, mechanical separation and processing, and fiber conversion into one platform. This has the potential to create a new process to liberate all available distillers corn oil currently bound in the fiber fraction of the corn kernel, generate cellulosic sugars for production of low-carbon ethanol, and enhance and expand available high protein to produce high-quality ingredients for global animal feed diets. Our collaboration is expected to complete the construction of a facility at Green Plains York and begin commissioning in early 2024.

Competitive Strengths

We are focused on managing commodity price risks, improving operational efficiencies and optimizing market opportunities to create an efficient platform with diversified income streams. Our competitive strengths include:

Disciplined Risk Management. Risk management is a core competency and we use a variety of risk management tools and hedging strategies in an effort to maintain a disciplined approach. Our internally developed operating margin management system allows us to monitor commodity price risk exposure in the spot market and on the forward curve at each of our operations and seeks to lock in favorable margins, when available, or if appropriate, temporarily reduce production levels during periods of compressed margins.

Technology Integration. Over our history, we have incorporated new technologies like renewable corn oil extraction and Selective Milling Technology™ into our manufacturing processes that have enabled us to run more efficiently and improve our financial results. We completed a modernization and upgrade initiative at four facilities in 2021 and two facilities in 2022, resulting in improved operational reliability and reductions in natural gas, electricity and water usage, decreasing our carbon footprint. Through our ownership of FQT and other partnerships, we are currently undergoing a number of initiatives to further improve margins.

Our transformation into a sustainable ingredient producer continues centering around FQT's MSC™ and CST™ technologies. These technologies enhance our ability to produce value-added ingredients, while expanding renewable corn oil

yields.

FQT provides additional intellectual property rights, including those aimed at developing and implementing proven, value-added agriculture, food and industrial biotechnology systems, CST™ and MSC™. We continue to evaluate additional technological opportunities to expand our capabilities and product offerings in the coming years.

Proven Leadership Team. Our senior leadership team has specific expertise across all of our businesses, including plant operations and management, commodity markets and risk management, quality assurance, quality control, ingredient nutrition, marketing and innovation and ethanol marketing and distribution. Our leadership team's level of operational and financial expertise is essential to successfully executing our business strategies.

Operational Excellence. Our facilities are staffed with experienced personnel who are encouraged to share operational knowledge and expertise across business segments and locations. We continue to focus on making incremental operational improvements to enhance performance using real-time production data and systems to monitor our operations and optimize performance.

Risk Management and Hedging Activities

Our margins are highly dependent on commodity prices, particularly for ethanol, corn, distillers grains, Ultra-High Protein, renewable corn oil and natural gas. Since market price fluctuations among these commodities are not always correlated, ethanol production has been and may continue to be unprofitable at times. We use a variety of risk management tools and hedging strategies to monitor real-time operating price risk exposure at each of our operations to obtain favorable margins, when available.

We use forward contracts to sell a portion of our ethanol, distillers grains, Ultra-High Protein and renewable corn oil production or buy some of the corn, natural gas, or ethanol we need to partially offset commodity price volatility. We also engage in other hedging transactions involving exchange-traded futures contracts for corn, natural gas, ethanol, soybean meal, soybean oil and other agricultural and energy commodities. The financial impact of these activities depends on the price of the commodities involved and our ability to physically receive or deliver those commodities.

Hedging arrangements expose us to risk of financial loss when the counterparty defaults on its contract or, in the case of exchange-traded contracts, when the expected differential between the price of the underlying commodity and physical commodity changes. Hedging activities can result in losses when a position is purchased in a declining market or sold in a rising market. Hedging losses may be offset by a decreased cash price for corn and natural gas and an increased cash price for ethanol, distillers grains, Ultra-High Protein and renewable corn oil. Depending on the circumstance, we vary the amount of hedging or other risk mitigation strategies we undertake and sometimes choose not to engage in hedging transactions at all.

Recent Developments

The following is a summary of our significant recent developments. Additional information about these items can be found elsewhere in this report or in previous reports filed with the SEC.

Strategic Review

The Board of Directors is initiating a formal review process to evaluate strategic alternatives for the company. This comprehensive evaluation is intended to explore a broad range of opportunities for the company to enhance long-term shareholder value, including, but not limited to, acquisitions, divestitures, a merger or sale, partnerships and financings.

There is no deadline or definitive timetable for completion of the strategic review process, and there can be no assurances that the process will result in a transaction or any other outcome. We do not intend to make any further public comment regarding the review until the Board has approved a specific action or otherwise determines that additional disclosure is appropriate or required.

Cooperation Agreement

On February 6, 2024, we entered into a Cooperation Agreement with a large shareholder whereby we agreed to announce our strategic review and the large shareholder agreed to certain standstill and voting obligations.

The Partnership Merger

On September 16, 2023, the company entered into a Merger Agreement to acquire all of the publicly held common units of the partnership not already owned by the company and its affiliates. On January 9, 2024, the transactions contemplated by the Merger Agreement were completed. Refer to *Note 5 - Merger and Dispositions* included in the notes to the audited consolidated financial statements included herein for more information.

Disposition of Atkinson Ethanol Plant

On September 7, 2023, we completed the disposition of our Atkinson ethanol plant and sale of certain related assets and transfer of certain related liabilities. The divested assets were reported within our ethanol production, agribusiness and energy services and partnership segments. The company recorded a pretax gain on the sale of the Atkinson plant of \$4.1 million recorded within corporate activities. Refer to *Note 5 - Merger and Dispositions* included in the notes to the audited consolidated financial statements included herein for more information.

Wood River Incident

On April 17, 2023, during routine maintenance on a whole stillage tank, we experienced an explosion at our Wood River, Nebraska facility. There was an operating loss of approximately \$9.5 million in 2023 related to this incident, after insurance proceeds.

Operating Segments

Ethanol Production Segment

Industry Overview. Ethanol, also known as ethyl alcohol or grain alcohol, is a colorless liquid produced by fermenting carbohydrates found in a number of different types of grains, such as corn, wheat and sorghum, and other cellulosic matter found in plants. Most of the ethanol produced in the United States is made from corn, which can be handled efficiently and is in greater supply than other grains. Corn contains large quantities of carbohydrates that convert into glucose more easily than most other kinds of biomass. According to the USDA, on average, a 56 pound bushel of corn produces approximately 2.9 gallons of ethanol, 17 pounds of dried distillers grains and 0.6 pounds of corn oil. Outside of the United States, sugarcane is the primary feedstock used to produce ethanol.

Ethanol is a significant component of the biofuels industry, which includes all transportation fuels derived from renewable biological materials. Ethanol is an excellent oxygenate and source of octane. When added to petroleum-based transportation fuels, oxygenates reduce vehicle emissions. Ethanol is the most economical oxygenate and source of octane available on the market and its production costs are competitive with gasoline.

Ethanol Plants. We operate ten ethanol plants, located in six states, that produce ethanol, distillers grains, Ultra-High Protein and renewable corn oil.

| Plant Location | Plant Production Capacity (mmgy) |
|---------------------------------------|---|
| Central City, Nebraska ⁽¹⁾ | 116 |
| Fairmont, Minnesota | 119 |
| Madison, Illinois | 90 |
| Mount Vernon, Indiana ⁽¹⁾ | 90 |
| Obion, Tennessee ⁽¹⁾ | 120 |
| Otter Tail, Minnesota | 55 |
| Shenandoah, Iowa ⁽¹⁾ | 82 |
| Superior, Iowa | 60 |
| Wood River, Nebraska ⁽¹⁾ | 121 |
| York, Nebraska | 50 |
| Total | 903 |

(1) Produces Ultra-High Protein.

Our business is directly affected by the supply and demand for ethanol and other fuels in the markets served by our assets. Miles driven typically increase during the spring and summer months related to vacation travel, followed closely by the fall season due to holiday travel.

Corn Feedstock and Ethanol Production. Our plants use corn as feedstock in a dry mill ethanol production process. Each of our plants requires on average approximately 31 million bushels of corn annually, depending on its production capacity. The price and availability of corn are subject to significant fluctuations driven by a number of factors that affect commodity prices in general, including crop conditions, weather, governmental programs, freight costs and global demand. Ethanol producers are generally unable to pass increased corn costs to customers.

Our corn supply is obtained primarily from local markets. We use cash and forward purchase contracts with grain producers and elevators to buy corn. We maintain direct relationships with local farmers, grain elevators and cooperatives, which serve as our primary sources of grain feedstock for all ten of our ethanol plants. This allows us to purchase much of the corn we need directly from farmers throughout the year. Each of our plants is also situated on rail lines or has other logistical solutions to access corn supplies from other regions of the country should local supplies become insufficient.

Corn is received at the plant by truck or rail then weighed and unloaded into a receiving building. Grain storage facilities are used to inventory grain that is passed through a scalper to remove rocks and debris prior to processing. The corn is then transported to a hammer mill where it is ground into flour and conveyed into a slurry tank for enzymatic processing. Water, heat and enzymes are added to convert the complex starch molecules into simpler carbohydrates. The slurry is heated to reduce the potential of microbial contamination and pumped into a liquefaction tank where additional enzymes are added. Next, the grain slurry is pumped into fermenters, where yeast, enzymes, and nutrients are added and the fermentation process is started. A beer column, within the distillation system, separates the alcohol from the spent grain mash. The alcohol is dehydrated to 200-proof alcohol and either pumped into a holding tank and blended with approximately 2% denaturant as it is pumped into finished product storage tanks, or marketed as industrial or undenatured ethanol.

Distillers Grains. The spent grain mash is pumped from the beer column into a decanter-type centrifuge for dewatering. The water, or thin stillage, is pumped from the centrifuge into an evaporator, where it is concentrated into a thick syrup. The solids, or wet cake, that exit the centrifuge are conveyed to the dryer system and dried at varying temperatures to produce distillers grains. Syrup is reapplied to the wet cake prior to drying to provide additional nutrients. Distillers grains, the principal co-product of the ethanol production process, are used as mid-protein, high-energy animal feed and marketed to the dairy, beef, swine and poultry industries.

We can produce three forms of distillers grains, depending on the number of times the solids are passed through the dryer system:

- wet distillers grains, which contain approximately 65% to 70% moisture, have a shelf life of approximately three days and is therefore sold to dairies or feedlots within the immediate vicinity of our plants;
- modified wet distillers grains, which is dried further to approximately 50% to 55% moisture, have a shelf life of approximately three weeks and are marketed to regional dairies and feedlots; and
- dried distillers grains, which have been dried more extensively to approximately 10% to 12% moisture, have an almost indefinite shelf life and may be stored, sold and shipped to any market.

Ultra-High Protein. Ultra-High Protein is corn fermented protein produced by further processing of the spent grain mash from the beer column. The spent grain is processed using FQT's MSC™ technology, which contains a series of screening equipment to remove fiber from the spent grain which is sent to the distillers grain dryer. The remaining product is washed and clarified into a wet protein stream which is dried in a ring dryer to produce Ultra-High Protein meal with protein concentrations of 50% or greater.

Renewable Corn Oil. Renewable corn oil systems extract non-edible renewable corn oil from the thin stillage evaporation process immediately before the production of distillers grains. Renewable corn oil is produced by processing the syrup through a decanter-style, or disk-stack, centrifuge. The centrifuges separate the relatively light renewable corn oil from the heavier components of the syrup. Across our entire platform, we extract on average approximately 1.0 pound of renewable corn oil per bushel of corn used to produce ethanol. Industrial uses for renewable corn oil are primarily as a feedstock for renewable diesel and biodiesel. Additionally, it is also used as a livestock feed additive.

Natural Gas. Depending on production parameters, our ethanol plants use on average approximately 27,500 BTUs of natural gas per gallon of production. We have service agreements to acquire the natural gas we need and transport the gas through pipelines to our plants.

Electricity. Our plants require on average approximately 0.9 kilowatt hours of electricity per gallon of production. Local utilities supply the necessary electricity to all of our ethanol plants.

Water. While some of our plants satisfy a majority of their water requirements from wells located on their respective properties, each plant also obtains drinkable water from local municipal water sources. Each facility either uses city water or operates a filtration system to purify the well water that is used for its operations. Local municipalities supply all of the necessary water for our plants that do not have onsite wells. Most of the water used in an ethanol plant is recycled in the production process.

Agribusiness and Energy Services Segment

Our agribusiness and energy services segment includes grain storage at our ethanol plants of approximately 20.2 million bushels, detailed in the following table:

| Facility Location | On-Site Grain Storage Capacity (thousands of bushels) |
|--------------------------|--|
| Central City, Nebraska | 1,400 |
| Fairmont, Minnesota | 1,611 |
| Madison, Illinois | 1,015 |
| Mount Vernon, Indiana | 1,034 |
| Obion, Tennessee | 8,168 |
| Otter Tail, Minnesota | 628 |
| Shenandoah, Iowa | 886 |
| Superior, Iowa | 1,770 |
| Wood River, Nebraska | 3,293 |
| York, Nebraska | 363 |
| Total | 20,168 |

We buy bulk grain, primarily corn, from area producers, and provide grain drying and storage services to those producers. The grain is used as feedstock for our ethanol plants. Bulk grain commodities are traded on commodity exchanges and inventory values are affected by changes in these markets. To mitigate risks related to market fluctuations from purchase and sale commitments of grain, as well as grain held in inventory, we enter into exchange-traded futures and options contracts that function as economic and designated accounting hedges at times.

Seasonality is present within our agribusiness operations. The fall harvest period typically results in higher handling margins and stronger financial results during the fourth quarter of each year.

Through Green Plains Trade, we market the ethanol we and a third party produce to local, regional, national and international customers. We also purchase ethanol from independent producers for pricing arbitrage. We sell to various markets under sales agreements with integrated energy companies; retailers, traders and resellers in the United States and buyers for export to Brazil, Canada, Philippines, India, Europe and other international markets. Under these agreements, ethanol is priced under both fixed and indexed pricing arrangements.

We market distillers grains and high protein ingredients to local, domestic and international markets through Green Plains Trade. The bulk of our demand is delivered to geographic regions that do not have significant local corn, distillers grains or high protein ingredients production. We sell to international markets indirectly through exporters. Access to diversified markets allows us to sell product to customers offering the highest net price.

Also, through Green Plains Trade, our renewable corn oil is sold primarily to renewable diesel and biodiesel plants and, to a lesser extent, feedlot and poultry markets. We transport our renewable corn oil by truck to locations in a close proximity to our ethanol plants primarily in the southeastern and midwestern regions of the United States. We also transport renewable corn oil by rail and barges to national markets as well as to exporters for shipment on vessels to international markets.

Through Green Plains Trade, we provide marketing services of natural gas to our ethanol plants and to other third parties including the procurement of both the pipeline capacity and natural gas. We also enhance the value by aggregating volumes at various storage facilities which can be sold to either the plants or various intermediary markets and end markets.

Our railcar fleet consists of approximately 680 leased hopper cars to transport distillers grains and Ultra-High Protein, 70 leased hopper cars to transport corn and approximately 150 leased tank cars to transport renewable corn oil. The initial terms of the lease contracts are for periods up to five years and the weighted average remaining lease terms on these cars was approximately 2 years as of December 31, 2023.

Partnership Segment

Our partnership segment provides fuel storage and transportation services through (i) 24 ethanol storage facilities located at or near our ten ethanol plants, (ii) two fuel terminal facilities located near major rail lines, and (iii) a leased railcar fleet and other transportation assets.

Transportation and Delivery. Most of our ethanol plants are situated near major highways or rail lines to ensure efficient product movement. We are able to move product from our ethanol plants to bulk terminals via truck, railcar or barge. We also manage the logistics and transportation requirements of our customers to improve our fleet's efficiency and reduce operating costs.

Deliveries within 150 miles of our plants and the partnership's fuel terminal facilities are generally transported by truck. Deliveries to distant markets are shipped using major U.S. rail carriers that can switch cars to other major railroads, allowing our plants to ship product throughout the United States and to international export terminals.

As of December 31, 2023, the partnership's leased railcar fleet consisted of approximately 2,180 railcars with an aggregate capacity of 65.4 mmg. We expect the partnership's railcar volumetric capacity to fluctuate over the normal course of business as the existing railcar leases expire and we enter into or acquire new railcar leases.

Terminal and Distribution Services. Ethanol is transported from the partnership's terminals to third-party terminal racks where it is blended with gasoline and transferred to the loading rack for delivery by truck to retail gas stations. The partnership owns and operates fuel holding tanks and terminals, and provides terminal services and logistics solutions to markets that do not have efficient access to renewable fuels. The partnership owns and operates fuel terminals at two locations in two states with combined storage capacity of approximately 6.7 mmg and throughput capacity of approximately 480 mmgy. We also have 24 ethanol storage facilities located at or near our ten ethanol plants with a combined storage capacity of approximately 23.1 mmg to support current ethanol production capacity of approximately 903 mmgy.

| Facility Location | Storage Capacity (thousands of gallons) |
|---|--|
| <u>Fuel Terminals</u> | |
| Birmingham, Alabama - Unit Train Terminal | 6,542 |
| Collins, Mississippi | 180 |
| <u>Ethanol Plants</u> | |
| Central City, Nebraska | 2,250 |
| Fairmont, Minnesota | 3,124 |
| Madison, Illinois | 2,855 |
| Mount Vernon, Indiana | 2,855 |
| Obion, Tennessee | 3,000 |
| Otter Tail, Minnesota | 2,000 |
| Shenandoah, Iowa | 1,524 |
| Superior, Iowa | 1,238 |
| Wood River, Nebraska | 3,124 |
| York, Nebraska | 1,100 |
| Total | 29,792 |

For more information about our segments, refer to *Item 7. - Management's Discussion and Analysis of Financial Condition and Results of Operations* in this report.

Our Competition

Domestic Ethanol Competitors

We are one of the largest consolidated owners of ethanol plants in the United States. We compete with other domestic ethanol producers in a highly fragmented industry. Our competitors also include plants owned by farmers, cooperatives, oil refiners and retail fuel operators. These competitors may continue to operate their plants even when market conditions are not favorable due to the benefits realized from their other operations.

As of December 31, 2023, the top four producers accounted for approximately 40% of the domestic production capacity with production capacities ranging from 903 mmgy to 3,005 mmgy. Demand for corn from ethanol plants and other corn consumers exists in all areas and regions in which we operate. According to the Renewable Fuels Association, there were 115 operational plants in Illinois, Indiana, Iowa, Minnesota, Nebraska and Tennessee, which are the states where we have production facilities as of December 31, 2023. The largest concentration of operational plants is located in Iowa, Nebraska and Illinois, where approximately 50% of all operational production capacity is located.

Foreign Ethanol Competitors

We also compete globally with production from other countries. Brazil is the second largest ethanol producer in the world after the United States. Brazil primarily produces ethanol made from sugarcane, which may be less expensive to produce than ethanol made from corn depending on feedstock prices. Under the RFS, certain parties are obligated to meet an advanced biofuel standard, and Brazilian sugarcane ethanol qualifies as an advanced biofuel. Any significant additional ethanol production capacity, or reduced demand for gasoline, could create excess supply in world markets, resulting in lower ethanol prices throughout the world, including the United States.

Other Competition

Alternative fuels, gasoline oxygenates and ethanol production methods are continually under development. Ethanol production technologies also continue to evolve. We anticipate changes could occur primarily in the area of cellulosic ethanol, or from biodigesters at landfills or livestock production facilities. Since all of our plants are designed as single-feedstock facilities, adapting our plants for a different feedstock or process system would require additional capital investments and retooling which could be cost prohibitive, and would require new RFS pathways to be approved by the EPA. Our distillers grains and high protein feed ingredients compete against other feed ingredients including soybean meal, canola meal, ground corn, corn gluten meal and distillers grains from other ethanol producers domestically and abroad. Our distillers corn oil competes against vegetable oils such as soybean oil, canola oil, and to some extent palm oil, as well as waste feedstocks including used cooking oil, animal fats and tallow.

Regulatory Matters

Government Ethanol Programs and Policies

We are sensitive to governmental policies that impact ethanol, feedstocks for renewable fuels and decarbonization, which in turn may impact the volume of ethanol and other ingredients we produce. Legislation and regulatory rule making at the federal, state and international level can impact us across all business segments. Refer to *Item 7. - Management's Discussion and Analysis of Financial Condition and Results of Operations* in this report for a detailed discussion of these topics.

Environmental and Other Regulation

Our operations are subject to environmental regulations, including those that govern the handling and release of ethanol, crude oil and other liquid hydrocarbon materials. Compliance with existing and anticipated environmental laws and regulations may increase our overall cost of doing business, including capital costs to construct, maintain, operate and upgrade equipment and facilities. Our business may also be impacted by government policies, such as tariffs, duties, subsidies, import and export restrictions and outright embargos. We employ maintenance and operations personnel at each of our facilities, which are regulated by the Occupational Safety and Health Administration.

The U.S. ethanol industry relies heavily on tank cars to deliver its product to market. In 2015, the DOT finalized the Enhanced Tank Car Standard and Operational Controls for High-Hazard and Flammable Trains, or DOT specification 117, which established a schedule to retrofit or replace older tank cars that carry crude oil and ethanol, braking standards intended to reduce the severity of accidents and new operational protocols. The rule has increased the lease costs for railcars in the short term and may increase the lease costs long term. Our partnership's fleet is DOT 117 compliant.

Human Capital Resources

The attraction, retention and development of employees is critical to our success. We accomplish this, in part, by our competitive compensation practices, training initiatives, and growth opportunities within the company. On December 31, 2023, we had 921 full-time, part-time, temporary and seasonal employees, including 170 employees at our corporate office in Omaha, Nebraska.

Workforce Health and Safety

We take workplace safety very seriously and our robust safety program means that we are constantly evaluating our safety protocols in an effort to keep our facilities safe for our workers.

We continue to monitor the impact of the COVID-19 pandemic, including resurgences and variants of the virus, on our teammates and within our operations, and proactively modify or adopt new practices to promote their health and safety.

Compensation and Benefits

As part of our compensation philosophy, we believe that we must offer and maintain market competitive compensation and benefit programs for our employees in order to attract and retain superior talent. In addition to competitive base wages, additional programs include the 2019 Equity Incentive Plan, a company-matched 401(k) Plan, healthcare and insurance benefits, flexible spending accounts, paid time off, bonding leave, and employee assistance programs.

Diversity and Inclusion

We are committed to our continued efforts to increase diversity and foster an inclusive work environment that supports the workforce and the communities we serve. We recruit the best qualified employees regardless of gender, ethnicity or other protected traits and it is our policy to fully comply with all laws applicable to discrimination in the workplace.

Available Information

Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports are available on our website at www.gpreinc.com shortly after we file or furnish the information with the SEC. You can also find the charters of our audit, compensation and nominating committees, as well as our code of ethics in the corporate governance section of our website. The information found on our website is not part of this or any other report we file with or furnish to the SEC. For more information on our partnership, please visit www.greenplainspartners.com. Alternatively, investors may visit the SEC website at www.sec.gov to access our reports, proxy and information statements filed with the SEC.

Item 1A. Risk Factors.

We operate in an industry that has numerous risks, many of which are beyond our control or are driven by factors that cannot always be predicted. Investors should carefully consider all of the risk factors in conjunction with the other information included in this report as our financial results and condition or market value could be adversely affected if any of these risks were to occur.

Risks Related to our Business and Industry

Our margins are dependent on managing the spread between the price of corn, natural gas, ethanol, distillers grains, Ultra-High Protein and renewable corn oil.

Our operating results are highly sensitive to the spread between the corn and natural gas we purchase, and the ethanol, distillers grains, Ultra-High Protein and renewable corn oil we sell. Price and supply are subject to various market forces,

such as weather, domestic and global demand, global political or economic issues, including but not limited to the war in Ukraine including sanctions associated therewith, other global conflicts, shortages, export prices, crude oil prices, currency valuations and government policies in the United States and around the world, over which we have no control. Price volatility of these commodities may cause our operating results to fluctuate substantially. Increases in corn or natural gas prices or decreases in ethanol, distillers grains, Ultra-High Protein and renewable corn oil prices may make it unprofitable to operate. No assurance can be given that we will purchase corn and natural gas or sell ethanol, distillers grains, Ultra-High Protein and renewable corn oil at or near prices which would provide us with positive margins. Consequently, our results of operations and financial position may be adversely affected by increases in corn or natural gas prices or decreases in ethanol, distillers grains, Ultra-High Protein and renewable corn oil prices. We have made significant investments in our biorefinery platform to produce Ultra-High Protein, and our financial results are increasingly dependent on our ability to operate these new systems consistently and to sell the products into new markets at a premium to distillers grains. Rapid expansion of soybean crushing capacity to meet the soybean oil demands of the growing renewable diesel and biomass-based diesel industry could result in an oversupply of soybean meal, which could depress prices for various protein feed ingredients, and negatively impact our anticipated financial returns.

We continuously monitor the margins at our ethanol plants using a variety of risk management tools and hedging strategies when appropriate. Should our combined revenue from ethanol, distillers grains, Ultra-High Protein and renewable corn oil fall below our cost of production, we could decide to slow or suspend production at some or all of our ethanol plants, which could also adversely affect our results of operations and financial position.

The products we buy and sell are subject to price volatility and uncertainty.

Our operating results are highly sensitive to commodity prices.

Corn. We are generally unable to pass increased corn costs to our customers since ethanol competes with other fuels. We continue to see considerable volatility in corn prices. Ethanol plants, livestock industries and other corn-consuming enterprises put significant price pressure on local corn markets. In addition, local corn supplies and prices could be adversely affected by, but not limited to: prices for alternative crops, increasing pricing for seed corn, fertilizers, crop protection products and other input costs; changes in government policies, including crop insurance, conservation programs, regulation of farmland, and other regulations; shifts in global supply and demand; global political or economic issues, including but not limited to the war in Ukraine including sanctions associated therewith; other global conflicts; and global or regional growing conditions, such as plant disease, pests or adverse weather, including drought.

Ethanol. Our revenues are dependent on market prices for ethanol which can be volatile as a result of a number of factors, including but not limited to: the price and availability of competing fuels and oxygenates for fuels; the domestic and global supply and demand for ethanol, gasoline and corn; the price of gasoline, crude oil and corn; global political or economic issues, including but not limited to the war in Ukraine including sanctions associated therewith, other global conflicts; and government policies that impact the supply, demand and pricing of corn, crude oil, gasoline, ethanol and other liquid fuels.

Ethanol is marketed as a fuel additive that reduces vehicle emissions, an economical source of octane and, to a lesser extent, as a gasoline substitute through higher blends such as E15 and E85. Consequently, gasoline supply and demand can affect the price of ethanol. Should gasoline prices or demand change significantly, our results of operations could be materially impacted.

Ethanol imports also affect domestic supply and demand. Imported ethanol is not subject to an import tariff and, under the RFS, sugarcane ethanol from Brazil can be used as a means for obligated parties to meet the advanced biofuel standard in addition to state level low-carbon fuel standards. Brazil is also rapidly expanding corn and corn ethanol production, which can have a lower CI score if it is produced from the second crop or “Safrinha” crop, which could be imported into the U.S. or displace our exports elsewhere globally.

Distillers Grains. Distillers grains compete with other protein-based animal feed products. Downward pressure on other commodity prices, such as corn, wheat, soybeans, soybean meal, and other feed ingredients, will generally cause the price of competing animal feed products to decline, resulting in downward pressure on the price of distillers grains. Occasionally, the price of distillers grains will lag behind fluctuations in corn or other feedstock prices, lowering our cost recovery percentage. Additionally, exports of distiller grains could be impacted by the enactment of foreign policy, or expanded production of soybean meal or distillers grains elsewhere.

Natural Gas. The price and availability of natural gas are subject to volatile market conditions. These market conditions are often affected by factors beyond our control, such as weather, drilling economics, overall economic conditions and government regulations. Significant disruptions in natural gas supply could impair our ability to produce ethanol. Furthermore, increases in natural gas prices or changes in our cost relative to our competitors cannot be passed on to our customers, which may adversely affect our results of operations and financial position.

Ultra High Protein. Our Ultra-High Protein has unique nutritional advantages and a higher protein concentration than soybean meal and can be included in a variety of feed rations in the pet, dairy, swine, poultry and aquaculture industries. As a value-added feed ingredient, quality control is imperative. Demand for feed products and pricing pressure from competing feed products may result in downward pressure on the price of Ultra-High Protein. Reliable production of Ultra-High Protein from both consistent operations of the biorefinery as well as the MSCTM technology is necessary to produce anticipated volumes. Changes in our customers willingness to accept these ingredients, inconsistency in production volumes, quality or downward pressure on prices could result in adverse impact on our business and profitability.

Renewable Corn Oil. Renewable corn oil is generally marketed as a low-carbon feedstock for biofuel production including renewable diesel, biodiesel and currently to a lesser extent, sustainable aviation fuel; therefore, the price of renewable corn oil is largely driven by demand for renewable diesel and biodiesel. Expanded demand from the renewable diesel and biodiesel industry due to the extended blending tax credit, new tax credits included in the IRA and growing LCFS markets in California, Oregon, Washington state or Canada, as well as customer acceptance for such fuels could impact renewable corn oil demand. In general, renewable corn oil prices follow the prices of heating oil and soybean oil, though LCFS programs incentivize the lower CI of renewable corn oil as a feedstock relative to soybean oil. Federal incentives for sustainable aviation fuel also provide higher credit values for lower CI. Other feedstocks such as used cooking oil and animal fats and tallows are scored at a lower CI than renewable corn oil under most life cycle assessment models, and these feedstocks may be preferred to renewable corn oil. Increased imports of used cooking oil could pressure all vegetable oil values lower. Decreases in the price of or demand for renewable corn oil could have an adverse impact on our business and profitability. While we believe our investments in MSCTM and other technologies have allowed us to capture more renewable corn oil from each bushel, these yields could be negatively impacted by any number of factors.

We may be affected by or unable to fulfill our total transformation strategies.

We continually evaluate the makeup of our portfolio, and we may sell additional assets or businesses or exit particular markets that are no longer a strategic fit or no longer meet their growth or profitability targets. Depending on the nature of the assets sold, our profitability may be impacted by lost operating income or cash flows from such businesses. In addition, divestitures we complete may not yield the targeted improvements in our business and may divert management's attention from our day-to-day operations. We also undertook a number of project initiatives to improve margins, focused on reducing operating costs and expanding the products and value we can extract from a kernel of corn. The Ultra-High Protein and Clean Sugar strategy includes substantial construction projects and significant capital expenditures to deploy FQT's MSCTM technology, and FQT's CSTTM production capabilities to meet anticipated customers' demands and these technology implementations may not perform as designed and are subject to various construction risks and delays in the supply chain. These products may not be readily accepted as substitutes to existing sugars and proteins on the market, and we may not earn a premium for them, even if they are of higher quality and have a lower CI.

We may not achieve our construction goals on time or within our budget. We may not achieve the operating yields we project or our technologies may not perform as expected. We may not achieve product market sales, margins or pricing we project, and our operating cost goals may not be achieved due to a variety of factors. Increasing costs for construction materials, supply chain issues limiting the availability of certain components, lack of available labor and delays in required permitting could all lead to projects being over budget and behind schedule. Our failure to achieve our production, sales and pricing targets, including, but not limited to: construction, yield, sales, margin, pricing, or financial results associated with our total transformation strategies could have an adverse effect on our business, financial condition or results of operations.

Government biofuels programs could change and impact the ethanol market.

The RFS mandates the minimum volume of renewable fuels that must be blended into the transportation fuel supply each year, which affects the domestic market for ethanol. Through 2022, the EPA undertook rulemaking to set the RVO for the following year, though at times months or years would pass without a finalized RVO. Further, the EPA has the authority to waive the requirements, in whole or in part, if there is inadequate domestic renewable fuel supply or the requirement severely harms the economy or the environment. After 2022, volumes are determined by the EPA in coordination with the Secretaries of Energy and Agriculture, taking into account such factors as impact on environment, energy security, future rates of

production, cost to consumers, infrastructure, and other factors such as impact on commodity prices, job creation, rural economic development or food prices. The EPA also has the authority to set volumes for multiple years at a time, rather than annually as required prior to 2022. In June 2023, the EPA finalized a multi-year RVO for 2023, 2024 and 2025.

Volumes can also be impacted as small refineries can petition the EPA for an SRE which, if approved, waives their portion of the annual RVO requirements. The EPA, through consultation with the DOE and the USDA, can grant them a full or partial waiver, or deny it outright within 90 days of submittal. Elimination of a refinery's obligation effectively lowers the amount of renewable fuels required to be blended, and by extension the amount of RINs that need to be retired, which can impact their values and ultimately blending levels of renewable fuels. There are multiple on-going legal challenges to how the EPA has handled SREs and RFS rulemakings.

Our operations could be adversely impacted by legislation, administration actions, court rulings, EPA actions, or lawsuits that may reduce the RFS mandated volumes of conventional ethanol and other biofuels through the RVO levels, a change in the RFS point of obligation from blenders and importers to retailers, or SREs.

The D.C. Circuit Court of Appeals ruled that the EPA overstepped its authority in extending the one pound Reid Vapor Pressure waiver for 10% ethanol blends to 15% ethanol blends in the summer, effectively limiting summertime sales of ethanol blends above 10% to FFVs from June 1 to September 15 each year. Notwithstanding, on April 12, 2022, the President announced that he had directed the EPA to issue an emergency waiver to allow for the continued sale of E15 during the June 1 to September 15 period. On April 28, 2023, the EPA issued an emergency waiver to allow for continued sale of E15 during the 2023 summer driving season. As of this filing, according to Prime the Pump, E15 is sold year-round at approximately 3,244 stations.

The U.S. Supreme Court currently has two cases on its docket that could impact one of the most important principles in administrative law called “Chevron deference,” based on a landmark case, *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.* The Chevron deference is a doctrine of judicial deference given to administrative actions. Should the U.S. Supreme Court modify this doctrine, it could adversely impact current and/or future rulemaking and regulations which in turn could negatively and materially impact our financial performance. A change in Chevron precedent could impact how the EPA can administer the RFS, impose limitations on the Treasury Department’s ability to promulgate regulations around IRA provisions, including SAF tax credits and the 45Z Clean Fuel Production Credit, 45Q carbon capture and sequestration tax credits, EV tax credits and other clean energy programs.

Similarly, should federal mandates regarding oxygenated gasoline be repealed, the market for domestic ethanol could be adversely impacted. Economic incentives to blend based on the relative value of gasoline versus ethanol, taking into consideration the octane value of ethanol, environmental requirements and the RFS mandate, may affect future demand. A significant increase in supply of biofuels beyond the RFS mandated volumes could have an adverse impact on ethanol prices. Moreover, changes to the RFS could negatively impact the price of ethanol or cause imported sugarcane or corn ethanol from Brazil to become more economical than domestic corn ethanol. Likewise, national, state and regional LCFS like that of California, Oregon, Washington state or Canada could be favorable or harmful to U.S. corn ethanol, depending on how the regulations are crafted, enforced, repealed and/or modified.

Future demand may be influenced by economic incentives to blend based on the relative value of gasoline versus ethanol, taking into consideration the octane value of ethanol, environmental requirements and the value of RFS credits known as RINs. A significant increase in supply of biofuels beyond the RFS mandated levels could have an adverse impact on ethanol prices. Moreover, any changes to RFS, whether by legislation, EPA action or lawsuit, originating from issues associated with the market price of RINs could negatively impact the demand for ethanol, discretionary blending of ethanol and/or the price of ethanol. Prior actions by the EPA to grant SREs without accounting for the lost gallons, for example, resulted in lower RIN prices. The final RVO for 2023, 2024 and 2025 set biodiesel and renewable diesel volumes below current production levels, which has contributed to lower D4, D5 and D6 RIN values in 2023 and 2024.

To the extent federal or state laws or regulations are modified, repealed and/or enacted, it may result in the demand for ethanol being reduced, which could negatively and materially affect our financial performance.

Future demand for ethanol is uncertain and changes in public perception, consumer acceptance and overall consumer demand for transportation fuel could affect demand.

While many trade groups, academics and government agencies support ethanol as a fuel additive that promotes cleaner air and reduces GHG emissions, others claim growing corn and producing ethanol consumes more energy, emits more GHG

emissions than other fuels and depletes water resources. While we do not agree, some studies suggest ethanol produced from corn is less efficient than ethanol produced from switch grass or wheat grain. Others claim corn ethanol negatively impacts consumers by causing the prices of food made from corn and corn byproducts, as well as meat derived from corn-consuming livestock to increase. Ethanol critics also contend the industry redirects corn supplies from international food markets to domestic fuel markets, and contributes to land use change domestically and abroad.

Today there are limited markets for ethanol beyond its value as an oxygenate domestically and abroad. We believe further consumer acceptance of E15 and E85 fuels may be necessary before ethanol can achieve significant market share growth in the U.S. Discretionary and E85 blending are important secondary markets. Discretionary blending is often determined by the price of ethanol relative to gasoline, the value of RINs or other low-carbon fuel credits, and availability to consumers. When discretionary blending is financially unattractive, the demand for ethanol may be reduced. New incentives for SAF could open new markets for ethanol through ATJ technologies, though existing commercial production is limited as of this filing.

Demand for ethanol is also affected by overall demand for surface transportation fuel, which is affected by cost, number of miles traveled and vehicle fuel economy. Miles traveled typically increases during the spring and summer months related to vacation travel, followed closely by the fall season due to holiday travel. Global events, such as COVID-19, greatly decreased miles traveled and in turn, the demand for ethanol. Consumer demand for gasoline may be impacted by various transportation trends, such as widespread adoption of electric vehicles. Numerous automakers have announced plans to phase out the production of gasoline and diesel powered vehicles by the mid-2030s. These announcements coincide with pledges to ban the sale of internal combustion engines in countries such as Japan and the United Kingdom by 2035, as well as a statewide ban in California, which several states are imitating. If realized, these bans would accelerate the decline of liquid fuel demand for surface transportation and by extension demand for ethanol, biodiesel and renewable diesel. The EPA has proposed CAFE standards, which would require aggressive EV deployment by Original Equipment Manufacturers. We are closely monitoring legislation and regulations that may impact the future sales of electric vehicles as well as vehicles with internal combustion engines in various states and around the world.

Our business is directly affected by the supply and demand for ethanol and other fuels in the markets served by our assets. Additionally, factors such as changes in the supply and demand of ethanol, could continue to negatively impact our business. Reduced demand for ethanol may depress the value of our products, erode our margins, and reduce our ability to generate revenue or operate profitably.

Our risk management and commodity trading strategies could be ineffective and expose us to decreased liquidity.

As market conditions warrant, we use forward contracts to sell some of our ethanol, distillers grains, Ultra-High Protein, and renewable corn oil, or buy some of the corn, and natural gas we need to partially offset commodity price volatility. We also engage in other hedging transactions and other commodity trading involving exchange-traded futures contracts for corn, natural gas, ethanol, soybean meal, soybean oil and other agricultural commodities. The financial impact of these activities depends on the price of the commodities involved and/or our ability to physically receive or deliver the commodities.

Hedging arrangements expose us to risk of financial loss when the counterparty defaults on its contract or, in the case of exchange-traded contracts, when the expected differential between the price of the underlying and physical commodity changes. Hedging activities can result in losses when a position is purchased in a declining market or sold in a rising market. Hedging losses may be offset by a decreased cash price for corn, and natural gas and an increased cash price for ethanol, distillers grains, Ultra-High Protein and renewable corn oil. We vary the amount of hedging and other risk mitigation strategies we undertake and sometimes choose not to engage in hedging transactions at all. We cannot provide assurance that our risk management and commodity trading strategies and decisions will be profitable or effectively offset commodity price volatility. If they are not, our results of operations and financial position may be adversely affected.

The use of derivative financial instruments frequently involves cash deposits with brokers, or margin calls. Sudden changes in commodity prices may require additional cash deposits immediately. Depending on our open derivative positions, we may need additional liquidity with little advance notice to cover margin calls. While we continuously monitor our exposure to margin calls, we cannot guarantee we will be able to maintain adequate liquidity to cover margin calls in the future.

Carbon Capture and Sequestration projects we are committed to could be delayed or cease operations.

We have seven facilities committed to carbon capture and sequestration projects. The projects we are committed to may

be delayed or suspend operations for various reasons prior to us realizing any benefit. The CI benefits we anticipate from our carbon reduction strategy may not materialize. Additionally, the regulatory modeling for CI reductions may be adjusted outside of our control in such a manner that reduces the anticipated benefits from these strategies. Federal guidelines in the IRA may be changed in the future to preclude corn-based ethanol from recognizing tax incentives, or otherwise reduce our potential benefits. Delays in regulations being issued, rescinding clean energy or carbon capture tax credits, could negatively impact our carbon capture endeavors. Elimination of clean fuel tax credits and other incentives at the state, federal and international level could negatively impact our business.

In the past, we have had operating losses and could incur future operating losses.

In the last five years, we incurred operating losses during certain quarters and annually and could incur operating losses in the future that are substantial. Although we have had periods of sustained profitability, we may not be able to maintain or increase profitability on a quarterly or annual basis, which could impact the market price of our common stock and the value of your investment. In addition, periods of sustained losses create uncertainty as to whether some or all of our deferred tax assets will be realizable in the future.

If the United States were to withdraw from or materially modify certain international trade agreements, our business, financial condition and results of operations could be materially adversely affected.

Ethanol and other products that we produce are or have been exported to Canada, Mexico, Brazil, China and other countries. The previous administration expressed antipathy towards certain existing international trade agreements and significantly increased tariffs on goods imported into the United States, which in turn led to retaliatory actions on U.S. exports. The outcome of trade negotiations or lack thereof, has had and/or may continue to have a material effect on our business, financial condition and results of operations.

Our debt exposes us to numerous risks that could have significant consequences to our shareholders.

Risks related to the level of debt we have include: (1) requiring a sizeable portion of cash to be dedicated for debt service, reducing the availability of cash flow for working capital, capital expenditures, and other general business activities and limiting our ability to invest in new growth opportunities; (2) limiting our ability to obtain additional financing for working capital, capital expenditures, acquisitions and other activities; (3) limiting our flexibility to plan for or react to changes in the businesses and industries in which we operate; (4) increasing our vulnerability to general and industry-specific adverse economic conditions; (5) being at a competitive disadvantage against less leveraged competitors; and (6) being vulnerable to increases in prevailing interest rates. A portion of our debt bears interest at variable rates, which creates exposure to interest rate risk. If interest rates increase, our debt service obligations at variable rates would increase even though the amount borrowed remained the same, decreasing net income.

Our ability to make scheduled payments on or to refinance our debt obligations and to fund our planned capital expenditures, acquisitions and other ongoing liquidity needs depends on our financial condition and operating performance, which are subject to prevailing economic and competitive conditions as well as certain financial, business and other factors which are beyond our control. There can be no assurance that we will maintain a level of cash flow from operating activities in an amount sufficient to permit us to pay the principal, premium, if any, and interest on our indebtedness. If our cash flow and capital resources are insufficient to fund our debt service obligations, we may be forced to reduce or delay investments and capital expenditures, or to seek additional capital or restructure our indebtedness. These alternative measures may not be successful and may not permit us to meet our scheduled debt service obligations. In the absence of such operating results and resources, we could face substantial liquidity problems and might be required to dispose of material assets or operations to meet our debt service and other obligations.

We are required to comply with a number of covenants under our existing loan agreements that could impact our liquidity.

We are required to maintain specified financial ratios, including minimum cash flow coverage, working capital and tangible net worth under certain loan agreements. A breach of these covenants could result in default, and if such default is not cured or waived, our lenders could accelerate our debt and declare it immediately due and payable. If this occurs, we may not be able to repay or borrow sufficient funds to refinance the debt. Even if financing is available, it may not be on acceptable terms. No assurance can be given that our future operating results will be sufficient to comply with these covenants or remedy default.

In the event we are unable to comply with these covenants in the future, we cannot provide assurance that we will be able

to obtain the necessary waivers or amend our loan agreements to prevent default. Under our convertible senior notes, default on any loan in excess of \$20.0 million could result in the notes being declared due and payable, which could have a material and adverse effect on our ability to operate.

We operate in a capital intensive business and rely on cash generated from operations and external financing, which could be limited.

Increased commodity prices could increase liquidity requirements. Our operating cash flow is dependent on overall commodity market conditions as well as our ability to operate profitably. In addition, we may need to raise additional financing to fund growth. In some market environments, we may have limited access to incremental financing, which could defer or cancel growth projects, reduce business activity or cause us to default on our existing debt agreements if we are unable to meet our payment schedules. These events could have an adverse effect on our operations and financial position.

Our ability to repay current and anticipated future debt will depend on our financial and operating performance and successful implementation of our business strategies. Our financial and operational performance will depend on numerous factors including prevailing economic conditions, commodity prices, and financial, business and other factors beyond our control. If we cannot repay, refinance or extend our current debt at scheduled maturity dates, we could be forced to reduce or delay capital expenditures, sell assets, restructure our debt or seek additional capital. If we are unable to restructure our debt or raise funds, our operations and growth plans could be harmed and the value of our stock could be significantly reduced.

Disruptions in the credit market could limit our access to capital.

We may need additional capital to fund our growth or other business activities in the future. The cost of capital under our existing or future financing arrangements could increase and affect our ability to trade with various commercial counterparties or cause our counterparties to require additional forms of credit support. If capital markets are disrupted, we may not be able to access capital at all or capital may only be available under less favorable terms.

Our production level may fluctuate due to planned and unplanned downtime at our assets.

Unplanned downtime may occur from time to time at our facilities. Our plants may not produce at yields we expect due to a variety of reasons, including, but not limited to, equipment failures and other breakdowns; labor shortages; lack of adequate raw materials, including corn supply; adverse pricing on raw materials and finished goods that becomes uneconomical; poor rail service; lack of adequate storage for distillers grains, Ultra-High Protein, renewable corn oil or ethanol; permitting or regulatory issues, adverse weather and other reasons. Any of these production events may adversely impact our profitability and financial position.

Our ability to maintain the required regulatory permits or manage changes in environmental, safety and TTB regulations is essential to successfully operating our plants.

Our plants are subject to extensive air, water, environmental and TTB regulations. Our production facilities involve the emission of various airborne pollutants, including particulate, carbon dioxide, nitrogen oxides, hazardous air pollutants and volatile organic compounds, which requires numerous environmental permits to operate our plants. Governing state agencies could impose costly conditions or restrictions that are detrimental to our profitability and have a material adverse effect on our operations, cash flows and financial position.

Environmental laws and regulations at the federal and state level are subject to change. These changes can also be made retroactively. It is possible that more stringent federal or state environmental rules or regulations could be adopted, which could increase our operating costs and expenses. Consequently, even though we currently have the proper permits, we may be required to invest or spend considerable resources in order to comply with future environmental regulations. Furthermore, ongoing plant operations, which are governed by the Occupational Safety and Health Administration, may change in a way that increases the cost of plant operations. Any of these events could have a material adverse effect on our operations, cash flows and financial position.

Part of our business is regulated by environmental laws and regulations governing the labeling, use, storage, discharge and disposal of hazardous materials. Since we handle and use hazardous substances, changes in environmental requirements or an unanticipated significant adverse environmental event could have a negative impact on our business. While we strive to comply with all environmental requirements, we cannot provide assurance that we have been in compliance at all times or will not incur material costs or liabilities in connection with these requirements. Private parties, including current and former

employees, could bring personal injury or other claims against us due to the presence of hazardous substances. We are also exposed to residual risk by our land and facilities which may have environmental liabilities from prior use. Changes in environmental regulations may require us to modify existing plant and processing facilities, which could significantly increase our cost of operations.

TTB regulations apply when producing our undenatured ethanol. These regulations carry substantial penalties for non-compliance and therefore any non-compliance may adversely affect our financial operations or adversely impact our ability to produce undenatured ethanol.

Any inability to generate or obtain RINs could adversely affect our operating margins.

Under the RFS, biofuel producers generate different types of RINs to attach to each gallon produced depending on the feedstock, pathway and level of GHG reduction. Cellulosic biofuel is assigned a D3 or D7 RIN, advanced biofuels such as biodiesel and renewable diesel generate D4 RINs, advanced biofuels generate D5 RINs, and all other biofuels that do not generate a D3, D4, D5 or D7 RIN qualify for a D6 RIN. Nearly all of our ethanol production is sold with D6 RINs that are used by our customers to comply with their blending obligations under the RFS. Should our production practices not meet the EPA's requirements for RIN generation in the future, we would need to export the ethanol, purchase RINs in the open market or sell our ethanol at a discounted price to compensate for the absence of RINs. Likewise, our renewable corn oil must meet regulatory requirements to be suitable as a feedstock for the production of renewable diesel, biodiesel and SAF, and changing production practices or regulations could impact its suitability as a feedstock. The price of RINs depends on a variety of factors, including the availability of qualifying biofuels and RINs for purchase, production levels of transportation fuel and percentage mix of ethanol with other fuels, and cannot be predicted. The values of D6 RINs, for which most conventional corn ethanol qualifies, have varied from a few pennies to well over a dollar. Failure to obtain sufficient RINs or reliance on invalid RINs could subject us to fines and penalties imposed by the EPA which could adversely affect our results of operations, cash flows and financial condition.

As we trade ethanol acquired from third-parties, should it be discovered the RINs associated with the ethanol we purchased are invalid, albeit unknowingly, we could be subject to substantial penalties if we are assessed the maximum amount allowed by law. Based on EPA penalties assessed on RINS violations in the past few years, in the event of a violation, the EPA could assess penalties, which could have an adverse impact on our profitability.

Compliance with evolving environmental, health and safety laws and regulations, particularly those related to climate change, could be costly.

Our plants emit biogenic carbon dioxide from fermentation as a by-product of ethanol production. While all ten of our plants have grandfathered RFS pathways allowing them to operate under their current authorized capacity under their EPA approved grandfathered limits, operating above these capacities requires an Efficient Producer Pathway, demonstrating at least a 20% reduction in GHG emissions relative to petroleum-based gasoline from a 2005 baseline. Four of our plants currently maintain Efficient Producer Pathways to operate at increased capacities. Separately, CARB began implementation of the California LCFS in 2011, which aims to decrease the CI of transportation fuel in the state. In 2018, CARB strengthened GHG benchmarks to 20% reductions vs 1990 levels by 2030. The most recent Scoping Plan from CARB in 2022 sets a target of 85% GHG reductions vs 1990 levels no later than 2045. An indirect land usage charge component is included in the GHG emission calculation, which may have an adverse impact on the market for corn-based ethanol in California. In late 2023, CARB proposed changes to the LCFS which would increase compliance requirements, including traceability of crop-based feedstocks beginning in 2028, an automatic accelerator mechanism to increase carbon credit values in the event of over-compliance by obligated parties, and other changes which could impact our ability to participate in and profit from the program.

To expand our production capacity, federal and state regulations may require us to obtain additional permits, achieve EPA's efficient producer status under the pathway petition program, install advanced technology or reduce drying distillers grains. Compliance with future laws or regulations to decrease carbon dioxide could be costly and may prevent us from operating our plants as profitably, which may have an adverse impact on our operations, cash flows and financial position.

We may fail to realize the anticipated benefits of mergers, acquisitions, joint ventures or partnerships.

We have increased the size and diversity of our operations through mergers, acquisitions and joint ventures or partnerships and intend to continue exploring potential growth opportunities. Acquisitions involve numerous risks that could harm our business, including: (1) difficulties integrating the operations, technologies, products, existing contracts, accounting processes and personnel and realizing anticipated synergies of the combined business; (2) risks relating to environmental

hazards on purchased sites; (3) risks relating to developing the necessary infrastructure for facilities or acquired sites, including access to rail networks; (4) difficulties supporting and transitioning customers; (5) diversion of financial and management resources from existing operations; (6) the purchase price exceeding the value realized; (7) risks of entering new markets or areas outside of our core competencies; (8) potential loss of key employees, customers and strategic alliances from our existing or acquired business; (9) unanticipated problems or underlying liabilities; and (10) inability to generate sufficient revenue to offset acquisition and development costs. The anticipated benefits of these transactions may not be fully realized or could take longer to realize than expected.

We have also pursued growth through joint ventures or partnerships, which typically involve restrictions on actions that the partnership or joint venture may take without the approval of the partners. These provisions could limit our ability to manage the partnership or joint venture in a manner that serves our best interests.

Future acquisitions may involve issuing equity as payment or to finance the business or assets, which could dilute your ownership interest. Furthermore, additional debt may be necessary to complete these transactions, which could have a material adverse effect on our financial condition. Failure to adequately address the risks associated with acquisitions or joint ventures could have a material adverse effect on our business, results of operations and financial condition.

Future events could result in impairment of long-lived assets, which may result in charges that adversely affect our results of operations.

Long-lived assets, including property, plant and equipment, intangible assets, goodwill and equity method investments, are evaluated for impairment annually or whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Our impairment evaluations are subject to changes in key assumptions used in our analysis and may require use of financial estimates of future cash flows. Application of alternative assumptions could produce significantly different results. We may be required to recognize impairments of long-lived assets based on future economic factors such as unfavorable changes in estimated future undiscounted cash flows of an asset group.

Global competition could affect our profitability.

We compete with producers in the United States and abroad. Depending on feedstock, labor and other production costs, producers in other countries, such as Brazil, may be able to produce ethanol, corn oil and distillers grains cheaper or with a lower CI than we can. Under the RFS, certain parties are obligated to meet an advanced biofuel standard. While transportation costs, infrastructure constraints, currency valuations and demand may temper the impact of ethanol imports, foreign competition remains a risk to our business. Moreover, significant additional foreign ethanol production could create excess supply, which could result in lower ethanol prices throughout the world, including the United States. Penetration of ethanol or distillers grains imports into the domestic or international market may have a material adverse effect on our operations, cash flows and financial position.

International activities such as boycotts, embargoes, product rejection, trade policies and compliance matters, may have an adverse effect on our results of operations.

Government actions abroad can have a significant impact on our business. We have experienced trade policy disputes, tariffs, changing foreign laws as well as investigations in various foreign countries over the past ten years that have adversely impacted the international demand for U.S. ethanol. With these types of international activities, the value of our products may be affected, which could have a negative impact on our profitability. Additionally, tariffs on U.S. ethanol may lead to further industry over-supply and reduce our profitability. Moreover, the America First trade position has caused more countries to toughen their positions on U.S. imports.

The ability or willingness of OPEC and other oil exporting nations to set and maintain production levels has a significant impact on oil and natural gas commodity prices.

The Organization of Petroleum Exporting Countries and their allies (collectively, OPEC+), is an intergovernmental organization that seeks to manage the price and supply of oil on the global energy market. Actions taken by OPEC+ members, including those taken alongside other oil exporting nations, have a significant impact on global oil supply and pricing. There can be no assurance that OPEC+ members and other oil exporting nations will agree to future production cuts or other actions to support and stabilize oil prices, nor can there be any assurance that they will not further reduce oil prices or increase production. Uncertainty regarding future actions to be taken by OPEC+ members or other oil exporting countries could lead to increased volatility in the price of oil, which could adversely affect our business, future financial condition and

results of operations.

Increased ethanol industry penetration by oil and other multinational companies could impact our margins.

We operate in a very competitive environment and compete with other domestic ethanol producers in a relatively fragmented industry. The top four producers account for approximately 40% of the domestic production capacity with production capacity ranging from 903 mmgy to 3,005 mmgy. The remaining ethanol producers consist of smaller entities engaged exclusively in ethanol production and large integrated grain companies that produce ethanol in addition to their base grain businesses. We compete for capital, labor, corn, shipping and other resources with these companies. Historically, oil companies, petrochemical refiners and gasoline retailers were not engaged in ethanol, biodiesel and other biofuel production even though they form the primary distribution network for finished liquid fuels. As of this filing, oil refiners accounted for approximately 10% of domestic ethanol production. If these companies increase their ethanol plant ownership or additional companies commence production, the need to purchase ethanol from independent producers like us or at pricing that provides us an acceptable margin could diminish and adversely effect on our operations, cash flows and financial position. Integrated oil companies and merchant refiners are increasingly investing in retrofitting refineries or building new refineries to produce renewable diesel, and partnering with commodity processors to supply soybean oil, distillers corn oil and other feedstocks, which could adversely impact the market for our renewable corn oil and Ultra-High Protein.

Our agribusiness operations are subject to significant government regulations.

Our agribusiness operations are regulated by various government entities that can impose significant costs on our business. Failure to comply could result in additional expenditures, fines or criminal action. Our production levels, markets and grains we merchandise are affected by federal government programs. Government policies such as tariffs, duties, subsidies, import and export restrictions, tax incentives, commodity support programs, conservation incentives, fuel and vehicle standards and embargos can also impact our business. Changes in government policies and producer support could impact the type and amount of grains planted, which could affect our ability to buy grain. Export restrictions or tariffs could limit sales opportunities outside of the United States.

Commodities futures trading is subject to extensive regulations.

The futures industry is subject to extensive regulation. Since we use exchange-traded futures contracts as part of our business, we are required to comply with a wide range of requirements imposed by the Commodity Futures Trading Commission, National Futures Association and the exchanges on which we trade. These regulatory bodies are responsible for safeguarding the integrity of the futures markets and protecting the interests of market participants. As a market participant, we are subject to regulation concerning trade practices, business conduct, reporting, position limits, record retention, the conduct of our officers and employees, and other matters.

Failure to comply with the laws, rules or regulations applicable to futures trading could have adverse consequences. Such claims could result in fines, settlements or suspended trading privileges, which could have a material adverse impact on our business, financial condition or operating results.

Our success depends on our ability to manage our growing and changing operations.

Since our formation in 2004, our business has grown significantly in size, products and complexity. This growth places substantial demands on our management, systems, internal controls, and financial and physical resources. If we acquire or develop additional operations, implement new technologies, sell into new markets, track the CI of the feedstocks we purchase and finished products we sell, we may need to further develop our financial and managerial controls and reporting systems, and could incur expenses related to hiring additional qualified personnel and expanding our information technology infrastructure. Our ability to manage growth effectively could impact our results of operations, financial position and cash flows.

New ethanol process technologies could emerge that require less energy per gallon to produce or increase yields of various products and in some cases develop new coproducts and result in lower production costs or more favorable economics for a plant. Our process technologies could become less effective or competitive than competing technologies or become obsolete and place us at a competitive disadvantage, which could have a material adverse effect on our operations, cash flows and financial position. Newly constructed plants could operate more efficiently and reliably than the legacy fleet of plants constructed nearly 20 years ago, which includes our assets, putting us at a competitive disadvantage. Competitors could successfully deploy carbon capture technology and achieve lower CI scores before we are able to do so, which could

put us at a competitive disadvantage.

We may be required to provide remedies for ethanol, distillers grains, Ultra-High Protein or renewable corn oil that do not meet the specifications defined in our sales contracts.

If we produce or purchase ethanol, distillers grains, Ultra-High Protein or renewable corn oil that does not meet the specifications defined in our sales contracts, we may be subject to quality claims. We could be required to refund the purchase price of any non-conforming product or replace the non-conforming product at our expense. Ethanol, distillers grains, Ultra-High Protein or renewable corn oil that we purchase or market and subsequently sell to others could result in similar claims if the product does not meet applicable contract specifications, which could have an adverse impact on our profitability.

Business disruptions due to unforeseen operational failures or factors outside of our control could impact our ability to fulfill contractual obligations.

Natural disasters, pandemics, transportation issues, significant track damage resulting from a train derailment, aging equipment breakdowns, coupled with supply chain challenges impacting repairs or replacements, or labor strikes by our transportation providers could adversely impact operations and/or delay shipments of raw materials to our plants or deliveries of ethanol, distillers grains, Ultra-High Protein and renewable corn oil to our customers. If we are unable to meet customer demand or contract delivery requirements due to stalled operations caused by business disruptions, we could potentially lose customers or volume with such customers.

Shifts in global markets, supply or demand changes, as well as adverse weather conditions, such as inadequate or excessive amounts of rain during the growing season, overly wet conditions, hail, derecho wind events, an early freeze or snowy weather during harvest could impact the supply of corn that is needed to produce ethanol. Corn stored in a temporary open pile may be damaged by rain or warm weather before the corn is dried, shipped or moved into a permanent storage structure.

Our business may be adversely impacted by the follow on impacts of the COVID-19 pandemic.

The outbreak of the coronavirus, or COVID-19, including resurgences and variants of the virus, created risk on all aspects of our business, including its impact on our employees, customers, vendors, and business partners. There are uncertainties from COVID-19 that continue, and include but are not limited to (1) the health of our workforce, and our ability to meet staffing needs which are vital to our operations; (2) the duration of additional outbreaks; (3) the effect on customer demand resulting in a decline in the demand for our products due to reduced travel and commuting; (4) impacts on our supply chain and potential limitations of supply of our feedstocks, chemicals and other products utilized as well as supply chain impacts on construction equipment, supplies and/or labor; (5) interruptions of our rail and distribution systems and delays in the delivery of our product; and (6) volatility in the credit and financial markets. Specifically, we have experienced demand fluctuations for our products and rail disruptions. Any of the foregoing may have an adverse impact our business, operations and/or profitability.

Our ethanol-related assets may be at greater risk of terrorist attacks, threats of war or actual war, than other possible targets.

Terrorist attacks in the United States, including threats of war or actual war, may adversely affect our operations. A direct attack on our ethanol plants, storage facilities, fuel terminals and railcars could have a material adverse effect on our financial condition, results of operations and cash flows. Furthermore, a terrorist attack could have an adverse impact on ethanol prices. Disruption or significant increases in ethanol prices could result in government-imposed price controls.

Our network infrastructure, enterprise applications and internal technology systems could be damaged or otherwise fail and disrupt business activities.

Our network infrastructure, enterprise applications and internal technology systems are instrumental to the day-to-day operations of our business. Numerous factors outside of our control, including earthquakes, floods, lightning, tornados, fire, power loss, telecommunication failures, computer viruses, physical or electronic vandalism or similar disruptions could result in system failures, interruptions or loss of critical data and prevent us from fulfilling customer orders. We cannot provide assurance that our backup systems are sufficient to mitigate hardware or software failures, which could result in business disruptions that negatively impact our operating results and damage our reputation.

We could be adversely affected by cyber-attacks, data security breaches and significant information technology systems interruptions.

We rely on network infrastructure, enterprise applications, and internal and external technology systems for operational, marketing support and sales, and product development activities. The hardware and software systems related to such activities are subject to damage from earthquakes, floods, lightning, tornados, fire, power loss, telecommunication failures, cyber-attacks and other similar events. They are also subject to acts such as computer viruses, physical or electronic vandalism or other similar disruptions that could cause system interruptions and loss of critical data, and could prevent us from fulfilling customers' orders. We have experienced various cyber-attacks, with minimal consequences on our business to date. As examples, we have experienced attempts to gain access to systems, denial of service attacks, attempted malware infections, account takeovers, scanning activity and phishing emails. Attacks can originate from external criminals, terrorists, nation states or internal actors. We will continue to dedicate resources and incur expenses to maintain and update on an ongoing basis the systems and processes that are designed to mitigate the information security risks we face and protect the security of our computer systems, software, networks and other technology assets against attempts by unauthorized parties to obtain access to confidential information, disrupt or degrade service or cause other damage. Despite the implementation of numerous cybersecurity measures (including but not limited to, ongoing collaboration and engagement with the Department of Homeland Security, access controls, data encryption, internal and third-party vulnerability assessments, employee training, continuous protection and monitoring, and maintenance of backup and protective systems), our information technology systems may still be vulnerable to cybersecurity threats and other electronic security breaches. While we have taken reasonable efforts to protect ourselves, and to date, we have not experienced any material losses related to cyber-attacks, we cannot assure our shareholders that any of our security measures would be sufficient in the future. Any event that causes failures or interruption in such hardware or software systems could result in disruption of our business operations, have a negative impact on our operating results, and damage our reputation, which could negatively affect our financial condition, results of operation, cash flows.

We may not be able to hire and retain qualified personnel to operate our facilities.

Our success depends, in part, on our ability to attract and retain competent employees. Qualified employees, including but not limited to finance and accounting, managers, engineers, merchandisers, and other personnel must be hired for each of our locations and our corporate office. If we are unable to hire and retain productive, skilled personnel, we may not be able to maximize production, optimize plant operations or execute our business strategy.

Compliance with and changes in tax laws could adversely affect our performance.

We are subject to extensive tax liabilities imposed by multiple jurisdictions, including income taxes, indirect taxes (excise/duty, sales/use, gross receipts, and value-added taxes), payroll taxes, franchise taxes, withholding taxes, and ad valorem taxes. New tax laws and regulations and changes in existing tax laws and regulations are continuously being enacted or proposed that could result in increased expenditures for tax liabilities in the future. Many of these liabilities are subject to periodic audits by the respective taxing authority. Subsequent changes to our tax liabilities as a result of these audits may subject us to interest and penalties. Tax incentives for producing low-carbon fuels may add additional complexity to our business, and our ability to qualify for them relative to other producers may put us at a competitive disadvantage.

Federal, state and local jurisdictions may challenge our tax return positions.

The positions taken in our federal and state tax return filings require significant judgments, use of estimates and the interpretation and application of complex tax laws. Significant judgment is also required in assessing the timing and amounts of deductible and taxable items. Despite management's belief that our tax return positions are fully supportable, certain positions may be successfully challenged by federal, state and local jurisdictions.

Financial performance of our equity method investments are subject to risks beyond our control and can vary substantially from period to period.

The company invests in certain limited liability companies, which are accounted for using the equity method of accounting. This means that the company's share of net income or loss in the investee increases or decreases, as applicable, the carrying value of the investment. By operating a business through this arrangement, we do not have control over operating decisions as we would if we owned the business outright. Specifically, we cannot act on major business initiatives without the consent of the other investors.

The company recognizes these investments within other assets on the consolidated balance sheets and its proportionate share of earnings on a separate line item in the consolidated statements of operations. As a result, the amount of net investment income recognized from these investments can vary substantially from period to period. Any losses experienced by these entities could adversely impact our results of operations and the value of our investment.

We are exposed to credit risk that could result in losses or affect our ability to make payments should a counterparty fail to perform according to the terms of our agreement.

We are exposed to credit risk from a variety of customers, including major integrated oil companies, large independent refiners, petroleum wholesalers and other ethanol plants. We are also exposed to credit risk with major suppliers of petroleum products and agricultural inputs when we make payments for undelivered inventories. Our fixed-price forward contracts are subject to credit risk when prices change significantly prior to delivery. The inability by a third party to pay us for our sales, provide product that was paid for in advance or deliver on a fixed-price contract could result in a loss and adversely impact our liquidity and ability to make our own payments when due.

We have limitations, as a holding company, in our ability to receive distributions from a small number of our subsidiaries.

We conduct most of our operations through our subsidiaries and rely on dividends or intercompany transfers of funds to generate free cash flow. Some of our subsidiaries are currently, or are expected to be, limited in their ability to pay dividends or make distributions under the terms of their financing agreements. Consequently, we cannot fully rely on the cash flow from one subsidiary to satisfy the loan obligations of another subsidiary. As a result, if a subsidiary is unable to satisfy its loan obligations, we may not be able to prevent default by providing additional cash to that subsidiary, even if sufficient cash exists elsewhere within our organization.

The ability of suppliers to deliver inputs, parts, components and equipment to our facilities, and our ability to construct our facilities without disruption, could affect our business performance.

We use a wide range of materials and components in the production of our products and our transformation construction, which come from numerous suppliers. Also, key parts may be available only from a single or a limited group of suppliers, and we are subject to supply and pricing risk. Our operations and those of our suppliers are subject to disruption for a variety of reasons, including supplier plant shutdowns or slowdowns, parts availability, transportation delays, work stoppages, labor relations, governmental regulatory and enforcement actions, disputes with suppliers, distributors or transportation providers, information technology failures, and natural hazards, including due to climate change. We may be impacted by supply chain issues, due to factors largely beyond our control, which could escalate in future quarters. Any of the foregoing factors may result in higher costs, operational disruptions or construction delays, which could have an adverse impact on our business and financial statements. Such disruption has in the past and could in the future interrupt our ability to manufacture certain products. Any significant disruption could have a material adverse impact on our financial statements.

Inflation may impact the cost and/or availability of materials, inputs and labor, which could adversely affect our operating results.

We have experienced inflationary impacts on raw materials, labor costs, wages, components, equipment, other inputs and services across our business and inflation and its impact could escalate in future quarters, many of which are beyond our control. Moreover, we may not be able to pass those costs along in the products we sell. As such, inflationary pressures could have a material adverse effect on our performance and financial statements.

Climate change, environmental, social and corporate governance issues and uncertainty regarding regulation of such matters may increase our operating costs, impact our capital markets and potentially reduce the value of our products and assets.

The issue of global climate change continues to attract considerable public and scientific attention with widespread concern about the impacts of human activity, especially the emissions of GHG such as carbon dioxide and methane. With the current administration, climate change legislation in the U.S. is likely to receive increased focus and consideration over the next several decades, with numerous proposals having been made and are likely to continue to be made at the international, national, regional and state levels of government that are intended to limit emissions of GHG and capture carbon. Several states have already adopted measures requiring reduction of GHG within state boundaries. Other states have elected to participate in voluntary regional cap-and-trade programs, low-carbon fuel standards and low-carbon energy requirements. While we have considered potential risks with transitioning to a low-carbon economy, and we believe our products are low

carbon and result in a reduction of GHG emissions compared to alternatives, any significant legislative changes at the international, national, state or local levels could significantly affect our ability to produce and sell our products, could increase the cost of the production and sale of our products and could materially reduce the value of our products. Additionally, our industry receives adverse commentary related to food versus fuel and land use change/conversion debates. These debates could increase which could potentially result in increased costs and/or regulations. Moreover, costs to transition to lower emissions process technology related to our decarbonization strategy is a related risk that has the potential to result in increased research and development expenditures in new and alternative technologies and capital investments in technology development. Unsuccessful investment in new technologies could pose further risk. Transitioning to a low-carbon economy could also result in increased cost of raw materials, which could increase our overall production costs.

Apart from legislation and regulation, some banks based both domestically and internationally have announced that they have adopted non-financial metrics for evaluating companies on their environmental impact, governance structure, and other criteria. There have also been efforts in recent years affecting the investment community promoting the divestment of fossil fuel equities, and encouraging the consideration of environmental factors in evaluating companies. While we have made improvements to our corporate governance, and continue to reduce the environmental impact of our operations and ingredients, these trends may adversely affect the demand for and price of securities issued by us, and impact our access to the capital and financial markets.

Further, it is believed that climate change itself may cause more extreme temperatures and weather conditions such as more intense hurricanes, thunderstorms, tornadoes, droughts, floods, snow or ice storms as well as rising sea levels and increased volatility in temperatures. Extreme weather conditions can interfere with our operations and cause damage resulting from extreme weather, which may not be fully insured. However, at this time, we are unable to determine the extent to which any potential climate change may lead to increased weather hazards affecting our operations.

Our insurance policies do not cover all losses, costs or liabilities that we may experience, and insurance companies that currently insure companies in the energy industry may cease to do so or substantially increase premiums.

We are insured under property, liability and business interruption policies, subject to the deductibles and limits under those policies. We have acquired insurance that we believe to be adequate to prevent loss from material foreseeable risks. However, events may occur for which no insurance is available for some or all of the loss or for which insurance is not available on terms that are acceptable. Loss from an event, such as, but not limited to war, riots, pandemics, terrorism or other risks, may not be insured and such a loss may have a material adverse effect on our operations, cash flows and financial position. Certain of our ethanol plants and our related storage tanks, as well as certain of our fuel terminal facilities are located within recognized seismic and flood zones. We believe that the design of these facilities have been modified to fortify them to meet structural requirements for those regions of the country. We have also obtained additional insurance coverage specific to earthquake and flood risks for the applicable plants and fuel terminals. However, there is no assurance that any such facility would remain in operation if a seismic or flood event were to occur.

Additionally, our ability to obtain and maintain adequate insurance may be adversely affected by conditions in the insurance market over which we have no control. In addition, if we experience insurable events, our annual premiums could increase further or insurance may not be available at all. If significant changes in the number or financial solvency of insurance underwriters for the ethanol industry occur, we may be unable to obtain and maintain adequate insurance at a reasonable cost. We cannot assure our shareholders that we will be able to renew our insurance coverage on acceptable terms, if at all, or that we will be able to arrange for adequate alternative coverage in the event of non-renewal. The occurrence of an event that is not fully covered by insurance, the failure by one or more insurers to honor its commitments for an insured event or the loss of insurance coverage could have a material adverse effect on our financial condition, results of operations, cash flows.

Our review of strategic alternatives may be disruptive to our business.

On February 7, 2024, we publicly announced that our Board of Directors has authorized a process to explore a range of strategic alternatives, which could include, among other things, acquisitions, divestitures, a merger or sale, partnerships and financings. Exploring strategic alternatives may create a significant distraction for our management team and Board of Directors and require us to expend significant time and resources and incur expenses for advisors. Moreover, the review of strategic alternatives may disrupt our business by causing uncertainty among current and potential employees, suppliers, customers and investors. The selection and execution of a strategic alternative may lead to similar disruptions, and parties advocating for alternatives not selected may solicit support for such other alternatives, causing further disruption.

Risks Related to our Common Stock

The price of our common stock may be highly volatile and subject to factors beyond our control.

Some of the many factors that can influence the price of our common stock include: (1) our results of operations and the performance of our competitors; (2) public's reaction to our press releases, public announcements and filings with the SEC; (3) changes in earnings estimates or recommendations by equity research analysts who follow us or other companies in our industry; (4) changes in general economic conditions; (5) changes in market prices for our products or raw materials and related substitutes; (6) sales or purchases of common stock by our directors, executive officers and significant shareholders; (7) actions by institutional investors trading in our stock; (8) disruptions in our operations; (9) changes in our management team; (10) other developments affecting us, our industry or our competitors; and (11) U.S. and international economic, legal and regulatory factors unrelated to our performance. The stock market may experience significant price and volume fluctuations, which are unrelated to the operating performance of any particular company. These broad market fluctuations could materially reduce the price of our common stock price based on factors that have little or nothing to do with our company or its performance.

Anti-takeover provisions could make it difficult for a third party to acquire us.

Our restated articles of incorporation, restated bylaws and Iowa's law contain anti-takeover provisions that could delay or prevent change in control of us or our management. These provisions discourage proxy contests, making it difficult for our shareholders to take other corporate actions without the consent of our board of directors, which include: (1) board members can only be removed for cause with an affirmative vote of no less than two-thirds of the outstanding shares; (2) shareholder action can only be taken at a special or annual meeting, not by written consent except where required by Iowa law; (3) shareholders are restricted from making proposals at shareholder meetings; and (4) the board of directors can issue authorized or unissued shares of stock. We are subject to the provisions of the Iowa Business Corporations Act, which prohibits combinations between an Iowa corporation whose stock is publicly traded or held by more than 2,000 shareholders and an interested shareholder for three years unless certain exemption requirements are met.

Provisions in the convertible notes could also make it more difficult or too expensive for a third party to acquire us. If a takeover constitutes a fundamental change, holders of the notes have the right to require us to repurchase their notes in cash. If a takeover constitutes a make-whole fundamental change, we may be required to increase the conversion rate for holders who convert their notes. In either case, the obligation under the notes could increase the acquisition cost and discourage a third party from acquiring us. These items discourage transactions that could otherwise command a premium over prevailing market prices and may limit the price investors are willing to pay for our stock.

Non-U.S. shareholders may be subject to U.S. income tax on gains related to the sale of their common stock.

If we are a U.S. real property holding corporation during the shorter of the five-year period before the stock was sold or the period the stock was held by a non-U.S. shareholder, the non-U.S. shareholder could be subject to U.S. federal income tax on gains related to the sale of their common stock. Whether we are a U.S. real property holding corporation depends on the fair market value of our U.S. real property interests relative to our other trade or business assets and non-U.S. real property interests. We cannot provide assurance that we are not a U.S. real property holding corporation or will not become one in the future.

Item 1B. Unresolved Staff Comments.

None.

Item 1C. Cybersecurity.

Risk Management and Strategy

We promote a company-wide culture of cybersecurity risk management to ensure that cybersecurity risk considerations are an integral part of decision-making at every level. We have implemented cyber defenses to safeguard our information systems and protect the confidentiality, integrity and availability of our data. Our information technology (IT) department continuously evaluates whether our cybersecurity risk management is aligned with our business objectives and operational needs. Our cybersecurity program is comprehensive in scope and covers the systems supporting our various lines of business.

Our cybersecurity program follows the National Institute of Standards and Technology, as well as the Cybersecurity and Infrastructure Security Agency frameworks. Additionally, we follow federal and state statutory and regulatory guidance and have adopted internal policies and standards in alignment with these federal and state requirements. Furthermore, we collaborate with external experts, consultants and auditors in routinely evaluating and testing our information systems controls. We also perform an annual cyber table-top exercise with a regulatory agency to help us test and continue to develop our Cyber Incident Response Plan.

Our cybersecurity program includes a well-documented process for oversight of cybersecurity risks associated with our third-party service providers. We evaluate our third parties prior to any engagements. We also request System and Organization Controls reports from our third-party vendors to obtain reasonable assurance that their controls are present and functioning.

Our IT policies communicate our expectations of employees and contractors to maintain the security of our IT systems. We perform annual cyber security training to remind our employees about the importance of keeping our systems safe, and perform regular third-party phishing campaigns.

Governance

The Audit Committee of the Board of Directors has oversight of management's efforts with respect to IT systems and cybersecurity. As part of this oversight, the company's IT leadership meets on a quarterly basis with the Audit Committee and on an annual basis with the company's Board of Directors. During these update meetings, IT leadership provides the Audit Committee and Board of Directors updates regarding any changes around our cyber defenses, ongoing IT initiatives, and emerging threats and plans to pro-actively encounter these threats.

Management continuously monitors the effectiveness of our cybersecurity defenses. We invest in regular and ongoing cybersecurity training for our IT department and company overall. Our Senior Vice President Business Technology has certain IT industry certifications and brings 30 years of IT background spanning all facets of technology, including applications, infrastructure and cybersecurity. Our Director of IT Security has over 20 years of experience in cybersecurity, including duties as an Information Security Officer in the United States Air Force.

As of December 31, 2023, we have not identified an indication of a cybersecurity incident that would have a material impact on our business and consolidated financial statements.

Item 2. Properties.

We believe the properties owned and leased at our locations are sufficient to accommodate our current needs, as well as potential expansion.

Corporate

We lease approximately 54,000 square feet of office space in Omaha, Nebraska for our corporate headquarters, which houses our corporate administrative functions and commodity trading operations.

Ethanol Production Segment

We own approximately 1,569 acres of land and lease approximately 78 acres of land at and around our ethanol production facilities. As detailed in our discussion of the ethanol production segment in *Item 1 – Business*, our ethanol plants have the capacity to produce approximately 903 million gallons of ethanol per year.

Agribusiness and Energy Services Segment

As detailed in our discussion in *Item 1 – Business*, our agribusiness and energy services segment facilities include grain storage capacity at our ethanol plants of approximately 20.2 million bushels.

We lease approximately 50,500 square feet of manufacturing space in Omaha, Nebraska for our Optimal Aquafeed LLC operations, where we manufacture and store fish food, feed ingredients and other related products.

Our marketing operations are conducted primarily at our corporate office, in Omaha, Nebraska.

Partnership Segment

Our partnership owns approximately five acres of land and leases approximately 29 acres of land at two locations in two states, as disclosed in *Item 1 – Business*, where its fuel terminals are located, and owns approximately 29 acres of land and leases approximately two acres of land where its storage facilities are located at our ethanol production facilities.

Item 3. Legal Proceedings.

We are currently involved in litigation that has occurred in the ordinary course of doing business. We do not believe this will have a material adverse effect on our financial position, results of operations or cash flows.

Item 4. Mine Safety Disclosures.

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.

Common Stock

Our common stock trades under the symbol "GPPE" on Nasdaq.

Holders of Record

We had 1,741 holders of record of our common stock, not including beneficial holders whose shares are held in names other than their own, on February 5, 2024. This figure does not include approximately 62.0 million shares held in depository trusts.

Dividend Policy

On June 18, 2019, the company's board of directors suspended its future quarterly cash dividend following the June 14, 2019 dividend payment, in order to retain and redirect cash flow to the company's operating expense equalization plan, the deployment of high-protein technology, its stock repurchase program and other corporate purposes.

Issuer Purchases of Equity Securities

Employees and directors may surrender shares when restricted stock grants are vested to satisfy statutory minimum required payroll tax withholding obligations. The following table lists the shares that were surrendered during the fourth quarter of 2023:

| Period | Total Number of Shares Withheld | Average Price Paid per Share |
|--------------------------|------------------------------------|---------------------------------|
| October 1 - October 31 | 1,868 | \$ 28.75 |
| November 1 - November 30 | — | — |
| December 1 - December 31 | 175 | 25.44 |
| Total | 2,043 | \$ 28.46 |

Our board of directors authorized a share repurchase program of up to \$200.0 million of our common stock. Under this program, we may repurchase shares in open market transactions, privately negotiated transactions, accelerated buyback programs, tender offers or by other means. The timing and amount of the transactions are determined by management based on its evaluation of market conditions, share price, legal requirements and other factors. The program may be suspended, modified or discontinued at any time, without prior notice. We did not repurchase any shares during 2023. Since inception, the company has repurchased 7.4 million shares of common stock for approximately \$92.8 million under the program.

Recent Sales of Unregistered Securities

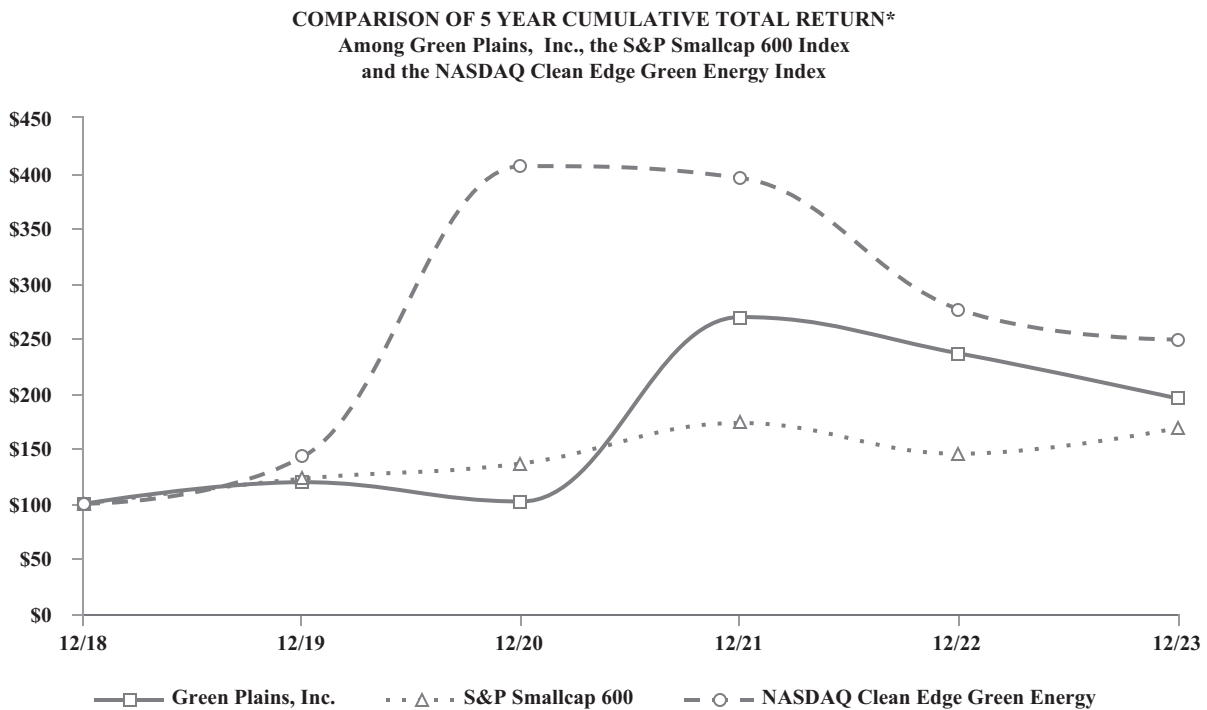
None.

Equity Compensation Plans

Refer to *Item 12 – Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters* for information regarding shares authorized for issuance under equity compensation plans.

Performance Graph

The following graph compares our cumulative total return with the S&P SmallCap 600 Index and the Nasdaq Clean Edge Green Energy Index (CELS) for each of the five years ended December 31, 2023. The graph assumes a \$100 investment in our common stock and each index at December 31, 2018, and that all dividends were reinvested.



*\$100 invested on 12/31/18 in stock or index, including reinvestment of dividends.
Fiscal year ending December 31.

| | 12/18 | 12/19 | 12/20 | 12/21 | 12/22 | 12/23 |
|--------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Green Plains Inc. | \$ 100.00 | \$ 119.60 | \$ 102.08 | \$ 269.42 | \$ 236.40 | \$ 195.48 |
| S&P SmallCap 600 | 100.00 | 122.78 | 136.64 | 173.29 | 145.39 | 168.73 |
| Nasdaq Clean Edge Green Energy | 100.00 | 142.67 | 406.35 | 395.62 | 276.35 | 248.97 |

The information in the graph will not be considered solicitation material, nor will it be filed with the SEC or incorporated by reference into any future filing under the Securities Act or the Exchange Act, unless we specifically incorporate it by reference into our filing.

Item 6. Reserved.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.

General

The following discussion and analysis includes information management believes is relevant to understand and assess our consolidated financial condition and results of operations. This section should be read in conjunction with our consolidated financial statements, accompanying notes and the risk factors contained in this report.

Overview

Green Plains is an Iowa corporation, founded in June 2004 as a producer of low-carbon fuels and has grown to be a leading biorefining company maximizing the potential of existing resources through fermentation and patented agribusiness technologies. We continue the transition from a commodity-processing business to a value-added agricultural technology company creating sustainable, high-value ingredients from existing resources. To that end, we are currently executing on a number of initiatives to develop and implement proven agricultural, food and industrial biotechnology systems that allow for product diversification, new market opportunities and production of additional value-added low-carbon ingredients, such as Ultra-High Protein, dextrose, renewable corn oil and more, as well as offering these technologies to the broader biofuels industry.

Green Plains Partners LP, a master limited partnership, is our primary downstream storage and logistics provider since its assets are the principal method of storing and delivering the ethanol we produce. As of December 31, 2023, we owned a 48.8% limited partner interest, a 2.0% general partner interest and all of the partnership's incentive distribution rights. The public owned the remaining 49.2% limited partner interest. The partnership is consolidated in our financial statements, and we record a noncontrolling interest for the economic interest in the partnership held by the public common unitholders. On January 9, 2024, pursuant to the Merger Agreement, we completed the acquisition of all the publicly held common units of the partnership not already owned by us and our affiliates. As a result of the Merger, the partnership common units are no longer publicly traded. Refer to *Note 5 - Acquisition and Dispositions* included in the notes to the audited consolidated financial statements included herein for more information.

We have installed and are operating FQT MSC™ technology at five of our biorefineries. Through our value-added ingredients initiative, we produce Ultra-High Protein, a feed ingredient with protein concentrations of 50% or greater and yeast concentrations of 25%, increase production of renewable corn oil and produce other higher value products, such as post-MSC™ distillers grains. We successfully completed full scale 60% protein production runs using FQT's MSC™ system. In 2021, we formed a 50/50 joint venture with Tharaldson Ethanol, which will own the MSC™ technology assets added adjacent to the Tharaldson Ethanol plant in North Dakota to produce Ultra-High Protein and increase renewable corn oil yields. We anticipate these assets will be operational in early 2024.

We began pilot scale batch operations at the FQT CST™ production facility at our Innovation Center at York in the second quarter of 2021, which allows for the production of both food and industrial grade low-carbon glucose and dextrose to target applications in food production, renewable chemicals and synthetic biology. In September 2022, we broke ground at our biorefinery in Shenandoah, Iowa, as the first location to deploy FQT CST™ at commercial scale. We also anticipate modifying additional biorefineries to include FQT CST™ production capabilities to meet anticipated future customer demands.

Additionally, we have taken advantage of opportunities to divest certain assets to reallocate capital toward our current growth initiatives. We are focused on generating stable and growing operating margins through our business segments and risk management strategy.

SAF is a drop-in fuel, chemically identical to petroleum-based jet fuel and can be blended into the fuel supply at varying levels. There is an increasing focus on using this fuel to reduce the carbon footprint of air travel. SAF can be produced from vegetable and waste oil feedstocks, such as our renewable corn oil. Additionally, ATJ technologies are emerging and being commercialized that use low-CI ethanol as a feedstock to produce SAF. In January 2023, Green Plains, United Airlines and Tallgrass formed a joint venture, Blue Blade Energy, to develop and then commercialize a novel ATJ SAF technology.

As part of our carbon reduction strategy, we committed our seven biorefineries in Nebraska, Iowa and Minnesota to carbon capture and sequestration projects through carbon pipeline transport, four with Summit Carbon Solutions and three with another provider, which will lower GHG emissions through the capture of carbon dioxide at each of these biorefineries, significantly lowering their CI. We anticipate completion of our three Nebraska biorefinery carbon capture projects in 2025,

and the Summit Carbon Solutions projects in 2026. In addition, we are collaborating with global partners to explore innovative options for carbon use, such as synthetic methane production at Madison and Obion. We intend to sequester the carbon from fermentation at Mount Vernon as well. Reducing the CI of our fuel ethanol could allow us to benefit from state and federal clean fuel programs, including LCFS and federal tax credits under the IRA, and could position our low-carbon ethanol as a potential feedstock for ATJ pathways to produce SAF.

In July 2023, we announced a technology collaboration with Equilon Enterprises LLC, which allows us to use FQT's precision separation and processing technology with Shell Fiber Conversion Technology. The two technologies will combine fermentation, mechanical separation and processing, and fiber conversion into one platform. This has the potential to create a new process to liberate all available distillers corn oil currently bound in the fiber fraction of the corn kernel, generate cellulosic sugars for production of low-carbon ethanol, and enhance and expand available high protein to produce high-quality ingredients for global animal feed diets. Our collaboration is expected to complete the construction of a facility at Green Plains York and begin commissioning in early 2024.

Our profitability is highly dependent on commodity prices, particularly for ethanol, distillers grains, Ultra-High Protein, renewable corn oil, soybean meal, corn, and natural gas. Since market price fluctuations of these commodities are not always correlated, our operations may be unprofitable at times. We use a variety of risk management tools and hedging strategies to monitor price risk exposure at our ethanol plants and lock in favorable margins or reduce production when margins are compressed. Our profitability could be significantly impacted by price movements of the aforementioned commodities.

More information about our business, properties and strategy can be found under *Item 1 – Business* and a description of our risk factors can be found under *Item 1A – Risk Factors*.

Strategic Review

The Board of Directors is initiating a formal review process to evaluate strategic alternatives for the company. This comprehensive evaluation is intended to explore a broad range of opportunities for the company to enhance long-term shareholder value, including, but not limited to, acquisitions, divestitures, a merger or sale, partnerships and financings.

There is no deadline or definitive timetable for completion of the strategic review process, and there can be no assurances that the process will result in a transaction or any other outcome. We do not intend to make any further public comment regarding the review until the Board has approved a specific action or otherwise determines that additional disclosure is appropriate or required.

Cooperation Agreement

On February 6, 2024, we entered into a Cooperation Agreement with a large shareholder whereby we agreed to announce our strategic review and the large shareholder agreed to certain standstill and voting obligations.

Industry Factors Affecting our Results of Operations

U.S. Ethanol Supply and Demand

According to the EIA, domestic ethanol production averaged 1.0 million barrels per day for both 2023 and 2022. Refiner and blender input volume increased to 888 thousand barrels per day for 2023, which was consistent compared with the 884 thousand barrels per day in 2022. Gasoline demand increased approximately 0.1 million barrels per day, or 1%, in 2023 compared to the prior year. U.S. domestic ethanol ending stocks decreased by approximately 0.9 million barrels compared to the prior year, or 4%, to 23.6 million barrels as of December 31, 2023. As of this filing, according to Prime the Pump, there were approximately 3,244 retail stations selling E15 year-round, up from 2,923 at the beginning of the year.

Global Ethanol Supply and Demand

According to the USDA Foreign Agriculture Service, domestic ethanol exports through November 30, 2023, were approximately 1,274 mmg, which was consistent with the 1,277 mmg for the same period of 2022. Canada was the largest export destination for U.S. ethanol accounting for approximately 47% of domestic ethanol export volume, driven in part by their national clean fuel standard. The United Kingdom, the Netherlands, South Korea, and India accounted for approximately 11%, 8%, 7% and 6%, respectively, of U.S. ethanol exports. We currently estimate that net ethanol exports will range from 1.4 to 1.6 billion gallons in 2024, based on historical demand from a variety of countries and certain countries that seek to improve their air quality, reduce greenhouse gas emissions through low carbon fuel programs and eliminate

MTBE from their own fuel supplies. Fluctuations in currencies relative to the U.S. Dollar could impact the U.S. ethanol competitiveness in the global market.

Protein and Vegetable Oil Supply and Demand

Our dried distillers grains and high protein ingredients compete against other ethanol producers domestically and abroad, as well as with soybean meal, canola meal, and other protein feed ingredients. Likewise our distillers corn oil, which is a feedstock for producing biodiesel, renewable diesel and to some extent SAF, competes against other vegetable oils such as soybean oil, canola oil, and to some extent palm oil, as well as against waste oils such as used cooking oils, animal fats and tallow. Soybean processing capacity in the U.S. has been expanding to meet the rising demand for vegetable oils to produce renewable fuels. According to the National Oilseed Processors Association, as of December 31, 2023, soybean crush was 195.3 million bushels, up from the 177.5 million bushels as of December 31, 2022.

Legislation and Regulation

We are sensitive to government programs and policies that affect the supply and demand for ethanol and other fuels, which in turn may impact the volume of ethanol and other products we handle. Over the years, various bills and amendments have been proposed in the House and Senate, which would eliminate the RFS entirely, eliminate the corn based ethanol portion of the mandate, lower the price of RINs and make it more difficult to sell fuel blends with higher levels of ethanol. Bills have also been introduced to require higher levels of octane blending, allow for year-round sales of higher blends of ethanol and require car manufacturers to produce vehicles that can operate on higher ethanol blends. We believe it is unlikely that any of these bills will become law in the current Congress. In addition, the manner in which the EPA administers the RFS and related regulations can have a significant impact on the actual amount of ethanol and other biofuels blended into the domestic fuel supply.

Federal mandates and state-level clean fuel standards supporting the use of renewable fuels are a significant driver of ethanol demand in the U.S. Ethanol policies are influenced by concerns for the environment, diversifying the fuel supply, supporting U.S. farmers and reducing the country's dependence on foreign oil. Consumer acceptance of FFVs and increased use of higher ethanol blends in non-FFVs may be necessary before ethanol can achieve further growth in the U.S. light duty surface transportation fleet market share. In addition, expansion of clean fuel standards in other states and countries, or a national LCFS could increase the demand for ethanol, depending on how they are structured. Incentives for automakers to produce FFVs phased out in 2020, and the EPA's recently proposed Corporate Average Fuel Economy (CAFE) standards further incentivize EV production, with the administration's stated goal of having EVs represent two-thirds of vehicles sold by 2032. Sales of EVs in the U.S. were approximately 1.2 million vehicles during 2023, which represented approximately 7.6% of new vehicles sales, up from 5.9% in 2022. Transition of the light duty surface transportation fleet from internal combustion engines to EVs could decrease the demand for ethanol.

The IRA, which was signed into law on August 16, 2022, is a sweeping policy that could have many potential impacts on our business which we are continuing to evaluate. The legislation (1) created a new Clean Fuel Production Credit of \$0.02 per gallon per CI point reduction for any fuel below a 50 CI threshold from 2025 to 2027, section 45Z of the Internal Revenue Code, which could impact our fuel ethanol, depending on the level of GHG reduction for each gallon; (2) created a new tax credit for SAF of \$1.25 to \$1.75 per gallon for 2023 and 2024, depending on the GHG reduction for each gallon, that could possibly involve some of our low carbon ethanol through an ATJ pathway, depending on the life cycle analysis model being used (this credit expires after 2024 and shifts to the 45Z Clean Fuel Production Credit, where it qualifies for up to \$0.035 per gallon per CI point reduction below a 50 CI threshold); (3) expanded the carbon capture and sequestration credit, section 45Q of the Internal Revenue Code, to \$85 for each metric ton of carbon dioxide sequestered, which could impact our carbon capture strategies, though it cannot be claimed in conjunction with the 45Z Clean Fuel Production Credit, which could prove to be more valuable; (4) extended the \$1.00 per gallon biomass-based diesel tax credit through 2024, which could impact our renewable corn oil values, as this co-product serves as a low-carbon feedstock for renewable diesel and bio diesel production (this credit expires after 2024 and shifts to the 45Z Clean Fuel Production credit, where all non-SAF fuels qualify for \$0.02 per gallon for each point of CI reduction under the 50 CI threshold); (5) funded \$500 million of biofuel blending infrastructure, which could impact the availability of higher level ethanol blended fuel; (6) increased funding for climate smart agriculture and working lands conservation programs for farmers by \$20 billion; and (7) provided credits for the production and purchase of electric vehicles, which could impact the amount of internal combustion engines built and sold longer term, and by extension impact the demand for liquid fuels including ethanol. There are numerous additional clean energy credits included in this law, including investment tax credits for construction of clean energy infrastructure, that could impact us and our overall competitiveness. Regulatory rulemaking for the administration of these programs is underway, and the final regulations could impact many aspects of our business.

The RFS sets a floor for biofuels use in the United States. In June 2023, the EPA finalized RVOs for 2023, 2024 and 2025, setting the implied conventional ethanol levels at 15.25 billion gallons for 2023, and 15 billion for 2024 and 2025, inclusive of 250 million gallons of supplemental volume in 2023 to reflect a court-ordered remand of a previously lowered RVO. The EPA also proposed a modest increase in biomass based diesel volumes over the three years, setting the volumes at 2.82 billion for 2023, 3.04 billion for 2024 and 3.35 billion for 2025. The EPA also indicated that corn kernel fiber would contribute to the finalized cellulosic volumes, and could move to approve registrations that have been languishing for years at the agency. The EPA also removed a proposed e-RIN program to support electric vehicles from the final rule, but indicated they may move forward with it in a separate rulemaking.

Under the RFS, RINs impact supply and demand. The EPA assigns individual refiners, blenders, and importers the volume of renewable fuels they are obligated to use in each annual RVO based on their percentage of total production of domestic transportation fuel sales. Obligated parties use RINs to show compliance with the RFS mandated volumes. Ethanol producers assign RINs to each gallon of renewable fuel they produce and the RINs are detached when the renewable fuel is blended with transportation fuel domestically. Market participants can trade the detached RINs in the open market. The market price of detached RINs can affect the price of ethanol in certain markets and can influence purchasing decisions by obligated parties. Of note, the RIN mechanism for proposed e-RINs could vary from the traditional process. SREs can reduce or waive entirely the obligation for a refinery, which has the practical effect of reducing the RVO, and by extension the amount of RINs that need to be retired, which can impact their values and ultimately blending levels of renewable fuels. There are multiple on-going legal challenges to how the EPA has handled SREs and RFS rulemakings.

The One-Pound Waiver, which was extended in May 2019 to allow E15 to be sold year-round to all vehicles model year 2001 and newer, was challenged in an action filed in Federal District Court for the D.C. Circuit. On July 2, 2021, the Circuit Court vacated the EPA's rule so the future of summertime, defined as June 1 to September 15, sales of E15 is uncertain. The Supreme Court declined to hear a challenge to this ruling. On April 12, 2022, the President announced that he had directed the EPA to issue an emergency waiver to allow for the continued sale of E15 during the summer months, and that the temporary waiver should be extended as long as the gasoline supply emergency lasts. On April 28, 2023, the administration announced emergency waivers for the 2023 summer driving season of June 1 to September 15. The EPA has also indicated it will undertake rulemaking to allow for the elimination of the One-Pound Waiver for E10 in several Midwestern states in time for the 2024 summer driving season, which would have the practical effect of allowing for E15 to be sold year round in the following states: Illinois, Iowa, Minnesota, Missouri, Nebraska, Ohio, South Dakota and Wisconsin.

In October 2019, the White House directed the USDA and EPA to move forward with rulemaking to expand access to higher blends of biofuels. This includes funding for infrastructure, labeling changes and allowing E15 to be sold through E10 infrastructure. The USDA rolled out the Higher Blend Infrastructure Incentive Program in the summer of 2020, providing competitive grants to fuel terminals and retailers for installing equipment for dispensing higher blends of ethanol and biodiesel. In December 2021, the USDA announced it would administer another infrastructure grant program. The IRA, signed into law in 2022, provided for an additional \$500 million in USDA grants for biofuel infrastructure. On June 26, 2023, the USDA announced the initial \$50 million in awards, and laid out a process for distributing the remaining \$450 million, with \$90 million being made available each quarter.

To respond to COVID-19 health crisis and attempt to offset the subsequent economic damage, Congress passed multiple relief measures, most notably the CARES Act in March 2020, which created and funded multiple programs that have impacted our industry. The CARES Act also allowed for certain net operating loss carrybacks, which has allowed us to receive certain tax refunds. In December 2020, Congress passed and the then President signed into law an annual spending package coupled with another COVID relief bill, which included additional funds for the Secretary of Agriculture to distribute to those impacted by the pandemic. The language of the bill specifically included biofuels producers as eligible for some of this aid, and in May 2022, the USDA distributed funds to us in the amount of \$27.7 million pursuant to this bill. In July 2023, the USDA distributed supplemental program funds to us in the amount of \$3.4 million.

Environmental and Other Regulation

Our operations are subject to environmental regulations, including those that govern the handling and release of ethanol, crude oil and other liquid hydrocarbon materials. Compliance with existing and anticipated environmental laws and regulations may increase our overall cost of doing business, including capital costs to construct, maintain, operate and upgrade equipment and facilities. Our business may also be impacted by government policies, such as tariffs, duties, subsidies, import and export restrictions and outright embargos. We employ maintenance and operations personnel at each of our facilities, which are regulated by the Occupational Safety and Health Administration.

The U.S. ethanol industry relies heavily on tank cars to deliver its product to market. In 2015, the DOT finalized the Enhanced Tank Car Standard and Operational Controls for High-Hazard and Flammable Trains, or DOT specification 117, which established a schedule to retrofit or replace older tank cars that carry crude oil and ethanol, braking standards intended to reduce the severity of accidents and new operational protocols. The rule has increased the lease costs for railcars in the short term and may increase the lease costs long term. Our partnership's fleet is DOT 117 compliant.

Variability of Commodity Prices

Our business is highly sensitive to commodity price fluctuations, particularly for corn, ethanol, renewable corn oil, distillers grains, Ultra-High Protein, and natural gas, which are impacted by factors that are outside of our control, including weather conditions, corn yield, changes in domestic and global ethanol supply and demand, government programs and policies and the price of crude oil, gasoline and substitute fuels. We use various financial instruments to manage and reduce our exposure to price variability. For more information about our commodity price risk, refer to *Item 7A. - Qualitative and Quantitative Disclosures About Market Risk, Commodity Price Risk* in this report.

Effects of Inflation

While inflation has increased relative to recent years, we do not expect it to have a material impact on our future results of operations. However, inflation has and may continue to impact the interest rate environment in which we operate, resulting in a higher cost of capital. Refer to *Item 7A. - Qualitative and Quantitative Disclosures About Market Risk, Commodity Price Risk* in this report for additional information related to interest rate risk.

Critical Accounting Policies and Estimates

The preparation of our consolidated financial statements requires that we use estimates that affect the reported assets, liabilities, revenue and expense and related disclosures for contingent assets and liabilities. We base our estimates on experience and assumptions we believe are proper and reasonable. While we regularly evaluate the appropriateness of these estimates, actual results could differ materially from our estimates. The following accounting policies, in particular, may be impacted by judgments, assumptions and estimates used in the preparation of our consolidated financial statements.

Derivative Financial Instruments

We use various derivative financial instruments, including exchange-traded futures and exchange-traded and over-the-counter options contracts, to attempt to minimize risk and the effect of commodity price changes, including but not limited to, corn, ethanol, natural gas and other agricultural and energy products. We monitor and manage this exposure as part of our overall risk management policy to reduce the adverse effect market volatility may have on our operating results. We may hedge these commodities as one way to mitigate risk; however, there may be situations when these hedging activities themselves result in losses.

By using derivatives to hedge exposures to changes in commodity prices, we are exposed to credit and market risk. Our exposure to credit risk includes the counterparty's failure to fulfill its performance obligations under the terms of the derivative contract. We minimize our credit risk by entering into transactions with high quality counterparties, limiting the amount of financial exposure it has with each counterparty and monitoring their financial condition. Market risk is the risk that the value of the financial instrument might be adversely affected by a change in commodity prices or interest rates. We manage market risk by incorporating parameters to monitor exposure within our risk management strategy, which limits the types of derivative instruments and strategies we can use and the degree of market risk we can take using derivative instruments.

Forward contracts are recorded at fair value unless the contracts qualify for, and we elect, normal purchase or sale exceptions. Changes in fair value are recorded in operating income unless the contracts qualify for, and we elect, cash flow hedge accounting treatment.

Certain qualifying derivatives related to ethanol production and agribusiness and energy services are designated as cash flow hedges. We evaluate the derivative instrument to ascertain its effectiveness prior to entering into cash flow hedges. Unrealized gains and losses are reflected in accumulated other comprehensive income or loss until the gain or loss from the underlying hedged transaction is realized and the physical transaction is completed. When it becomes probable a forecasted transaction will not occur, the cash flow hedge treatment is discontinued, which affects earnings. These derivative financial instruments are recognized in current assets or current liabilities at fair value.

At times, we hedge our exposure to changes in inventory values and designate qualifying derivatives as fair value hedges. The carrying amount of the hedged inventory is adjusted in the current period for changes in fair value. Estimated fair values carried at market are based on exchange-quoted prices, adjusted as appropriate for regional location basis values which represent differences in local markets including transportation as well as quality or grade differences. Basis values are generally determined using inputs from broker quotations or other market transactions. Ineffectiveness of the hedges is recognized in the current period to the extent the change in fair value of the inventory is not offset by the change in fair value of the derivative.

Please refer to *Note 11 - Derivative Financial Instruments* included in the notes to the audited consolidated financial statements included herein for further details.

Accounting for Income Taxes

Income taxes are accounted for under the asset and liability method in accordance with GAAP. Deferred tax assets and liabilities are recognized for future tax consequences between existing assets and liabilities and their respective tax basis, and for net operating loss and tax credit carry-forwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to be applied to taxable income in years temporary differences are expected to be recovered or settled. The effect of a tax rate change is recognized in the period that includes the enactment date. The realization of deferred tax assets depends on the generation of future taxable income during the periods in which temporary differences become deductible. Management considers scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies to make this assessment. A valuation allowance is recorded by the company when it is more likely than not that some portion or all of a deferred tax asset will not be realized. In making such a determination, management considers the positive and negative evidence to support the need for, or reversal of, a valuation allowance. The weight given to the potential effects of positive and negative evidence is based on the extent it can be objectively verified.

To account for uncertainty in income taxes, we gauge the likelihood of a tax position based on the technical merits of the position, perform a subsequent measurement related to the maximum benefit and degree of likelihood, and determine the benefit to be recognized in the financial statements, if any.

Please refer to *Note 16 - Income Taxes* included in the notes to the audited consolidated financial statements included herein for further details.

Recently Issued Accounting Pronouncements

For information related to recent accounting pronouncements, see *Note 2 – Summary of Significant Accounting Policies* included in the notes to the audited consolidated financial statements included herein.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements.

Components of Revenues and Expenses

Revenues. For our ethanol production segment, our revenues are derived primarily from the sale of ethanol, distillers grains, Ultra-High Protein and renewable corn oil. For our agribusiness and energy services segment, our primary sources of revenue include sales of ethanol, distillers grains and renewable corn oil that we market for our ethanol plants, in which we earn a marketing fee, sales of ethanol we market for a third-party and sales of other commodities purchased in the open market. The vast majority of our revenues are from forward contracts accounted for as derivatives under ASC 815 as disclosed in the tables within *Note 4 - Revenue* and *Note 11 - Derivative Financial Instruments* included in the notes to the audited consolidated financial statements included herein. Revenues include net gains or losses from derivatives related to products sold. For our partnership segment, our revenues consist primarily of fees for receiving, storing, transferring and transporting ethanol and other fuels.

Cost of Goods Sold. For our ethanol production segment, Cost of goods sold includes materials, direct labor, shipping and plant overhead costs. Materials include the cost of corn feedstock, denaturant and process chemicals. Corn feedstock costs include gains and losses on related derivative financial instruments not designated as cash flow hedges, inbound freight charges, inspection costs and transfer costs, as well as reclassifications of gains and losses on cash flow hedges from accumulated other comprehensive income or loss. Direct labor includes all compensation and related benefits of personnel

involved in ethanol production. Shipping costs incurred by the company, including railcar costs, are also reflected in cost of goods sold. Plant overhead consists primarily of plant utilities, repairs and maintenance, and outbound freight charges.

For our agribusiness and energy services segment, purchases of ethanol, distillers grains, renewable corn oil and grain are the primary component of cost of goods sold. Fair value hedged inventories and forward purchase and sale contracts are valued at market prices when available or other market quotes adjusted for differences, such as transportation, between the exchange-traded market and local markets where the terms of the contracts are based. Changes in the market value of grain inventories, forward purchase and sale contracts, and exchange-traded futures and options contracts are recognized as a component of cost of goods sold.

Operations and Maintenance Expense. For our partnership segment, transportation expense is the primary component of operations and maintenance expense. Transportation expense includes rail car leases, shipping and freight and costs incurred for storing ethanol at destination terminals.

Gain on Sale of Assets. We completed the sale of the ethanol plant located in Atkinson, Nebraska in September 2023. The sale of Atkinson resulted in a pretax gain of \$4.1 million recorded at the corporate level. We also completed the sale of the ethanol plant located in Ord, Nebraska in March 2021. The sale of Ord resulted in a pretax gain of \$35.9 million recorded at the corporate level.

Selling, General and Administrative Expense. Selling, general and administrative expenses are recognized at the operating segment and corporate level. These expenses consist of employee salaries, incentives and benefits; office expenses; director fees; and professional fees for accounting, legal, consulting and investor relations services. Personnel costs, which include employee salaries, incentives and benefits, as well as severance and separation costs, are the largest expenditure. Selling, general and administrative expenses that cannot be allocated to an operating segment are referred to as corporate activities.

Other Income (Expense). Other income (expense) includes interest earned, interest expense and other non-operating items, as well as \$3.4 million and \$27.7 million grants received from the USDA for the year-ended December 31, 2023 and 2022, respectively, related to the Biofuel Producer Program.

Income from Equity Method Investees. Income from equity method investees represents our proportional share of earnings from our equity method investees.

Results of Operations

We maintained an average utilization rate of approximately 89% of capacity during 2023, compared with 91% of capacity for the prior year. Our operating strategy is to transform our company to a value-add agricultural technology company. Depending on the margin environment, we may exercise operational discretion that results in reductions in production volumes. It is possible that throughput volumes could fluctuate in the future, depending on various factors that drive each biorefinery's variable contribution margin, including future driving and gasoline demand for the industry, demand for valuable coproducts we produce, and the supply and pricing of renewable feedstocks needed to operate our biorefineries.

Comparability

The following summarizes various events that affect the comparability of our operating results for the past three years:

- September 2023 Atkinson, Nebraska ethanol plant was sold and certain storage assets of this plant were acquired from the partnership prior to being sold.
- May 2022 Received a \$27.7 million grant from the USDA as part of the Biofuel Producer Program. An additional \$3.4 million was received in July 2023.
- March 2021 Ord, Nebraska ethanol plant was sold and certain storage assets of this plant were acquired from the partnership prior to being sold.

A discussion regarding our financial condition and results of operations for the year ended December 31, 2022, compared to the year ended December 31, 2021, can be found under Item 7 in our Annual Report on Form 10-K for the fiscal year ended December 31, 2022, filed with the SEC on February 10, 2023.

Segment Results

We report the financial and operating performance for the following three operating segments: (1) ethanol production, which includes the production of ethanol, distillers grains, Ultra-High Protein and renewable corn oil, (2) agribusiness and energy services, which includes grain handling and storage, commodity marketing and merchant trading for company-produced and third-party ethanol, distillers grains, renewable corn oil, natural gas and other commodities, and (3) partnership, which includes fuel storage and transportation services.

During the normal course of business, our operating segments do business with each other. For example, our agribusiness and energy services segment procures grain and natural gas and sells products, including ethanol, distillers grains and renewable corn oil of our ethanol production segment. Our partnership segment provides fuel storage and transportation services for our agribusiness and energy services segment. These intersegment activities are treated like third-party transactions with origination, marketing and storage fees charged at estimated market values. Consequently, these transactions affect segment performance; however, they do not impact our consolidated results since the revenues and corresponding costs are eliminated.

Corporate activities include selling, general and administrative expenses, consisting primarily of compensation, professional fees and overhead costs not directly related to a specific operating segment.

The selected operating segment financial information are as follows (in thousands):

| | Year Ended December 31, | | |
|--|-------------------------|---------------------|---------------------|
| | 2023 | 2022 | 2021 |
| Revenues | | | |
| Ethanol production | | | |
| Revenues from external customers | \$ 2,815,873 | \$ 3,070,192 | \$ 2,153,368 |
| Intersegment revenues | — | — | — |
| Total segment revenues | 2,815,873 | 3,070,192 | 2,153,368 |
| Agribusiness and energy services: | | | |
| Revenues from external customers | 475,757 | 588,654 | 669,526 |
| Intersegment revenues | 25,146 | 26,961 | 21,958 |
| Total segment revenues | 500,903 | 615,615 | 691,484 |
| Partnership | | | |
| Revenues from external customers | 4,113 | 4,003 | 4,274 |
| Intersegment revenues | 76,970 | 75,764 | 74,178 |
| Total segment revenues | 81,083 | 79,767 | 78,452 |
| Revenues including intersegment activity | 3,397,859 | 3,765,574 | 2,923,304 |
| Intersegment eliminations | (102,116) | (102,725) | (96,136) |
| | <u>\$ 3,295,743</u> | <u>\$ 3,662,849</u> | <u>\$ 2,827,168</u> |

| | Year Ended December 31, | | |
|----------------------------------|-------------------------|---------------------|---------------------|
| | 2023 | 2022 | 2021 |
| Cost of goods sold | | | |
| Ethanol production | \$ 2,751,292 | \$ 3,068,366 | \$ 2,063,283 |
| Agribusiness and energy services | 454,776 | 562,950 | 657,375 |
| Intersegment eliminations | (102,230) | (106,305) | (95,549) |
| | <u>\$ 3,103,838</u> | <u>\$ 3,525,011</u> | <u>\$ 2,625,109</u> |

| | Year Ended December 31, | | |
|----------------------------------|-------------------------|-------------------|-------------------|
| | 2023 | 2022 | 2021 |
| Gross margin | | | |
| Ethanol production | \$ 64,581 | \$ 1,826 | \$ 90,085 |
| Agribusiness and energy services | 46,127 | 52,665 | 34,109 |
| Partnership | 81,083 | 79,767 | 78,452 |
| Intersegment eliminations | 114 | 3,580 | (587) |
| | <u>\$ 191,905</u> | <u>\$ 137,838</u> | <u>\$ 202,059</u> |

| | Year Ended December 31, | | |
|-------------------------------------|-------------------------|--------------------|------------------|
| | 2023 | 2022 | 2021 |
| Operating income (loss) | | | |
| Ethanol production ⁽¹⁾ | \$ (66,931) | \$ (117,764) | \$ (27,996) |
| Agribusiness and energy services | 28,100 | 36,415 | 17,458 |
| Partnership | 46,859 | 47,699 | 48,672 |
| Intersegment eliminations | 114 | 3,580 | (587) |
| Corporate activities ⁽²⁾ | (69,720) | (68,878) | (12,039) |
| | <u>\$ (61,578)</u> | <u>\$ (98,948)</u> | <u>\$ 25,508</u> |

- (1) Operating loss for ethanol production includes an inventory lower of average cost or net realizable value adjustment of \$2.6 million and \$12.3 million for the year-ended December 31, 2023 and 2022, respectively.
- (2) Corporate activities for the year-ended December 31, 2023 and 2021 includes a \$4.1 million and \$29.6 million net gain on sale of assets, respectively.

| | Year Ended December 31, | | |
|----------------------------------|-------------------------|------------------|------------------|
| | 2023 | 2022 | 2021 |
| Depreciation and amortization | | | |
| Ethanol production | \$ 89,537 | \$ 81,545 | \$ 82,969 |
| Agribusiness and energy services | 2,360 | 3,466 | 2,535 |
| Partnership | 3,175 | 4,093 | 3,737 |
| Corporate activities | 3,172 | 3,594 | 2,711 |
| | <u>\$ 98,244</u> | <u>\$ 92,698</u> | <u>\$ 91,952</u> |

We use EBITDA, adjusted EBITDA, and segment EBITDA as measures of profitability to compare the financial performance of our reportable segments and manage those segments. EBITDA is defined as earnings before interest expense, income taxes, depreciation and amortization excluding the amortization of right-of-use assets and debt issuance costs. Adjusted EBITDA includes adjustments related to other income associated with the USDA COVID-19 relief grants, gains on sale of assets, and our proportional share of EBITDA adjustments of our equity method investees. We believe EBITDA, adjusted EBITDA and segment EBITDA are useful measures to compare our performance against other companies. These measures should not be considered an alternative to, or more meaningful than, net income, which is prepared in accordance with GAAP. EBITDA, adjusted EBITDA, and segment EBITDA calculations may vary from company to company. Accordingly, our computation of EBITDA, adjusted EBITDA, and segment EBITDA may not be comparable with a similarly titled measure of other companies.

The following table reconciles net loss including noncontrolling interest to adjusted EBITDA (in thousands):

| | Year Ended December 31, | | |
|---|-------------------------|-----------------|------------------|
| | 2023 | 2022 | 2021 |
| Net loss | \$ (76,299) | \$ (103,377) | \$ (44,146) |
| Interest expense ⁽¹⁾ | 37,703 | 32,642 | 67,144 |
| Income tax expense (benefit) | (5,617) | 4,747 | 1,845 |
| Depreciation and amortization ⁽²⁾ | 98,244 | 92,698 | 91,952 |
| EBITDA | 54,031 | 26,710 | 116,795 |
| Other income ⁽³⁾ | (3,440) | (27,712) | — |
| Gain on sale of assets, net | (5,265) | — | (29,601) |
| Proportional share of EBITDA adjustments to equity method investees | 180 | 180 | 184 |
| Adjusted EBITDA | <u>\$ 45,506</u> | <u>\$ (822)</u> | <u>\$ 87,378</u> |

- (1) Interest expense for the year ended December 31, 2021 includes a loss on extinguishment of convertible notes of \$22.1 million and a loss on settlement of convertible notes of \$9.5 million.
- (2) Excludes the amortization of operating lease right-of-use assets and amortization of debt issuance costs.
- (3) Other income for the year-ended December 31, 2023 and 2022, includes a grant received from the USDA related to the Biofuel Producer Program of \$3.4 million and \$27.7 million, respectively.

The following table reconciles segment EBITDA to consolidated adjusted EBITDA (in thousands):

| | Year Ended December 31, | | |
|---|-------------------------|-----------------|------------------|
| | 2023 | 2022 | 2021 |
| Adjusted EBITDA: | | | |
| Ethanol production ⁽¹⁾ | \$ 26,769 | \$ (8,619) | \$ 55,056 |
| Agribusiness and energy services | 31,689 | 39,798 | 19,716 |
| Partnership | 51,678 | 52,429 | 53,109 |
| Intersegment eliminations | 114 | 3,580 | (587) |
| Corporate activities ⁽²⁾ | (56,219) | (60,478) | (10,499) |
| EBITDA | 54,031 | 26,710 | 116,795 |
| Other income ⁽³⁾ | (3,440) | (27,712) | — |
| Gain on sale of assets, net | (5,265) | — | (29,601) |
| Proportional share of EBITDA adjustments to equity method investees | 180 | 180 | 184 |
| Adjusted EBITDA | <u>\$ 45,506</u> | <u>\$ (822)</u> | <u>\$ 87,378</u> |

- (1) Operating loss for ethanol production includes an inventory lower of average cost or net realizable value adjustment of \$2.6 million and \$12.3 million for the year-ended December 31, 2023 and 2022, respectively.
- (2) Corporate activities for the year-ended December 31, 2023 and 2021 includes a \$4.1 million and \$29.6 million net gain on sale of assets, respectively.
- (3) Other income for the year-ended December 31, 2023 and 2022, includes a grant received from the USDA related to the Biofuel Producer Program of \$3.4 million and \$27.7 million, respectively.

Total assets by segment are as follows (in thousands):

| | Year Ended December 31, | |
|----------------------------------|-------------------------|---------------------|
| | 2023 | 2022 |
| Total assets ⁽¹⁾ | | |
| Ethanol production | \$ 1,173,218 | \$ 1,157,791 |
| Agribusiness and energy services | 413,937 | 489,083 |
| Partnership | 102,776 | 108,680 |
| Corporate assets | 254,300 | 386,437 |
| Intersegment eliminations | (4,909) | (18,860) |
| | <u>\$ 1,939,322</u> | <u>\$ 2,123,131</u> |

(1) Asset balances by segment exclude intercompany balances.

Year Ended December 31, 2023 compared with the Year Ended December 31, 2022

Consolidated Results

Consolidated revenues decreased \$367.1 million in 2023 compared with 2022 primarily due to lower average selling prices and lower volumes sold on ethanol, distillers grains and renewable corn oil within our ethanol production segment as described below. Additionally, we had lower revenues within our agribusiness and energy services segment as a result of decreased trading margins.

Net loss decreased \$27.1 million in 2023 compared with 2022 primarily due to higher margins in our ethanol production segment, partially offset by lower margins in our agribusiness and energy services segment. Adjusted EBITDA increased \$46.3 million in 2023 compared with 2022 primarily due to higher margins in our ethanol production segment, partially offset by lower margins in our agribusiness and energy services segment and lower other income from the grants received from the USDA related to the Biofuel Producer Program. Interest expense increased \$5.1 million in 2023 compared with 2022 primarily due to a decrease in the amount of capitalized interest. Income tax benefit was \$5.6 million in 2023 compared to an income tax expense of \$4.7 million in 2022 primarily due to a decrease in the valuation allowance recorded against certain deferred tax assets.

The following discussion provides greater detail about our segment performance.

Ethanol Production Segment

Key operating data for our ethanol production segment is as follows:

| | Year Ended December 31, | |
|--------------------------------------|-------------------------|---------|
| | 2023 | 2022 |
| Ethanol sold | | |
| (thousands of gallons) | 840,819 | 872,133 |
| Distillers grains sold | | |
| (thousands of equivalent dried tons) | 1,933 | 2,213 |
| Ultra-High Protein Sold | | |
| (thousands of tons) | 223 | 67 |
| Renewable corn oil sold | | |
| (thousands of pounds) | 279,861 | 281,730 |
| Corn consumed | | |
| (thousands of bushels) | 289,267 | 301,868 |

Revenues in our ethanol production segment decreased \$254.3 million in 2023 compared with 2022 primarily due to lower ethanol, distillers grains and renewable corn oil volumes sold driven partially by the disposition of our Atkinson, Nebraska plant resulting in decreased revenues of \$82.3 million, \$28.4 million and \$1.3 million, respectively, as well as lower weighted average selling prices on ethanol, distillers grains and renewable corn oil resulting in decreased revenues of \$96.8 million, \$32.4 million and \$14.4 million, respectively. Revenues increased as a result of hedging activities by \$10.9 million.

Cost of goods sold in our ethanol production segment decreased \$317.1 million for 2023 compared with 2022 due to lower weighted average corn prices, lower corn volumes processed and hedging activities, resulting in decreased costs of \$300.2 million, \$91.1 million and \$46.3 million, respectively, as well as lower chemicals and other costs of \$26.8 million and lower utility costs of \$6.4 million, partially offset by higher ethanol volumes purchased of \$150.2 million, as well as higher freight costs of \$7.9 million.

Operating loss in our ethanol production segment decreased \$50.8 million in 2023 compared with 2022 primarily due to increased margins on ethanol production as outlined above. Depreciation and amortization expense for the ethanol production segment was \$89.5 million for 2023 compared with \$81.5 million during 2022, with the increase primarily due to Ultra-High Protein assets placed in service.

Agribusiness and Energy Services Segment

Revenues in our agribusiness and energy services segment decreased \$114.7 million while operating income also decreased \$8.3 million in 2023 compared with 2022. The decrease in revenues was primarily due to a decrease in ethanol, natural gas and distillers grains trading margins, partially offset by an increase in renewable corn oil trading volumes. Operating income decreased primarily as a result of lower distillers grains trading margins.

Partnership Segment

Revenues generated by our partnership segment increased \$1.3 million in 2023 compared with 2022. Railcar transportation services revenue increased \$3.5 million primarily due to an increase in transportation service fees charged as a result of the partnership upgrading its leased railcar fleet to comply with DOT 117 regulations. Storage and throughput services revenue was consistent with the prior period. Terminal services revenue increased \$0.3 million primarily due to higher throughput at our partnership's terminals. Trucking and other revenue decreased \$2.5 million due to the discontinuance of trucking operations, which occurred in May 2023. Operating income decreased \$0.8 million in 2023 compared with 2022 primarily due to transaction costs related to the Merger Agreement, partially offset by gains realized on the sale of trucking assets.

Intersegment Eliminations

Intersegment eliminations of revenues decreased by \$0.6 million for 2023 compared with 2022 primarily due to decreased intersegment marketing and commodity service fees within the agribusiness and energy services segment as a result of lower production volumes, partially offset by increased storage and throughput fees paid to the partnership segment.

Corporate Activities

Operating loss was impacted by an increase in corporate activities of \$0.8 million for 2023 compared with 2022, primarily due to increased personnel costs and transaction costs related to the Merger Agreement, partially offset by the gain on the sale of assets during 2023.

Income Taxes

We recorded income tax benefit of \$5.6 million for 2023 compared to an income tax expense of \$4.7 million in 2022. The increase in the amount of tax benefit recorded for 2023 was primarily due to a decrease in the valuation allowance recorded against certain deferred tax assets.

Liquidity and Capital Resources

Our principal sources of liquidity include cash generated from operating activities and credit facilities. We fund our operating expenses and service debt primarily with operating cash flows. Capital resources for maintenance and growth

expenditures are funded by a variety of sources, including cash generated from operating activities, borrowings under credit facilities, or issuance of public or private debt or equity securities. Our ability to access capital markets for debt under reasonable terms depends on our financial condition, credit ratings and market conditions. We believe that our ability to obtain financing at reasonable rates based on these factors remains sufficient and provides a solid foundation to meet our future liquidity and capital resource requirements.

On December 31, 2023, we had \$349.6 million in cash and cash equivalents and \$29.2 million in restricted cash. We also had \$251.0 million available under our committed revolving credit agreement, subject to restrictions or other lending conditions. Funds at certain subsidiaries are generally required for their ongoing operational needs and restricted from distribution. At December 31, 2023, our subsidiaries had approximately \$126.8 million of net assets that were not available to use in the form of dividends, loans or advances due to restrictions contained in their credit facilities.

Net cash provided by operating activities was \$56.3 million in 2023 compared to \$69.7 million in 2022. Operating activities compared to the prior year were primarily affected by higher cash provided by lower inventory and lower net loss compared to the prior year, partially offset by higher cash used related to lower accounts payables. Net cash used in investing activities was \$106.9 million in 2023 compared to \$105.3 million in 2022 primarily due to higher cash provided by lower capital expenditures and proceeds from the sale of assets in 2023, offset by the proceeds from the sale of marketable securities in the prior year. Net cash used in financing activities was \$71.0 million in 2023 compared to \$25.1 million in 2022 primarily due to higher debt proceeds in 2022 as a result of changes in our debt structure.

Additionally, Green Plains Finance Company, Green Plains Trade, Green Plains Grain and Green Plains Commodity Management use revolving credit facilities to finance working capital requirements. We frequently draw from and repay these facilities which results in significant cash movements reflected on a gross basis within financing activities as proceeds from and payments on short-term borrowings.

We incurred capital expenditures of \$108.5 million in 2023 primarily for Ultra-High Protein expansion projects at Mount Vernon and Obion, the clean sugar expansion project at Shenandoah and for various other capital projects. The current projected estimate for capital spending for 2024 is approximately \$125 million to \$150 million, which is subject to review prior to the initiation of any project. The estimate includes additional expenditures for various capital projects, which are expected to be financed with cash on hand and with cash provided by operating activities.

Our business is highly sensitive to the price of commodities, particularly for corn, ethanol, distillers grains, Ultra-High Protein, renewable corn oil and natural gas. We use derivative financial instruments to reduce the market risk associated with fluctuations in commodity prices. Sudden changes in commodity prices may require cash deposits with brokers for margin calls or significant liquidity with little advanced notice to meet margin calls, depending on our open derivative positions. We continuously monitor our exposure to margin calls and believe we will continue to maintain adequate liquidity to cover margin calls from our operating results and borrowings.

Our board of directors authorized a share repurchase program of up to \$200.0 million of our common stock. Under the program, we may repurchase shares in open market transactions, privately negotiated transactions, accelerated share buyback programs, tender offers or by other means. The timing and amount of repurchase transactions are determined by our management based on market conditions, share price, legal requirements and other factors. The program may be suspended, modified or discontinued at any time without prior notice. We did not repurchase any common stock in 2023, 2022 or 2021. To date, we have repurchased approximately 7.4 million shares of common stock for approximately \$92.8 million under the program.

We believe we have sufficient working capital for our existing operations. A continued sustained period of unprofitable operations, however, may strain our liquidity. We may sell additional assets or equity or borrow capital to improve or preserve our liquidity, expand our business or acquire businesses.

Debt

We were in compliance with our debt covenants at December 31, 2023. Based on our forecasts, we believe we will maintain compliance at each of our subsidiaries for the next twelve months or have sufficient liquidity available on a consolidated basis to resolve noncompliance. We cannot provide assurance that actual results will approximate our forecasts or that we will inject the necessary capital into a subsidiary to maintain compliance with its respective covenants. In the event a subsidiary is unable to comply with its debt covenants, the subsidiary's lenders may determine that an event of default has occurred, and following notice, the lenders may terminate the commitment and declare the unpaid balance due and payable.

Corporate Activities

In March 2021, we issued \$230.0 million of unsecured 2.25% convertible senior notes due in 2027, or the 2.25% notes. The 2.25% notes bear interest at a rate of 2.25% per year, payable on March 15 and September 15 of each year. The initial conversion rate is 31.6206 shares of our common stock per \$1,000 principal amount of 2.25% notes (equivalent to an initial conversion price of approximately \$31.62 per share of our common stock), representing an approximately 37.5% premium over the offering price of our common stock. The conversion rate is subject to adjustment upon the occurrence of certain events, including but not limited to; the event of a stock dividend or stock split; the issuance of additional rights, options and warrants; spinoffs; or a tender or exchange offering. In addition, we may be obligated to increase the conversion rate for any conversion that occurs in connection with certain corporate events, including our calling the 2.25% notes for redemption. We may settle the 2.25% notes in cash, common stock or a combination of cash and common stock. At December 31, 2023, the outstanding principal balance on the 2.25% notes was \$230.0 million.

In June 2019, we issued \$115.0 million of 4.00% convertible senior notes due in 2024, or the 4.00% notes. During May 2021, we entered into a privately negotiated agreement with certain noteholders of our 4.00% notes. Under this agreement, approximately 3.6 million shares of our common stock were exchanged for \$51.0 million in aggregate principal amount of the 4.00% notes.

On May 25, 2022, we gave notice calling for the redemption of our outstanding 4.00% notes, totaling an aggregate principal amount of \$64.0 million. The final conversion rate was increased to 66.4178 shares of common stock per \$1,000 of principal. From July 1, 2022 through July 8, 2022, the remaining \$64.0 million of the 4.00% notes were converted into approximately 4.3 million shares of common stock. Common stock held as treasury shares were exchanged for the 4.00% notes. Pursuant to the guidance within ASC 470, *Debt*, we recorded the exchanges as a conversion. The 4.00% notes were retired effective July 8, 2022.

In August 2016, we issued \$170.0 million of 4.125% convertible senior notes due in 2022, or the 4.125% notes, which were senior, unsecured obligations. In March 2021, concurrent with the issuance of the 2.25% notes, we used approximately \$156.5 million of the net proceeds of the 2.25% notes to repurchase approximately \$135.7 million aggregate principal amount of the 4.125% notes due 2022, in privately negotiated transactions. Pursuant to the guidance within ASC 470, *Debt*, we recorded a loss upon extinguishment of \$22.1 million in interest expense. This charge included \$1.2 million of unamortized debt issuance costs related to the principal balance extinguished.

During August 2022, we entered into four privately negotiated exchange agreements with certain noteholders of the 4.125% notes to exchange approximately \$32.6 million aggregate principal amount for approximately 1.2 million shares of our common stock. Additionally, on September 1, 2022, approximately \$1.7 million aggregate principal amount of the 4.125% notes were settled through a combination of \$1.7 million in cash and approximately 15 thousand shares of our common stock, and the remaining \$23 thousand aggregate principal amount and accrued interest were settled in cash. The 4.125% notes were fully retired effective September 1, 2022.

Ethanol Production Segment

On February 9, 2021, Green Plains SPE LLC, a wholly-owned special purpose subsidiary and parent of Green Plains Obion and Green Plains Mount Vernon issued \$125.0 million of junior secured mezzanine notes due February 2026 with BlackRock for the purchase of all notes issued. These notes will mature on February 9, 2026 and are secured by a pledge of the membership interests in, and the real property owned by, Green Plains Obion and Green Plains Mount Vernon. At December 31, 2023, the outstanding principal balance was \$125.0 million on the loan and the interest rate was 11.75%.

Green Plains Wood River and Green Plains Shenandoah, wholly-owned subsidiaries of us, have a \$75.0 million secured loan agreement, which matures on September 1, 2035. At December 31, 2023, the outstanding principal balance was \$73.1 million on the loan and the interest rate was 5.02%.

We also have small equipment financing loans, finance leases on equipment or facilities, and other forms of debt financing.

Agribusiness and Energy Services Segment

Green Plains Finance Company, Green Plains Grain and Green Plains Trade have total senior secured revolving commitments of \$350.0 million and an accordion feature whereby amounts available under the facility may be increased by up to \$100.0 million of new lender commitments subject to certain conditions. The facility matures in March 2027. Each

SOFR rate loan shall bear interest for each day at a rate per annum equal to the Term SOFR rate for the outstanding period plus a Term SOFR adjustment and an applicable margin of 2.25% to 2.50%, which is dependent on undrawn availability under the facility. Each base rate loan shall bear interest at a rate per annum equal to the base rate plus the applicable margin of 1.25% to 1.50%, which is dependent on undrawn availability under the facility. The unused portion of the facility is also subject to a commitment fee of 0.275% to 0.375%, dependent on undrawn availability. At December 31, 2023, the outstanding principal balance was \$99.0 million on the facility and the interest rate was 9.41%.

Green Plains Commodity Management has an uncommitted \$40.0 million revolving credit facility to finance margins related to its hedging programs, which is secured by cash and securities held in its brokerage accounts. During the first quarter of 2023, this revolving credit facility was extended five years to mature on April 30, 2028. Advances are subject to variable interest rates equal to SOFR plus 1.75%. At December 31, 2023, the outstanding principal balance was \$7.0 million on the facility and the interest rate was 7.15%.

Green Plains Grain has a short-term inventory financing agreement with a financial institution. The company has accounted for the agreement as short-term notes, rather than revenues, and has elected the fair value option to offset fluctuations in market prices of the inventory. This agreement is subject to negotiated variable interest rates. The company had no outstanding short-term notes payable related to the inventory financing agreement as of December 31, 2023.

Partnership Segment

Green Plains Partners, through a wholly owned subsidiary, has a secured term loan to fund working capital, capital expenditures and other general partnership purposes. The term loan has a maturity date of July 20, 2026. The term loan does not require any principal payments; however, the partnership has the option to prepay \$1.5 million per quarter. The partnership repurchased \$1.0 million of the outstanding notes during 2022. Prepayments totaling \$3.0 million were made during the year ended December 31, 2023.

On April 19, 2023, the term loan was amended to change the underlying floating interest rate to a SOFR-based rate from a LIBOR-based rate. The impact of the amendment was not material to interest expense.

Interest on the term loan is based on 3-month SOFR plus 8.26%, and is payable on the 15th day of each March, June, September and December. The term loan is secured by substantially all of the assets of the partnership. As of December 31, 2023, the term loan had a balance of \$56.0 million and an interest rate of 13.65%.

Refer to *Note 12 – Debt* included in the notes to the audited consolidated financial statements included herein for more information about our debt.

Contractual Obligations and Commitments

In addition to debt, our material future obligations include certain lease agreements and contractual and purchase commitments related to commodities, storage and transportation. Aggregate minimum lease payments under the operating lease agreements for future fiscal years as of December 31, 2023 totaled \$86.9 million. As of December 31, 2023, we had contracted future purchases of grain, ethanol, distillers grains, and natural gas valued at approximately \$166.4 million and future commitments for storage and transportation valued at approximately \$27.0 million. Refer to *Note 17 – Commitments and Contingencies* included in the notes to consolidated financial statements for more information.

Item 7A. Qualitative and Quantitative Disclosures About Market Risk.

We use various financial instruments to manage and reduce our exposure to various market risks, including changes in commodity prices and interest rates. We conduct the majority of our business in U.S. dollars and are not currently exposed to material foreign currency risk.

Interest Rate Risk

We are exposed to interest rate risk through our loans which bear interest at variable rates. Interest rates on our variable-rate debt are based on the market rate for the lender's prime rate or SOFR. At December 31, 2023, we had \$604.7 million in debt, \$161.9 million of which had variable interest rates. A 10% increase in interest rates would affect our interest cost by approximately \$1.7 million per year.

Refer to *Note 12 – Debt* included in the notes to the audited consolidated financial statements included herein for more information about our debt.

Commodity Price Risk

Our business is highly sensitive to commodity price risk, particularly for ethanol, corn, distillers grains, Ultra-High Protein, renewable corn oil and natural gas. Ethanol prices are sensitive to world crude oil supply and demand, the price of crude oil, gasoline, corn, the price of substitute fuels, refining capacity and utilization, government regulation and consumer demand for alternative fuels. Corn prices are affected by weather conditions, yield, changes in domestic and global supply and demand, and government programs and policies. Distillers grains prices are impacted by livestock numbers on feed, prices for feed alternatives and supply, which is associated with ethanol plant production. Natural gas prices are influenced by severe weather in the summer and winter and hurricanes in the spring, summer and fall. Other factors include North American energy exploration and production, and the amount of natural gas in underground storage during injection and withdrawal seasons. During 2022, we locked in natural gas purchases above current market rates, which adversely impacted our 2023 margins.

To reduce the risk associated with fluctuations in the price of ethanol, corn, distillers grains, Ultra-High Protein, renewable corn oil and natural gas, at times we use forward fixed-price physical contracts and derivative financial instruments, such as futures and options executed on the Chicago Board of Trade, the New York Mercantile Exchange and the Chicago Mercantile Exchange. We focus on locking in favorable operating margins, when available, using a model that continually monitors market prices for corn, natural gas and other inputs relative to the price for ethanol and distillers grains at each of our production facilities. We create offsetting positions using a combination of forward fixed-price purchases, sales contracts and derivative financial instruments. As a result, we frequently have gains on derivative financial instruments that are offset by losses on forward fixed-price physical contracts or inventories and vice versa. Our results are impacted by a mismatch of gains or losses associated with the derivative instrument during a reporting period when the physical commodity purchases or sale has not yet occurred. For the year ended December 31, 2023, revenues included net gains of \$4.8 million and cost of goods sold included net gains of \$30.2 million associated with derivative instruments.

Ethanol Production Segment

In the ethanol production segment, net gains and losses from settled derivative instruments are offset by physical commodity purchases or sales to achieve the intended operating margins. To reduce commodity price risk caused by market fluctuations, we enter into exchange-traded futures and options contracts that serve as economic hedges. Our results are impacted when there is a mismatch of gains or losses associated with the derivative instrument during a reporting period when the physical commodity purchases or sale has not yet occurred.

Our exposure to market risk, which includes the impact of our risk management activities resulting from our fixed-price purchase and sale contracts and derivatives, is based on the estimated net income effect resulting from a hypothetical 10% change in price for the next 12 months starting on December 31, 2023, are as follows (in thousands):

| Commodity | Estimated Total Volume Requirements for the Next 12 Months ⁽¹⁾ | Unit of Measure | Net Income Effect of Approximate 10% Change in Price |
|----------------------------------|--|------------------------|---|
| Ethanol | 903,000 | Gallons | \$106,788 |
| Corn | 310,000 | Bushels | \$114,315 |
| Distillers grains ⁽²⁾ | 2,200 | Tons ⁽³⁾ | \$27,409 |
| Renewable corn oil | 300,000 | Pounds | \$10,279 |
| Natural gas | 26,400 | MmBTU | \$3,884 |

(1) Estimated volumes assume production at full capacity.

(2) Includes Ultra-High Protein

(3) Distillers grains quantities are stated on an equivalent dried ton basis.

In the agribusiness and energy services segment, our inventories, physical purchase and sale contracts and derivatives are marked to market. Our inventories are carried at the lower of average cost or net realizable value, except fair-value hedged inventories. To reduce commodity price risk caused by market fluctuations for purchase and sale commitments of grain and grain held in inventory, we enter into exchange-traded futures and options contracts that serve as economic hedges.

The market value of exchange-traded futures and options used for hedging are highly correlated with the underlying market value of grain inventories and related purchase and sale contracts for grain. The less correlated portion of inventory and purchase and sale contract market values, known as basis, is much less volatile than the overall market value of exchange-traded futures and tends to follow historical patterns. We manage this less volatile risk by constantly monitoring our position relative to the price changes in the market. Inventory values are affected by the month-to-month spread in the futures markets. These spreads are also less volatile than overall market value of our inventory and tend to follow historical patterns, but cannot be mitigated directly. Our accounting policy for futures and options, as well as the underlying inventory held for sale and purchase and sale contracts, is to reflect their current market values and include gains and losses in the consolidated statement of operations.

Item 8. Financial Statements and Supplementary Data.

The required consolidated financial statements and accompanying notes are listed in Part IV, Item 15.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure.

None.

Item 9A. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures designed to ensure information that must be disclosed in the reports we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to management, as appropriate, to allow timely decisions regarding required financial disclosure. In designing and evaluating the disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. Management is required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures.

Under the supervision of and participation of our chief executive officer and chief financial officer, management carried out an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures as of December 31, 2023, as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act and concluded that our disclosure controls and procedures were effective.

Management's Annual Report on Internal Control over Financial Reporting

Management is responsible for establishing and maintaining effective internal control over financial reporting as defined in Rule 13a-15(f) of the Exchange Act. Our internal control system is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements in accordance with GAAP.

Under the supervision and participation of our chief executive officer and chief financial officer, management assessed the design and operating effectiveness of our internal control over financial reporting as of December 31, 2023, based on the *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this assessment, management concluded that our internal control over financial reporting was effective as of December 31, 2023.

The effectiveness of the company's internal control over financial reporting as of December 31, 2023, has been audited by KPMG LLP, an independent registered public accounting firm, as stated in their report, which is included herein.

Changes in Internal Control over Financial Reporting

Management is responsible for establishing and maintaining effective internal control over financial reporting to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of our consolidated financial statements for external purposes in accordance with GAAP. We have not identified any changes in our internal control over financial reporting that occurred during the quarter ended December 31, 2023, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Green Plains Inc.:

Opinion on Internal Control Over Financial Reporting

We have audited Green Plains Inc. and subsidiaries' (the Company) internal control over financial reporting as of December 31, 2023, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2023, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2023 and 2022, the related consolidated statements of operations, comprehensive loss, stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2023, and the related notes (collectively, the consolidated financial statements), and our report dated February 9, 2024 expressed an unqualified opinion on those consolidated financial statements.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Annual Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ KPMG LLP

Omaha, Nebraska
February 9, 2024

Item 9B. Other Information.

During the year ended December 31, 2023, no director or officer of the company adopted, modified or terminated a "Rule 10b5-1 trading arrangement" or "non-Rule 10b5-1 trading arrangement," as each term is defined in Item 408(a) of Regulation S-K.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections.

Not applicable.

PART III**Item 10. Directors, Executive Officers and Corporate Governance.**

Information in our Proxy Statement for the 2024 Annual Meeting of Stockholders ("Proxy Statement") under "Corporate Governance," "Proposal 1 – Election of Directors" and "Executive Officers" is incorporated by reference.

We have adopted a code of ethics that applies to our chief executive officer, chief financial officer and all other senior financial officers. Our code of ethics is available on our website at www.gpreinc.com in the "Investors and Media – Governance" section. Amendments or waivers are disclosed within five business days following its adoption.

Item 11. Executive Compensation.

Information included in the Proxy Statement under "Corporate Governance - Compensation of Directors" and "Executive Compensation" is incorporated by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

Information in the Proxy Statement under "Security Ownership of Certain Beneficial Owners and Management" and "Executive Compensation" is incorporated by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence.

Information in the Proxy Statement under "Corporate Governance" and "Transactions with Related Persons, Promoters and Certain Control Persons" is incorporated by reference.

Item 14. Principal Accounting Fees and Services.

Information in the Proxy Statement under "Independence of Auditors" and "Auditors' Fees" is incorporated by reference.

PART IV

Item 15. Exhibits, Financial Statement Schedules.

(1) *Financial Statements.* The following consolidated financial statements and notes are filed as part of this annual report on Form 10-K.

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|--|------|
| Report of Independent Registered Public Accounting Firm | F-1 |
| Auditor Name: KPMG LLP | |
| Auditor Location: Omaha, NE | |
| Auditor Firm ID: 185 | |
| Consolidated Balance Sheets as of December 31, 2023 and 2022 | F-3 |
| Consolidated Statements of Operations for the years-ended December 31, 2023, 2022 and 2021 | F-4 |
| Consolidated Statements of Comprehensive Loss for the years-ended December 31, 2023, 2022 and 2021 | F-5 |
| Consolidated Statements of Stockholders' Equity for the years-ended December 31, 2023, 2022 and 2021 | F-6 |
| Consolidated Statements of Cash Flows for the years-ended December 31, 2023, 2022 and 2021 | F-7 |
| Notes to Consolidated Financial Statements | F-9 |

(2) *Financial Statement Schedules.* All schedules have been omitted because they are not applicable or the required information is included in the consolidated financial statements or notes thereto.

(3) *Exhibits.* The following exhibits are incorporated by reference, filed or furnished as part of this annual report on Form 10-K.

Exhibit Index

| Exhibit No. | Description of Exhibit |
|-------------|--|
| 2.1(a) | Asset Purchase Agreement among Hereford Ethanol Partners, L.P. and Green Plains Hereford LLC, dated December 11, 2020. (The schedules to the Asset Purchase Agreement have been omitted. The Company will furnish such schedules to the SEC upon request.) |
| 2.1(b) | Asset Purchase Agreement, dated December 14, 2020, by and among Green Plains LP, Green Plains Holdings LLC, Green Plains Operating Company LLC, Green Plains Ethanol Storage LLC, Green Plains Logistics LLC, Green Plains Inc., Green Plains Trade Group LLC and Green Plains Hereford LLC. (incorporated herein by reference to Exhibit 2.2 to the company's Current Report on Form 8-K filed on December 15, 2020). |
| 2.2 | Asset Purchase Agreement, dated January 25, 2021, by and among Green Plains Partners LP, Green Plains Holdings LLC, Green Plains Operating Company LLC, Green Plains Ethanol Storage LLC, Green Plains Logistics LLC, Green Plains Inc., Green Plains Trade Group LLC and Green Plains Ord LLC. (incorporated herein by reference to Exhibit 2.1 to the company's Current Report on Form 8-K filed on January 27, 2021) |
| 2.3 | Agreement and Plan of Merger, dated September 16, 2023, by and among Green Plains Inc., GPLP Holdings Inc., GPLP Merger Sub LLC, Green Plains Holdings LLC and Green Plains Partners LP. (The schedules have been omitted pursuant to Item 601(b)(2) of Regulation S-K and will be provided to the Securities and Exchange Commission upon request.) (incorporated herein by reference to Exhibit 2.1 to the company's Current Report on Form 8-K filed September 18, 2023). |
| 3.1(a) | Second Amended and Restated Articles of Incorporation of the company (incorporated herein by reference to Exhibit 3.1 of the company's Current Report on Form 8-K filed October 15, 2008) |
| 3.1(b) | Articles of Amendment to Second Amended and Restated Articles of Incorporation of Green Plains Renewable Energy, Inc. (incorporated herein by reference to Exhibit 3.1 of the company's Current Report on Form 8-K filed May 9, 2011) |
| 3.1(c) | Second Articles of Amendment to Second Amended and Restated Articles of Incorporation of Green Plains Renewable Energy, Inc. (incorporated herein by reference to Exhibit 3.1 to the company's Current Report on Form 8-K filed May 16, 2014) |

| | |
|----------|--|
| 3.1(d) | Third Articles of Amendment to Second Amended and Restated Articles of Incorporation of Green Plains, Inc. (incorporated herein by reference to Exhibit 3.1 to the company's Current Report on Form 8-K filed on May 6, 2022) |
| 3.2(a) | Fourth Amended and Restated Bylaws of Green Plains Inc., dated September 27, 2021 (incorporated herein by reference to Exhibit 3.1 to the company's Current Report on Form 8-K filed on September 28, 2021) |
| 3.2(b) | First Amendment to Fourth Amended and Restated Bylaws of Green Plains, Inc. (incorporated herein by reference to Exhibit 3.2 to the company's Current Report on Form 8-K filed on May 6, 2022) |
| 3.3 | Fifth Amended and Restated Bylaws of Green Plains Inc., dated November 14, 2022 (incorporated herein by reference to Exhibit 3.1 to the company's Current Report on Form 8-K filed on November 16, 2022) |
| 4.1 | Shareholders' Agreement by and among Green Plains Renewable Energy, Inc., each of the investors listed on Schedule A, and each of the existing shareholders and affiliates identified on Schedule B, dated May 7, 2008 (incorporated herein by reference to Appendix F of the company's Registration Statement on Form S-4/A filed September 4, 2008) |
| 4.2 | Indenture relating to the 4.125% Convertible Senior Notes due 2022, dated as of August 15, 2016, between Green Plains Inc. and Wilmington Trust, National Association, including the form of Global Note attached as Exhibit A thereto (incorporated herein by reference to Exhibit 4.1 to the company's Current Report on Form 8-K filed August 15, 2016) |
| 4.3(a) | Indenture, dated March 1, 2021, between Green Plains Inc. and Wilmington Trust, National Association, as trustee (incorporated herein by reference to Exhibit 4.1 to the company's Current Report on Form 8-K dated March 1, 2021) |
| 4.3(b) | First Supplemental Indenture relating to the 2.25% Convertible Senior Notes due 2027, dated as of March 1, 2021, between Green Plains Inc. and Wilmington Trust, National Association, including the form of Global Note attached as Exhibit A thereto (incorporated herein by reference to Exhibit 4.2 to the company's Current Report on Form 8-K dated March 1, 2021) |
| 4.3(c) | Form of Global Note representing 2.25% Convertible Senior Notes due 2027 (included as a part of Exhibit 4.3(b)). |
| 4.4 | Indenture relating to the 4.00% Convertible Senior Notes due 2024, dated as of June 21, 2019, between Green Plains Inc. and Wilmington Trust, National Association, including the form of Global Note attached as Exhibit A thereto (incorporated herein by reference to Exhibit 4.1 of the company's Current Report on Form 8-K filed on June 21, 2019) |
| 4.5 | Description of Securities Registered Under Section 12 of the Exchange Act (incorporated herein by reference to Exhibit 4.7 of the company's Annual Report on Form 10-K filed February 20, 2020) |
| *10.1 | 2007 Equity Incentive Plan (incorporated herein by reference to Appendix A of the company's Definitive Proxy Statement filed March 27, 2007) |
| 10.2 | Form of Indemnification Agreement (incorporated herein by reference to Exhibit 10.53 of the company's Registration Statement on Form S-4/A filed August 1, 2008) |
| *10.3(a) | Employment Agreement by and between Green Plains Renewable Energy, Inc. and Todd Becker dated May 7, 2008 (incorporated herein by reference to Exhibit 10.54 of the company's Registration Statement on Form S-4/A filed August 1, 2008) |
| *10.3(b) | Amendment No. 1 to Employment Agreement by and between Green Plains Renewable Energy, Inc. and Todd Becker, dated December 18, 2009. (incorporated herein by reference to Exhibit 10.7(b) of the company's Annual Report on Form 10-K filed February 24, 2010) |
| *10.3(c) | Amendment No. 2 to Employment Agreement by and between Green Plains, Inc. and Todd Becker, dated March 27, 2018 (incorporated herein by reference to Exhibit 10.52 of the company's Quarterly Report on Form 10-Q filed on May 7, 2018) |
| *10.4(a) | 2009 Equity Incentive Plan (incorporated herein by reference to Exhibit 10.1 of the company's Current Report on Form 8-K dated May 11, 2009) |
| *10.4(b) | Amendment No. 1 to the 2009 Equity Incentive Plan (incorporated herein by reference to Appendix A of the company's Definitive Proxy Statement filed March 25, 2011) |
| *10.4(c) | Amendment No. 2 to the 2009 Equity Incentive Plan (incorporated herein by reference to Appendix A of the company's Definitive Proxy Statement filed March 29, 2013) |
| *10.4(d) | Amended and Restated 2009 Equity Incentive Plan (incorporated herein by reference to Exhibit 99.1 of the company's Registration Statement on Form S-8 filed June 23, 2017) |

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| *10.4(e) | Form of Stock Option Award Agreement for 2009 Equity Incentive Plan (incorporated herein by reference to Exhibit 10.19(b) of the company's Annual Report on Form 10-K filed February 24, 2010) |
| *10.5(a) | 2019 Equity Incentive Plan (incorporated herein by reference to Appendix A of the company's Definitive Proxy Statement filed March 28, 2019) |
| *10.5(b) | Amendment No. 1 to the 2019 Equity Incentive Plan (incorporated herein by reference to Appendix A of the company's Definitive Proxy Statement filed March 26, 2020) |
| *10.5(c) | Green Plains Inc. Restricted Stock Agreement for 2019 Equity Incentive Plan |
| *10.5(d) | Green Plains Inc. Performance Share Unit Agreement for 2019 Equity Incentive Plan |
| 10.6(a) | Fourth Amended and Restated Revolving Credit and Security Agreement dated July 28, 2017, among Green Plains Trade Group LLC, the Lenders and PNC Bank, National Association as Lender and Agent (incorporated herein by reference to Exhibit 10.1 to the company's Current Report on Form 8-K dated July 31, 2017) |
| 10.6(b) | First Amendment to Fourth Amended and Restated Revolving Credit and Security Agreement, dated as of August 29, 2017, among Green Plains Trade Group LLC and PNC Bank, National Association, as agent, and the lenders party to the Credit and Security Agreement (incorporated herein by reference to Exhibit 10.4(a) to the company's Current Report on Form 8-K dated August 29, 2017) |
| 10.6(c) | Second Amendment to Fourth Amended and Restated Revolving Credit and Security Agreement, dated as of March 15, 2018, by and among Green Plains Trade Group LLC and PNC Bank, National Association (incorporated herein by reference to Exhibit 10.1 to the company's Quarterly Report on Form 10-Q dated May 7, 2018) |
| 10.6(d) | Third Amendment to Fourth Amended and Restated Revolving Credit and Security Agreement, dated as of November 27, 2019, by and among Green Plains Trade Group LLC and PNC Bank, National Association (incorporated herein by reference to Exhibit 10.5(f) of the company's Annual Report on Form 10-K filed February 20, 2020) |
| 10.6(e) | Guaranty, dated as of August 29, 2017, in favor of PNC Bank, National Association, as agent (incorporated herein by reference to Exhibit 10.4(c) to the company's Current Report on Form 8-K dated August 29, 2017) |
| *10.7 | Umbrella Short-Term Incentive Plan (incorporated herein by reference to Appendix A of the company's Proxy Statement filed April 3, 2014) |
| 10.8(a) | Credit Agreement dated October 28, 2011 by and among Green Plains Grain Company LLC, Green Plains Grain Company TN LLC, Green Plains Essex Inc., BNP Paribas Securities Corp. as Lead Arranger, Rabo Agrifinance, Inc. as Syndication Agent, ABN AMRO Capital USA LLC as Documentation Agent and BNP Paribas as Administrative Agent (incorporated herein by reference to Exhibit 10.1 of the company's Current Report on Form 8-K filed November 3, 2011) |
| 10.8(b) | Security Agreement dated October 28, 2011 by and among Green Plains Grain Company LLC, Green Plains Grain Company TN LLC, Green Plains Essex Inc. and BNP Paribas (incorporated herein by reference to Exhibit 10.2 of the company's Current Report on Form 8-K filed November 3, 2011) |
| 10.8(c) | Promissory Note dated October 28, 2011 by and among Green Plains Grain Company LLC, Green Plains Grain Company TN LLC, Green Plains Essex Inc. and Bank of Oklahoma (incorporated herein by reference to Exhibit 10.3 of the company's Current Report on Form 8-K filed November 3, 2011) |
| 10.8(d) | Promissory Note dated October 28, 2011 by and among Green Plains Grain Company LLC, Green Plains Grain Company TN LLC, Green Plains Essex Inc. and U.S. Bank National Association (incorporated herein by reference to Exhibit 10.4 of the company's Current Report on Form 8-K filed November 3, 2011) |
| 10.8(e) | Promissory Note dated October 28, 2011 by and among Green Plains Grain Company LLC, Green Plains Grain Company TN LLC, Green Plains Essex Inc. and Farm Credit Bank of Texas (incorporated herein by reference to Exhibit 10.5 of the company's Current Report on Form 8-K filed November 3, 2011) |
| 10.8(f) | First Amendment to Credit Agreement dated January 6, 2012 by and among Green Plains Grain Company LLC, Green Plains Grain Company TN LLC, Green Plains Essex Inc., BNP Paribas and the Required Lenders (incorporated herein by reference to Exhibit 10.26(k) of the company's Annual Report on Form 10-K filed February 17, 2012) |
| 10.8(g) | Second Amendment to Credit Agreement, dated October 26, 2012, by and among Green Plains Grain Company LLC, Green Plains Grain Company TN LLC, Green Plains Essex, Inc., BNP Paribas, as the administrative agent under the Credit Agreement, and the lenders party to the Credit Agreement (incorporated herein by reference to Exhibit 10.5 of the company's Quarterly Report on Form 10-Q filed November 1, 2012) |

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| 10.8(h) | Third Amendment to Credit Agreement, dated August 27, 2013, by and among Green Plains Grain Company LLC, Green Plains Grain Company TN LLC, Green Plains Essex, Inc., BNP Paribas, as the administrative agent under the Credit Agreement, and the lenders party to the Credit Agreement (incorporated herein by reference to Exhibit 10.3 of the company's Quarterly Report on Form 10-Q filed October 31, 2013) |
| 10.8(i) | Fourth Amendment to Credit Agreement, dated August 8, 2014, by and among Green Plains Grain Company LLC (including in its capacity as successor by merger to Green Plains Essex Inc.), Green Plains Grain Company TN LLC, BNP Paribas, as the administrative agent under the Credit Agreement, and the lenders party to the Credit Agreement (incorporated herein by reference to Exhibit 10.3 of the company's Quarterly Report on Form 10-Q filed October 30, 2014) |
| 10.8(j) | Fifth Amendment to Credit Agreement, dated June 1, 2015, by and among Green Plains Grain Company LLC (including in its capacity as successor by merger to Green Plains Essex Inc.), Green Plains Grain Company TN LLC, BNP Paribas, as the administrative agent under the Credit Agreement, and the lenders party to the Credit Agreement (incorporated herein by reference to Exhibit 10.5 of the company's Quarterly Report on Form 10-Q filed August 3, 2016) |
| 10.8(k) | Sixth Amendment to Credit Agreement, dated January 5, 2016, by and among Green Plains Grain Company LLC (including in its capacity as successor by merger to Green Plains Essex Inc.), Green Plains Grain Company TN LLC, BNP Paribas, as the administrative agent under the Credit Agreement, and the lenders party to the Credit Agreement (incorporated herein by reference to Exhibit 10.6 of the company's Quarterly Report on Form 10-Q filed August 3, 2016) |
| 10.8(l) | Seventh Amendment to Credit Agreement, dated July 27, 2016, by and among Green Plains Grain Company LLC (including in its capacity as successor by merger to Green Plains Essex Inc.), Green Plains Grain Company TN LLC, BNP Paribas, as the administrative agent under the Credit Agreement, and the lenders party to the Credit Agreement (incorporated herein by reference to Exhibit 10.7 of the company's Quarterly Report on Form 10-Q filed August 3, 2016) |
| 10.8(m) | Eighth Amendment to Credit Agreement, dated as of August 29, 2017, among Green Plains Grain Company and BNP Paribas, as Administrative Agent, and the lenders party to the Credit Agreement (incorporated herein by reference to Exhibit 10.3(a) to the company's Current Report on Form 8-K dated August 29, 2017) |
| 10.8(n) | Ninth Amendment to Credit Agreement, dated as of June 28, 2019, among Green Plains Grain Company LLC and BNP Paribas, as Administrative Agent, and the lenders party to the Credit Agreement (incorporated herein by reference to Exhibit 10.1 of the company's Current Report on Form 8-K filed on July 1, 2019) |
| 10.8(o) | Guaranty, dated as of August 29, 2017, in favor of BNP Paribas, as administrative agent (incorporated herein by reference to Exhibit 10.3(c) to the company's Current Report on Form 8-K dated August 29, 2017) |
| *10.9 | Employment Agreement by and between Green Plains Renewable Energy, Inc. and Patrich Simpkins dated April 1, 2012 (incorporated herein by reference to Exhibit 10.2 of the company's Quarterly Report on Form 10-Q filed May 1, 2014) |
| *10.10 | Employment Agreement by and between Green Plains Inc. and Michelle S. Mapes dated February 3, 2020 (incorporated herein by reference to Exhibit 10.12 of the company's Annual Report on Form 10-K filed February 20, 2020) |
| 10.11 | Contribution, Conveyance and Assumption Agreement, dated July 1, 2015, by and among Green Plains Inc., Green Plains Obion LLC, Green Plains Trucking LLC, Green Plains Holdings LLC, Green Plains Partners LP and Green Plains Operating Company LLC (incorporated herein by reference to Exhibit 10.1 to the company's Current Report on Form 8-K dated July 6, 2015) |
| 10.12(a) | Omnibus Agreement, dated July 1, 2015, by and among Green Plains Inc., Green Plains Holdings LLC, Green Plains Partners LP and Green Plains Operating Company LLC (incorporated herein by reference to Exhibit 10.2 to the company's Current Report on Form 8-K dated July 6, 2015) |
| 10.12(b) | First Amendment to the Omnibus Agreement, dated January 1, 2016, by and among Green Plains Inc., Green Plains Holdings LLC, Green Plains Partners LP and Green Plains Operating Company LLC (incorporated herein by reference to Exhibit 10.22(b) to the company's Annual Report on Form 10-K for the year ended December 31, 2015) |
| 10.12(c) | Second Amendment to the Omnibus Agreement, dated September 23, 2016, by and among Green Plains Inc., Green Plains Partners LP, Green Plains Holdings LLC and Green Plains Operating Company LLC (incorporated herein by reference to Exhibit 10.1 to the company's Current Report on Form 8-K dated September 26, 2016) |

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| 10.12(d) | Third Amendment to the Omnibus Agreement, dated November 15, 2018, by and among Green Plains Inc., Green Plains Partners LP, Green Plains Holdings LLC and Green Plains Operating Company LLC (incorporated herein by reference to Exhibit 10.18(d) to the company's Annual Report on Form 10-K for the year ended December 31, 2018) |
| 10.13(a) | Operational Services and Secondment Agreement, dated July 1, 2015, by and between Green Plains Inc. and Green Plains Holdings LLC (incorporated herein by reference to Exhibit 10.3 to the company's Current Report on Form 8-K dated July 6, 2015) |
| 10.13(b) | Amendment No. 1 to the Operational Services and Secondment Agreement, dated January 1, 2016, by and between Green Plains Inc. and Green Plains Holdings LLC (incorporated herein by reference to Exhibit 10.23(b) to the company's Annual Report on Form 10-K for the year ended December 31, 2015) |
| 10.13(c) | Amendment No. 2 to Operational Services and Secondment Agreement, dated September 23, 2016, between Green Plains Inc. and Green Plains Holdings LLC (incorporated herein by reference to Exhibit 10.2 to the company's Current Report on Form 8-K dated September 26, 2016) |
| 10.13(d) | Amendment No. 3 to Operational Services and Secondment Agreement, dated November 15, 2018, between Green Plains Inc. and Green Plains Holdings LLC (incorporated herein by reference to Exhibit 10.19(d) to the company's Annual Report on Form 10-K for the year ended December 31, 2018) |
| 10.13(e) | Amendment No. 4 to Operational Services and Secondment Agreement, dated December 28, 2020, between Green Plains Inc. and Green Plains Holdings LLC (incorporated herein by reference to Exhibit 10.3 to the company's Current Report on Form 8-K filed December 28, 2020) |
| 10.13(f) | Amendment No. 5 to Operational Services and Secondment Agreement, dated March 22, 2021, between Green Plains Inc. and Green Plains Holdings LLC. (incorporated herein by reference to Exhibit 10.3 to the company's Current Report on Form 8-K dated March 23, 2021) |
| 10.14(a) | Rail Transportation Services Agreement, dated July 1, 2015, by and between Green Plains Logistics LLC and Green Plains Trade Group LLC (incorporated herein by reference to Exhibit 10.4 to the company's Current Report on Form 8-K dated July 6, 2015) |
| 10.14(b) | Amendment No. 1 to Rail Transportation Services Agreement, dated September 1, 2015, by and between Green Plains Logistics LLC and Green Plains Trade Group LLC (incorporated herein by reference to Exhibit 10.1 of the company's Quarterly Report on Form 10-Q filed August 3, 2016) |
| 10.14(c) | Correction to Rail Transportation Services Agreement, dated May 12, 2016, by and between Green Plains Logistics LLC and Green Plains Trade Group LLC (incorporated herein by reference to Exhibit 10.3 of the company's Quarterly Report on Form 10-Q filed August 3, 2016) |
| 10.14(d) | Amendment No. 2 to Rail Transportation Services Agreement, dated November 30, 2016 (incorporated herein by reference to Exhibit 10.1 to the company's Current Report on Form 8-K dated December 1, 2016) |
| 10.14(e) | Amendment No. 3 to Rail Transportation Services Agreement, dated November 15, 2018 (incorporated herein by reference to Exhibit 10.1 to the company's Current Report on Form 8-K dated November 15, 2018) |
| 10.14(f) | Corrective Amendment to Rail Transportation Services Agreement, dated November 15, 2018, by and between Green Plains Logistics LLC and Green Plains Trade Group LLC (incorporated herein by reference to Exhibit 10.20(f) to the company's Annual Report on Form 10-K for the year ended December 31, 2018) |
| 10.14(g) | Amendment No. 4 to Rail Transportation Services Agreement, dated December 28, 2020 (incorporated herein by reference to Exhibit 10.1 to the company's Current Report on Form 8-K dated December 28, 2020) |
| 10.14(h) | Amendment No. 5 to Rail Transportation Services Agreement, dated March 22, 2021, by and between Green Plains Logistics LLC and Green Plains Trade Group LLC (incorporated herein by reference to Exhibit 10.1 to the company's Current Report on Form 8-K filed March 23, 2021) |
| 10.14(i) | Amendment No. 6 to Rail Transportation Services Agreement, dated August 16, 2022, by and between Green Plains Logistics LLC and Green Plains Trade Group LLC. (incorporated herein by reference to exhibit 10.1 to the company's Quarterly Report on Form 10-Q filed November 3, 2022) |
| 10.15(a) | Ethanol Storage and Throughput Agreement, dated July 1, 2015, by and between Green Plains Ethanol Storage LLC and Green Plains Trade Group LLC (incorporated herein by reference to Exhibit 10.5 to the company's Current Report on Form 8-K dated July 6, 2015) |
| 10.15(b) | Amendment No. 1 to the Ethanol Storage and Throughput Agreement, dated January 1, 2016, by and between Green Plains Ethanol Storage LLC and Green Plains Trade Group LLC (incorporated herein by reference to Exhibit 10.25(b) to the company's Annual Report on Form 10-K for the year ended December 31, 2015) |

- 10.15(c) Clarifying Amendment to Ethanol Storage and Throughput Agreement, dated January 4, 2016, by and between Green Plains Ethanol Storage LLC and Green Plains Trade Group LLC (incorporated herein by reference to Exhibit 10.2 of the company's Quarterly Report on Form 10-Q filed August 3, 2016)
- 10.15(d) Amendment No. 2 to Ethanol Storage and Throughput Agreement, dated September 23, 2016, by and between Green Plains Ethanol Storage LLC and Green Plains Trade Group LLC (incorporated herein by reference to Exhibit 10.3 to the company's Current Report on Form 8-K dated September 26, 2016)
- 10.15(e) Amendment No. 3 to Ethanol Storage and Throughput Agreement, dated November 15, 2018, by and between Green Plains Ethanol Storage LLC and Green Plains Trade Group LLC (incorporated herein by reference to Exhibit 10.2 to the company's Current Report on Form 8-K dated November 15, 2018) (The exhibits to Amendment No. 3 have been omitted. The company will furnish such schedules to the SEC upon request).
- 10.15(f) Amendment No. 4 to Ethanol Storage and Throughput Agreement, dated December 28, 2020, by and between Green Plains Ethanol Storage LLC and Green Plains Trade Group LLC (incorporated herein by reference to Exhibit 10.2 to the company's Current Report on Form 8-K dated December 28, 2020)
- 10.15(g) Amendment No. 5 to Ethanol Storage and Throughput Agreement, dated March 22, 2021, by and between Green Plains Ethanol Storage LLC and Green Plains Trade Group LLC. (incorporated herein by reference to Exhibit 10.3 to the company's Current Report on Form 8-K filed March 23, 2021) (The exhibits to Amendment No. 5 have been omitted. The Company will furnish such schedules to the SEC upon request).
- 10.16(a) Credit Agreement, dated July 1, 2015, by and among Green Plains Operating Company LLC, as the Borrower, the subsidiaries of the Borrower identified therein, Bank of America, N.A., and the other lenders party thereto (incorporated herein by reference to Exhibit 10.6 to the company's Current Report on Form 8-K dated July 6, 2015)
- 10.16(b) First Amendment to Credit Agreement, dated September 16, 2016 by and among Green Plains Operating Company LLC, as the Borrower, the subsidiaries of the Borrower identified therein, Bank of America, N.A., and the other lenders party thereto (incorporated herein by reference to Exhibit 10.22(b) to the company's Annual Report on Form 10-K for the year ended December 31, 2018)
- 10.16(c) Incremental Joinder Agreement, dated October 27, 2017, among Green Plains Operating Company LLC and Bank of America, as Administrative (incorporated herein by reference to Exhibit 10.8 to the company's Quarterly Report on Form 10-Q dated November 2, 2017)
- 10.16(d) Second Amendment to Credit Agreement, dated February 16, 2018 by and among Green Plains Operating Company LLC, as the Borrower, the subsidiaries of the Borrower identified therein, Bank of America, N.A., and the other lenders party thereto (incorporated herein by reference to Exhibit 10.22(d) to the company's Annual Report on Form 10-K for the year ended December 31, 2018)
- 10.16(e) Incremental Joinder Agreement, dated February 20, 2018, among Green Plains Operating Company LLC and Bank of America, as Administrative (incorporated herein by reference to Exhibit 10.22(e) to the company's Annual Report on Form 10-K for the year ended December 31, 2018)
- 10.16(f) Third Amendment to Credit Agreement, dated October 12, 2018 by and among Green Plains Operating Company LLC, as the Borrower, the subsidiaries of the Borrower identified therein, Bank of America, N.A., and the other lenders party thereto (incorporated herein by reference to Exhibit 10.22(f) to the company's Annual Report on Form 10-K for the year ended December 31, 2018)
- 10.16(g) Consent to Credit Agreement, dated July 15, 2019, by and among Green Plains Operating Company LLC and Bank of America, as Administrative Agent (incorporated herein by reference to Exhibit 10.1 to the company's Quarterly Report on Form 10-Q dated August 6, 2019)
- 10.16(h) Fourth Amendment to Credit Agreement, dated June 4, 2020, by and among Green Plains Operating Company LLC, as the Borrower, the subsidiaries of the Borrower identified therein, Bank of America, N.A. and the other lenders party thereto (incorporated herein by reference to Exhibit 10.1 to the company's Current Report on Form 8-K filed on June 4, 2020)
- 10.16(i) Amended and Restated Credit Agreement, dated July 20, 2021, by and among Green Plains Operating Company LLC, as the Borrower, the guarantors identified therein, TMI Trust Company, as Administrative Agent and the other lenders party thereto (incorporated herein by reference to Exhibit 10.1 to the company's Current Report on Form 8-K filed on July 26, 2021)

- 10.16(j) Amendment No. 1 to Amended and Restated Credit Agreement, dated February 11, 2022, by and among Green Plains Operating Company LLC, as the Borrower, the guarantors identified therein, TMI Trust Company, as Administrative Agent and the other lenders party thereto (incorporated herein by reference to Exhibit 10.26 to the company's Annual Report on Form 10-K for the year ended December 31, 2021).
- 10.16(k) Amendment No. 2 to Amended and Restated Credit Agreement, dated April 19, 2023, by and among Green Plains Operating Company LLC, the guarantors, the Lenders, and TMI Trust Company (incorporated herein by reference to Exhibit 10.3 to the company's Quarterly Report on Form 10-Q filed on May 4, 2023)
- 10.16(l) Amendment No. 3 to the Amended and Restated Credit Agreement, dated October 30, 2023, by and among Green Plains Operating Company LLC, as the Borrower, the guarantors identified therein, Argent Institutional Trust Company, as Administrative Agent and the other lenders party thereto (The schedules have been omitted pursuant to Item 601(b)(2) of Regulation S-K and will be provided to the Securities and Exchange Commission upon request) (incorporated herein by reference to Exhibit 10.1 to the company's Quarterly Report on Form 10-Q filed on October 31, 2023)
- 10.17(a) Revolving Credit Facility, dated as of April 30, 2018, by and among Green Plains Commodity Management LLC and Macquarie Bank Limited (incorporated herein by reference to Exhibit 10.4 to the company's Quarterly Report on Form 10-Q dated May 7, 2018)
- 10.17(b) Amendment to Revolving Credit Facility, dated as of June 18, 2019, by and among Green Plains Commodity Management LLC and Macquarie Bank Limited (incorporated herein by reference to Exhibit 10.24(b) of the company's Annual Report on Form 10-K filed February 20, 2020)
- 10.17(c) Second Amendment to Revolving Credit Facility, dated as of November 24, 2021, by and among Green Plains Commodity Management LLC, Macquarie Bank Limited and Macquarie Futures USA LLC (incorporated herein by reference to Exhibit 10.1 of the company's Quarterly Report on Form 10-Q filed May 4, 2023)
- 10.17(d) Third Amendment to Revolving Credit Facility, dated as of February 20, 2022, by and among Green Plains Commodity Management LLC, Macquarie Bank Limited and Macquarie Futures USA LLC (incorporated herein by reference to Exhibit 10.2 of the company's Quarterly Report on Form 10-Q filed May 4, 2023)
- 10.18(a) Loan Agreement dated September 3, 2020 by and among Green Plains Wood River LLC and Green Plains Shenandoah LLC, as the Borrowers, and MetLife Real Estate Lending LLC, as the Lender (incorporated herein by reference to Exhibit 10.1 to the company's Current Report on Form 8-K filed on September 8, 2020)
- 10.18(b) Delayed Draw Term Promissory Note dated September 3, 2020 by and among Green Plains Wood River LLC and Green Plains Shenandoah LLC, as the Borrowers, and MetLife Real Estate Lending LLC, as the Lender (incorporated herein by reference to Exhibit 10.2 to the company's Current Report on Form 8-K filed on September 8, 2020)
- 10.18(c) Loan Guaranty Agreement dated September 3, 2020 by and among Green Plains Inc, as the Guarantor, and MetLife Real Estate Lending LLC, as the Lender (incorporated herein by reference to Exhibit 10.3 to the company's Current Report on Form 8-K filed on September 8, 2020)
- 10.18(d) Deed of Trust, Security Agreement, Assignment of Leases and Rents and Fixture Filing dated September 3, 2020 by and among Green Plains Wood River LLC, as the Trustor, and MetLife Real Estate Lending LLC, as the Beneficiary (incorporated herein by reference to Exhibit 10.4 to the company's Current Report on Form 8-K filed on September 8, 2020)
- 10.18(e) Mortgage, Security Agreement, Assignment of Leases and Rents and Fixture Filing dated September 3, 2020 by and among Green Plains Shenandoah LLC, as the Borrower, and MetLife Real Estate Lending LLC, as the Lender (incorporated herein by reference to Exhibit 10.5 to the company's Current Report on Form 8-K filed on September 8, 2020)
- 10.19(a) Note Purchase Agreement dated February 9, 2021 by and among Green Plains SPE LLC, as the Issuer, Green Plains Inc., as Guarantor, and Purchasers signatory thereto. (The schedules to the Note Purchase Agreement have been omitted. The Company will furnish such schedules to the SEC upon request.) (incorporated herein by reference to Exhibit 10.1 to the company's Current Report on Form 8-K filed on February 12, 2021)
- 10.19(b) Pledge and Security Agreement dated February 9, 2021 by and among Green Plains SPE LLC, as the Pledgor, in favor of Wilmington Trust, National Association, as Trustee. (The schedules to the Pledge and Security Agreement have been omitted. The Company will furnish such schedules to the SEC upon request.) (incorporated herein by reference to Exhibit 10.2 to the company's Current Report on Form 8-K filed on February 12, 2021)

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| 10.19(c) | Indenture dated February 9, 2021 by Green Plains SPE LLC, as Issuer, Green Plains Inc., as Guarantor and Wilmington Trust, National Association, as Trustee. (The schedules to the Indenture have been omitted. The Company will furnish such schedules to the SEC upon request.) (incorporated herein by reference to Exhibit 10.3 to the company's Current Report on Form 8-K filed on February 12, 2021) |
| 10.19(d) | First Priority Mortgage, Assignment of Leases and Rents, Security Agreement and Financing Statement from Green Plains Mount Vernon LLC, as Mortgagor and Wilmington Trust, National Association, as Mortgagee. (incorporated herein by reference to Exhibit 10.4 to the company's Current Report on Form 8-K filed on February 12, 2021) |
| 10.19(e) | First Priority Deed of Trust, Assignment of Leases and Rents, Security Agreement and Financing Statement from Green Plains Obion LLC, as Mortgagor and Wilmington Trust, National Association, as Mortgagee. (incorporated herein by reference to Exhibit 10.5 to the company's Current Report on Form 8-K filed on February 12, 2021) |
| *10.20 | Employment Agreement by and between Green Plains Inc. and Leslie van der Meulen dated December 2, 2021 (incorporated herein by reference to Exhibit 10.25 to the company's Annual Report on Form 10-K for the year ended December 31, 2021). |
| 10.21 | Loan and Security Agreement, dated March 25, 2022, by and among Green Plains Inc., as Guarantor, Green Plains Finance Company LLC, Green Plains Grain Company LLC and Green Plains Trade Group LLC as the Borrowers, ING Capital LLC, as Agent and the other financial institutions party thereto. (The exhibits and schedules to the Loan and Security Agreement have been omitted. The Company will furnish such schedules to the SEC upon request). (incorporated herein by reference to Exhibit 10.1 to the company's Current Report on Form 8-K filed on March 28, 2022). |
| 10.22(a) | Exchange Agreement, dated August 3, 2022, by and between Green Plains Inc and the applicable Noteholders (incorporated herein by reference to Exhibit 10.1 to the company's Current Report on Form 8-K filed on August 4, 2022) |
| 10.22(b) | Exchange Agreement, dated August 4, 2022, by and between Green Plains Inc and the applicable Noteholders (incorporated herein by reference to Exhibit 10.1 to the company's Current Report on Form 8-K filed on August 5, 2022) |
| 10.22(c) | Exchange Agreement, dated August 4, 2022, by and between Green Plains Inc and the applicable Noteholders (incorporated herein by reference to Exhibit 10.2 to the company's Current Report on Form 8-K filed on August 5, 2022) |
| 10.22(d) | Exchange Agreement, dated August 24, 2022, by and between Green Plains Inc and the applicable Noteholders (incorporated herein by reference to Exhibit 10.1 to the company's Current Report on Form 8-K filed on August 25, 2022) |
| *10.23 | Employment Agreement by and between Green Plains Inc. and James E. Stark, dated March 1, 2023 (incorporated herein by reference to Exhibit 10.4 to the company's Quarterly Report on Form 10-Q filed on May 4, 2023). |
| *10.24 | Green Plains Inc. Executive Change in Control Severance Plan, dated August 2, 2023 (incorporated herein by reference to Exhibit 10.2 to the company's Quarterly Report on Form 10-Q filed on August 4, 2023) |
| *10.25 | Executive Change in Control Severance Plan Participation Letter by and between Green Plains Inc. and Todd A. Becker, dated August 2, 2023 (incorporated herein by reference to Exhibit 10.3 to the company's Quarterly Report on Form 10-Q filed on August 4, 2023) |
| *10.26 | Executive Change in Control Severance Plan Participation Letter by and between Green Plains Inc. and James E. Stark, dated August 2, 2023 (incorporated herein by reference to Exhibit 10.3 to the company's Quarterly Report on Form 10-Q filed on August 4, 2023) |
| *10.27 | Executive Change in Control Severance Plan Participation Letter by and between Green Plains Inc. and Michelle Mapes, dated August 2, 2023 (incorporated herein by reference to Exhibit 10.3 to the company's Quarterly Report on Form 10-Q filed on August 4, 2023) |
| *10.28 | Executive Change in Control Severance Plan Participation Letter by and between Green Plains Inc. and Chris Osowski, dated August 2, 2023 (incorporated herein by reference to Exhibit 10.3 to the company's Quarterly Report on Form 10-Q filed on August 4, 2023) |
| *10.29 | Executive Change in Control Severance Plan Participation Letter by and between Green Plains Inc. and Patrich Simpkins, dated August 2, 2023 (incorporated herein by reference to Exhibit 10.3 to the company's Quarterly Report on Form 10-Q filed on August 4, 2023) |

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|--------|--|
| *10.30 | Executive Change in Control Severance Plan Participation Letter by and between Green Plains Inc. and Leslie van der Meulen, dated August 2, 2023 (incorporated herein by reference to Exhibit 10.3 to the company's Quarterly Report on Form 10-Q filed on August 4, 2023) |
| *10.31 | Green Plains Inc. Director Compensation Program |
| *10.32 | Green Plains Partners LP 2015 Long-Term Incentive Plan |
| 10.33 | Support Agreement, dated September 16, 2023, by and among Green Plains Partners LP, Green Plains Inc., and the parties listed on the signature pages thereto (incorporated herein by reference to Exhibit 10.1 to the company's Registration Statement on Form S-4/A filed on November 17, 2023) |
| 10.34 | Cooperation Agreement, dated February 6, 2024, by and among Green Plains Inc. and Ancora Holdings Group, LLC (incorporated herein by reference to Exhibit 10.1 to the company's Current Report on Form 8-K filed on February 7, 2024) |
| 21.1 | Schedule of Subsidiaries |
| 23.1 | Consent of KPMG LLP |
| 31.1 | Certification of Chief Executive Officer pursuant to Rule 13a-14(a) and Section 302 of the Sarbanes-Oxley Act of 2002 |
| 31.2 | Certification of Chief Financial Officer pursuant to Rule 13a-14(a) and Section 302 of the Sarbanes-Oxley Act of 2002 |
| 32.1 | Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 |
| 32.2 | Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 |
| 97 | Green Plains Inc. Clawback Policy |
| 101 | The following information from Green Plains Inc.'s Annual Report on Form 10-K for the annual period ended December 31, 2023, formatted in Inline Extensible Business Reporting Language (iXBRL): (i) the Consolidated Balance Sheets, (ii) the Consolidated Statements of Operations, (iii) the Consolidated Statements of Comprehensive Income (iv) the Consolidated Statements of Stockholders' Equity (v) the Consolidated Statements of Cash Flows and (vi) the Notes to Consolidated Financial Statements and Financial Statement Schedule. |
| 104 | The cover page from Green Plains Inc. Annual Report on Form 10-K for the year ended December 31, 2023, formatted in iXBRL |

* Represents management compensatory contracts

Item 16. Form 10-K Summary.

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

GREEN PLAINS INC

(Registrant)

Date: February 9, 2024

By: /s/ Todd A. Becker

Todd A. Becker

President and Chief Executive Officer
(Principal Executive Officer)

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

| Signature | Title | Date |
|---|---|------------------|
| <u>/s/ Todd A. Becker</u> Todd A. Becker | President and Chief Executive Officer (Principal Executive Officer) and Director | February 9, 2024 |
| <u>/s/ James E. Stark</u> James E. Stark | Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer) | February 9, 2024 |
| <u>/s/ Jim Anderson</u> Jim Anderson | Chairman of the Board | February 9, 2024 |
| <u>/s/ Farha Aslam</u> Farha Aslam | Director | February 9, 2024 |
| <u>/s/ Ejnar A. Knudsen III</u> Ejnar A. Knudsen III | Director | February 9, 2024 |
| <u>/s/ Brian D. Peterson</u> Brian D. Peterson | Director | February 9, 2024 |
| <u>/s/ Martin Salinas Jr.</u> Martin Salinas Jr. | Director | February 9, 2024 |
| <u>/s/ Alain Treuer</u> Alain Treuer | Director | February 9, 2024 |
| <u>/s/ Kimberly Wagner</u> Kimberly Wagner | Director | February 9, 2024 |

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Green Plains Inc.:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Green Plains Inc. and subsidiaries (the Company) as of December 31, 2023 and 2022, the related consolidated statements of operations, comprehensive loss, stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2023, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2023 and 2022, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2023, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2023, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated February 9, 2024 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of a critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Fair value of forward contracts

As discussed in Note 2 to the consolidated financial statements, the Company records forward contracts at fair value unless the contract qualifies for and the Company elects normal purchase or sale exceptions. The Company estimates a fair value based on exchange-quoted prices, adjusted as appropriate for regional location basis values, which represent differences in local markets including transportation as well as quality or grade differences. Basis values are generally determined using inputs from broker quotations or market transactions. As of December 31, 2023, the recorded balances of the Company's derivative assets and liabilities associated with forward contracts were \$13.3 million and \$10.6 million, respectively, and are classified as Level 2 assets and liabilities within Notes 6 and 11.

We identified the assessment of the valuation of forward contracts as a critical audit matter. Specifically, evaluating the valuation of forward contracts, which included assumptions related to exchange-quoted prices, and adjustments for regional location basis values, involved complex auditor judgment due to the subjectivity involved in determining the fair value.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the valuation of forward contracts. To assess the valuation of forward contracts, for a sample of contracts, we tested the Company's exchange-quoted prices by comparing the amounts used to observable market transactions and evaluated the Company's adjustments for regional location basis values by comparing inputs used by the Company to third-party information, including broker quotations or market transactions.

/s/ KPMG LLP

We have served as the Company's auditor since 2009.

Omaha, Nebraska
February 9, 2024

GREEN PLAINS INC.
CONSOLIDATED BALANCE SHEETS
(in thousands, except share amounts)

| | December 31, | |
|---|--------------|--------------|
| | 2023 | 2022 |
| ASSETS | | |
| Current assets | | |
| Cash and cash equivalents | \$ 349,574 | \$ 444,661 |
| Restricted cash | 29,188 | 55,615 |
| Accounts receivable, net of allowances of \$85 and \$429, respectively | 94,446 | 108,610 |
| Income taxes receivable | 822 | 1,286 |
| Inventories | 215,810 | 278,950 |
| Prepaid expenses and other | 23,118 | 19,837 |
| Derivative financial instruments | 19,772 | 19,791 |
| Total current assets | 732,730 | 928,750 |
| Property and equipment, net | 1,021,928 | 1,029,327 |
| Operating lease right-of-use assets | 73,993 | 73,244 |
| Other assets | 110,671 | 91,810 |
| Total assets | \$ 1,939,322 | \$ 2,123,131 |
| LIABILITIES AND STOCKHOLDERS' EQUITY | | |
| Current liabilities | | |
| Accounts payable | \$ 186,643 | \$ 234,301 |
| Accrued and other liabilities | 57,029 | 44,443 |
| Derivative financial instruments | 10,577 | 47,941 |
| Operating lease current liabilities | 22,908 | 20,721 |
| Short-term notes payable and other borrowings | 105,973 | 137,678 |
| Current maturities of long-term debt | 1,832 | 1,838 |
| Total current liabilities | 384,962 | 486,922 |
| Long-term debt | 491,918 | 495,243 |
| Operating lease long-term liabilities | 53,879 | 55,515 |
| Other liabilities | 18,507 | 24,385 |
| Total liabilities | 949,266 | 1,062,065 |
| Commitments and contingencies (Note 17) | | |
| Stockholders' equity | | |
| Common stock, \$0.001 par value; 150,000,000 shares authorized; 62,326,622 and 62,100,555 shares issued, and 59,521,563 and 59,295,496 shares outstanding, respectively | 62 | 62 |
| Additional paid-in capital | 1,113,806 | 1,110,151 |
| Retained deficit | (235,801) | (142,417) |
| Accumulated other comprehensive loss | (3,160) | (26,591) |
| Treasury stock, 2,805,059 shares | (31,174) | (31,174) |
| Total Green Plains stockholders' equity | 843,733 | 910,031 |
| Noncontrolling interests | 146,323 | 151,035 |
| Total stockholders' equity | 990,056 | 1,061,066 |
| Total liabilities and stockholders' equity | \$ 1,939,322 | \$ 2,123,131 |

See accompanying notes to the consolidated financial statements.

GREEN PLAINS INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share amounts)

| | Year Ended December 31, | | |
|---|-------------------------|---------------------|--------------------|
| | 2023 | 2022 | 2021 |
| Revenues | \$ 3,295,743 | \$ 3,662,849 | \$ 2,827,168 |
| Costs and expenses | | | |
| Cost of goods sold (excluding depreciation and amortization expenses reflected below) | 3,103,838 | 3,525,011 | 2,625,109 |
| Operations and maintenance expenses | 27,154 | 25,158 | 23,061 |
| Selling, general and administrative expenses | 133,350 | 118,930 | 91,139 |
| Gain on sale of assets, net | (5,265) | — | (29,601) |
| Depreciation and amortization expenses | 98,244 | 92,698 | 91,952 |
| Total costs and expenses | 3,357,321 | 3,761,797 | 2,801,660 |
| Operating income (loss) | (61,578) | (98,948) | 25,508 |
| Other income (expense) | | | |
| Interest income | 11,707 | 5,277 | 575 |
| Interest expense | (37,703) | (32,642) | (67,144) |
| Other, net | 5,225 | 27,612 | (1,940) |
| Total other income (expense) | (20,771) | 247 | (68,509) |
| Loss before income taxes and income from equity method investees | (82,349) | (98,701) | (43,001) |
| Income tax benefit (expense) | 5,617 | (4,747) | (1,845) |
| Income from equity method investees | 433 | 71 | 700 |
| Net loss | (76,299) | (103,377) | (44,146) |
| Net income attributable to noncontrolling interests | 17,085 | 23,841 | 21,846 |
| Net loss attributable to Green Plains | <u>\$ (93,384)</u> | <u>\$ (127,218)</u> | <u>\$ (65,992)</u> |
| Earnings per share | | | |
| Net loss attributable to Green Plains - basic and diluted | <u>\$ (1.59)</u> | <u>\$ (2.29)</u> | <u>\$ (1.41)</u> |
| Weighted average shares outstanding | | | |
| Basic and diluted | <u>58,814</u> | <u>55,541</u> | <u>46,652</u> |

See accompanying notes to the consolidated financial statements

GREEN PLAINS INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(in thousands)

| | Year Ended December 31, | | |
|--|-------------------------|---------------------|--------------------|
| | 2023 | 2022 | 2021 |
| Net loss | \$ (76,299) | \$ (103,377) | \$ (44,146) |
| Other comprehensive income (loss), net of tax | | | |
| Unrealized gains (losses) on derivatives arising during the period, net of tax benefit (expense) of (\$2,021), \$5,092 and \$7,806, respectively | 6,348 | (16,109) | (24,230) |
| Reclassification of realized losses on derivatives, net of tax benefit of (\$5,438), (\$578) and (\$4,540), respectively | 17,083 | 1,828 | 14,092 |
| Total other comprehensive income (loss), net of tax | 23,431 | (14,281) | (10,138) |
| Comprehensive loss | (52,868) | (117,658) | (54,284) |
| Comprehensive income attributable to noncontrolling interests | 17,085 | 23,841 | 21,846 |
| Comprehensive loss attributable to Green Plains | <u>\$ (69,953)</u> | <u>\$ (141,499)</u> | <u>\$ (76,130)</u> |

See accompanying notes to the consolidated financial statements.

GREEN PLAINS INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in thousands)

| | Common Stock | | Additional Paid-in Capital | Retained Earnings (Deficit) | Accumulated Other Comprehensive Loss | Treasury Stock | | Total Green Plains Stockholders' Equity | Non-Controlling Interests | Total Stockholders' Equity |
|--|--------------|--------|----------------------------|-----------------------------|--------------------------------------|----------------|--------------|---|---------------------------|----------------------------|
| | Shares | Amount | | | | Shares | Amount | | | |
| Balance, January 1, 2021 | 47,471 | \$ 47 | \$ 691,393 | \$ 50,793 | \$ (2,172) | 11,813 | \$ (131,287) | \$ 608,774 | \$ 129,812 | \$ 738,586 |
| Net income (loss) | — | — | — | (65,992) | — | — | — | (65,992) | 21,846 | (44,146) |
| Cash dividends and distributions declared | — | — | — | — | — | — | — | — | (9,251) | (9,251) |
| Other comprehensive loss before reclassification | — | — | — | — | (24,230) | — | — | (24,230) | — | (24,230) |
| Amounts reclassified from accumulated other comprehensive loss | — | — | — | — | 14,092 | — | — | 14,092 | — | 14,092 |
| Other comprehensive loss, net of tax | — | — | — | — | (10,138) | — | — | (10,138) | — | (10,138) |
| Issuance of common stock, net of fees | 14,214 | 15 | 355,963 | — | — | — | — | 355,978 | — | 355,978 |
| Exchange of 4.00% convertible notes due 2024 | — | — | 17,683 | — | — | (3,569) | 39,661 | 57,344 | — | 57,344 |
| Investment in subsidiaries | — | — | — | — | — | — | — | — | 12,264 | 12,264 |
| Issuance of warrants | — | — | 3,431 | — | — | — | — | 3,431 | (3,431) | — |
| Stock-based compensation | 155 | — | 1,103 | — | — | — | — | 1,103 | 279 | 1,382 |
| Balance, December 31, 2021 | 61,840 | 62 | 1,069,573 | (15,199) | (12,310) | 8,244 | (91,626) | 950,500 | 151,519 | 1,102,019 |
| Net income (loss) | — | — | — | (127,218) | — | — | — | (127,218) | 23,841 | (103,377) |
| Cash dividends and distributions declared | — | — | — | — | — | — | — | — | (25,240) | (25,240) |
| Other comprehensive loss before reclassification | — | — | — | — | (16,109) | — | — | (16,109) | — | (16,109) |
| Amounts reclassified from accumulated other comprehensive loss | — | — | — | — | 1,828 | — | — | 1,828 | — | 1,828 |
| Other comprehensive loss, net of tax | — | — | — | — | (14,281) | — | — | (14,281) | — | (14,281) |
| Exchange of 4.125% convertible notes due 2022 | — | — | 19,756 | — | — | (1,188) | 13,211 | 32,967 | — | 32,967 |
| Redemption of 4.00% convertible notes due 2024 | — | — | 15,797 | — | — | (4,251) | 47,241 | 63,038 | — | 63,038 |
| Investment in subsidiaries | — | — | — | — | — | — | — | — | 675 | 675 |
| Stock-based compensation | 261 | — | 5,025 | — | — | — | — | 5,025 | 240 | 5,265 |
| Balance, December 31, 2022 | 62,101 | 62 | 1,110,151 | (142,417) | (26,591) | 2,805 | (31,174) | 910,031 | 151,035 | 1,061,066 |
| Net income (loss) | — | — | — | (93,384) | — | — | — | (93,384) | 17,085 | (76,299) |
| Cash dividends and distributions declared | — | — | — | — | — | — | — | — | (22,728) | (22,728) |
| Other comprehensive income before reclassification | — | — | — | — | 6,348 | — | — | 6,348 | — | 6,348 |
| Amounts reclassified from accumulated other comprehensive loss | — | — | — | — | 17,083 | — | — | 17,083 | — | 17,083 |
| Other comprehensive income, net of tax | — | — | — | — | 23,431 | — | — | 23,431 | — | 23,431 |
| Investment in subsidiaries | — | — | — | — | — | — | — | — | 572 | 572 |
| Stock-based compensation | 226 | — | 3,655 | — | — | — | — | 3,655 | 359 | 4,014 |
| Balance, December 31, 2023 | 62,327 | \$ 62 | \$ 1,113,806 | \$ (235,801) | \$ (3,160) | 2,805 | \$ (31,174) | \$ 843,733 | \$ 146,323 | \$ 990,056 |

See accompanying notes to the consolidated financial statements.

GREEN PLAINS INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

| | Year Ended December 31, | | |
|--|-------------------------|--------------|-------------|
| | 2023 | 2022 | 2021 |
| Cash flows from operating activities | | | |
| Net loss | \$ (76,299) | \$ (103,377) | \$ (44,146) |
| Adjustments to reconcile net loss to net cash provided by operating activities | | | |
| Depreciation and amortization | 98,244 | 92,698 | 91,952 |
| Amortization of debt issuance costs and non-cash interest expense | 2,693 | 3,894 | 8,402 |
| Gain on the sale of assets, net | (5,265) | — | (29,601) |
| Inventory lower of average cost or net realizable value adjustment | 2,627 | 12,323 | — |
| Loss on extinguishment of debt | — | 419 | 32,645 |
| Deferred income taxes | (6,855) | 4,515 | 1,233 |
| Stock-based compensation | 13,032 | 9,071 | 6,058 |
| Loss from equity method investees | (433) | (71) | (700) |
| Distribution from equity method investees | — | 637 | 1,500 |
| Other | 2,203 | (786) | 1,590 |
| Changes in operating assets and liabilities before effects of asset dispositions | | | |
| Accounts receivable | 14,164 | 8,519 | (64,095) |
| Inventories | 53,472 | (23,435) | (20,543) |
| Derivative financial instruments | (2,919) | (7,145) | 6,808 |
| Prepaid expenses and other assets | (3,704) | (3,354) | (578) |
| Accounts payable and accrued liabilities | (34,573) | 75,311 | 17,189 |
| Current income tax expense (benefit) | 497 | 841 | (699) |
| Other | (538) | (351) | (2,769) |
| Net cash provided by operating activities | 56,346 | 69,709 | 4,246 |
| Cash flows from investing activities | | | |
| Purchases of property and equipment, net | (108,093) | (212,366) | (187,195) |
| Purchases of marketable securities | — | — | (124,859) |
| Proceeds from the sale of marketable securities | — | 124,523 | — |
| Proceeds from the sale of assets, net | 25,403 | — | 87,217 |
| Disposition of equity method investees | — | — | (2,948) |
| Investment in equity method investees | (24,206) | (17,156) | — |
| Other investing activities | — | (253) | (8,500) |
| Net cash used in investing activities | (106,896) | (105,252) | (236,285) |
| Cash flows from financing activities | | | |
| Proceeds from the issuance of long-term debt | — | 45,000 | 367,701 |
| Payments of principal on long-term debt | (4,838) | (1,751) | (188,700) |
| Proceeds from short-term borrowings | 1,190,999 | 1,863,315 | 3,473,541 |
| Payments on short-term borrowings | (1,223,785) | (1,898,414) | (3,445,634) |
| Payments on extinguishment of convertible debt | — | (1,766) | (20,861) |
| Payments of dividends and distributions | (22,728) | (22,555) | (9,251) |
| Proceeds from issuance of common stock, net | — | — | 355,978 |
| Payments of loan fees | (16) | (2,522) | (9,195) |
| Payments related to tax withholdings for stock-based compensation | (9,018) | (3,806) | (4,671) |
| Other financing activities | (1,578) | (2,641) | (720) |
| Net cash provided by (used in) financing activities | (70,964) | (25,140) | 518,188 |
| Net change in cash and cash equivalents, and restricted cash | (121,514) | (60,683) | 286,149 |
| Cash and cash equivalents, and restricted cash, beginning of period | 500,276 | 560,959 | 274,810 |
| Cash and cash equivalents, and restricted cash, end of period | \$ 378,762 | \$ 500,276 | \$ 560,959 |

Continued on the following page

GREEN PLAINS INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

Continued from the previous page

| | Year Ended December 31, | | |
|---|-------------------------|-------------------|-------------------|
| | 2023 | 2022 | 2021 |
| Reconciliation of total cash and cash equivalents, and restricted cash | | | |
| Cash and cash equivalents | \$ 349,574 | \$ 444,661 | \$ 426,220 |
| Restricted cash | 29,188 | 55,615 | 134,739 |
| Total cash and cash equivalents, and restricted cash | <u>\$ 378,762</u> | <u>\$ 500,276</u> | <u>\$ 560,959</u> |
| Non-cash financing activity | | | |
| Exchange of 4.00% convertible notes due 2024 for shares of common stock held in treasury stock | <u>\$ —</u> | <u>\$ 64,000</u> | <u>\$ 51,000</u> |
| Exchange of 4.125% convertible notes due 2022 for shares of common stock held in treasury stock | <u>\$ —</u> | <u>\$ 32,550</u> | <u>\$ —</u> |
| Supplemental investing activities | | | |
| Assets acquired in acquisitions, net of cash | \$ — | \$ — | \$ 9,000 |
| Less: noncontrolling interests assumed | — | — | (4,500) |
| Net assets acquired | <u>\$ —</u> | <u>\$ —</u> | <u>\$ 4,500</u> |
| Assets disposed of in sale | \$ 22,351 | \$ — | \$ 54,626 |
| Less: liabilities relinquished | (3,779) | — | (3,706) |
| Net assets disposed | <u>\$ 18,572</u> | <u>\$ —</u> | <u>\$ 50,920</u> |
| Supplemental disclosures of cash flow | | | |
| Cash paid (refunded) for income taxes, net | <u>\$ 1,242</u> | <u>\$ 583</u> | <u>\$ 1,479</u> |
| Cash paid for interest | <u>\$ 35,161</u> | <u>\$ 30,889</u> | <u>\$ 29,369</u> |
| Capital expenditures in accounts payable | <u>\$ 7,001</u> | <u>\$ 17,140</u> | <u>\$ 11,948</u> |
| Cash premium paid for extinguishment of convertible notes | <u>\$ —</u> | <u>\$ —</u> | <u>\$ 20,861</u> |
| Non-cash asset retirement obligations additions | <u>\$ 3,013</u> | <u>\$ 2,018</u> | <u>\$ 1,166</u> |

See accompanying notes to the consolidated financial statements.

GREEN PLAINS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. BASIS OF PRESENTATION AND DESCRIPTION OF BUSINESS

References to the Company

References to “Green Plains” or the “company” in the consolidated financial statements and in these notes to the consolidated financial statements refer to Green Plains Inc., an Iowa corporation, and its subsidiaries.

Consolidated Financial Statements

The consolidated financial statements include the company’s accounts and all significant intercompany balances and transactions are eliminated. Unconsolidated entities are included in the financial statements on an equity basis. As of December 31, 2023, the company owns a 48.8% limited partner interest and a 2.0% general partner interest in Green Plains Partners LP. Public investors own the remaining 49.2% limited partner interest in the partnership. The company determined that the limited partners in the partnership with equity at risk lack the power, through voting rights or similar rights, to direct the activities that most significantly impact the partnership’s economic performance; therefore, the partnership is considered a variable interest entity. The company, through its ownership of the general partner interest in the partnership, has the power to direct the activities that most significantly affect economic performance and is obligated to absorb losses and has the right to receive benefits that could be significant to the partnership. Therefore, the company is considered the primary beneficiary and consolidates the partnership in the company’s financial statements. The assets of the partnership cannot be used by the company for general corporate purposes. The partnership’s consolidated total assets as of December 31, 2023 and 2022, excluding intercompany balances, are \$102.8 million and \$108.7 million, respectively, and primarily consist of cash and cash equivalents, property and equipment, operating lease right-of-use assets and goodwill. The partnership’s consolidated total liabilities as of December 31, 2023 and 2022, excluding intercompany balances, are \$118.5 million and \$119.5 million, respectively, which primarily consist of long-term debt as discussed in *Note 12 – Debt* and operating lease liabilities. The liabilities recognized as a result of consolidating the partnership do not represent additional claims on the company’s general assets.

On September 16, 2023, the company entered into a Merger Agreement to acquire all of the publicly held common units of the partnership not already owned by the company and its affiliates. On January 9, 2024, the transactions contemplated by the Merger Agreement were completed. Refer to *Note 5 - Merger and Dispositions* included herein for more information.

The company also owns a majority interest in FQT, with their results being consolidated in our consolidated financial statements.

Use of Estimates in the Preparation of Consolidated Financial Statements

The preparation of consolidated financial statements in conformity with GAAP requires management to make certain estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the consolidated financial statements, and the reported amounts of revenues and expenses during the reporting period. The company bases its estimates on historical experience and assumptions it believes are proper and reasonable under the circumstances and regularly evaluates the appropriateness of its estimates and assumptions. Actual results could differ from those estimates. Certain accounting policies, including but not limited to those relating to derivative financial instruments and accounting for income taxes, are impacted significantly by judgments, assumptions and estimates used in the preparation of the consolidated financial statements.

Description of Business

The company operates within three operating segments: (1) ethanol production, which includes the production of ethanol, distillers grains, Ultra-High Protein and renewable corn oil, (2) agribusiness and energy services, which includes grain handling and storage, commodity marketing and merchant trading for company-produced and third-party ethanol, distillers grains, Ultra-High Protein, renewable corn oil, natural gas and other commodities and (3) partnership, which includes fuel storage and transportation services.

Ethanol Production Segment. The company is one of the largest ethanol producers in North America. The company operates ten ethanol plants in six states through separate wholly owned operating subsidiaries. The company’s ethanol plants

use a dry mill process to produce ethanol and co-products such as wet, modified wet or dried distillers grains and renewable corn oil. At capacity, the company expects to process approximately 310 million bushels of corn and produce approximately 903 million gallons of ethanol, 2.2 million tons of distillers grains and Ultra-High Protein, and 300 million pounds of renewable corn oil annually.

Agribusiness and Energy Services Segment. The company owns and operates grain handling and storage assets through its agribusiness and energy services segment, which has grain storage capacity of approximately 20.2 million bushels at the company's ethanol plants. The company's agribusiness operations provide synergies with the ethanol production segment as it supplies a portion of the feedstock needed to produce ethanol. The company has an in-house marketing business that is responsible for the sale, marketing and distribution of all ethanol, distillers grains, Ultra-High Protein and renewable corn oil produced at its ethanol plants. The company also purchases and sells ethanol, distillers grains, renewable corn oil, grain, natural gas and other commodities and participates in other merchant trading activities in various markets.

Partnership Segment. The company's partnership segment provides fuel storage and transportation services by owning, operating, developing and acquiring ethanol and fuel storage tanks, terminals, transportation assets and other related assets and businesses. As of December 31, 2023, the partnership owns (i) 24 ethanol storage facilities located at or near the company's ten ethanol plants, which have the ability to efficiently and effectively store and load railcars and tanker trucks with all of the ethanol produced at the company's ethanol plants, (ii) two fuel terminal facilities, located near major rail lines, which enable the partnership to receive, store and deliver fuels from and to markets that seek access to renewable fuels, and (iii) transportation assets, including a leased railcar fleet of approximately 2,180 railcars which is utilized to transport ethanol from the company's ethanol plants to refineries throughout the United States and international export terminals.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Cash and Cash Equivalents

Cash and cash equivalents includes bank deposits as well as short-term, highly liquid investments with original maturities of three months or less.

Restricted Cash

The company has restricted cash, which can only be used for funding letters of credit and for payment towards a credit agreement. Restricted cash also includes cash margins and securities pledged to commodity exchange clearinghouses. To the degree these segregated balances are cash and cash equivalents, they are considered restricted cash on the consolidated balance sheets.

Marketable Securities

Marketable securities include highly liquid, fixed maturity investments with original maturities ranging from three to twelve months and are carried at amortized cost, reflecting the ability and intent to hold the securities to maturity.

Revenue Recognition

The company recognizes revenue when obligations under the terms of a contract with a customer are satisfied. Generally this occurs with the transfer of control of products or services. Revenue is measured as the amount of consideration expected to be received in exchange for transferring goods or providing services. Sales, value add, and other taxes the company collects concurrent with revenue-producing activities are excluded from revenue.

Sales of ethanol, distillers grains, Ultra-High Protein, renewable corn oil, natural gas and other commodities by the company's marketing business are recognized when obligations under the terms of a contract with a customer are satisfied. Generally, this occurs with the transfer of control of products or services. Revenues related to marketing for third parties are presented on a gross basis as the company controls the product prior to the sale to the end customer, takes title of the product and has inventory risk. Unearned revenue is recorded for goods in transit when the company has received payment but control has not yet been transferred to the customer. Revenues for receiving, storing, transferring and transporting ethanol and other fuels are recognized when the product is delivered to the customer.

The company routinely enters into physical-delivery energy commodity purchase and sale agreements. At times, the company settles these transactions by transferring its obligations to other counterparties rather than delivering the physical

commodity. Revenues include net gains or losses from derivatives related to products sold while cost of goods sold includes net gains or losses from derivatives related to commodities purchased. Revenues also include realized gains and losses on related derivative financial instruments and reclassifications of realized gains and losses on cash flow hedges from accumulated other comprehensive income or loss.

Sales of products, including agricultural commodities, are recognized when control of the product is transferred to the customer, which depends on the agreed upon shipment or delivery terms.

A substantial portion of the partnership revenues are derived from fixed-fee commercial agreements for storage, terminal or transportation services. The partnership recognizes revenue upon transfer of control of product from its storage tanks and fuel terminals, when railcar volumetric capacity is provided, and as truck transportation services are performed. To the extent shortfalls associated with minimum volume commitments in the previous four quarters continue to exist, volumes in excess of the minimum volume commitment are applied to those shortfalls. Remaining excess volumes generating operating lease revenue are recognized as incurred.

Shipping and Handling Costs

The company accounts for shipping and handling activities related to contracts with customers as costs to fulfill its promise to transfer the associated products. Accordingly, the company records customer payments associated with shipping and handling costs as a component of revenue, and classifies such costs as a component of cost of goods sold.

Cost of Goods Sold

Cost of goods sold includes materials, direct labor, shipping and plant overhead costs. Materials include the cost of corn feedstock, denaturant, and process chemicals. Corn feedstock costs include gains and losses on related derivative financial instruments not designated as cash flow hedges, inbound freight charges, inspection costs and transfer costs, as well as reclassifications of gains and losses on cash flow hedges from accumulated other comprehensive income or loss. Direct labor includes all compensation and related benefits of non-management personnel involved in ethanol production. Shipping costs incurred by the company, including railcar costs, are also reflected in cost of goods sold. Plant overhead consists primarily of plant utilities, repairs and maintenance and outbound freight charges.

The company uses exchange-traded futures and options contracts and forward purchase and sale contracts to attempt to minimize the effect of price changes on ethanol, renewable corn oil, grain and natural gas. Exchange-traded futures and options contracts are valued at quoted market prices and settled predominantly in cash. The company is exposed to loss when counterparties default on forward purchase and sale contracts. Grain inventories held for sale and forward purchase and sale contracts are valued at market prices when available or other market quotes adjusted for basis differences, primarily in transportation, between the exchange-traded market and local market where the terms of the contract is based. Changes in forward purchase contracts and exchange-traded futures and options contracts are recognized as a component of cost of goods sold.

Operations and Maintenance Expenses

In the partnership segment, transportation expenses represent the primary component of operations and maintenance expenses. Transportation expenses include railcar leases, freight and shipping of the company's ethanol and co-products, as well as costs incurred storing ethanol at destination terminals.

Derivative Financial Instruments

The company uses various derivative financial instruments, including exchange-traded futures and exchange-traded and over-the-counter options contracts, to attempt to minimize risk and the effect of commodity price changes including but not limited to, corn, ethanol, natural gas and other agricultural and energy products. The company monitors and manages this exposure as part of its overall risk management policy to reduce the adverse effect market volatility may have on its operating results. The company may hedge these commodities as one way to mitigate risk; however, there may be situations when these hedging activities themselves result in losses.

By using derivatives to hedge exposures to changes in commodity prices, the company is exposed to credit and market risk. The company's exposure to credit risk includes the counterparty's failure to fulfill its performance obligations under the terms of the derivative contract. The company minimizes its credit risk by entering into transactions with high quality

counterparties, limiting the amount of financial exposure it has with each counterparty and monitoring their financial condition. Market risk is the risk that the value of the financial instrument might be adversely affected by a change in commodity prices or interest rates. The company manages market risk by incorporating parameters to monitor exposure within its risk management strategy, which limits the types of derivative instruments and strategies the company can use and the degree of market risk it can take using derivative instruments.

Forward contracts are recorded at fair value unless the contracts qualify for, and the company elects, normal purchase or sale exceptions. Changes in fair value are recorded in operating income unless the contracts qualify for, and the company elects, cash flow hedge accounting treatment.

Certain qualifying derivatives related to ethanol production and agribusiness and energy services are designated as cash flow hedges. The company evaluates the derivative instrument to ascertain its effectiveness prior to entering into cash flow hedges. Unrealized gains and losses are reflected in accumulated other comprehensive income or loss until the gain or loss from the underlying hedged transaction is realized and the physical transaction is completed. When it becomes probable a forecasted transaction will not occur, the cash flow hedge treatment is discontinued, which affects earnings. These derivative financial instruments are recognized in current assets or current liabilities at fair value.

At times, the company hedges its exposure to changes in inventory values and designates qualifying derivatives as fair value hedges. The carrying amount of the hedged inventory is adjusted in the current period for changes in fair value. Estimated fair values carried at market are based on exchange-quoted prices, adjusted as appropriate for regional location basis values which represent differences in local markets including transportation as well as quality or grade differences. Basis values are generally determined using inputs from broker quotations or other market transactions. However, a portion of the value may be derived using unobservable inputs. Ineffectiveness of the hedges is recognized in the current period to the extent the change in fair value of the inventory is not offset by the change in fair value of the derivative.

Concentrations of Credit Risk

The company is exposed to credit risk resulting from the possibility that another party may fail to perform according to the terms of the company's contract. The company sells ethanol, distillers grains, Ultra-High Protein and renewable corn oil and markets products for third parties, which can result in concentrations of credit risk from a variety of customers, including major integrated oil companies, large independent refiners, petroleum wholesalers and other marketers. The company also sells grain to large commercial buyers, including other ethanol plants. Although payments are typically received within fifteen days of the sale, the company continually monitors its exposure. The company is also exposed to credit risk on prepayments of undelivered inventories with a few major suppliers of petroleum products and agricultural inputs.

The company has master netting arrangements with various counterparties. On the consolidated balance sheets, the associated net amount for each counterparty is reflected as either an accounts receivable or accounts payable. If the amount for each counterparty were reflected on a gross basis, the company's accounts receivable and accounts payable would increase by \$1.2 million and \$12.7 million at December 31, 2023 and 2022, respectively.

Inventories

Corn held for ethanol production, ethanol, distillers grain, Ultra-High Protein, and renewable corn oil inventories are recorded at the lower of average cost or net realizable value, except fair-value hedged inventories. Raw materials and finished goods inventories are valued at the lower of average cost or net realizable value.

Property and Equipment

Property and equipment are stated at cost less accumulated depreciation. Depreciation is generally calculated using the straight-line method over the following estimated useful life of the assets:

| | Years |
|--------------------------------|--------------|
| Buildings and improvements | 10-40 |
| Plant equipment | 15-40 |
| Other machinery and equipment | 5-7 |
| Land improvements | 15-40 |
| Railroad track and equipment | 20-30 |
| Computer hardware and software | 3-5 |
| Office furniture and equipment | 5-7 |

Property and equipment is capitalized at cost. Land improvements, interest incurred during construction and other property improvements are capitalized and depreciated. Betterment of property assets are those that extend the useful life, increase the capacity or improve the operating efficiency or improve the safety of our operations. Costs of repairs and normal maintenance are charged to expense when incurred. The company periodically evaluates whether events and circumstances have occurred that warrant a revision of the estimated useful life of its fixed assets.

Intangible Assets

Our intangible assets consist primarily of customer relationships, intellectual property, research and development technology and licenses. These intangible assets were capitalized at fair market value and are being amortized over their estimated useful lives.

Impairment of Long-Lived Assets

The company reviews its long-lived assets, currently consisting of property and equipment, operating lease right-of-use assets, intangible assets and equity method investments, for impairment whenever events or changes in circumstances indicate the carrying amount of the asset may not be recoverable. Recoverability of assets to be held and used is measured by comparison of the carrying amount of an asset to estimated undiscounted future cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated future cash flows, an impairment charge is recognized in the amount by which the carrying amount of the asset exceeds the fair value of the asset. Significant management judgment is required to determine the fair value of our long-lived assets and measure impairment, which includes projected cash flows. Fair value is determined by using various valuation techniques, including discounted cash flow models, sales of comparable properties and third-party independent appraisals. Changes in estimated fair value could result in an impairment of the asset. There were no material impairment charges recorded for the periods reported.

Goodwill

Goodwill is an asset representing the future economic benefits arising from other assets acquired in a business combination that are not individually identified and separately recognized. The determination of goodwill takes into consideration the fair value of net tangible and intangible assets. The company's goodwill is related to certain acquisitions within our ethanol production and partnership segments.

The company is required to perform impairment tests related to goodwill annually, which it performs as of October 1, or if an indicator of impairment occurs. Circumstances that may indicate impairment include a decline in the company's future projected cash flows, a decision to suspend plant operations for an extended period of time, sustained decline in the company's market capitalization or market prices for similar assets or businesses, or a significant adverse change in legal or regulatory matters or business climate. Significant management judgment is required to determine the fair value of goodwill and measure impairment, which include, but are not limited to, market capitalization, prospective financial information, growth rates, discount rates, inflationary factors, and cost of capital. Fair value is determined by using various valuation techniques, including discounted cash flow models, sales of comparable properties and third-party independent appraisals. Changes in estimated fair value could result in a write-down of the asset.

Leases

The company leases certain facilities, parcels of land, and equipment. These leases are accounted for as operating leases, with lease expense recognized on a straight-line basis over the lease term. The term of the lease may include options to extend or terminate the lease when it is reasonably certain that such options will be exercised. For leases with initial terms greater than 12 months, the company records operating lease right-of-use assets and corresponding operating lease liabilities. Leases with an initial term of 12 months or less are not recorded on the consolidated balance sheet. The company did not incur any material short-term lease expense for the years ended December 31, 2023, 2022 or 2021.

Operating lease right-of-use assets represent the right to control an underlying asset for the lease term and operating lease liabilities represent the obligation to make lease payments arising from the lease. These assets and liabilities are recognized at the commencement date based on the present value of lease payments over the lease term. As the company's leases do not provide an implicit rate, the incremental borrowing rate is used based on information available at commencement date to determine the present value of future payments.

The company elected to utilize a portfolio approach for lease classification, which allows for an entity to group together leases with similar characteristics provided that its application does not create a material difference when compared to accounting for the leases at a contract level. For railcar leases, the company elected to combine the railcars within each rider and account for each rider as an individual lease.

From a lessee perspective, the company combines both the lease and non-lease components and accounts for them as one lease. Certain of the company's railcar agreements provide for maintenance costs to be the responsibility of the company as incurred or charged by the lessor. This maintenance cost is a non-lease component that the company combines with the monthly rental payment and accounts for the total cost as operating lease expense. In addition, the company has a land lease that contains a non-lease component for the handling and unloading services the landlord provides. The company combines the cost of services with the land lease cost and accounts for the total as operating lease expense.

The partnership segment records the majority of its operating lease revenue from its storage and throughput services, rail transportation services and certain terminal services agreements with Green Plains Trade. In addition, the partnership may sublease certain of its railcars to third parties on a short-term basis. These subleases are classified as operating leases, with the associated sublease revenue recognized on a straight-line basis over the lease term.

Investments in Equity Method Investees

The company accounts for investments in which the company exercises significant influence using the equity method so long as the company (i) does not control the investee and (ii) is not the primary beneficiary of the entity. The company recognizes these investments as a separate line item in the consolidated balance sheets and its proportionate share of earnings on a separate line item in the consolidated statements of operations. The company's share of equity method investees other comprehensive income arising during the period is included in accumulated other comprehensive loss in the consolidated balance sheet.

The company recognizes losses in the value of equity method investments when there is evidence of an other-than-temporary decrease in value. Evidence of a loss might include, but would not necessarily be limited to, the inability to recover the carrying amount of the investment or the inability of the equity method investee to sustain an earnings capacity that justifies the carrying amount of the investment. The current fair value of an investment that is less than its carrying amount may indicate a loss in value of the investment. The company evaluates equity method investments for impairment if there is evidence an investment may be impaired. Distributions paid to the company from unconsolidated affiliates are classified as operating activities in the consolidated statements of cash flows until the cumulative distributions exceed the company's proportionate share of income from the unconsolidated affiliate since the date of initial investment. The amount of cumulative distributions paid to the company that exceeds the cumulative proportionate share of income in each period represents a return of investment, which is classified as an investing activity in the consolidated statements of cash flows.

Our equity method investments, which consist primarily of our 50% investment in GP Turnkey Tharaldson LLC, totaled \$41.7 million and \$17.3 million as of December 31, 2023 and 2022, respectively, and are reflected in other assets on the consolidated balance sheet. Interest capitalized related to our equity method investments during the year ended December 31, 2023 totaled \$1.4 million.

Financing Costs

Fees and costs related to securing debt are recorded as financing costs. Debt issuance costs are stated at cost and are amortized using the effective interest method for term loans and the straight-line basis over the life of the agreements for revolving credit arrangements and convertible notes.

Selling, General and Administrative Expenses

Selling, general and administrative expenses consist of various expenses including employee salaries, incentives and benefits; office expenses; director compensation; professional fees for accounting, legal, consulting, and investor relations activities.

Stock-Based Compensation

The company recognizes compensation cost using a fair value based method whereby compensation cost is measured at the grant date based on the market price of the award on the date of the award agreement, and is recognized over the service period on a straight-line basis, which is usually the vesting period.

Income Taxes

The provision for income taxes is computed using the asset and liability method, under which deferred tax assets and liabilities are recognized for the expected future tax consequences attributable to temporary differences between the financial reporting carrying amount of existing assets and liabilities and their respective tax bases. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in operating results in the period of enactment. Deferred tax assets are reduced by a valuation allowance when it is more likely than not that some portion or all of the deferred tax assets will not be realized.

The company recognizes uncertainties in income taxes within the financial statements under a process by which the likelihood of a tax position is gauged based upon the technical merits of the position, and then a subsequent measurement relates the maximum benefit and the degree of likelihood to determine the amount of benefit recognized in the financial statements.

Recent Accounting Pronouncements

In December 2023, the FASB issued ASU 2023-09, *Income Taxes (Topic 740) - Improvements to Income Tax Disclosures* to enhance the transparency and decision usefulness of income tax disclosures. ASU 2023-09 is effective for public entities for fiscal years beginning after December 15, 2024, and for interim periods for fiscal years beginning after December 15, 2025. The ASU indicates that all entities will apply its guidance prospectively with an option for retroactive application to each period in the financial statements. Early adoption is permitted. The company is currently evaluating the impact of this ASU.

In November 2023, the FASB issued ASU 2023-07, *Segment Reporting (Topic 280) - Improvements to Reportable Segment Disclosures*, which improves reportable segment disclosure requirements through enhanced disclosures about significant segment expenses. ASU 2023-07 is effective for public entities that are required to report segment information in accordance with Topic 280 for fiscal years beginning after December 15, 2023, and interim periods within fiscal years beginning after December 15, 2024. Early adoption is permitted. The company is currently evaluating the impact of this ASU.

In March 2020, the FASB issued amended guidance in ASC 848, *Reference Rate Reform*, and a subsequent update in January 2021 and October 2022, which provides optional expedients and exceptions to U.S. GAAP guidance on contract modifications and hedge accounting to ease the financial reporting burden related to the expected market transition from the LIBOR and other interbank offered rates to alternative reference rates. The expedients and exceptions provided by the amended guidance do not apply to contract modifications made and hedging relationships entered into or evaluated after December 31, 2024, except for hedging relationships existing as of December 31, 2024, that an entity has elected certain optional expedients for and that are retained through the end of the hedging relationship. The guidance is effective upon issuance and to be applied prospectively from any date beginning March 12, 2020 through December 31, 2024. The company adopted the amended guidance for the fiscal year-ended December 31, 2023, which had no material impact on the company's

consolidated financial statements.

In December 2019, the FASB issued amended guidance in ASC 740, *Income Taxes - Simplifying the Accounting for Income Taxes*, which simplifies the accounting for income taxes by removing certain exceptions to the general principles in ASC 740. The amendments also improve consistent application of and simplify U.S. GAAP for other areas of ASC 740 by clarifying and amending existing guidance. The amendments are effective for fiscal years beginning after December 15, 2021, and interim periods within fiscal years beginning after December 15, 2022. The company adopted the amended guidance for the fiscal year-ended December 31, 2022, which had no material impact on the company's consolidated financial statements.

3. GREEN PLAINS PARTNERS LP

The partnership is a fee-based master limited partnership formed by Green Plains to provide fuel storage and transportation services by owning, operating, developing and acquiring ethanol and fuel storage tanks, terminals, transportation assets and other related assets and businesses. The partnership's assets currently include (i) 24 ethanol storage facilities, located at or near the company's ten ethanol plants, which have the ability to efficiently and effectively store and load railcars and tanker trucks with all of the ethanol produced at the company's ethanol plants, (ii) two fuel terminal facilities, located near major rail lines, which enable the partnership to receive, store and deliver fuels from and to markets that seek access to renewable fuels, and (iii) transportation assets, including a leased railcar fleet of approximately 2,180 railcars, which are contracted to transport ethanol from the company's ethanol plants to refineries throughout the United States and international export terminals. The partnership is the company's primary downstream logistics provider to support its approximately 903 mmgy ethanol marketing and distribution business since the partnership's assets are the principal method of storing and delivering the ethanol the company produces.

As of December 31, 2023, the company owns a 48.8% limited partner interest, consisting of 11,586,548 common units, and a 2.0% general partner interest in the partnership. The public owns the remaining 49.2% limited partner interest in the partnership. On January 9, 2024, the company acquired 100% of the common units of the partnership, not already owned by the company, refer to *Note 5 - Acquisition and Dispositions* included herein for more information. The partnership is consolidated in the company's financial statements.

A substantial portion of the partnership's revenues are derived from long-term, fee-based commercial agreements with Green Plains Trade, a subsidiary of the company. The partnership's agreements with Green Plains Trade include the following:

- Storage and throughput agreement, expiring on June 30, 2029;
- Rail transportation services agreement, expiring on June 30, 2029;
- Terminal services agreement for the Birmingham, Alabama unit train terminal, expiring December 31, 2024; and
- Terminal services agreement for the Collins, Mississippi terminal, expiring on December 31, 2024.

The partnership's storage and throughput agreement, and certain terminal services agreements, including the terminal services agreement for the Birmingham facility, are supported by minimum volume commitments. The partnership's rail transportation services agreement is supported by minimum take-or-pay capacity commitments. The company also has agreements which establish fees for general and administrative, and operational and maintenance services it provides. These transactions are eliminated when the company consolidates its financial results.

The company consolidates the financial results of the partnership and records a noncontrolling interest in the partnership held by public common unitholders. Noncontrolling interest on the consolidated statements of operations includes the portion of net income attributable to the economic interest held by the partnership's public common unitholders. Noncontrolling interest on the consolidated balance sheets includes the portion of net assets attributable to the partnership's public common unitholders.

4. REVENUE

Revenue Recognition

Revenue is recognized when obligations under the terms of a contract with a customer are satisfied. Generally this occurs with the transfer of control of products or services. Revenue is measured as the amount of consideration expected to be

received in exchange for transferring goods or providing services. Sales, value add, and other taxes the company collects concurrent with revenue-producing activities are excluded from revenue.

Revenue by Source

The following tables disaggregate revenue by major source (in thousands):

| Twelve Months Ended December 31, 2023 | | | | | |
|---|-----------------------|-----------------------------------|-------------|--------------|--------------|
| | Ethanol Production | Agribusiness & Energy Services | Partnership | Eliminations | Total |
| Revenues | | | | | |
| Revenues from contracts with customers under ASC 606 | | | | | |
| Ethanol | \$ — | \$ — | \$ — | \$ — | \$ — |
| Distillers grains | 85,474 | — | — | — | 85,474 |
| Renewable corn oil | — | — | — | — | — |
| Other | 31,109 | 15,593 | 4,113 | — | 50,815 |
| Intersegment revenues | — | 239 | 5,698 | (5,937) | — |
| Total revenues from contracts with customers | 116,583 | 15,832 | 9,811 | (5,937) | 136,289 |
| Revenues from contracts accounted for as derivatives under ASC 815 ⁽¹⁾ | | | | | |
| Ethanol | 2,117,296 | 388,764 | — | — | 2,506,060 |
| Distillers grains | 377,357 | 34,818 | — | — | 412,175 |
| Renewable corn oil | 179,424 | 8,048 | — | — | 187,472 |
| Other | 25,213 | 28,534 | — | — | 53,747 |
| Intersegment revenues | — | 24,907 | — | (24,907) | — |
| Total revenues from contracts accounted for as derivatives | 2,699,290 | 485,071 | — | (24,907) | 3,159,454 |
| Leasing revenues under ASC 842 ⁽²⁾ | — | — | 71,272 | (71,272) | — |
| Total Revenues | \$ 2,815,873 | \$ 500,903 | \$ 81,083 | \$ (102,116) | \$ 3,295,743 |

| Twelve Months Ended December 31, 2022 | | | | | |
|---|-----------------------|-----------------------------------|-------------|--------------|--------------|
| | Ethanol Production | Agribusiness & Energy Services | Partnership | Eliminations | Total |
| Revenues | | | | | |
| Revenues from contracts with customers under ASC 606 | | | | | |
| Ethanol | \$ — | \$ — | \$ — | \$ — | \$ — |
| Distillers grains | 28,634 | — | — | — | 28,634 |
| Renewable corn oil | — | — | — | — | — |
| Other | 38,132 | 7,787 | 4,003 | — | 49,922 |
| Intersegment revenues | — | 229 | 7,950 | (8,179) | — |
| Total revenues from contracts with customers | 66,766 | 8,016 | 11,953 | (8,179) | 78,556 |
| Revenues from contracts accounted for as derivatives under ASC 815 ⁽¹⁾ | | | | | |
| Ethanol | 2,286,886 | 481,392 | — | — | 2,768,278 |
| Distillers grains | 493,605 | 45,766 | — | — | 539,371 |
| Renewable corn oil | 195,114 | 3,954 | — | — | 199,068 |
| Other | 27,821 | 49,755 | — | — | 77,576 |
| Intersegment revenues | — | 26,732 | — | (26,732) | — |
| Total revenues from contracts accounted for as derivatives | 3,003,426 | 607,599 | — | (26,732) | 3,584,293 |
| Leasing revenues under ASC 842 ⁽²⁾ | — | — | 67,814 | (67,814) | — |
| Total Revenues | \$ 3,070,192 | \$ 615,615 | \$ 79,767 | \$ (102,725) | \$ 3,662,849 |

Twelve Months Ended December 31, 2021

| | Ethanol Production | Agribusiness & Energy Services | Partnership | Eliminations | Total |
|---|-------------------------------|---|--------------------|---------------------|---------------------|
| Revenues | | | | | |
| Revenues from contracts with customers under ASC 606 | | | | | |
| Ethanol | \$ — | \$ — | \$ — | \$ — | \$ — |
| Distillers grains | 19,535 | — | — | — | 19,535 |
| Renewable corn oil | — | — | — | — | — |
| Other | 48,361 | 14,090 | 4,191 | — | 66,642 |
| Intersegment revenues | — | — | 8,028 | (8,028) | — |
| Total revenues from contracts with customers | 67,896 | 14,090 | 12,219 | (8,028) | 86,177 |
| Revenues from contracts accounted for as derivatives under ASC 815 ⁽¹⁾ | | | | | |
| Ethanol | 1,589,649 | 498,367 | — | — | 2,088,016 |
| Distillers grains | 355,230 | 40,763 | — | — | 395,993 |
| Renewable corn oil | 113,249 | 32,528 | — | — | 145,777 |
| Other | 27,344 | 83,778 | — | — | 111,122 |
| Intersegment revenues | — | 21,958 | — | (21,958) | — |
| Total revenues from contracts accounted for as derivatives | 2,085,472 | 677,394 | — | (21,958) | 2,740,908 |
| Leasing revenues under ASC 842 ⁽²⁾ | — | — | 66,233 | (66,150) | 83 |
| Total Revenues | \$ 2,153,368 | \$ 691,484 | \$ 78,452 | \$ (96,136) | \$ 2,827,168 |

(1) Revenues from contracts accounted for as derivatives represent physically settled derivative sales that are outside the scope of ASC 606.

(2) Leasing revenues do not represent revenues recognized from contracts with customers under ASC 606, and are accounted for under ASC 842, *Leases*.

Major Customer

Revenues from Customer A and Customer B represented 15% and 10% of total revenues for the year ended December 31, 2023, respectively, which are recorded within the ethanol production segment. Revenues from Customer A represented 13% of total revenues for the year ended December 31, 2022, which are recorded within the ethanol production segment. There were no customers that accounted for more than 10% of total revenues for the year ended December 31, 2021.

Payment Terms

The company has standard payment terms, which vary depending upon the nature of the services provided, with the majority falling within 10 to 30 days after transfer of control or completion of services. In instances where the timing of revenue recognition differs from the timing of invoicing, the company has determined that contracts generally do not include a significant financing component.

Contract Liabilities

The company records unearned revenue when consideration is received, or such consideration is unconditionally due, from a customer prior to transferring goods or services to the customer under the terms of service and lease agreements. Unearned revenue from service agreements, which represents a contract liability, is recorded for fees that have been charged to the customer prior to the completion of performance obligations. Unearned revenue is generally recognized in the subsequent quarter and is not material to the company. The company expects to recognize all of the unearned revenue associated with service agreements as of December 31, 2023, in the subsequent quarter when the inventory is withdrawn from the partnership's tank storage.

5. ACQUISITION AND DISPOSITIONS

Green Plains Partners Merger

On September 16, 2023, the company entered into a Merger Agreement to acquire all of the publicly held common units of the partnership not already owned by the company and its affiliates, which would result in the partnership becoming a wholly owned subsidiary of the company.

On January 9, 2024, the transactions contemplated by the Merger Agreement were completed and the company issued approximately 4.7 million shares of common stock to acquire all of the publicly held common units of the partnership not already owned by the company prior to the Merger at a fixed exchange ratio of 0.405 shares of the company's common stock, par value \$0.001 per share, along with \$2.50 of cash consideration for each partnership common unit. The total consideration as a result of the Merger was \$143.1 million, which was comprised of \$29.2 million in cash and \$113.9 million of common stock exchanged. As a result of the Merger, the partnership's common units are no longer publicly traded.

The interests in the partnership owned by the company and its subsidiaries remain outstanding as limited partner interests in the surviving entity. The General Partner of the partnership will continue to own the non-economic general partner interest in the surviving entity.

Since the company controlled the partnership prior to the Merger and continues to control the partnership after the Merger, the company will account for the change in its ownership interest in the partnership as an equity transaction in 2024, which will be reflected as a reduction of noncontrolling interest with a corresponding increase to common stock and additional paid-in capital. No gain or loss will be recognized in the consolidated statements of operations as a result of the Merger.

Prior to the effective time of the Merger on January 9, 2024, public unitholders owned a 49.2% limited partner interest, the company owned a 48.8% limited partner interest and a 2.0% general partner interest in the partnership. The earnings of the partnership that were attributed to its common units held by the public for the year ended December 31, 2023 are reflected in net income attributable to noncontrolling interest in the consolidated statements of operations. There were no changes in the company's ownership interest in the partnership during the years ended December 31, 2023 and 2022.

The company recorded transaction costs of \$5.1 million related to the Merger during the year ended December 31, 2023. Of these transaction costs, \$3.1 million is recorded within selling, general and administrative expenses in the consolidated statements of operations, while \$2.0 million is recorded in other assets in the consolidated balance sheets for the year ended December 31, 2023, and will be recorded as an offset to the issuance of common stock in 2024 within additional paid-in capital. The company anticipates an additional \$5.5 million in estimated fees that will be recorded as an offset to the issuance of common stock within additional paid-in capital during the first quarter of 2024. The transaction costs included financial advisory services, legal services and other professional fees.

Disposition of the Atkinson Ethanol Plant

On September 7, 2023, the company completed the sale of the plant located in Atkinson, Nebraska and certain related assets and transfer of liabilities ("the Atkinson Transaction") for a sale price of \$22.9 million, plus working capital of \$1.1 million. Correspondingly, the company entered into a separate asset purchase agreement with the partnership for \$2.1 million to acquire the storage assets and the associated railcar operating leases. The divested assets were reported within the company's ethanol production, agribusiness and energy services and partnership segments. The company recorded a pretax gain on the sale of the Atkinson plant of \$4.1 million recorded within corporate activities.

The assets sold and liabilities transferred of the Atkinson plant at closing on September 7, 2023 were as follows: (in thousands):

Amounts of Identifiable Assets Disposed and Liabilities Relinquished

| | | |
|--|----|---------------|
| Inventories | \$ | 3,164 |
| Prepaid expenses and other | | 423 |
| Property, plant and equipment | | 15,199 |
| Operating lease right-of-use assets | | 3,428 |
| Accrued and other liabilities | | (162) |
| Operating lease current liabilities | | (1,332) |
| Operating lease long-term liabilities | | (2,096) |
| Other liabilities | | (189) |
| Total identifiable net assets disposed | \$ | <u>18,435</u> |

Disposition of the Ord Ethanol Plant

On March 22, 2021, the company completed the sale of the plant located in Ord, Nebraska and certain related assets, to GreenAmerica Biofuels Ord LLC (the “Ord Transaction”) for a sale price of \$64.0 million, plus working capital of \$9.8 million. Correspondingly, the company entered into a separate asset purchase agreement with the Partnership to acquire the storage assets and assign the rail transportation assets to be disposed of in the Ord Transaction for \$27.5 million, which was used to pay down a portion of the partnership’s credit facility. The divested assets were reported within the company’s ethanol production, agribusiness and energy services and partnership segments. The company recorded a pretax gain on the sale of the Ord plant of \$35.9 million within corporate activities.

The asset and liabilities of the Ord ethanol plant at closing on March 22, 2021 were as follows: (in thousands):

Amounts of Identifiable Assets Disposed and Liabilities Relinquished

| | | |
|--|----|---------------|
| Inventories | \$ | 10,400 |
| Prepaid expenses and other | | 632 |
| Property, plant and equipment | | 24,285 |
| Operating lease right-of-use-assets | | 1,811 |
| Accrued and other liabilities | | (156) |
| Operating lease current liabilities | | (1,021) |
| Operating lease long-term liabilities | | (790) |
| Total identifiable net assets disposed | \$ | <u>35,161</u> |

6. FAIR VALUE DISCLOSURES

The following methods, assumptions and valuation techniques were used in estimating the fair value of the company’s financial instruments:

Level 1 – unadjusted quoted prices in active markets for identical assets or liabilities the company can access at the measurement date.

Level 2 – directly or indirectly observable inputs such as quoted prices for similar assets or liabilities in active markets other than quoted prices included within Level 1, quoted prices for identical or similar assets in markets that are not active, and other inputs that are observable or can be substantially corroborated by observable market data through correlation or other means. Fair value hedged inventories in the agribusiness and energy services segment as well as forward commodity purchase and sale contracts are valued at nearby futures values, plus or minus nearby basis values, which represent differences in local markets including transportation or commodity quality or grade differences.

Level 3 – unobservable inputs that are supported by little or no market activity and comprise a significant component of the fair value of the assets or liabilities. The company currently does not have any recurring Level 3 financial instruments.

Derivative contracts include exchange-traded commodity futures and options contracts and forward commodity purchase and sale contracts. Exchange-traded futures and options contracts are valued based on unadjusted quoted prices in active markets and are classified in Level 1. The majority of the company's exchange-traded futures and options contracts are cash-settled on a daily basis.

There have been no changes in valuation techniques and inputs used in measuring fair value. The company's assets and liabilities by level are as follows (in thousands):

| Fair Value Measurements at December 31, 2023 | | | |
|---|---|--|-------------------|
| | Quoted Prices in Active Markets for Identical Assets (Level 1) | Significant Other Observable Inputs (Level 2) | Total |
| Assets | | | |
| Cash and cash equivalents | \$ 349,574 | \$ — | \$ 349,574 |
| Restricted cash | 29,188 | — | 29,188 |
| Inventories carried at market | — | 45,898 | 45,898 |
| Derivative financial instruments - assets | — | 13,311 | 13,311 |
| Total assets measured at fair value | <u>\$ 378,762</u> | <u>\$ 59,209</u> | <u>\$ 437,971</u> |
| Liabilities | | | |
| Accounts payable ⁽¹⁾ | \$ — | \$ 54,716 | \$ 54,716 |
| Accrued and other liabilities ⁽²⁾ | — | 9,917 | 9,917 |
| Derivative financial instruments - liabilities | — | 10,577 | 10,577 |
| Other liabilities ⁽²⁾ | — | 659 | 659 |
| Total liabilities measured at fair value | <u>\$ —</u> | <u>\$ 75,869</u> | <u>\$ 75,869</u> |

Fair Value Measurements at December 31, 2022

| | Quoted Prices in Active Markets for Identical Assets (Level 1) | Significant Other Observable Inputs (Level 2) | Total |
|--|---|---|-------------------|
| Assets | | | |
| Cash and cash equivalents | \$ 444,661 | \$ — | \$ 444,661 |
| Restricted cash | 55,615 | — | 55,615 |
| Inventories carried at market | — | 61,885 | 61,885 |
| Derivative financial instruments - assets | — | 16,420 | 16,420 |
| Other assets | 110 | 1 | 111 |
| Total assets measured at fair value | <u>\$ 500,386</u> | <u>\$ 78,306</u> | <u>\$ 578,692</u> |
| Liabilities | | | |
| Accounts payable ⁽¹⁾ | \$ — | \$ 31,925 | \$ 31,925 |
| Accrued and other liabilities ⁽²⁾ | — | 1,909 | 1,909 |
| Derivative financial instruments - liabilities | — | 44,686 | 44,686 |
| Other liabilities ⁽²⁾ | — | 6,640 | 6,640 |
| Total liabilities measured at fair value | <u>\$ —</u> | <u>\$ 85,160</u> | <u>\$ 85,160</u> |

- (1) Accounts payable is generally stated at historical amounts with the exception of \$54.7 million and \$31.9 million at December 31, 2023 and 2022, respectively, related to certain delivered inventory for which the payable fluctuates based on changes in commodity prices. These payables are hybrid financial instruments for which the company has elected the fair value option.
- (2) As of December 31, 2023 and 2022, respectively, accrued and other liabilities includes \$9.9 million and \$1.9 million and other liabilities includes \$0.7 million and \$6.6 million of consideration related to potential earn-out payments recorded at fair value.

The fair value of the company's debt was approximately \$585.0 million compared with a book value of \$599.7 million at December 31, 2023. The fair value of the company's debt was approximately \$654.5 million compared with a book value of \$634.8 million at December 31, 2022. The company estimated the fair value of its outstanding debt using Level 2 inputs. The company believes the fair value of its accounts receivable approximated book value, which was \$94.4 million and \$108.6 million, respectively, at December 31, 2023 and 2022.

Although the company currently does not have any recurring Level 3 financial measurements, the fair values of tangible assets and goodwill acquired represent Level 3 measurements which were derived using a combination of the income approach, market approach and cost approach for the specific assets or liabilities being valued.

7. SEGMENT INFORMATION

The company reports the financial and operating performance for the following three operating segments: (1) ethanol production, which includes the production of ethanol, distillers grains, Ultra-High Protein and renewable corn oil, (2) agribusiness and energy services, which includes grain handling and storage, commodity marketing and merchant trading for company-produced and third-party ethanol, distillers grains, Ultra-High Protein, renewable corn oil, natural gas and other commodities, and (3) partnership, which includes fuel storage and transportation services.

Corporate activities include selling, general and administrative expenses, consisting primarily of compensation, professional fees and overhead costs not directly related to a specific operating segment.

During the normal course of business, the operating segments conduct business with each other. For example, the agribusiness and energy services segment procures grain and natural gas and sells products, including ethanol, distillers grains, Ultra-High Protein and renewable corn oil for the ethanol production segment. The partnership segment provides fuel storage and transportation services for the ethanol production segment. These intersegment activities are treated like third-party transactions with origination, marketing and storage fees charged at estimated market values. Consequently, these transactions affect segment performance; however, they do not impact the company's consolidated results since the revenues and corresponding costs are eliminated.

The following tables set forth certain financial data for the company's operating segments (in thousands):

| | Year Ended December 31, | | |
|--|-------------------------|---------------------|---------------------|
| | 2023 | 2022 | 2021 |
| Revenues | | | |
| Ethanol production | | | |
| Revenues from external customers | \$ 2,815,873 | \$ 3,070,192 | \$ 2,153,368 |
| Intersegment revenues | — | — | — |
| Total segment revenues | 2,815,873 | 3,070,192 | 2,153,368 |
| Agribusiness and energy services: | | | |
| Revenues from external customers | 475,757 | 588,654 | 669,526 |
| Intersegment revenues | 25,146 | 26,961 | 21,958 |
| Total segment revenues | 500,903 | 615,615 | 691,484 |
| Partnership | | | |
| Revenues from external customers | 4,113 | 4,003 | 4,274 |
| Intersegment revenues | 76,970 | 75,764 | 74,178 |
| Total segment revenues | 81,083 | 79,767 | 78,452 |
| Revenues including intersegment activity | 3,397,859 | 3,765,574 | 2,923,304 |
| Intersegment eliminations | (102,116) | (102,725) | (96,136) |
| | <u>\$ 3,295,743</u> | <u>\$ 3,662,849</u> | <u>\$ 2,827,168</u> |

Refer to *Note 4 – Revenue*, for further disaggregation of revenue by operating segment.

| | Year Ended December 31, | | |
|----------------------------------|-------------------------|---------------------|---------------------|
| | 2023 | 2022 | 2021 |
| Cost of goods sold | | | |
| Ethanol production | \$ 2,751,292 | \$ 3,068,366 | \$ 2,063,283 |
| Agribusiness and energy services | 454,776 | 562,950 | 657,375 |
| Intersegment eliminations | (102,230) | (106,305) | (95,549) |
| | <u>\$ 3,103,838</u> | <u>\$ 3,525,011</u> | <u>\$ 2,625,109</u> |

| | Year Ended December 31, | | |
|----------------------------------|-------------------------|-------------------|-------------------|
| | 2023 | 2022 | 2021 |
| Gross margin | | | |
| Ethanol production | \$ 64,581 | \$ 1,826 | \$ 90,085 |
| Agribusiness and energy services | 46,127 | 52,665 | 34,109 |
| Partnership | 81,083 | 79,767 | 78,452 |
| Intersegment eliminations | 114 | 3,580 | (587) |
| | <u>\$ 191,905</u> | <u>\$ 137,838</u> | <u>\$ 202,059</u> |

| | Year Ended December 31, | | |
|-------------------------------------|-------------------------|--------------------|------------------|
| | 2023 | 2022 | 2021 |
| Operating income (loss) | | | |
| Ethanol production ⁽¹⁾ | \$ (66,931) | \$ (117,764) | \$ (27,996) |
| Agribusiness and energy services | 28,100 | 36,415 | 17,458 |
| Partnership | 46,859 | 47,699 | 48,672 |
| Intersegment eliminations | 114 | 3,580 | (587) |
| Corporate activities ⁽²⁾ | (69,720) | (68,878) | (12,039) |
| | <u>\$ (61,578)</u> | <u>\$ (98,948)</u> | <u>\$ 25,508</u> |

- (1) Operating loss for ethanol production includes an inventory lower of average cost or net realizable value adjustment of \$2.6 million and \$12.3 million for the year-ended December 31, 2023 and 2022, respectively.
- (2) Corporate activities for the year-ended December 31, 2023 and 2021 includes a \$4.1 million and \$29.6 million net gain on sale of assets, respectively.

| | Year Ended December 31, | | |
|----------------------------------|-------------------------|------------------|------------------|
| | 2023 | 2022 | 2021 |
| Depreciation and amortization | | | |
| Ethanol production | \$ 89,537 | \$ 81,545 | \$ 82,969 |
| Agribusiness and energy services | 2,360 | 3,466 | 2,535 |
| Partnership | 3,175 | 4,093 | 3,737 |
| Corporate activities | 3,172 | 3,594 | 2,711 |
| | <u>\$ 98,244</u> | <u>\$ 92,698</u> | <u>\$ 91,952</u> |

| | Year Ended December 31, | | |
|----------------------------------|-------------------------|-------------------|-------------------|
| | 2023 | 2022 | 2021 |
| Capital expenditures | | | |
| Ethanol production | \$ 106,293 | \$ 210,256 | \$ 181,731 |
| Agribusiness and energy services | 512 | 1,647 | 2,896 |
| Partnership | 1,175 | 641 | 668 |
| Corporate activities | 494 | 75 | 1,976 |
| | <u>\$ 108,474</u> | <u>\$ 212,619</u> | <u>\$ 187,271</u> |

The following table sets forth total assets by operating segment (in thousands):

| | Year Ended December 31, | |
|----------------------------------|-------------------------|---------------------|
| | 2023 | 2022 |
| Total assets ⁽¹⁾ | | |
| Ethanol production | \$ 1,173,218 | \$ 1,157,791 |
| Agribusiness and energy services | 413,937 | 489,083 |
| Partnership | 102,776 | 108,680 |
| Corporate assets | 254,300 | 386,437 |
| Intersegment eliminations | (4,909) | (18,860) |
| | <u>\$ 1,939,322</u> | <u>\$ 2,123,131</u> |

- (1) Asset balances by segment exclude intercompany balances.

8. INVENTORIES

Inventories are carried at the lower of average cost or net realizable value, except fair-value hedged inventories. As of December 31, 2023 and 2022, respectively, the company recorded a \$2.6 million and a \$12.3 million lower of average cost or net realizable value inventory adjustment associated with finished goods in cost of goods within the ethanol production segment.

The components of inventories are as follows (in thousands):

| | December 31, | |
|---------------------------|-------------------|-------------------|
| | 2023 | 2022 |
| Finished goods | \$ 73,975 | \$ 97,719 |
| Commodities held for sale | 45,898 | 61,885 |
| Raw materials | 32,820 | 55,983 |
| Work-in-process | 14,454 | 18,499 |
| Supplies and parts | 48,663 | 44,864 |
| | <u>\$ 215,810</u> | <u>\$ 278,950</u> |

9. PROPERTY AND EQUIPMENT

The components of property and equipment are as follows (in thousands):

| | December 31, | |
|---|---------------------|---------------------|
| | 2023 | 2022 |
| Plant equipment | \$ 1,175,566 | \$ 1,089,890 |
| Buildings and improvements | 218,269 | 186,391 |
| Land and improvements | 107,399 | 90,944 |
| Railroad track and equipment | 32,752 | 33,136 |
| Construction-in-progress | 115,243 | 207,366 |
| Computer hardware and software | 23,645 | 21,312 |
| Office furniture and equipment | 3,580 | 3,512 |
| Leasehold improvements and other | 31,551 | 29,074 |
| Total property and equipment | 1,708,005 | 1,661,625 |
| Less: accumulated depreciation and amortization | (686,077) | (632,298) |
| Property and equipment, net | <u>\$ 1,021,928</u> | <u>\$ 1,029,327</u> |

Interest capitalized during the years ended December 31, 2023, 2022 and 2021 totaled \$3.6 million, \$11.3 million and \$7.3 million, respectively.

10. GOODWILL AND INTANGIBLE ASSETS

Goodwill

The company has two reporting units, to which goodwill was assigned. We are required to perform impairment tests related to our goodwill annually, which we perform as of October 1, or if an indicator of impairment occurs. The company and the partnership performed their annual goodwill assessments as of October 1, 2023 and 2022 using qualitative assessments, which resulted in no indication of goodwill impairment.

The carrying amount of goodwill attributable to the ethanol production segment for both of the years ended December 31, 2023 and 2022 was \$18.5 million, and for the partnership segment was \$10.6 million. The company records goodwill within other assets on the consolidated balance sheets.

Intangible Assets

The company recognized certain intangible assets in connection with the FQT acquisition during the fourth quarter of 2020. The components of the FQT intangible assets are as follows (in thousands):

| | December 31, | |
|--|--------------|------------|
| | 2023 | 2022 |
| Customer relationships and backlog | \$ 17,628 | \$ 17,628 |
| Intellectual property | 9,700 | 9,700 |
| Trade name | 1,300 | 1,300 |
| Total | 28,628 | 28,628 |
| Accumulated amortization | (13,483) | (10,640) |
| Total FQT intangible assets, net | \$ 15,145 | \$ 17,988 |
| Weighted average remaining amortization period | 9.9 years | 11.0 years |

The company recognized \$2.8 million, \$4.8 million, and \$5.7 million of amortization expense associated with these intangible assets during the years ended December 31, 2023, 2022 and 2021, respectively. The company expects estimated amortization expense of \$2.5 million, \$2.2 million, \$2.0 million, \$1.8 million and \$1.6 million, respectively, for the years ended December 31, 2024, 2025, 2026, 2027 and 2028, as well as \$5.0 million thereafter. The company's intangible assets are recorded within other assets on the consolidated balance sheets.

11. DERIVATIVE FINANCIAL INSTRUMENTS

At December 31, 2023, the company's consolidated balance sheet reflected unrealized losses of \$3.2 million, net of tax, in accumulated other comprehensive loss. The company expects these items will be reclassified as operating income (loss) over the next 12 months as a result of hedged transactions that are forecasted to occur. The amount realized in operating income (loss) will differ as commodity prices change.

Fair Values of Derivative Instruments

The fair values of the company's derivative financial instruments and the line items on the consolidated balance sheets where they are reported are as follows (in thousands):

| | Asset Derivatives' Fair Value at December 31, | | Liability Derivatives' Fair Value at December 31, | |
|---|--|--------------------------|--|--------------------------|
| | 2023 | 2022 | 2023 | 2022 |
| Derivative financial instruments - forwards | \$ 13,311 ⁽¹⁾ | \$ 16,420 ⁽²⁾ | \$ 10,577 | \$ 44,686 ⁽³⁾ |
| Other assets | — | 1 | — | — |
| Other liabilities | — | — | 2 | — |
| Total | \$ 13,311 | \$ 16,421 | \$ 10,579 | \$ 44,686 |

- (1) At December 31, 2023, derivative financial instruments, as reflected on the balance sheet, includes net unrealized gains on exchange-traded futures and options contracts of \$6.5 million, which include \$0.7 million of net unrealized gains on derivative financial instruments designated as cash flow hedging instruments, \$0.7 million of unrealized gains on derivative financial instruments designated as fair value hedging instruments, and the balance representing economic hedges.
- (2) At December 31, 2022, derivative financial instruments, as reflected on the balance sheet, includes net unrealized gains on exchange-traded futures and options contracts of \$3.4 million, which include \$9.0 million of unrealized gains on derivative financial instruments designated as fair value hedging instruments, partially offset by \$2.0 million of net unrealized losses on derivative financial instruments designated as cash flow hedging instruments, and the balance representing economic hedges.
- (3) At December 31, 2022, derivative financial instruments, as reflected on the balance sheet, includes net unrealized losses on exchange-traded futures and options contracts of \$3.3 million, which include \$0.6 million of net unrealized losses on derivative financial instruments designated as fair value hedging instruments and the balance representing economic hedges.

Refer to *Note 6 - Fair Value Disclosures*, which contains fair value information related to derivative financial instruments.

Effect of Derivative Instruments on Consolidated Balance Sheets, Consolidated Statements of Operations and Consolidated Statements of Comprehensive Income

The gains or losses recognized in income and other comprehensive income related to the company's derivative financial instruments and the line items on the consolidated financial statements where they are reported are as follows (in thousands):

| Location of Gain (Loss) Reclassified from Accumulated Other Comprehensive Income into Income | Amount of Gain (Loss) Reclassified from Accumulated Other Comprehensive Income into Income | | |
|---|--|-------------------|--------------------|
| | Year Ended December 31, | | |
| | 2023 | 2022 | 2021 |
| Revenues | \$ 2,482 | \$ 3,347 | \$ (60,261) |
| Cost of goods sold | (25,003) | (5,753) | 41,629 |
| Net loss recognized in loss before income taxes | <u>\$ (22,521)</u> | <u>\$ (2,406)</u> | <u>\$ (18,632)</u> |

| Gain (Loss) Recognized in Other Comprehensive Income on Derivatives | Amount of Gain (Loss) Recognized in Other Comprehensive Income on Derivatives | | |
|--|--|--------------------|--------------------|
| | Year Ended December 31, | | |
| | 2023 | 2022 | 2021 |
| Commodity Contracts | <u>\$ 8,369</u> | <u>\$ (21,201)</u> | <u>\$ (32,036)</u> |

A portion of the company's derivative instruments are considered economic hedges and as such are not designated as hedging instruments. The company uses exchange-traded futures and options contracts to manage its net position of product inventories and forward cash purchase and sales contracts to reduce price risk caused by market fluctuations. Derivatives, including exchange traded contracts and forward commodity purchase or sale contracts, and inventories of certain agricultural products, which include amounts acquired under deferred pricing contracts, are stated at fair value. Fair value estimates are based on exchange-quoted prices, adjusted as appropriate for regional location basis value, which represent differences in local markets including transportation as well as quality or grade differences.

| Derivatives Not Designated as Hedging Instruments | Location of Gain (Loss) Recognized in Income on Derivatives | Amount of Gain (Loss) Recognized in Income on Derivatives | | |
|--|---|--|--------------------|---------------------|
| | | Year Ended December 31, | | |
| | | 2023 | 2022 | 2021 |
| Exchange-traded futures and options | Revenues | \$ (2,552) | \$ 2,470 | \$ (201,249) |
| Forwards | Revenues | 4,842 | (7,404) | 7,106 |
| Exchange-traded futures and options | Cost of goods sold | 45,065 | (59,697) | 12,879 |
| Forwards | Cost of goods sold | (4,265) | (6,381) | (6,381) |
| Net gain (loss) recognized in loss before income taxes | | <u>\$ 43,090</u> | <u>\$ (71,012)</u> | <u>\$ (187,645)</u> |

The following amounts were recorded on the consolidated balance sheets related to cumulative basis adjustments for the fair value hedged items (in thousands):

| Line Item in the Consolidated Balance Sheet in Which the Hedged Item is Included | December 31, 2023 | | December 31, 2022 | |
|--|--------------------------------------|--|--------------------------------------|--|
| | Carrying Amount of the Hedged Assets | Cumulative Amount of Fair Value Hedging Adjustment Included in the Carrying Amount of the Hedged Liabilities | Carrying Amount of the Hedged Assets | Cumulative Amount of Fair Value Hedging Adjustment Included in the Carrying Amount of the Hedged Liabilities |
| Inventories | \$ 45,898 | \$ (1,104) | \$ 61,885 | \$ (13,776) |

Effect of Cash Flow and Fair Value Hedge Accounting on the Statements of Operations

| | Location and Amount of Gain (Loss) Recognized in Income on Cash Flow and Fair Value Hedging Relationships for the Year Ended December 31, 2023 | |
|--|--|--------------------|
| | Revenue | Cost of Goods Sold |
| Gain (loss) on cash flow hedging relationships | | |
| Commodity contracts | | |
| Amount of gain (loss) on exchange-traded futures reclassified from accumulated other comprehensive income into income | \$ 2,482 | \$ (25,003) |
| Gain (loss) on fair value hedging relationships: | | |
| Commodity contracts | | |
| Fair value hedged inventories | — | (11,657) |
| Exchange-traded futures designated as hedging instruments | — | 14,417 |
| Total amounts of income and expense line items presented in the consolidated statement of operations in which the effects of cash flow or fair value hedges are recorded | \$ 2,482 | \$ (22,243) |

**Location and Amount of Gain (Loss)
Recognized in Income on Cash Flow and
Fair Value Hedging Relationships for the
Year Ended December 31, 2022**

| | Revenue | Cost of Goods Sold |
|--|-----------------|-------------------------------|
| Gain (loss) on cash flow hedging relationships | | |
| Commodity contracts | | |
| Amount of gain (loss) on exchange traded futures reclassified from accumulated other comprehensive income into income | \$ 3,347 | \$ (5,753) |
| Gain (loss) on fair value hedging relationships | | |
| Commodity contracts | | |
| Fair value hedged inventories | — | 735 |
| Exchange-traded futures designated as hedging instruments | — | 5,677 |
| Total amounts of income and expense line items presented in the consolidated statement of operations in which the effects of cash flow or fair value hedges are recorded | <u>\$ 3,347</u> | <u>\$ 659</u> |

**Location and Amount of Gain (Loss)
Recognized in Income on Cash Flow and
Fair Value Hedging Relationships for the
Year Ended December 31, 2021**

| | Revenue | Cost of Goods Sold |
|--|--------------------|-------------------------------|
| Gain (loss) on cash flow hedging relationships | | |
| Commodity contracts | | |
| Amount of gain (loss) on exchange-traded futures reclassified from accumulated other comprehensive income into income | \$ (60,261) | \$ 41,629 |
| Gain (loss) on fair value hedging relationships | | |
| Commodity contracts | | |
| Fair value hedged inventories | — | 20,567 |
| Exchange-traded futures designated as hedging instruments | — | (14,695) |
| Total amounts of income and expense line items presented in the consolidated statement of operations in which the effects of cash flow or fair value hedges are recorded | <u>\$ (60,261)</u> | <u>\$ 47,501</u> |

The notional volume of open commodity derivative positions as of December 31, 2023 are as follows (in thousands):

| Derivative Instruments | Exchange-Traded ⁽¹⁾ | Non-Exchange-Traded ⁽²⁾ | | Unit of Measure | Commodity |
|------------------------|--------------------------------|------------------------------------|-----------|-----------------|--------------------|
| | Net Long & (Short) | Long | (Short) | | |
| Futures | (7,760) | | | Bushels | Corn |
| Futures | 13,350 ⁽³⁾ | | | Bushels | Corn |
| Futures | (5,475) ⁽⁴⁾ | | | Bushels | Corn |
| Futures | (26,838) | | | Gallons | Ethanol |
| Futures | (38,304) ⁽³⁾ | | | Gallons | Ethanol |
| Futures | (1,145) | | | MmBTU | Natural Gas |
| Futures | 4,690 ⁽³⁾ | | | MmBTU | Natural Gas |
| Futures | (5,465) ⁽⁴⁾ | | | MmBTU | Natural Gas |
| Options | (4,365) | | | Pounds | Soybean Oil |
| Forwards | | 22,847 | — | Bushels | Corn |
| Forwards | | 48 | (217,246) | Gallons | Ethanol |
| Forwards | | 99 | (335) | Tons | Distillers Grains |
| Forwards | | — | (42,301) | Pounds | Renewable Corn Oil |
| Forwards | | 10,571 | (39) | MmBTU | Natural Gas |

- (1) Notional volume of exchange-traded futures and options are presented on a net long and (short) position basis. Options are presented on a delta-adjusted basis.
- (2) Notional volume of non-exchange-traded forward physical contracts are presented on a gross long and (short) position basis, including both fixed-price and basis contracts, for which only the basis portion of the contract price is fixed.
- (3) Notional volume of exchange-traded futures used for cash flow hedges.
- (4) Notional volume of exchange-traded futures used for fair value hedges.

Energy trading contracts that do not involve physical delivery are presented net in revenues on the consolidated statements of operations. Included in revenues are net gains of \$4.8 million, \$4.0 million, and \$1.1 million for the years ended December 31, 2023, 2022 and 2021, respectively, on energy trading contracts.

12. DEBT

The components of long-term debt are as follows (in thousands):

| | December 31, | |
|--|-------------------|-------------------|
| | 2023 | 2022 |
| Corporate | | |
| 2.25% convertible notes due 2027 ⁽¹⁾ | \$ 230,000 | \$ 230,000 |
| Green Plains SPE LLC | | |
| \$125.0 million junior secured mezzanine notes due 2026 ⁽²⁾ | 125,000 | 125,000 |
| Green Plains Wood River and Green Plains Shenandoah | | |
| \$75.0 million loan agreement ⁽³⁾ | 73,125 | 74,625 |
| Green Plains Partners | | |
| \$60.0 million term loan ⁽⁴⁾ | 55,969 | 58,969 |
| Other | 14,669 | 15,097 |
| Total book value of long-term debt | 498,763 | 503,691 |
| Unamortized debt issuance costs | (5,013) | (6,610) |
| Less: current maturities of long-term debt | (1,832) | (1,838) |
| Total long-term debt | <u>\$ 491,918</u> | <u>\$ 495,243</u> |

(1) The 2.25% notes had \$4.0 million and \$5.2 million of unamortized debt issuance costs as of December 31, 2023 and 2022, respectively.

(2) The junior notes had \$0.4 million and \$0.7 million of unamortized debt issuance costs as of December 31, 2023 and 2022, respectively.

(3) The loan had \$0.3 million of unamortized debt issuance costs as of both December 31, 2023 and 2022.

(4) The term loan had \$0.3 million and \$0.4 million of unamortized debt issuance costs as of December 31, 2023 and 2022, respectively.

Scheduled long-term debt repayments excluding the effects of debt issuance costs, are as follows (in thousands):

| Year Ending December 31, | Amount |
|--------------------------|-------------------|
| 2024 | \$ 1,922 |
| 2025 | 1,918 |
| 2026 | 182,886 |
| 2027 | 231,910 |
| 2028 | 1,830 |
| Thereafter | 78,297 |
| Total | <u>\$ 498,763</u> |

The components of short-term notes payable and other borrowings are as follows (in thousands):

| | December 31, | |
|---|-------------------|-------------------|
| | 2023 | 2022 |
| Green Plains Finance Company, Green Plains Grain and Green Plains Trade | | |
| \$350.0 million revolver | \$ 99,000 | \$ 115,000 |
| Green Plains Commodity Management | | |
| \$40.0 million hedge line | 6,973 | 22,678 |
| | <u>\$ 105,973</u> | <u>\$ 137,678</u> |

Corporate Activities

In March 2021, the company issued an aggregate \$230.0 million of 2.25% convertible senior notes due in 2027, or the 2.25% notes. The 2.25% notes bear interest at a rate of 2.25% per year, payable on March 15 and September 15 of each year,

beginning September 15, 2021, and mature on March 15, 2027. The 2.25% notes are senior, unsecured obligations of the company. The 2.25% notes are convertible, at the option of the holders, into consideration consisting of, at the company's election, cash, shares of the company's common stock, or a combination of cash and stock (and cash in lieu of fractional shares). However, before September 15, 2026, the 2.25% notes will not be convertible unless certain conditions are satisfied. The initial conversion rate is 31.6206 shares of the company's common stock per \$1,000 principal amount of 2.25% notes (equivalent to an initial conversion price of approximately \$31.62 per share of the company's common stock), representing an approximately 37.5% premium over the offering price of the company's common stock. The conversion rate is subject to adjustment upon the occurrence of certain events, including but not limited to; the event of a stock dividend or stock split; the issuance of additional rights, options and warrants; spinoffs; or a tender or exchange offering. In addition, the company may be obligated to increase the conversion rate for any conversion that occurs in connection with certain corporate events, including the company's calling the 2.25% notes for redemption.

On and after March 15, 2024, and prior to the maturity date, the company may redeem, for cash, all, but not less than all, of the 2.25% notes if the last reported sale price of the company's common stock equals or exceeds 140% of the applicable conversion price on (i) at least 20 trading days during a 30 consecutive trading day period ending on the trading day immediately prior to the date the company delivers notice of the redemption; and (ii) the trading day immediately before the date of the redemption notice. The redemption price will equal 100% of the principal amount of the 2.25% notes to be redeemed, plus any accrued and unpaid interest to, but excluding, the redemption date. In addition, upon the occurrence of a "fundamental change" (as defined in the indenture for the 2.25% notes), holders of the 2.25% notes will have the right, at their option, to require the company to repurchase their 2.25% notes for cash at a price equal to 100% of the principal amount of the 2.25% notes to be repurchased, plus accrued and unpaid interest to, but excluding, the fundamental change repurchase date.

In June 2019, the company issued \$115.0 million of 4.00% convertible senior notes due in 2024, or the 4.00% notes. During May 2021, the company entered into a privately negotiated agreement with certain noteholders of the company's 4.00% notes. Under this agreement, approximately 3.6 million shares of the company's common stock were exchanged for \$51.0 million in aggregate principal amount of the 4.00% notes.

On May 25, 2022, the company gave notice calling for the redemption of its outstanding 4.00% notes, totaling an aggregate principal amount of \$64.0 million. The final conversion rate was 66.4178 shares of common stock per \$1,000 of principal. From July 1, 2022 through July 8, 2022, the remaining \$64.0 million of the 4.00% notes were converted into approximately 4.3 million shares of common stock. Common stock held as treasury shares were exchanged for the 4.00% notes. Pursuant to the guidance within ASC 470, *Debt*, the company recorded the exchanges as a conversion. The 4.00% notes were retired effective July 8, 2022.

In August 2016, the company issued \$170.0 million of 4.125% convertible senior notes due in 2022, or the 4.125% notes. The 4.125% notes were senior, unsecured obligations of the company. In March 2021, concurrent with the issuance of the 2.25% notes, the company used approximately \$156.5 million of the net proceeds of the 2.25% notes to repurchase approximately \$135.7 million aggregate principal amount of the 4.125% notes, in privately negotiated transactions. Pursuant to the guidance within ASC 470, *Debt*, we recorded a loss upon extinguishment of \$22.1 million in interest expense, which included \$1.2 million of unamortized debt issuance costs related to the principal balance extinguished.

During August 2022, the company entered into four privately negotiated exchange agreements with certain noteholders of the 4.125% notes to exchange approximately \$32.6 million aggregate principal amount for approximately 1.2 million shares of the company's common stock. Pursuant to the guidance within ASC 470, *Debt*, the company recorded the exchanges as a conversion and recorded a loss of \$419 thousand, which was recorded as a charge to interest expense in the consolidated financial statements during the year ended December 31, 2022. Additionally, on September 1, 2022, approximately \$1.7 million aggregate principal amount of the 4.125% notes were settled through a combination of \$1.7 million in cash and approximately 15 thousand shares of the company's common stock. The remaining \$23 thousand aggregate principal amount and accrued interest were settled in cash. The 4.125% notes were fully retired effective September 1, 2022.

Ethanol Production Segment

On February 9, 2021, Green Plains SPE LLC, a wholly-owned special purpose subsidiary and parent of Green Plains Obion and Green Plains Mount Vernon, issued \$125.0 million of junior secured mezzanine notes due 2026 (the "Junior Notes") with BlackRock, a holder of a portion of the company's common stock.

The Junior Notes will mature on February 9, 2026 and are secured by a pledge of the membership interests in and the real property owned by Green Plains Obion and Green Plains Mount Vernon. The proceeds of the Junior Notes were used to construct high protein processing systems at the Green Plains Obion and Green Plains Mount Vernon facilities. The Junior Notes accrue interest at an annual rate of 11.75%. However, subject to the satisfaction of certain conditions, the Green Plains SPE LLC may elect to pay an amount in cash equal to interest accruing at a rate of 6.00% per annum plus an amount equal to interest accruing at a rate of 6.75% per annum to be paid in kind. The entire outstanding principal balance, plus any accrued and unpaid interest is due upon maturity. Green Plains SPE LLC is required to comply with certain financial covenants regarding minimum liquidity at Green Plains and a maximum aggregate loan to value. The Junior Notes can be retired or refinanced after 42 months with no prepayment premium. The Junior Notes have an unsecured parent guarantee from the company and have certain limitations on distributions, dividends or loans to the company unless there will not exist any event of default. At December 31, 2023, the interest rate on the Junior Notes was 11.75%.

On September 3, 2020, Green Plains Wood River and Green Plains Shenandoah, wholly-owned subsidiaries of the company, entered into a \$75.0 million loan agreement with MetLife Real Estate Lending LLC. The loan matures on September 1, 2035 and is secured by substantially all of the assets of the Wood River and Shenandoah facilities. The proceeds from the loan were used to add MSCTM technology at the Wood River and Shenandoah facilities as well as other capital expenditures.

The loan bears interest at a fixed rate of 5.02%, plus an interest rate premium of 1.5% until the loan is fully drawn. The remaining availability was drawn in the first quarter of 2022. Beginning in the second quarter of 2022, the interest rate premium may be adjusted quarterly from 0.00% to 1.50% based on the leverage ratio of total funded debt to EBITDA of Wood River and Shenandoah. Principal payments of \$1.5 million per year began in October 2022. Prepayments are prohibited until September 2024. Financial covenants of the loan agreement include a minimum loan to value ratio of 50%, a minimum fixed charge coverage ratio of 1.25x, a total debt service reserve of six months of future principal and interest payments and a minimum working capital requirement at Green Plains of not less than \$0.10 per gallon of nameplate capacity or \$90.3 million. The loan is guaranteed by the company and has certain limitations on distributions, dividends or loans to Green Plains by Wood River and Shenandoah unless immediately after giving effect to such action, there will not exist any event of default. At December 31, 2023, the interest rate on the loan was 5.02%.

The company also has small equipment financing loans, finance leases on equipment or facilities, and other forms of debt financing.

Agribusiness and Energy Services Segment

On March 25, 2022, Green Plains Finance Company, Green Plains Grain and Green Plains Trade (collectively, the “Borrowers”), all wholly owned subsidiaries of the company, together with the company, as guarantor, entered into a five-year, \$350.0 million senior secured sustainability-linked revolving Loan and Security Agreement (the “Facility”) with a group of financial institutions. This transaction refinanced the separate credit facilities previously held by Green Plains Grain and Green Plains Trade. The Facility matures on March 25, 2027.

The Facility includes revolving commitments totaling \$350.0 million and an accordion feature whereby amounts available under the Facility may be increased by up to \$100.0 million of new lender commitments subject to certain conditions. Each SOFR rate loan shall bear interest for each day at a rate per annum equal to the Term SOFR rate for the outstanding period plus a Term SOFR adjustment and an applicable margin of 2.25% to 2.50%, which is dependent on undrawn availability under the Facility. Each base rate loan shall bear interest at a rate per annum equal to the base rate plus the applicable margin of 1.25% to 1.50%, which is dependent on undrawn availability under the Facility. The unused portion of the Facility is also subject to a commitment fee of 0.275% to 0.375%, dependent on undrawn availability. Additionally, the applicable margin and commitment fee are subject to certain increases or decreases of up to 0.10% and 0.025%, respectively, tied to the company’s achievement of certain sustainability criteria, including the reduction of GHG emissions, recordable incident rate reduction, increased renewable corn oil production and the implementation of technology to produce sustainable ingredients.

The Facility contains customary affirmative and negative covenants, as well as the following financial covenants to be calculated as of the last day of any month: the current ratio of the Borrowers shall not be less than 1.00 to 1.00; the collateral coverage ratio of the Borrowers shall not be less than 1.20 to 1.00; and the debt to capitalization ratio of the company shall not be greater than 0.60 to 1.00.

The Facility also includes customary events of default, including without limitation, failure to make required payments of principal or interest, material incorrect representations and warranties, breach of covenants, events of bankruptcy and other

certain matters. The Facility is secured by the working capital assets of the Borrowers and is guaranteed by the company. At December 31, 2023, the interest rate on the Facility was 9.41%.

Green Plains Commodity Management has an uncommitted \$40.0 million revolving credit facility to finance margins related to its hedging programs, which is secured by cash and securities held in its brokerage accounts. During the first quarter of 2023, this revolving credit facility was extended five years to mature on April 30, 2028. Advances are subject to variable interest rates equal to SOFR plus 1.75%. At December 31, 2023, the interest rate on the facility was 7.15%.

Green Plains Grain has a short-term inventory financing agreement with a financial institution. The company has accounted for the agreement as short-term notes, rather than revenues, and has elected the fair value option to offset fluctuations in market prices of the inventory. This agreement is subject to negotiated variable interest rates. The company had no outstanding short-term notes payable related to the inventory financing agreement as of December 31, 2023.

Partnership Segment

Green Plains Partners has a term loan to fund working capital, capital expenditures and other general partnership purposes. The term loan has a maturity date of July 20, 2026. Interest on the term loan is based on 3-month SOFR plus 8.26%, and is payable on the 15th day of each March, June, September and December. The term loan does not require any principal payments; however, the partnership has the option to prepay \$1.5 million per quarter beginning twelve months after the closing date. The partnership repurchased \$1.0 million of the outstanding notes during the six months ended September 30, 2022. Prepayments totaling \$3.0 million were made during the year ended December 31, 2023.

The partnership's obligations under the term loan are secured by a first priority lien on (i) the equity interests of the partnership's present and future subsidiaries, (ii) all of the partnership's present and future personal property, such as investment property, general intangibles and contract rights, including rights under any agreements with Green Plains Trade, (iii) all proceeds and products of the equity interests of the partnership's present and future subsidiaries and its personal property and (iv) substantially all of the partnership's real property and material leases of real property. The terms impose affirmative and negative covenants, including restrictions on the partnership's ability to incur additional debt, acquire and sell assets, create liens, invest capital, pay distributions and materially amend the partnership's commercial agreements with Green Plains Trade. The term loan also requires the partnership to maintain a maximum consolidated leverage ratio and a minimum consolidated debt service coverage ratio as of the end of any fiscal quarter, each of which is calculated on a pro forma basis with respect to acquisitions and divestitures occurring during the applicable period. The maximum consolidated leverage ratio is required to be no more than 2.50x. The minimum debt service coverage ratio is required to be no less than 1.10x. The consolidated leverage ratio is calculated by dividing total funded indebtedness by the sum of the four preceding fiscal quarters' consolidated EBITDA. The consolidated debt service coverage ratio is calculated by taking the sum of the four preceding fiscal quarters' consolidated EBITDA minus income taxes and consolidated capital expenditures for such period divided by the sum of the four preceding fiscal quarters' consolidated interest charges plus consolidated scheduled funded debt payments for such period.

Under the terms of the loan, the partnership has no restrictions on the amount of quarterly distribution payments, so long as (i) no default has occurred and is continuing, or would result from payment of the distribution, and (ii) the partnership and its subsidiaries are in compliance with its financial covenants and remain in compliance after payment of the distribution. The term loan is not guaranteed by the company. On April 19, 2023, the term loan was amended to change the underlying floating interest rate to a SOFR-based rate from a LIBOR-based rate. The impact of the amendment was not material to interest expense. On October 30, 2023, the partnership entered into an amendment to the term loan to include written consent from the lenders to permit the Merger to be completed. At December 31, 2023, the interest rate on the term loan was 13.65%.

Covenant Compliance

The company was in compliance with its debt covenants as of December 31, 2023.

Restricted Net Assets

At December 31, 2023, there were approximately \$126.8 million of net assets at the company's subsidiaries that could not be transferred to the parent company in the form of dividends, loans or advances due to restrictions contained in the credit facilities of these subsidiaries.

13. STOCK-BASED COMPENSATION

The company has an equity incentive plan, which reserved a total of 5.7 million shares of common stock for issuance pursuant to the plan, of which 1.4 million shares remain available for issuance as of December 31, 2023. The plan provides for shares, including options to purchase shares of common stock, stock appreciation rights tied to the value of common stock, restricted stock, performance share awards, and restricted and deferred stock unit awards, to be granted to eligible employees, non-employee directors and consultants. The company measures stock-based compensation at fair value on the grant date, with no adjustments for estimated forfeitures. The company records noncash compensation expense related to equity awards in its consolidated financial statements over the requisite period on a straight-line basis.

Grants under the equity incentive plans may include stock options, stock awards, performance share awards or deferred stock units:

- Restricted Stock Awards – Restricted stock awards may be granted to directors and employees that vest immediately or over a period of time as determined by the compensation committee. Stock awards granted to date vested immediately and over a period of time, and included sale restrictions. Compensation expense is recognized on the grant date if fully vested or over the requisite vesting period.
- Deferred Stock Units – Deferred stock units may be granted to directors and employees that vest immediately or over a period of time as determined by the compensation committee. Deferred stock units granted to date vest over a period of time with underlying shares of common stock that are issuable after the vesting date. Compensation expense is recognized on the grant date if fully vested, or over the requisite vesting period.
- Performance Share Awards – Performance share awards may be granted to directors and employees that cliff-vest after a period of time as determined by the compensation committee. Performance share awards granted to date cliff-vest after a period of time, and include sale restrictions. Compensation expense is recognized over the requisite vesting period.
- Stock Options – Stock options may be granted that can be exercised immediately in installments or at a fixed future date. Certain options are exercisable regardless of employment status while others expire following termination. Options issued to date could have been exercised immediately or at future vesting dates, and expired five years to eight years after the grant date. Compensation expense for stock options that vest over time was recognized on a straight-line basis over the requisite service period.

Restricted Stock Awards and Deferred Stock Units

The restricted non-vested stock awards and deferred stock units activity for the year ended December 31, 2023, is as follows:

| | Non-Vested Shares and Deferred Stock Units | Weighted- Average Grant- Date Fair Value | Weighted- Average Remaining Vesting Term (in years) |
|---------------------------------|---|---|--|
| Non-Vested at December 31, 2022 | 813,033 | \$ 19.98 | |
| Granted | 299,469 | 33.72 | |
| Forfeited | (42,393) | 29.44 | |
| Vested | (462,215) | 13.79 | |
| Non-Vested at December 31, 2023 | <u>607,894</u> | <u>\$ 30.79</u> | <u>1.3</u> |

Performance Share Awards

On March 9, 2023, March 14, 2022, and February 18, 2021, the board of directors granted performance shares to be awarded in the form of common stock to certain participants of the plan. These performance shares vest based on the level of achievement of certain performance goals, including EBITDA, return on investment from the company's high-protein and clean sugar initiatives and annual production levels. Performance shares granted in 2023, 2022 and 2021 do not contain

market-based factors requiring a Monte Carlo valuation model. The performance shares were granted at a target of 100%, but each performance share can be reduced or increased depending on the results for the performance period. If the company achieves the maximum performance goals, the maximum amount of shares available to be issued pursuant to the 2023, 2022 and 2021 awards are 904,418 performance shares, which represents approximately 223% of the 404,740 performance shares which remain outstanding. The actual number of performance shares that will ultimately vest is based on the actual performance targets achieved at the end of the performance period.

On March 18, 2020, the board of directors granted performance shares to be awarded in the form of common stock to certain participants of the plan. The performance shares were granted at a target of 100%, but each performance share was reduced or increased depending on results for the performance period for the company's total shareholder return relative to that of the company's performance peer group. On March 17, 2023, based on the criteria discussed above, the 196,382 2020 performance shares vested at approximately 123%, which resulted in the issuance of 241,589 shares of common stock.

The non-vested performance share award activity for the year ended December 31, 2023, is as follows:

| | Performance Shares | Weighted- Average Grant- Date Fair Value | Weighted- Average Remaining Vesting Term (in years) |
|---------------------------------|-----------------------|--|---|
| Non-Vested at December 31, 2022 | 482,811 | \$ 18.22 | |
| Granted | 200,294 | 27.74 | |
| Forfeited | (13,069) | 27.50 | |
| Vested | (265,296) | 6.21 | |
| Non-Vested at December 31, 2023 | 404,740 | \$ 30.51 | 1.3 |

Green Plains Partners

Green Plains Partners has a long-term incentive plan (LTIP) intended to promote the interests of the partnership, its general partner and affiliates by providing unit-based incentive compensation awards to employees, consultants and directors to encourage superior performance. The LTIP reserves 2.5 million common limited partner units of which 2.3 million units remain available for issuance as of December 31, 2023, in the form of options, restricted units, phantom units, distribution equivalent rights, substitute awards, unit appreciation rights, unit awards, profit interest units or other unit-based awards. The partnership measures unit-based compensation related to equity awards in its consolidated financial statements over the requisite service period on a straight-line basis. As a result of the Merger, the LTIP units available for issuance were converted to 1.2 million shares available for issuance under the company's equity incentive plan.

The non-vested unit-based awards activity for the year ended December 31, 2023, are as follows:

| | Non-Vested Units | Weighted- Average Grant-Date Fair Value | Weighted- Average Remaining Vesting Term (in years) |
|--|---------------------|--|---|
| Non-Vested at December 31, 2022 | 19,707 | \$ 12.18 | |
| Granted | 18,549 | 12.94 | |
| Vested | (19,707) | 12.18 | |
| Non-Vested at December 31, 2023 ⁽¹⁾ | 18,549 | \$ 12.94 | 0.5 |

(1) Pursuant to the Merger Agreement, each of these unvested awards became fully vested at the effective time of the Merger on January 9, 2024.

Stock-Based and Unit-Based Compensation Expense

Compensation costs for stock-based and unit-based payment plans during the years ended December 31, 2023, 2022 and 2021, were approximately \$13.0 million, \$9.1 million and \$6.1 million, respectively. At December 31, 2023, there was \$15.6 million of unrecognized compensation costs from stock-based compensation related to non-vested awards. This compensation is expected to be recognized over a weighted-average period of approximately 1.3 years. The potential tax benefit related to stock-based payment is approximately 24.2% of these expenses.

14. EARNINGS PER SHARE

Basic earnings per share, or EPS, is calculated by dividing net income available to common stockholders by the weighted average number of common shares outstanding during the period.

The company computes diluted EPS by dividing net income on an if-converted basis, adjusted to add back net interest expense related to the convertible debt instruments, by the weighted average number of common shares outstanding during the period, adjusted to include the shares that would be issued if the convertible debt instruments were converted to common shares and the effect of any outstanding dilutive securities.

The basic and diluted EPS are calculated as follows (in thousands):

| | Year Ended December 31, | | |
|---|-------------------------|--------------|-------------|
| | 2023 | 2022 | 2021 |
| EPS - basic and diluted | | | |
| Net loss attributable to Green Plains | \$ (93,384) | \$ (127,218) | \$ (65,992) |
| Weighted average shares outstanding - basic and diluted | 58,814 | 55,541 | 46,652 |
| EPS - basic and diluted | \$ (1.59) | \$ (2.29) | \$ (1.41) |
| Anti-dilutive weighted-average convertible debt, warrants and stock-based compensation ⁽¹⁾ | 8,419 | 8,556 | 12,952 |

- (1) The effect related to the company's convertible debt, warrants and certain stock-based compensation award has been excluded from diluted EPS for the periods presented as the inclusion of these shares would have been antidilutive.

15. STOCKHOLDERS' EQUITY

Public Offerings of Common Stock

On March 1, 2021, the company completed an offering of 8,751,500 shares of our common stock, par value \$0.001 per share, in a public offering at a price of \$23.00 per share (the "March Common Stock Offering"). The March Common Stock Offering resulted in net proceeds of \$191.1 million, after deducting underwriting discounts and commissions and the company's offering expenses.

On August 9, 2021, the company completed an offering of 5,462,500 shares of our common stock, par value \$0.001 per share, in a public offering at a price of \$32.00 per share (the "August Common Stock Offering"). The August Common Stock Offering resulted in net proceeds of \$164.9 million, after deducting underwriting discounts and commissions and the company's offering expenses.

Warrants

During the three months ended March 31, 2021, in connection with certain agreements, the company issued warrants in a private placement to purchase shares of its common stock. The company measures the fair value of the warrants using the Black-Scholes option pricing model as of the issuance date. Exercisable warrants are equity based and recorded as a reduction in additional paid-in capital.

The company has reserved 2,550,000 shares of common stock for the exercise of warrants to non-employees, of which 2,275,000 are exercisable, treated as equity based awards and recorded as a reduction in additional paid-in capital. The

remaining 275,000 warrants, of which 111,111 are exercisable as a result of achieving certain earn-out provisions and 163,889 are contingent upon certain earn-out provisions, are treated as liability based awards, and valued quarterly using the company's stock price. These warrants could potentially dilute basic earnings per share in future periods. The exercise price of the warrants is \$22.00 and expiration dates are December 8, 2025 for 275,000 warrants, February 9, 2026 for 275,000 warrants and April 28, 2026 for 2,000,000 warrants.

Convertible Note Exchange

On May 18, 2021, the company closed on a privately negotiated exchange agreement with certain noteholders of the company's 4.00% notes, pursuant to which the noteholders agreed to exchange \$51.0 million in aggregate principal for 3.6 million shares of the company's common stock at an implied price of \$26.80.

On May 25, 2022, the company gave notice calling for the redemption of all its outstanding 4.00% Convertible Senior Notes due 2024, totaling an aggregate principal amount of \$64.0 million. The conversion rate was 66.4178 shares of common stock per \$1,000 of principal. From July 1, 2022 through July 8, 2022, all \$64.0 million of the 4.00% convertible notes were converted into approximately 4.3 million shares of common stock.

During August 2022, the company entered into four privately negotiated exchange agreements with certain noteholders of the 4.125% Convertible Senior Notes due 2022 to exchange approximately \$32.6 million aggregate principal amount for approximately 1.2 million shares of the company's common stock. Additionally, on September 1, 2022, approximately \$1.7 million aggregate principal amount was settled through a combination of \$1.7 million in cash and approximately 15 thousand shares of the company's common stock.

Treasury Stock

The company holds 2.8 million shares of its common stock at a cost of \$31.2 million. Treasury stock is recorded at cost and reduces stockholders' equity in the consolidated balance sheets. When shares are reissued, the company will use the weighted average cost method for determining the cost basis. The difference between the cost and the issuance price is added or deducted from additional paid-in capital.

Share Repurchase Program

The company's board of directors authorized a share repurchase program of up to \$200.0 million. Under the program, the company may repurchase shares in open market transactions, privately negotiated transactions, accelerated share buyback programs, tender offers or by other means. The timing and amount of repurchase transactions are determined by its management based on market conditions, share price, legal requirements and other factors. The program may be suspended, modified or discontinued at any time without prior notice. The company did not repurchase any shares of common stock during 2023, 2022 or 2021. Since inception, the company has repurchased 7.4 million shares of common stock for approximately \$92.8 million under the program.

Dividends and Distributions

The partnership agreement provides for a quarterly distribution to be paid within 45 days after the end of the quarter, provided the partnership has sufficient available cash. Available cash generally means, all cash and cash equivalents on hand at the end of that quarter less cash reserves established by the general partner of the partnership plus all or any portion of the cash on hand resulting from working capital borrowings made subsequent to the end of that quarter. As a result of the Merger on January 9, 2024, the partnership became an indirect wholly owned subsidiary of the company, is no longer publicly traded, and as such, it will not make any public dividends and distributions in the future.

Accumulated Other Comprehensive Income (Loss)

Changes in accumulated other comprehensive income (loss) are associated primarily with gains and losses on derivative financial instruments. Amounts reclassified from accumulated other comprehensive income (loss) are as follows (in thousands):

| | Year Ended December 31, | | | Statements of Operations Classification |
|--|-------------------------|-------------------|--------------------|---|
| | 2023 | 2022 | 2021 | |
| Gains (losses) on cash flow hedges | | | | |
| Commodity derivatives | \$ 2,482 | \$ 3,347 | \$ (60,261) | (1) |
| Commodity derivatives | (25,003) | (5,753) | 41,629 | (2) |
| Total losses on cash flow hedges | (22,521) | (2,406) | (18,632) | (3) |
| Income tax benefit | (5,438) | (578) | (4,540) | (4) |
| Amounts reclassified from accumulated other comprehensive loss | <u>\$ (17,083)</u> | <u>\$ (1,828)</u> | <u>\$ (14,092)</u> | |

- (1) Revenues
- (2) Cost of goods sold
- (3) Loss before income taxes and income from equity method investees
- (4) Income tax benefit (expense)

At December 31, 2023 and 2022, the company's consolidated balance sheets reflected unrealized losses of \$3.2 million and \$26.6 million, net of tax, in accumulated other comprehensive loss, respectively.

16. INCOME TAXES

Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the carrying amounts of existing assets and liabilities and their respective tax bases, and net operating loss and tax credit carry-forwards. Deferred tax assets and liabilities are measured using enacted rates expected to be applicable to taxable income in the years those temporary differences are recovered or settled. The effect on deferred tax assets and liabilities from a change in tax rates is recognized in income during the period that includes the enactment date. A valuation allowance is recorded by the company when it is more likely than not that some portion or all of a deferred tax asset will not be realized.

Green Plains Partners is a limited partnership, which is treated as a flow-through entity for federal income tax purposes and is not subject to federal income taxes. As a result, the consolidated financial statements do not reflect such income taxes on pre-tax income or loss attributable to the noncontrolling interest in the partnership.

The IRA, was signed into law on August 16, 2022. The IRA includes significant law changes relating to tax, climate change, energy and health care. The IRA significantly expands clean energy incentives by providing an estimated \$370 billion of new energy related tax credits over the next ten years. It also permits more flexibility for taxpayers to use the credits with direct-pay and transferable credit options. In addition, the IRA includes key revenue-raising provisions which include a 15% book-income alternative minimum tax on corporations with adjusted financial statement income over \$1 billion, a 1% excise tax on the value of certain net stock repurchases by publicly traded companies, and the reinstatement of Superfund excise taxes. The company expects it will benefit from certain energy related tax credits in future years and not be negatively impacted by the revenue raising provisions; however, the company does not have enough information to provide a reasonable estimate of future tax benefits at this time.

On January 9, 2024, the transactions contemplated by the Merger Agreement were completed as described in more detail in *Note 5 - Acquisition and Dispositions* included herein. For income tax purposes, the total consideration given by the company in exchange for the remaining interest in the partnership, creates a tax basis in the acquired interest. Because the GAAP basis in the acquired interest is less than the total consideration, a new deferred tax asset will be created. It is expected that the company's valuation allowance on deferred tax assets will increase by a corresponding amount, which is not expected to have a material impact on the company's consolidated financial statements.

Income tax expense (benefit) consists of the following (in thousands):

| | Year Ended December 31, | | |
|------------------------------------|-------------------------|-----------------|-----------------|
| | 2023 | 2022 | 2021 |
| Current | \$ 1,238 | \$ 232 | \$ 612 |
| Deferred | (6,855) | 4,515 | 1,233 |
| Total income tax expense (benefit) | <u>\$ (5,617)</u> | <u>\$ 4,747</u> | <u>\$ 1,845</u> |

Differences between income tax expense (benefit) at the statutory federal income tax rate and as presented on the consolidated statements of operations are summarized as follows (in thousands):

| | Year Ended December 31, | | |
|--|-------------------------|-----------------|-----------------|
| | 2023 | 2022 | 2021 |
| Tax expense at federal statutory rate | \$ (17,293) | \$ (21,222) | \$ (8,883) |
| State income tax expense (benefit), net of federal benefit | (662) | 746 | 516 |
| Nondeductible compensation | 2,787 | 1,221 | 1,037 |
| Noncontrolling interests | (3,660) | (5,245) | (4,587) |
| Unrecognized tax benefits | — | — | (170) |
| Increase in valuation allowance | 15,892 | 27,778 | 15,301 |
| Stock compensation | (4,440) | 1,105 | (1,954) |
| Other | 1,759 | 364 | 585 |
| Income tax expense (benefit) | <u>\$ (5,617)</u> | <u>\$ 4,747</u> | <u>\$ 1,845</u> |

Significant components of deferred tax assets and liabilities are as follows (in thousands):

| | December 31, | |
|--|--------------|-----------|
| | 2023 | 2022 |
| Deferred tax assets | | |
| Net operating loss carryforwards - Federal | \$ 7,824 | \$ 12,098 |
| Net operating loss carryforwards - State | 12,909 | 13,862 |
| Tax credit carryforwards - Federal | 63,050 | 63,857 |
| Tax credit carryforwards - State | 5,225 | 5,906 |
| Derivative financial instruments | — | 7,160 |
| Section 174 capitalized expenses | 63,267 | 42,115 |
| Interest expense carryforward | 16,996 | 15,300 |
| Investment in partnerships | 49,735 | 45,445 |
| Inventory valuation | 2,079 | 3,491 |
| Stock-based compensation | 2,371 | — |
| Accrued expenses | 5,200 | 4,770 |
| Lease obligations | 9,514 | 8,820 |
| Organizational and start-up costs | 335 | 473 |
| Other | 824 | 810 |
| Total | 239,329 | 224,107 |
| Valuation allowance | (117,258) | (101,118) |
| Total deferred tax assets | 122,071 | 122,989 |
| Deferred tax liabilities | | |
| Fixed assets | (114,690) | (116,781) |
| Derivative financial instruments | (1,238) | — |
| Right-of-use assets | (6,746) | (6,035) |
| Stock-based compensation | — | (173) |
| Total deferred tax liabilities | (122,674) | (122,989) |
| Deferred income taxes | \$ (603) | \$ — |

At December 31, 2023, the company has federal R&D credits of \$63.1 million which will begin to expire in 2033. The company also has \$5.2 million of state credits which will expire, subject to taxable income, beginning in 2025. The company has federal net operating losses of \$7.8 million which do not have an expiration date.

The company increased the valuation allowance associated with its net deferred tax assets due to uncertainty that it will realize these assets in the future. The valuation allowance on deferred tax assets was recognized as a result of negative evidence, including cumulative losses in recent years, outweighing the more subjective positive evidence. Management considers whether it is more likely than not that some or all of the deferred tax assets will be realized, which is dependent on the generation of future taxable income and other tax attributes during the periods those temporary differences become deductible. Scheduled reversals of deferred tax liabilities, projected future taxable income, and tax planning strategies are considered to make this assessment. The company will continue to regularly assess the realizability of deferred tax assets. Changes in earnings performance and future earnings projections, among other factors, may cause the company to adjust its valuation allowance on deferred tax assets, which would impact the company's results of operations in the period it is determined that these factors have changed.

The company's federal income tax returns for the tax years ended December 31, 2014 through 2018 are currently under audit. The company's federal income tax returns for the tax years ended December 31, 2019 through 2022 are still subject to audit.

Unrecognized tax benefits were \$51.4 million as of both December 31, 2023 and 2022. Recognition of these tax benefits

would favorably impact the company's effective tax rate. Unrecognized tax benefits were recorded as a reduction of the deferred asset associated with the federal tax credit carryforwards. Interest and penalties associated with uncertain tax positions are accrued as part of income taxes payable. Approximately \$51.4 million in unrecognized tax benefits related to R&D credits are currently under audit. In addition, the results of the current audit may cause the company to significantly increase or decrease the unrecognized tax benefits associated with R&D credits for periods not under audit. At this time, the company does not have enough information to be able to estimate the potential adjustment.

17. COMMITMENTS AND CONTINGENCIES

Lease Expense

The company leases certain facilities, parcels of land, and equipment, with remaining terms ranging from less than one year to 13.9 years. The land and facility leases include renewal options. The renewal options are included in the lease term only for those sites or locations in which they are reasonably certain to be renewed. Equipment renewals are not considered reasonably certain to be exercised as they typically renew with significantly different underlying terms.

The company may sublease certain of its railcars to third parties on a short-term basis. The subleases are classified as operating leases, with the associated sublease income being recognized on a straight-line basis over the lease term.

The components of lease expense are as follows (in thousands):

| | Year Ended December 31, | | |
|---|-------------------------|------------------|------------------|
| | 2023 | 2022 | 2021 |
| Lease expense | | | |
| Operating lease expense | \$ 27,773 | \$ 22,116 | \$ 19,587 |
| Variable lease expense (benefit) ⁽¹⁾ | (97) | 1,394 | 1,225 |
| Total lease expense | <u>\$ 27,676</u> | <u>\$ 23,510</u> | <u>\$ 20,812</u> |

- (1) Represents amounts incurred in excess of the minimum payments required for a certain building lease and for the handling and unloading of railcars for a certain land lease, offset by railcar lease abatements provided by the lessor when railcars are out of service during periods of maintenance or upgrade.

Supplemental cash flow information related to operating leases is as follows (in thousands):

| | Year Ended December 31, | | |
|---|-------------------------|-----------|-----------|
| | 2023 | 2022 | 2021 |
| Cash paid for amounts included in the measurement of lease liabilities | | | |
| Operating cash flows from operating leases | \$ 27,275 | \$ 21,459 | \$ 19,579 |
| Right-of-use assets obtained in exchange for lease obligations | | | |
| Operating leases | 28,471 | 28,565 | 20,291 |
| Right-of-use assets and lease obligations derecognized due to lease modifications | | | |
| Operating leases | 3,428 | — | 1,889 |

Supplemental balance sheet information related to operating leases is as follows:

| | 2023 | 2022 |
|---------------------------------------|-----------|-----------|
| Weighted average remaining lease term | 4.5 years | 4.9 years |
| Weighted average discount rate | 5.16% | 4.32% |

Aggregate minimum lease payments under the operating lease agreements for future fiscal years as of December 31, 2023 are as follows (in thousands):

| Year Ending December 31, | Amount |
|------------------------------|------------------|
| 2024 | \$ 26,033 |
| 2025 | 21,464 |
| 2026 | 15,009 |
| 2027 | 11,429 |
| 2028 | 4,358 |
| Thereafter | 8,597 |
| Total | 86,890 |
| Less: Present value discount | (10,103) |
| Lease liabilities | <u>\$ 76,787</u> |

Lease Revenue

As described in *Note 4 – Revenue*, the majority of the partnership’s segment revenue is generated through their storage and throughput services and rail transportation services agreements with Green Plains Trade and are accounted for as lease revenue. Leasing revenues do not represent revenues recognized from contracts with customers under ASC 606, and are accounted for under ASC 842, *Leases*. Lease revenue associated with agreements with Green Plains Trade are eliminated upon consolidation. The remaining lease revenue is not material to the company.

Commodities, Storage and Transportation

As of December 31, 2023, the company had contracted future purchases of grain, ethanol, distillers grains, and natural gas valued at approximately \$166.4 million and future commitments for storage and transportation, valued at approximately \$27.0 million.

Government Assistance

During the year ended December 31, 2023 and 2022, respectively, the company received relief grants of \$3.4 million and \$27.7 million from the USDA related to the Biofuel Producer Program. The grants received were recorded as other income and the company has no further reporting or other obligations related to the receipt of these grants.

Legal

The company is currently involved in litigation that has arisen in the ordinary course of business, but does not believe any pending litigation will have a material adverse effect on its financial position, results of operations or cash flows.

18. EMPLOYEE BENEFIT PLANS

The company offers eligible employees a comprehensive employee benefits plan that includes health, dental, vision, life and accidental death, short-term disability and long-term disability insurance, and flexible spending accounts. The company also offers a 401(k) plan enabling eligible employees to save for retirement on a tax-deferred basis up to the limits allowed under the Internal Revenue Code. During 2022, the company increased the employer match from 4% to 6% of eligible employee contributions for employees with less than 5 years of service, and up to 8% of eligible employee contributions after 5 years of service. Employee and employer contributions are 100% vested immediately. Employer contributions to the 401(k) plan for the years ended December 31, 2023, 2022 and 2021 were \$3.9 million, \$3.5 million and \$1.9 million, respectively.

The company contributes to a defined benefit pension plan. Since January 2009, the benefits under the plan were frozen; however, the company remains obligated to ensure the plan is funded according to its requirements. As of December 31, 2023, the plan’s assets were \$4.6 million and liabilities were \$5.6 million. At December 31, 2023 and 2022, net liabilities of \$1.0 million and \$1.3 million, respectively, were included in other liabilities on the consolidated balance sheets.

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Corporate Information

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Chief Executive Officer Molycop

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Chief Transformation Officer

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