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

FORM 10-Q

(Mark One)

☒ **Quarterly Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934**

For the Quarterly Period Ended March 31, 2024

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	GPRE	The Nasdaq Stock Market LLC

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 is a shell company (as defined in Rule 12b-2 of the Exchange Act).

☐ Yes ☒ No

The registrant had 64,618,721 common stock outstanding as of April 30, 2024.

TABLE OF CONTENTS

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; 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, 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
SEC	Securities and Exchange Commission
SOFR	Secured Overnight Financing Rate

Industry and Other Defined Terms:

ATJ	Alcohol-to-Jet
BlackRock	Funds and accounts managed by BlackRock
the CARES Act	Coronavirus Aid, Relief, and Economic Security Act
CI	Carbon Intensity
COVID-19	Coronavirus Disease 2019
CST™	Clean Sugar Technology™ developed by Fluid Quip Technologies, LLC
DOE	Department of Energy
E10	Gasoline blended with up to 10% ethanol by volume
E15	Gasoline blended with up to 15% 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 GPRE, 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
MSC™	Maximized Stillage Coproducts™ technology developed by Fluid Quip Technologies, LLC

MTBE	Methyl tertiary-butyl ether
RFS	Renewable Fuels Standard
RIN	Renewable identification number
RVO	Renewable volume obligation
SAF	Sustainable Aviation Fuel
Sequence™	A foundational feed ingredient made from a combination of corn and yeast protein, concentrated at 60%.
SRE	Small refinery exemption
Tharaldson	GP Turnkey Tharaldson LLC
U.S.	United States
USDA	U.S. Department of Agriculture

PART 1 – FINANCIAL INFORMATION

Item 1. Financial Statements.

GREEN PLAINS INC.

CONSOLIDATED BALANCE SHEETS

(in thousands, except share amounts)

	March 31, 2024	December 31, 2023
	(unaudited)	
ASSETS		
Current assets		
Cash and cash equivalents	$ 237,302	$ 349,574
Restricted cash	40,080	29,188
Accounts receivable, net of allowances of $80 and $85, respectively	87,556	94,446
Income taxes receivable	716	822
Inventories	191,149	215,810
Prepaid expenses and other	23,745	23,118
Derivative financial instruments	7,893	19,772
Total current assets	588,441	732,730
Property and equipment, net of accumulated depreciation and amortization of $705,382 and $686,077, respectively	1,022,041	1,021,928
Operating lease right-of-use assets	75,236	73,993
Other assets	113,717	110,671
Total assets	$ 1,799,435	$ 1,939,322
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities		
Accounts payable	$ 123,573	$ 186,643
Accrued and other liabilities	50,346	57,029
Derivative financial instruments	6,687	10,577
Operating lease current liabilities	23,930	22,908
Short-term notes payable and other borrowings	130,038	105,973
Current maturities of long-term debt	1,828	1,832
Total current liabilities	336,402	384,962
Long-term debt	490,295	491,918
Operating lease long-term liabilities	54,121	53,879
Other liabilities	18,149	18,507
Total liabilities	898,967	949,266
Commitments and contingencies (Note 13)		
Stockholders' equity		
Common stock, $0.001 par value; 150,000,000 shares authorized; 67,421,931 and 62,326,622 shares issued, and 64,616,872 and 59,521,563 shares outstanding, respectively	67	62
Additional paid-in capital	1,209,672	1,113,806
Retained deficit	(287,213)	(235,801)
Accumulated other comprehensive loss	(3,898)	(3,160)
Treasury stock, 2,805,059 shares	(31,174)	(31,174)
Total Green Plains stockholders' equity	887,454	843,733
Noncontrolling interests	13,014	146,323
Total stockholders' equity	900,468	990,056
Total liabilities and stockholders' equity	$ 1,799,435	$ 1,939,322

See accompanying notes to the consolidated financial statements.

GREEN PLAINS INC.

CONSOLIDATED STATEMENTS OF OPERATIONS

(unaudited and in thousands, except per share amounts)

	Three Months Ended March 31,	
	2024	**2023**
Revenues	$ 597,214	$ 832,949
Costs and expenses		
Cost of goods sold (excluding depreciation and amortization expenses reflected below)	588,847	832,258
Selling, general and administrative expenses	31,769	31,845
Depreciation and amortization expenses	21,487	25,386
Total costs and expenses	642,103	889,489
Operating loss	(44,889)	(56,540)
Other income (expense)		
Interest income	2,510	3,165
Interest expense	(7,786)	(9,738)
Other, net	449	189
Total other expense	(4,827)	(6,384)
Loss before income taxes and income (loss) from equity method investees	(49,716)	(62,924)
Income tax expense	(329)	(3,429)
Income (loss) from equity method investees	(1,077)	104
Net loss	(51,122)	(66,249)
Net income attributable to noncontrolling interests	290	4,075
Net loss attributable to Green Plains	$ (51,412)	$ (70,324)
Earnings per share		
Net loss attributable to Green Plains - basic and diluted	$ (0.81)	$ (1.20)
Weighted average shares outstanding		
Basic and diluted	63,341	58,549

See accompanying notes to the consolidated financial statements.

GREEN PLAINS INC.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

(unaudited and in thousands)

	Three Months Ended March 31,	
	2024	**2023**
Net loss	$ (51,122)	$ (66,249)
Other comprehensive loss, net of tax		
Unrealized losses on derivatives arising during the period, net of tax benefit of $ 1,916 and $4,023, respectively	(6,043)	(12,788)
Reclassification of realized losses on derivatives, net of tax benefit of ($ 1,682) and ($535), respectively	5,305	1,701
Total other comprehensive loss, net of tax	(738)	(11,087)
Comprehensive loss	(51,860)	(77,336)
Comprehensive income attributable to noncontrolling interests	290	4,075
Comprehensive loss attributable to Green Plains	$ (52,150)	$ (81,411)

See accompanying notes to the consolidated financial statements.

GREEN PLAINS INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS

(unaudited and in thousands)

	Three Months Ended March 31,	
	2024	**2023**
Cash flows from operating activities		
Net loss	$ (51,122)	$ (66,249)
Adjustments to reconcile net loss to net cash used in operating activities		
Depreciation and amortization	21,487	25,386
Amortization of debt issuance costs and non-cash interest expense	609	717
Inventory lower of average cost or net realizable value adjustment	4,202	—
Deferred income tax expense	233	3,491
Stock-based compensation	3,053	2,828
Loss (income) from equity method investees	1,077	(104)
Other	858	1,625
Changes in operating assets and liabilities		
Accounts receivable	6,890	2,064
Inventories	20,459	(757)
Derivative financial instruments	7,010	10,287
Prepaid expenses and other assets	(627)	(3,215)
Accounts payable and accrued liabilities	(65,787)	(94,131)
Current income taxes	446	452
Other	613	638
Net cash used in operating activities	(50,599)	(116,968)
Cash flows from investing activities		
Purchases of property and equipment, net	(21,795)	(32,591)
Investment in equity method investees, net	(8,408)	(2,829)
Net cash used in investing activities	(30,203)	(35,420)
Cash flows from financing activities		
Payments of principal on long-term debt	(2,009)	(515)
Proceeds from short-term borrowings	181,430	359,908
Payments on short-term borrowings	(157,570)	(285,231)
Payments on extinguishment of non-controlling interest	(29,196)	—
Payments of transaction costs	(5,951)	—
Payments of dividends and distributions	—	(5,305)
Payments related to tax withholdings for stock-based compensation	(4,222)	(8,402)
Other financing activities	(3,060)	—
Net cash provided by (used in) financing activities	(20,578)	60,455
Net change in cash and cash equivalents, and restricted cash	(101,380)	(91,933)
Cash and cash equivalents, and restricted cash, beginning of period	378,762	500,276
Cash and cash equivalents, and restricted cash, end of period	$ 277,382	$ 408,343

Continued on the following page

GREEN PLAINS INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS

(unaudited and in thousands)

Continued from the previous page

	Three Months Ended March 31,	
	2024	**2023**
Reconciliation of total cash and cash equivalents, and restricted cash		
Cash and cash equivalents	$ 237,302	$ 354,204
Restricted cash	40,080	54,139
Total cash and cash equivalents, and restricted cash	$ 277,382	$ 408,343
Supplemental disclosures of cash flow		
Cash refunded for income taxes, net	$ (9)	$ (189)
Cash paid for interest	$ 8,888	$ 10,093
Capital expenditures in accounts payable	$ 5,413	$ 5,481
Issuance of common stock as a result of the Merger	$ 5	$ —
Non-cash extinguishment of non-controlling interest within additional paid-in capital	$ 133,765	$ —

See accompanying notes to the consolidated financial statements.

GREEN PLAINS INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

(unaudited)

1. BASIS OF PRESENTATION, DESCRIPTION OF BUSINESS AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

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.

On January 9, 2024, the transactions contemplated by the Merger Agreement were completed and the company acquired all of the publicly held common units of the partnership not already owned by the company and its affiliates. Refer to *Note 3 - Acquisition* included herein for more information.

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

The accompanying consolidated financial statements are prepared in accordance with GAAP for interim financial information and the instructions to Form 10-Q and Article 10 of Regulation S-X. Because they do not include all of the information and footnotes required by GAAP for complete financial statements, the consolidated financial statements should be read in conjunction with the company's annual report on Form 10-K for the year ended December 31, 2023, filed with the SEC on February 9, 2024.

The financial information reflects adjustments, which are, in the opinion of management, necessary for a fair presentation of results of operations, financial position and cash flows for the periods presented. The adjustments are normal and recurring in nature, unless otherwise noted. Interim period results are not necessarily indicative of the results to be expected for the entire year.

Reclassifications

Certain prior year amounts have been reclassified to conform to the current year presentation. These reclassifications did not affect total revenues, costs and expenses or net income, but increased cost of goods sold and decreased gross margin, within the ethanol production segment. Costs historically reported as operations and maintenance expenses in the consolidated statements of operations are now being reported within cost of goods sold.

Use of Estimates in the Preparation of Consolidated Fina ncial 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 two operating segments: (1) ethanol production, which includes the production, storage and transportation of ethanol, distillers grains, Ultra-High Protein and renewable corn oil and (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.

As a result of the Merger, the partnership's operations are included in the ethanol production operating segment.

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.

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

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, plant overhead and transportation 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 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. Transportation costs include railcar leases, freight and shipping of the company's products, as well as storage costs incurred at destination terminals.

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.

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.

Investments in Equity Method Investees

The company's equity method investments, which consist primarily of the company's 50% investment in Tharaldson, totaled $48.5 million and $41.7 million as of March 31, 2024 and December 31, 2023, respectively, and are reflected in other assets on the consolidated balance sheet. Interest capitalized related to our equity method investments for the three months ended March 31, 2024 totaled $0.5 million.

Table of Contents

2. REVENUE

Revenue by Source

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

	Three Months Ended March 31, 2024			
	Ethanol Production	Agribusiness & Energy Services	Eliminations	Total
Revenues				
Revenues from contracts with customers under ASC 606				
Ethanol	$ —	$ —	$ —	$ —
Distillers grains	24,800	—	—	24,800
Renewable corn oil	—	—	—	—
Other	14,347	2,412	—	16,759
Intersegment revenues	1,213	89	(1,302)	—
Total revenues from contracts with customers	40,360	2,501	(1,302)	41,559
Revenues from contracts accounted for as derivatives under ASC 815 (1)				
Ethanol	350,112	73,375	—	423,487
Distillers grains	77,923	9,690	—	87,613
Renewable corn oil	34,160	—	—	34,160
Other	3,104	7,291	—	10,395
Intersegment revenues	—	6,139	(6,139)	—
Total revenues from contracts accounted for as derivatives	465,299	96,495	(6,139)	555,655
Total Revenues	$ 505,659	$ 98,996	$ (7,441)	$ 597,214

	Three Months Ended March 31, 2023			
	Ethanol Production	Agribusiness & Energy Services	Eliminations	Total
Revenues				
Revenues from contracts with customers under ASC 606				
Ethanol	$ —	$ —	$ —	$ —
Distillers grains	25,010	—	—	25,010
Renewable corn oil	—	—	—	—
Other	9,587	8,450	—	18,037
Intersegment revenues	1,105	52	(1,157)	—
Total revenues from contracts with customers	35,702	8,502	(1,157)	43,047
Revenues from contracts accounted for as derivatives under ASC 815 (1)				
Ethanol	498,186	88,639	—	586,825
Distillers grains	111,925	11,363	—	123,288
Renewable corn oil	44,296	716	—	45,012
Other	7,609	27,168	—	34,777
Intersegment revenues	—	5,998	(5,998)	—
Total revenues from contracts accounted for as derivatives	662,016	133,884	(5,998)	789,902
Total Revenues	$ 697,718	$ 142,386	$ (7,155)	$ 832,949

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

Major Customer

Revenues from Customer A represented approximately 15% and 14% of total revenues for the three months ended March 31, 2024 and 2023, respectively, recorded within the ethanol production segment.

3. ACQUISITION

Green Plains Partners Merger

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 accounted for the change in its ownership interest in the partnership as an equity transaction during the three months ended March 31, 2024, which is reflected as a reduction of non-controlling interest with a corresponding increase to common stock and additional paid-in capital. No gain or loss was 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 non-controlling interest in the consolidated statements of operations. For the three months ended March 31, 2024, the non-controlling interest attributed to the partnership common units held by the public of $133.8 million were recorded as a reduction of non-controlling interest with a corresponding increase to additional paid-in capital.

The company incurred transaction costs of $5.5 million related to the Merger during the three months ended March 31, 2024 and $ 2.0 million during the year ended December 31, 2023. These costs were directly related to the Merger consisting primarily of financial advisory services, legal services and other professional fees, and were recorded as an offset to the issuance of common stock within additional paid-in capital.

4. 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 March 31, 2024		
	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Total
Assets			
Cash and cash equivalents	$ 237,302	$ —	$ 237,302
Restricted cash	40,080	—	40,080
Inventories carried at market	—	25,186	25,186
Derivative financial instruments - assets	—	6,955	6,955
Other assets	—	8	8
Total assets measured at fair value	$ 277,382	$ 32,149	$ 309,531
Liabilities			
Accounts payable [(1)]	$ —	$ 44,504	$ 44,504
Accrued and other liabilities [(2)]	—	3,259	3,259
Derivative financial instruments - liabilities	—	6,642	6,642
Other liabilities [(2)]	—	903	903
Total liabilities measured at fair value	$ —	$ 55,308	$ 55,308

	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	$ 378,762	$ 59,209	$ 437,971
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	$ —	$ 75,869	$ 75,869

(1) Accounts payable is generally stated at historical amounts with the exception of $44.5 million and $54.7 million at March 31, 2024 and December 31, 2023, 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 March 31, 2024 and December 31, 2023, respectively, accrued and other liabilities includes $3.3 million and $9.9 million and other liabilities includes $0.9 million and $0.7 million of consideration related to potential earn-out payments recorded at fair value.

As of March 31, 2024, the fair value of the company's debt was approximately $ 603.8 million compared with a book value of $ 622.2 million. At December 31, 2023, the fair value of the company's debt was approximately $585.0 million compared with a book value of $ 599.7 million. 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 $87.6 million and $94.4 million at March 31, 2024 and December 31, 2023, respectively.

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.

5. SEGMENT INFORMATION

The company reports the financial and operating performance for the following two operating segments: (1) ethanol production, which includes the production, storage and transportation of ethanol, distillers grains, Ultra-High Protein and renewable corn oil and (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.

As a result of the Merger, the partnership's operations are included in the ethanol production operating segment. The following changes were made to the company's operating segments:

- The revenue and operating results from fuel storage and transportation services previously disclosed within the partnership segment are now included within the ethanol production segment.
- Intersegment activities between the partnership and Green Plains Trade associated with ethanol storage and transportation services previously treated like third-party transactions and eliminated on a consolidated level are now eliminated within the ethanol production segment.

Intersegment activities between the partnership and Green Plains Trade associated with terminal services transacted with the agribusiness and energy services segment will continue to be eliminated on a consolidated level.

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. 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):

	Three Months Ended March 31, 2024	Three Months Ended March 31, 2023
Revenues		
Ethanol production		
Revenues from external customers	$ 504,446	$ 696,613
Intersegment revenues	1,213	1,105
Total segment revenues	505,659	697,718
Agribusiness and energy services		
Revenues from external customers	92,768	136,336
Intersegment revenues	6,228	6,050
Total segment revenues	98,996	142,386
Revenues including intersegment activity	604,655	840,104
Intersegment eliminations	(7,441)	(7,155)
	$ 597,214	$ 832,949

Refer to *Note 2 - Revenue*, for further disaggregation of revenue by operating segment.

	Three Months Ended March 31, 2024	Three Months Ended March 31, 2023
Cost of goods sold		
Ethanol production [(1)]	$ 508,302	$ 706,133
Agribusiness and energy services	87,986	133,280
Intersegment eliminations	(7,441)	(7,155)
	$ 588,847	$ 832,258

	Three Months Ended March 31, 2024	Three Months Ended March 31, 2023
Gross margin		
Ethanol production [(1)]	$ (2,643)	$ (8,415)
Agribusiness and energy services	11,010	9,106
	$ 8,367	$ 691

	Three Months Ended March 31, 2024	Three Months Ended March 31, 2023
Depreciation and amortization		
Ethanol production	$ 20,534	$ 23,754
Agribusiness and energy services	505	813
Corporate activities	448	819
	$ 21,487	$ 25,386

	Three Months Ended March 31,	
	2024	2023
Operating income (loss)		
Ethanol production [(2)]	$ (33,653)	$ (41,950)
Agribusiness and energy services	6,004	4,126
Corporate activities	(17,240)	(18,716)
	$ (44,889)	$ (56,540)

(1) Costs historically reported as operations and maintenance expenses in the consolidated statements of operations are now being reported within cost of goods sold, resulting in increased cost of goods sold and decreased gross margin within the ethanol production segment.

(2) Operating loss for ethanol production includes an inventory lower of average cost or net realizable value adjustment of $4.2 million for the three months ended March 31, 2024.

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

	March 31, 2024	December 31, 2023
Total assets [(1)]		
Ethanol production	$ 1,290,485	$ 1,275,562
Agribusiness and energy services	400,584	413,937
Corporate assets	112,473	254,300
Intersegment eliminations	(4,107)	(4,477)
	$ 1,799,435	$ 1,939,322

(1) Asset balances by segment exclude intercompany balances.

6. INVENTORIES

Inventories are carried at the lower of average cost or net realizable value, except fair-value hedged inventories. Raw materials and finished goods inventories are valued under the first in, first out (FIFO) or weighted average cost method at the lower of average cost or net realizable value. There was a $4.2 million and $2.6 million lower of average cost or net realizable value inventory adjustment associated with finished goods in cost of goods sold within the ethanol production segment as of March 31, 2024 and December 31, 2023, respectively.

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

	March 31, 2024	December 31, 2023
Finished goods	$ 70,408	$ 73,975
Commodities held for sale	25,186	45,898
Raw materials	32,950	32,820
Work-in-process	13,169	14,454
Supplies and parts	49,436	48,663
	$ 191,149	$ 215,810

7. DERIVATIVE FINANCIAL INSTRUMENTS

At March 31, 2024, the company's consolidated balance sheet reflected unrealized losses of $ 3.9 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		Liability Derivatives' Fair Value	
	March 31, 2024	December 31, 2023	March 31, 2024	December 31, 2023
Derivative financial instruments - forwards	$ 6,955 (1)	$ 13,311 (2)	$ 6,642 (3)	$ 10,577
Other assets	8	—	—	—
Other liabilities	—	—	5	2
Total	$ 6,963	$ 13,311	$ 6,647	$ 10,579

(1) At March 31, 2024, derivative financial instruments, as reflected on the balance sheet, includes net unrealized gains on exchange-traded futures and options contracts of $0.9 million, which include $0.9 million of net unrealized losses on derivative financial instruments designated as fair value hedging instruments, and the balance representing economic hedges.

(2) 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.

(3) At March 31, 2024, derivative financial instruments, as reflected on the balance sheet, includes net unrealized losses on exchange-traded futures and options contracts of $45 thousand, which included $1.8 million of net unrealized losses on derivative financial instruments designated as cash flow hedging instruments, and the balance representing economic hedges.

Refer to *Note 4 - 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	
	Three Months Ended March 31,	
	2024	2023
Revenues	$ 3,736	$ —
Cost of goods sold	(10,723)	(2,236)
Net loss recognized in loss before income taxes	$ (6,987)	$ (2,236)

Gain (Loss) Recognized in Other Comprehensive Income on Derivatives	Amount of Gain (Loss) Recognized in Other Comprehensive Income on Derivatives	
	Three Months Ended March 31,	
	2024	2023
Commodity contracts	$ (7,959)	$ (16,811)

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 — Three Months Ended March 31, 2024	2023
Exchange-traded futures and options	Revenues	$ (1,073)	$ (7,876)
Forwards	Revenues	(2,729)	659
Exchange-traded futures and options	Cost of goods sold	3,037	8,366
Forwards	Cost of goods sold	2,868	426
Net gain recognized in loss before income taxes		$ 2,103	$ 1,575

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

	March 31, 2024		December 31, 2023	
Line Item in the Consolidated Balance Sheet in Which the Hedged Item is Included	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	$ 25,186	$ (3,389)	$ 45,898	$ (1,104)

Table of Contents

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 Three Months Ended March 31,			
	2024		2023	
	Revenue	Cost of Goods Sold	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	$ 3,736	$ (10,723)	$ —	$ (2,236)
Gain (loss) on fair value hedging relationships				
Commodity contracts				
Fair-value hedged inventories	—	(4,361)	—	(9,357)
Exchange-traded futures designated as hedging instruments	—	5,262	—	10,678
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	$ 3,736	$ (9,822)	$ —	$ (915)

The notional volume of open commodity derivative positions as of March 31, 2024 are as follows (in thousands):

Derivative Instruments	Exchange-Traded (1) Net Long & (Short)	Non-Exchange-Traded (2) Long	Non-Exchange-Traded (2) (Short)	Unit of Measure	Commodity
Futures	(525)			Bushels	Corn
Futures	(3,455) (4)			Bushels	Corn
Futures	27,468			Gallons	Ethanol
Futures	(6,898)			MmBTU	Natural Gas
Futures	6,828 (3)			MmBTU	Natural Gas
Futures	(3,275) (4)			MmBTU	Natural Gas
Options	(552)			Pounds	Soybean Oil
Options	(3,173)			Bushels	Corn
Forwards		29,016	—	Bushels	Corn
Forwards		—	(219,591)	Gallons	Ethanol
Forwards		52	(327)	Tons	Distillers Grains
Forwards		—	(27,279)	Pounds	Renewable Corn Oil
Forwards		12,162	(10)	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 $1.8 million and $3.8 million for the three months ended March 31, 2024 and 2023, respectively, on energy trading contracts.

8. DEBT

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

	March 31, 2024	December 31, 2023
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)	72,750	73,125
Green Plains Partners		
$60.0 million term loan (4)	54,469	55,969
Other	14,514	14,669
Total book value of long-term debt	496,733	498,763
Unamortized debt issuance costs	(4,610)	(5,013)
Less: current maturities of long-term debt	(1,828)	(1,832)
Total long-term debt	$ 490,295	$ 491,918

(1) The 2.25% notes had $3.7 million and $4.0 million of unamortized debt issuance costs as of March 31, 2024 and December 31, 2023, respectively.

(2) The junior notes had $0.4 million of unamortized debt issuance costs as of both March 31, 2024 and December 31, 2023.

(3) The loan had $0.3 million of unamortized debt issuance costs as of both March 31, 2024 and December 31, 2023.

(4) The term loan had $0.3 million of unamortized debt issuance costs as of both March 31, 2024 and December 31, 2023.

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

	March 31, 2024	December 31, 2023
Green Plains Finance Company, Green Plains Grain and Green Plains Trade		
$350.0 million revolver	$ 120,000	$ 99,000
Green Plains Commodity Management		
$40.0 million hedge line	10,038	6,973
	$ 130,038	$ 105,973

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.

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, 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.

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 MSC™ 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 March 31, 2024, the interest rate on the loan was 5.02%.

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. Prepayments totaling $ 1.5 million were made during the three months ended March 31, 2024.

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. At March 31, 2024, the interest rate on the term loan was 13.59%.

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 March 31, 2024, the interest rate on the Facility was 8.63%.

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 March 31, 2024, the interest rate on the facility was 7.09%.

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 March 31, 2024.

Covenant Compliance

The company was in compliance with its debt covenants as of March 31, 2024.

Restricted Net Assets

At March 31, 2024, there were approximately $131.4 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.

9. 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 2.2 million shares remain outstanding and available. 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.

Restricted Stock Awards and Deferred Stock Units

The restricted non-vested stock awards and deferred stock units activity for the three months ended March 31, 2024 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, 2023	607,894	$ 30.79	
Granted	403,466	20.31	
Forfeited	(58)	34.66	
Vested	(313,492)	29.31	
Non-Vested at March 31, 2024	697,810	$ 25.40	2.3

Performance Share Awards

On March 13, 2024, March 9, 2023, and March 14, 2022, 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 the incremental value achieved from the company's high-protein initiatives, annual production levels and return on investment (ROI). Performance shares granted in 2024, 2023 and 2022 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 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 2024, 2023 and 2022 awards are 1,077,144 performance shares which represents 200% of the 538,572 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 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. 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. On February 16, 2024, based on the criteria discussed above, the 118,673 2021 performance shares vested at 115%, which resulted in the issuance of 136,475 shares of common stock.

The non-vested performance share award activity for the three months ended March 31, 2024 is as follows:

	Performance Shares	Weighted-Average Grant-Date Fair Value	Weighted-Average Remaining Vesting Term (in years)
Non-Vested at December 31, 2023	404,740	$ 30.51	
Granted	270,307	20.70	
Vested	(136,475)	26.22	
Non-Vested at March 31, 2024	538,572	$ 26.67	2.2

Green Plains Partners

Green Plains Partners had 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 reserved 2.5 million common limited partner units for issuance 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 measured 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 three months ended March 31, 2024 is as follows:

	Non-Vested Units	Weighted-Average Grant-Date Fair Value	Weighted-Average Remaining Vesting Term (in years)
Non-Vested at December 31, 2023	18,549	$ 12.94	
Vested (1)	(18,549)	12.94	
Non-Vested at March 31, 2024	—	$ —	0.0

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

Stock-Based Compensation Expense

Compensation costs for the stock-based payment plan were $ 3.1 million and $2.8 million for the three months ended March 31, 2024 and 2023, respectively. At March 31, 2024, there was $26.0 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 2.3 years. The potential tax benefit related to stock-based payment is approximately 24.0% of these expenses.

10. 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):

	Three Months Ended March 31, 2024	Three Months Ended March 31, 2023
EPS - basic and diluted		
Net loss attributable to Green Plains	$ (51,412)	$ (70,324)
Weighted average shares outstanding - basic and diluted	63,341	58,549
EPS - basic and diluted	$ (0.81)	$ (1.20)
Anti-dilutive weighted-average convertible debt, warrants and stock-based compensation [(1)]	7,634	8,598

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

11. STOCKHOLDERS' EQUITY

Green Plains Partners Merger

As a result of the Merger, for the three months ended March 31, 2024, the company issued approximately 4.7 million shares of common stock and recorded par value $0.001 per share, paid cash consideration of $ 29.2 million, extinguished the non-controlling interest attributed to the partnership common units held by the public of $133.8 million, and capitalized transaction costs of $ 7.5 million, within additional paid-in capital. Refer to *Note 3 - Acquisition* included herein for more information.

Components of stockholders' equity for the three months ended March 31, 2024 and 2023 are as follows (in thousands):

	Common Stock Shares	Common Stock Amount	Additional Paid-in Capital	Retained Deficit	Accumulated Other Comprehensive Loss	Treasury Stock Shares	Treasury Stock Amount	Total Green Plains Stockholders' Equity	Non-Controlling Interests	Total Stockholders' Equity
Balance, December 31, 2023	62,327	$ 62	$ 1,113,806	$ (235,801)	$ (3,160)	2,805	$ (31,174)	$ 843,733	$ 146,323	$ 990,056
Net loss	—	—	—	(51,412)	—	—	—	(51,412)	290	(51,122)
Other comprehensive loss before reclassification	—	—	—	—	(6,043)	—	—	(6,043)	—	(6,043)
Amounts reclassified from accumulated other comprehensive loss	—	—	—	—	5,305	—	—	5,305	—	5,305
Other comprehensive loss, net of tax	—	—	—	—	(738)	—	—	(738)	—	(738)
Investment in subsidiaries	—	—	—	—	—	—	—	—	166	166
Partnership Merger	4,746	5	97,035	—	—	—	—	97,040	(133,765)	(36,725)
Stock-based compensation	349	—	(1,169)	—	—	—	—	(1,169)	—	(1,169)
Balance, March 31, 2024	67,422	$ 67	$ 1,209,672	$ (287,213)	$ (3,898)	2,805	$ (31,174)	$ 887,454	$ 13,014	$ 900,468

	Common Stock Shares	Common Stock Amount	Additional Paid-in Capital	Retained Deficit	Accumulated Other Comprehensive Loss	Treasury Stock Shares	Treasury Stock Amount	Total Green Plains Stockholders' Equity	Non-Controlling Interests	Total Stockholders' Equity
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 loss	—	—	—	(70,324)	—	—	—	(70,324)	4,075	(66,249)
Cash dividends and distributions declared	—	—	—	—	—	—	—	—	(5,305)	(5,305)
Other comprehensive loss before reclassification	—	—	—	—	(12,788)	—	—	(12,788)	—	(12,788)
Amounts reclassified from accumulated other comprehensive loss	—	—	—	—	1,701	—	—	1,701	—	1,701
Other comprehensive loss, net of tax	—	—	—	—	(11,087)	—	—	(11,087)	—	(11,087)
Investment in subsidiaries	—	—	—	—	—	—	—	—	185	185
Stock-based compensation	217	—	(5,632)	—	—	—	—	(5,632)	59	(5,573)
Balance, March 31, 2023	62,318	$ 62	$ 1,104,519	$ (212,741)	$ (37,678)	2,805	$ (31,174)	$ 822,988	$ 150,049	$ 973,037

Amounts reclassified from accumulated other comprehensive loss are as follows (in thousands):

	Three Months Ended March 31, 2024	Three Months Ended March 31, 2023	Statements of Operations Classification
Gains (losses) on cash flow hedges			
Commodity derivatives	$ 3,736	$ —	(1)
Commodity derivatives	(10,723)	(2,236)	(2)
Total losses on cash flow hedges	(6,987)	(2,236)	(3)
Income tax benefit	1,682	535	(4)
Amounts reclassified from accumulated other comprehensive loss	$ (5,305)	$ (1,701)	

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

12. INCOME TAXES

The company records actual income tax expense or benefit during interim periods rather than on an annual effective tax rate method. Certain items are given discrete period treatment and the tax effect of those items are reported in full in the relevant interim period. 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.

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 3 - Acquisition* 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 was created. The company's valuation allowance on deferred tax assets increased by a corresponding amount, which did not have a material impact on the company's consolidated financial statements.

The company recorded income tax expense of $0.3 million for the three months ended March 31, 2024, compared with income tax expense of $ 3.4 million for the same period in 2023. The decrease in the amount of tax expense recorded for the three months ended March 31, 2024 is primarily due to a decrease in the valuation allowance recorded against deferred tax assets related to gains (losses) on derivatives.

The effective tax rate can be affected by variances in the estimates and amounts of taxable income among the various states, entities and activity types, realization of tax credits, adjustments from resolution of tax matters under review, valuation allowances and the company's assessment of its liability for uncertain tax positions.

13. 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 approximately 13.6 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 components of lease expense are as follows (in thousands):

	Three Months Ended March 31,	
	2024	2023
Lease expense		
Operating lease expense	$ 7,136	$ 6,746
Variable lease expense (benefit) (1)	186	(131)
Total lease expense	$ 7,322	$ 6,615

(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):

	Three Months Ended March 31,	
	2024	2023
Cash paid for amounts included in the measurement of lease liabilities		
Operating cash flows from operating leases	$ 6,988	$ 6,197
Right-of-use assets obtained in exchange for lease obligations		
Operating leases	7,163	16,658

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

	March 31, 2024	December 31, 2023
Weighted average remaining lease term	4.3 years	4.5 years
Weighted average discount rate	5.25 %	5.16 %

Aggregate minimum lease payments under the operating lease agreements for the remainder of 2024 and in future years are as follows (in thousands):

Year Ending December 31,	Amount
2024	$ 20,885
2025	23,609
2026	16,839
2027	12,684
2028	5,054
Thereafter	8,715
Total	87,786
Less: Present value discount	(9,735)
Lease liabilities	$ 78,051

The company has an additional railcar operating lease anticipated to commence during the second quarter of 2024, with undiscounted future lease payments of approximately $2.3 million and a lease term of five years. These amounts are not included in the tables above.

Other Commodities, Storage and Transportation

As of March 31, 2024, the company had contracted future purchases of grain, distillers grains and natural gas, valued at approximately $ 168.6 million and future commitments for storage and transportation, valued at approximately $19.9 million.

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.

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations.

General

The following discussion and analysis provides information we believe is relevant to understand our consolidated financial condition and results of operations. This discussion should be read in conjunction with the consolidated financial statements and notes to the consolidated financial statements contained in this report together with our annual report on Form 10-K for the year ended December 31, 2023.

Cautionary Information Regarding Forward-Looking Statements

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 Part I, Item 1A – Risk Factors of our annual report on Form 10-K for the year ended December 31, 2023, 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 and biofuels 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.

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. 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 3 - Acquisition* included in the notes to the consolidated financial statements included herein for more information.

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

- *Ethanol Production.* Our ethanol production segment includes the production, storage and transportation 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. This segment also includes 24 ethanol storage facilities, two fuel terminal facilities and approximately 2,180 leased railcars. 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.

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, which is our new specialty feed ingredient branded as Sequence™. In 2021, we formed a 50/50 joint venture with Tharaldson Ethanol, which owns the MSC™ technology assets added adjacent to the Tharaldson Ethanol plant in Casselton, North Dakota to produce Ultra-High Protein and increase renewable corn oil yields. These assets are in commissioning and anticipating to ship the first commercial quantities during the second quarter of 2024. Including Tharaldson's capacity, the annual Ultra-High Protein capacity is approximately 430 thousand tons.

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. The world's first commercial scale FQT CST™ facility in Shenandoah, Iowa is mechanically complete and in the commissioning phase, with shipments to customers beginning in the second quarter of 2024. 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 completed the construction of a facility at Green Plains York and began commissioning during the first quarter of 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.

Recent Developments

The Partnership Merger

On January 9, 2024, the transactions contemplated by the Merger Agreement were completed and the company acquired all of the publicly held common units of the partnership not already owned by the company and its affiliates. Refer to *Note 3 - Acquisition* in the notes to the consolidated financial statements included herein for more information.

Results of Operations

During the first quarter of 2024, a few of our plants were idled during the January cold snap; however, we maintained an average utilization rate of approximately 92.4% of capacity, resulting in ethanol production of 208.0 mmg, compared with 206.7 mmg, or 87.5% of capacity, for the same quarter last 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. We are currently producing Ultra-High Protein at five of our biorefineries. We also anticipate modifying additional biorefineries to include FQT MSC™ production capabilities to meet anticipated future customer demands.

U.S. Ethanol Supply and Demand

According to the EIA, domestic ethanol production averaged 1.04 million barrels per day during the first quarter of 2024, which was approximately 3.0% higher than the 1.01 million barrels per day for the same quarter last year. Refiner and blender input volume was 851 thousand barrels per day for the first quarter of 2024, compared with 853 thousand barrels per day for the same quarter last year. Gasoline demand for the first quarter of 2024 was in line with the prior year quarter at 8.5 million barrels per day. U.S. domestic ethanol ending stocks increased by approximately 1.3 million barrels compared to the prior year, or 5.2%, to 26.4 million barrels as of March 31, 2024. As of this filing, according to Prime the Pump, there were approximately 3,244 retail stations selling E15 year-round.

Global Ethanol Supply and Demand

According to the USDA Foreign Agriculture Service, domestic ethanol exports through February 28, 2024, were approximately 289 mmg, up from the 222 mmg for the same period of 2023. Canada was the largest export destination for U.S. ethanol accounting for approximately 37% of domestic ethanol export volume, driven in part by their national clean fuel standard. India, the United Kingdom, Colombia, and South Korea accounted for approximately 16%, 12%, 8%, and 5%, respectively, of U.S. ethanol exports. We currently estimate that net ethanol exports will range from 1.6 to 1.8 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, for the first quarter of 2024, soybean crush was approximately 568.4 million bushels, up 38.2 million bushels from the 530.2 million bushels crushed during the first quarter of 2023. Soybean oil stocks were 1.9 billion pounds, which was unchanged from the 1.9 billion pounds of stocks as of March 31, 2023. Soybean meal production was 13.4 million short tons for the first quarter of 2024, up 0.8 million short tons from the 12.6 million short tons from the same period in the prior year.

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 or otherwise incentivize 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, availability of higher ethanol blends 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 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 269 thousand vehicles during the first quarter of 2024, which represented approximately 7.3% of new vehicles sales, up 2.6% from the approximately 262 thousand in 2023. 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 renewable corn oil or low carbon ethanol as feedstock 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. On April 30, 2024, the U.S. Department of Treasury issued regulatory guidance along with an updated GREET lifecycle assessment model for the SAF tax credit, which included a pathway for U.S. corn ethanol to qualify as a feedstock for SAF if the carbon intensity is lowered through utilization of various technologies and practices, including carbon capture and climate smart agriculture practices.

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. The EPA is required to propose RVOs for 2026 and potentially additional years by November of 2024. From time to time, the EPA has delayed the proposed RVOs past the statutory deadlines.

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. 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 1, 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 of 2022, 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. On April 19, 2024, the EPA announced emergency waivers for the 2024 driving season, making it the sixth consecutive year that E15 is able to be sold year-round. The EPA has also allowed for the elimination of the One-Pound Waiver for E10 in several Midwestern states beginning with the 2025 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.

Comparability

There are various events that could affect comparability of our operating results, including fluctuations in our production rates in 2024 compared to 2023, along with the disposition of our Atkinson, Nebraska ethanol plant in September 2023.

Segment Results

We report the financial and operating performance for the following two operating segments: (1) ethanol production, which includes the production, storage, and transportation of ethanol, distillers grains, Ultra-High Protein and renewable corn oil and (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.

As a result of the Merger, the partnership's operations are included in the ethanol production operating segment. The following changes were made to the company's operating segments:

- The revenue and operating results from fuel storage and transportation services previously disclosed within the partnership segment are now included within the ethanol production segment.
- Intersegment activities between the partnership and Green Plains Trade associated with ethanol storage and transportation services previously treated like third-party transactions and eliminated on a consolidated level are now eliminated within the ethanol production segment.

Intersegment activities between the partnership and Green Plains Trade associated with terminal services transacted with the agribusiness and energy services segment will continue to be eliminated on a consolidated level.

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, 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, Ultra-High Protein, and renewable corn oil of our 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 our consolidated results since the revenues and corresponding costs are eliminated.

When we evaluate segment performance, we review the following segment information as well as earnings before interest, income taxes, depreciation and amortization, or EBITDA, and adjusted EBITDA.

Table of Contents

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

	Three Months Ended March 31, 2024	Three Months Ended March 31, 2023	% Variance
Revenues			
Ethanol production			
Revenues from external customers	$ 504,446	$ 696,613	(27.6)%
Intersegment revenues	1,213	1,105	9.8
Total segment revenues	505,659	697,718	(27.5)
Agribusiness and energy services			
Revenues from external customers	92,768	136,336	(32.0)
Intersegment revenues	6,228	6,050	2.9
Total segment revenues	98,996	142,386	(30.5)
Revenues including intersegment activity	604,655	840,104	(28.0)
Intersegment eliminations	(7,441)	(7,155)	4.0
	$ 597,214	$ 832,949	(28.3)%

	Three Months Ended March 31, 2024	Three Months Ended March 31, 2023	% Variance
Cost of goods sold			
Ethanol production (1)	$ 508,302	$ 706,133	(28.0)%
Agribusiness and energy services	87,986	133,280	(34.0)
Intersegment eliminations	(7,441)	(7,155)	4.0
	$ 588,847	$ 832,258	(29.2)%

	Three Months Ended March 31, 2024	Three Months Ended March 31, 2023	% Variance
Gross margin			
Ethanol production (1)	$ (2,643)	$ (8,415)	(68.6)%
Agribusiness and energy services	11,010	9,106	20.9
	$ 8,367	$ 691	*%

	Three Months Ended March 31, 2024	Three Months Ended March 31, 2023	% Variance
Depreciation and amortization			
Ethanol production	$ 20,534	$ 23,754	(13.6)%
Agribusiness and energy services	505	813	(37.9)
Corporate activities	448	819	(45.3)
	$ 21,487	$ 25,386	(15.4)%

	Three Months Ended March 31, 2024	2023	% Variance
Operating income (loss)			
Ethanol production (2)	$ (33,653)	$ (41,950)	(19.8)%
Agribusiness and energy services	6,004	4,126	45.5
Corporate activities	(17,240)	(18,716)	(7.9)
	$ (44,889)	$ (56,540)	(20.6)%

(1) Costs historically reported as operations and maintenance expenses in the consolidated statements of operations are now being reported within cost of goods sold, resulting in increased cost of goods sold and decreased gross margin within the ethanol production segment.

(2) Operating loss for ethanol production includes an inventory lower of average cost or net realizable value adjustment of $4.2 million for the three months ended March 31, 2024.

* Percentage variance not considered meaningful.

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 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):

	Three Months Ended March 31, 2024	2023	% Variance
Net loss	$ (51,122)	$ (66,249)	(22.8)%
Interest expense	7,786	9,738	(20.0)
Income tax expense	329	3,429	(90.4)
Depreciation and amortization (1)	21,487	25,386	(15.4)
EBITDA	(21,520)	(27,696)	(22.3)
Proportional share of EBITDA adjustments to equity method investees	45	45	—
Adjusted EBITDA	$ (21,475)	$ (27,651)	(22.3)%

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

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

	Three Months Ended March 31, 2024	2023	% Variance
Adjusted EBITDA			
Ethanol production (1)	$ (13,621)	$ (17,804)	(23.5)%
Agribusiness and energy services	7,056	5,227	35.0
Corporate activities	(14,955)	(15,119)	(1.1)
EBITDA	(21,520)	(27,696)	(22.3)
Proportional share of EBITDA adjustments to equity method investees	45	45	—
	$ (21,475)	$ (27,651)	(22.3)%

(1) Ethanol production includes an inventory lower of cost or net realizable value adjustment of $4.2 million for the three months ended March 31, 2024.

Three Months Ended March 31, 2024 Compared with the Three Months Ended March 31, 2023

Consolidated Results

Consolidated revenues decreased $235.7 million for the three months ended March 31, 2024 compared with the same period in 2023, primarily due to lower weighted average selling prices on ethanol, distillers grains and renewable corn oil, as well as lower distillers grains and renewable corn oil volumes sold, partially offset by higher ethanol volumes sold within our ethanol production segment as described below. Additionally, we had lower revenues within our agribusiness and energy services segment as a result of lower natural gas prices and trading volumes, as well as a decrease in ethanol prices.

Net loss decreased $15.1 million for the three months ended March 31, 2024 compared with the same period last year primarily due to higher margins in our ethanol production segment. Adjusted EBITDA increased $6.2 million for the three months ended March 31, 2024 compared with the same period in 2023 primarily due to higher margins in our ethanol production segment. Interest expense decreased $2.0 million for the three months ended March 31, 2024 compared with the same period in 2023 primarily due to lower working capital revolver balances. Income tax expense was $0.3 million for the three months ended March 31, 2024, compared with income tax expense of $3.4 million for the same period in 2023 primarily due to a decrease in the valuation allowance recorded against certain deferred tax assets for the three months ended March 31, 2024.

The following discussion provides greater detail about our first quarter segment performance.

Ethanol Production Segment

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

	Three Months Ended March 31,		
	2024	**2023**	**% Variance**
Ethanol sold (thousands of gallons)	207,904	206,880	0.5%
Distillers grains sold (thousands of equivalent dried tons)	469	482	(2.7)
Ultra-High Protein sold (thousands of tons)	60	52	15.4
Renewable corn oil sold (thousands of pounds)	66,721	68,011	(1.9)
Corn consumed (thousands of bushels)	71,274	71,235	0.1%

Revenues in our ethanol production segment decreased $192.1 million for the three months ended March 31, 2024 compared with the same period in 2023, primarily due to lower weighted average selling prices on ethanol, distillers grains and renewable corn oil resulting in decreased revenues of $156.1 million, $32.0 million and $9.3 million, respectively, as well as lower distillers grains and renewable corn oil volumes sold resulting in decreased revenues of $1.4 million and $0.8 million, respectively, partially offset by higher ethanol volumes sold resulting in increased revenues of $2.5 million. Revenues also increased as a result of hedging activities by $4.8 million.

Cost of goods sold in our ethanol production segment decreased $197.8 million for the three months ended March 31, 2024 compared with the same period last year due to lower weighted average corn prices resulting in decreased costs of $174.5 million, as well as lower ethanol volumes purchased and lower utilities of $29.4 million and $28.5 million, respectively, partially offset by higher chemicals and other costs, hedging activities, and higher repair costs of $12.0 million, $11.3 million and $6.5 million, respectively.

Operating loss in our ethanol production segment decreased $8.3 million for the three months ended March 31, 2024 compared with the same period in 2023 primarily due to increased margins on ethanol production as outlined above. Depreciation and amortization expense for the ethanol production segment was $20.5 million for the three months ended March 31, 2024, compared with $23.8 million for the same period last year, with the decrease primarily due to certain assets becoming fully depreciated.

Agribusiness and Energy Services Segment

Revenues in our agribusiness and energy services segment decreased $43.4 million while operating income increased $1.9 million for the three months ended March 31, 2024, compared with the same period in 2023. The decrease in revenues was primarily due to lower natural gas prices and trading volumes, as well as a decrease in ethanol prices. The increase in operating income was primarily due to higher grain storage volumes.

Intersegment Eliminations

Intersegment eliminations of revenues increased by $0.3 million for the three months ended March 31, 2024.

Corporate Activities

Operating loss was impacted by a decrease in corporate activities of $1.5 million for the three months ended March 31, 2024 compared with 2023 primarily due to decreased personnel costs.

Liquidity and Capital Resources

Our principal sources of liquidity include cash generated from operating activities and bank 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 or from debt and equity capital markets. 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 March 31, 2024, we had $237.3 million in cash and cash equivalents and $40.1 million in restricted cash. We also had $230.0 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 March 31, 2024, our subsidiaries had approximately $131.4 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 used in operating activities was $50.6 million for the three months ended March 31, 2024, compared with net cash used in operating activities of $117.0 million for the same period in 2023. Net cash used in operating activities compared to the prior year decreased primarily due to increases in cash related to accounts payables and inventories. Net cash used in investing activities was $30.2 million for the three months ended March 31, 2024, compared with net cash used in investing activities of $35.4 million for the same period in 2023. Investing activities were primarily affected by lower capital expenditures when compared to the same period in the prior year. Net cash used in financing activities was $20.6 million for the three months ended March 31, 2024, compared with net cash provided by financing activities of $60.5 million for the same period in 2023, primarily due to the extinguishment of non-controlling interest and lower working capital revolver balances when compared to the same period in 2023.

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 approximately $21.8 million during the three months ended March 31, 2024, primarily for the clean sugar expansion project at Shenandoah and for various other capital projects. Capital spending for 2024 is expected to be between $95.0 million and $115.0 million, which is subject to review prior to the initiation of any project. The capital spending estimate does not include the anticipated expenditures related to our carbon capture and sequestration projects, which are expected to be financed through project related financing. The estimate includes additional expenditures to deploy FQT's CST™ technology, as well as expenditures for various other capital projects, which are expected to be financed with cash on hand and by 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.

In August 2014 and October 2019, 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. Since inception of the repurchase program, we have repurchased 7.4 million shares of common stock for approximately $92.8 million under the program. We did not repurchase any shares of common stock during the first quarter of 2024.

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 March 31, 2024. Based on our forecasts, we anticipate 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 March 31, 2024, the outstanding principal balance on the 2.25% notes was $230.0 million.

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. These notes will accrue interest at an annual rate of 11.75% and mature on February 9, 2026.

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 March 31, 2024, the outstanding principal balance was $72.8 million on the loan and the interest rate was 5.02%.

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. Prepayments totaling $1.5 million were made during the three months ended March 31, 2024. 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 March 31, 2024, the term loan had a balance of $54.5 million and an interest rate of 13.59%.

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 March 31, 2024, the outstanding principal balance was $120.0 million on the facility and the interest rate was 8.63%.

Green Plains Commodity Management has an uncommitted $40.0 million secured revolving credit facility to finance margins related to its hedging programs. 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 March 31, 2024, the outstanding principal balance was $10.0 million on the facility and the interest rate was 7.09%.

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 March 31, 2024.

Refer to *Note 8 - Debt* in the notes to the consolidated financial statements included herein for more information about our debt.

Effects of Inflation

We have experienced inflationary impacts on 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 have fixed price arrangements with our customers and are not able to pass those costs along in most instances. As such, inflationary pressures could have a material adverse effect on our performance and financial statements.

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 March 31, 2024 totaled $90.0 million. As of March 31, 2024, we had contracted future purchases of grain, distillers grains and natural gas valued at approximately $168.6 million and future commitments for storage and transportation valued at approximately $19.9 million. Refer to *Note 13 – Commitments and Contingencies* included in the notes to consolidated financial statements for more information.

Critical Accounting Policies and Estimates

Critical accounting policies, including 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. Information about our critical accounting policies and estimates are included in our annual report on Form 10-K for the year ended December 31, 2023.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements.

Item 3. Quantitative and Qualitative 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 March 31, 2024, we had $622.2 million in debt, $184.5 million of which had variable interest rates. A 10% increase in interest rates would affect our interest cost by approximately $1.8 million per year.

For additional information related to our debt, see *Note 8 – Debt* included herein as part of the notes to the consolidated financial statements and *Note 12 – Debt* included as part of the notes to the consolidated financial statements included in our annual report on Form 10-K for the year ended December 31, 2023.

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.

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. During the three months ended March 31, 2024, revenues included net losses of $0.1 million, and cost of goods sold included net gains of $0.4 million associated with derivative financial 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 March 31, 2024, which is 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	$119,258
Corn	310,000	Bushels	$103,714
Distillers grains (2)	2,200	Tons (3)	$25,644
Renewable corn oil	300,000	Pounds	$10,193
Natural gas	26,400	MmBTU	$3,740

(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.

Agribusiness and Energy Services Segment

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 4. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures designed to ensure the 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 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 March 31, 2024 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.

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 U.S. generally accepted accounting principles. There were no material changes in our internal control over financial reporting that occurred during the period covered by this report that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II – OTHER INFORMATION

Item 1. Legal Proceedings.

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

Item 1A. Risk Factors.

Investors should carefully consider the discussion of risks and the other information in our annual report on Form 10-K for the year ended December 31, 2023, in Part I, Item 1A, “Risk Factors,” and the discussion of risks and other information in Part I, Item 2, “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” under “Cautionary Information Regarding Forward-Looking Statements,” of this report. Investors should also carefully consider the discussion of risks with the partnership under the heading “Risk Factors” and other information in their annual report on Form 10-K for the year ended December 31, 2023. Although we have attempted to discuss key factors, our investors need to be aware that other risks may prove to be important in the future. New risks may emerge at any time and we cannot predict such risks or estimate the extent to which they may affect our financial performance.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds.

The company withholds shares when restricted stock grants are vested to satisfy statutory minimum required payroll tax withholding obligations. The following table lists the shares that were withheld during the first quarter of 2024:

Period	Total Number of Shares Withheld	Average Price Paid per Share
January 1 - January 31	3,213	$ 23.16
February 1 - February 28	124,700	23.04
March 1 - March 31	62,310	20.45
Total	190,223	$ 22.20

In August 2014 and October 2019, our board of directors authorized a share repurchase program of up to $200 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. Since inception of the repurchase program, the company has repurchased approximately 7.4 million shares of common stock for approximately $92.8 million under the program. We did not repurchase any shares during the first quarter of 2024.

Item 3. Defaults Upon Senior Securities.

None.

Item 4. Mine Safety Disclosures.

Not applicable.

Item 5. Other Information.

During the three months ended March 31, 2024, 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 6. Exhibits.

Exhibit Index

Exhibit No.	Description of Exhibit
4.1	Description of Securities Registered Under Section 12 of the Exchange Act of 1934, as amended.
*10.1	Employment Agreement by and between Green Plains Inc. and Grant Kadavy, dated October 3, 2022.
*10.2	Executive Change in Control Severance Plan Participation Letter by and between Green Plains Inc. and Grant Kadavy, dated August 2, 2023.
10.3	Green Plains Inc. Restricted Stock Agreement for 2019 Equity Incentive Plan.
10.4	Green Plains Inc. Performance Share Unit Agreement for 2019 Equity Incentive Plan.
10.5	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).
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
101	The following information from Green Plains Inc.'s Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2024, formatted in Inline Extensible Business Reporting Language (iXBRL): (i) Consolidated Balance Sheets, (ii) Consolidated Statements of Operations, (iii) Consolidated Statements of Comprehensive Income, (iv) Consolidated Statements of Cash Flows, and (v) the Notes to Consolidated Financial Statements
104	The cover page from Green Plains Inc.'s Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2024, formatted in iXBRL.
	*Represents management compensatory contract

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

GREEN PLAINS INC.
(Registrant)

Date: May 3, 2024	By:	*/s/ Todd A. Becker*
		Todd A. Becker
		President and Chief Executive Officer
		(Principal Executive Officer)
Date: May 3, 2024	By:	*/s/ James E. Stark*
		James E. Stark
		Chief Financial Officer
		(Principal Financial Officer)

Exhibit 4.1

DESCRIPTION OF SECURITIES REGISTERED UNDER SECTION 12 OF THE EXCHANGE ACT OF 1934, AS AMENDED

DESCRIPTION OF COMMON STOCK

We are authorized to issue 150,000,000 shares of common stock, $0.001 par value per share. As of April 30, 2024, approximately 64,618,721 shares of common stock were issued and outstanding, held of record by approximately 1,755 shareholders of record, not including beneficial holders whose shares are held in names other than their own.

The following descriptions of our common stock and provisions of our Second Amended and Restated Articles of Incorporation, as amended ("Articles"), and our Fifth Amended and Restated Bylaws ("Bylaws"), are only summaries. We encourage you to review complete copies of these documents, which have been filed as exhibits to our periodic reports with the SEC.

Dividends, Voting Rights and Liquidation

Holders of common stock are entitled to one vote for each share held of record on all matters submitted to a vote of the shareholders, and do not have cumulative voting rights. Holders of common stock are entitled to receive ratably such dividends, if any, as may be declared from time to time by our board of directors out of funds legally available for dividend payments. Payments of dividends by our subsidiaries to Green Plains may be restricted by certain debt covenants. Future declarations of dividends are subject to approval by our board of directors and may be adjusted as business needs or market conditions change.

All outstanding shares of common stock are fully paid and non-assessable. The holders of common stock have no preferences or rights of conversion, exchange, pre-emption or other subscription rights. There are no redemption or sinking fund provisions applicable to the common stock. In the event of any liquidation, dissolution or winding-up of our affairs, holders of common stock will be entitled to share ratably in our assets that are remaining after payment or provision for payment of all of our debts and obligations.

Listing

Our common stock is listed under the symbol "GPRE" on The Nasdaq Global Market.

Transfer Agent and Registrar

Computershare Investor Services, LLC is the transfer agent and registrar for our common stock. Their address is 150 Royall Street, Suite 101, Canton, Massachusetts 02021, and their telephone number is (800) 962-4284.

Iowa Law and Certain Charter and Bylaw Provisions

The provisions of (1) Iowa law, (2) our Articles and (3) our Bylaws, discussed below could discourage or make it more difficult to accomplish a proxy contest or other change in our management or the acquisition of control by a holder of a substantial amount of our voting stock. It is possible that these provisions could make it more difficult to accomplish, or could deter, transactions that shareholders may otherwise consider to be in their best interests or in our best interests. These provisions are intended to enhance the likelihood of continuity and stability in the composition of our board of directors and in the policies formulated by the board of directors and to discourage certain types of transactions that may involve an actual or threatened change of control of us. These provisions are designed to reduce our vulnerability to an unsolicited acquisition proposal. The provisions also are intended to discourage certain tactics that may be used in proxy fights. Such provisions also may have the effect of preventing changes in our management.

Iowa Statutory Law. We are subject to the anti-takeover provisions of Section 490.1110 of the Iowa Business Corporation Act. In general, Section 490.1110 prohibits a publicly-held Iowa corporation from engaging in a “business combination” with an “interested shareholder” for a period of three years after the date of the transaction in which the person became an interested shareholder, unless the business combination is, or the transaction in which the person became an interested shareholder was, approved in a prescribed manner or another prescribed exception applies. For purposes of Section 490.1110, a “business combination” is defined broadly to include a merger, asset sale or other transaction resulting in a financial benefit to the interested shareholder, and, subject to certain exceptions, an “interested shareholder” is a person who, together with his or her affiliates and associates, owns (or within three years prior, did own) 10% or more of the corporation’s voting stock.

Moreover, under Section 490.1108A of the Iowa Business Corporation Act, in determining what he or she believes to be in the best interests of the company when considering an acquisition, merger or similar proposal, a director may, in addition to considering the effects of any action on shareholders, consider the effects of the action on employees, suppliers, creditors, customers and the communities in which we operate as well as long-term and short-term interests of the company and its shareholders, including the possibility that these interests may be best served by the continued independence of the company. The Iowa Business Corporation Act also provides that “[c]onsideration of any or all of the community interest factors is not a violation of the business judgment rule or of any duty of the director to the shareholders, or a group of shareholders, even if the director reasonably determines that a community interest factor or factors outweigh the financial or other benefits to the corporation or a shareholder or group of shareholders.” This provision may have anti-takeover effects in situations in which the interests of our stakeholders, other than shareholders, conflict with the short-term maximization of shareholder value.

Declassified Board of Directors; Removal of Directors for Cause. Our Articles and Bylaws previously provided that before our 2025 annual meeting of shareholders, our board of directors will be divided into three groups, one of which will be elected each year at our annual meeting of our shareholders. In 2022, our shareholders amended our Articles and our board of directors amended our Bylaws to provide that our board of directors will be fully declassified by the 2025 annual meeting, so that:

- at the 2023 annual meeting, the first group of directors were elected for a term of office to expire at the 2024 annual meeting;
- at the 2024 annual meeting, the second group of directors will be elected for a term of office to expire at the 2025 annual meeting; and
- as of and after the 2025 annual meeting, all directors will be elected for one-year terms and will be up for election at each successive annual meeting.

All directors elected to our board of directors will serve until the election and qualification of their respective successors or their earlier resignation or removal.

The board of directors is authorized to create new directorships and to fill such positions so created and is permitted to specify the class to which any such new position is assigned. The person filling such position would serve for the term applicable to that group. The board of directors (or its remaining members, even if less than a quorum) is also empowered to fill vacancies on the board of directors occurring for any reason for the remainder of the term of the group of directors in which the vacancy occurred. Members of the board of directors may only be removed for cause and only by the affirmative vote of 66 2/3% of our outstanding voting stock. These provisions are likely to increase the time required for shareholders to change the composition of the board of directors.

Advance Notice Provisions for Shareholder Proposals and Shareholder Nominations of Directors. Our Bylaws provide that, for nominations to the board of directors or for other business to be properly brought by a shareholder before a meeting of shareholders, the shareholder must first have given timely notice of the proposal or director nomination in writing to our Corporate Secretary. A shareholder's notice generally must be delivered not less than 90 nor more than 120 days prior to the one-year anniversary of the prior year's annual meeting; provided, however, that in the event of a special meeting or the date of the annual meeting is advanced by more than 30 days or delayed by more than 30 days from the anniversary of the previous year's annual meeting, notice by the shareholder to be timely must be received by the company not earlier than the close of business on the 90th day prior to such meeting and not later than the close of business on the later of the 60th day prior to such meeting or the 10th day following the day on which public disclosure of the date of such meeting is first made. Detailed requirements as to the form of the notice and information included in the notice are specified in the Bylaws. If it is determined that business was not properly brought before a meeting in accordance with our bylaw provisions, such business will not be conducted at the meeting.

Our Bylaws also permit a shareholder, or a group of up to 20 shareholders, owning 3% or more of our common stock continuously for a period of at least three years, to nominate for election to our Board and have such director nominations included in our proxy materials, a number of director candidates equal to the greater of (i) two individuals or (ii) 20% of our Board, provided that the shareholder(s) and the nominee(s) satisfy certain requirements specified in the Bylaws. Under these procedures, notice must be received by our corporate secretary at our principal executive offices not less than 120 calendar days, and not more than 150 calendar days, prior to the one-year anniversary of the date that our proxy statement was released to shareholders in connection with the prior year's annual meeting of shareholders. In accordance with our Bylaws, the shareholder notice must contain certain information about the candidate the shareholder(s) desires to nominate for election as a director, the shareholder(s) giving the notice and the beneficial owner(s), if any, on whose behalf the nomination is made.

Special Meetings of Shareholders. Special meetings of the shareholders may be called only by our Chairman of the Board, Chief Executive Officer, President, the Board of Directors, or one or more shareholders of record that collectively own at least 20% of all of the outstanding shares entitled to vote at the proposed special meeting.

No Shareholder Action by Written Consent. Our Bylaws do not permit our shareholders to act by written consent, except where otherwise required by the Iowa Business Corporation Act, which requires written consents signed by holders of shares having not less than ninety percent of the votes entitled to be cast at a meeting at which all shares entitled to vote on the action were present and voted. Accordingly, the ability of shareholders to act by written consent is remote.

Exhibit 10.1

EMPLOYMENT AGREEMENT

This Employment Agreement (this " ***Agreement***") is effective as of the Effective Date defined herein, by and between GREEN PLAINS INC., an Iowa corporation (the "***Company***"), and Grant Kadavy, an individual ("***Executive***").

In consideration of the promises and mutual covenants contained herein, the parties hereto agree as follows:

1. Employment; Location. The Company hereby employs Executive and Executive hereby accepts such employment in the Omaha, Nebraska metro area.

2. Term. Executive's employment shall be "at-will" and may be terminated at any time, by either party, for any reason whatsoever (the " ***Term***"). Executive's employment with the Company shall commence October 3, 2022 and the terms of this Agreement are effective as of the start date of Executive (the "Effective Date").

3. Duties and Authorities. During the Term:

3.1 Executive shall serve as the EVP – Commercial of the Company and shall report to the Chief Executive Officer ("CEO"). Executive shall have responsibilities, duties and authority reasonably accorded to and expected of such positions in similar businesses in the United States, including such responsibilities and duties assigned by the Chief Executive Officer from time to time (the "***Duties***").

3.2 Executive shall diligently execute such Duties and shall devote him full time, skills and efforts to such Duties, subject to the general supervision and control of the CEO. Executive will not engage in any other employment, occupation or consulting activity during the Term of this Agreement, without the consent of the CEO.

4. Compensation and Benefits. The Company shall pay Executive, and Executive accepts as full compensation for all services to be rendered to the Company, the following compensation and benefits:

4.1 Base Salary. The Company shall pay Executive a base salary of Three Hundred Eighty Thousand Dollars ($380,000) per year. Base salary shall be payable in equal installments twice monthly or at more frequent intervals in accordance with the Company's customary pay schedule. The Company shall annually consider increases of Executive's base salary and may periodically increase such base salary in its discretion.

4.2 Additional Compensation. In addition to base salary, the Company shall pay the following to Executive:

(a) Signing Bonus. Executive shall receive a one-time signing bonus consistent with the offer letter given to Executive.

(b) Annual Bonus. Executive will be entitled to participate in the Company's short-term incentive plan ("STIP"), which currently has designated a target bonus of up to eighty percent (80%) of annual base salary, payable annually, when target objectives set by the Company's Compensation Committee are achieved. The STIP is subject to change at the discretion of the Board of Directors.

(c) Long-Term Incentive Compensation. The Compensation Committee has developed a long-term incentive program ("LTIP") for the Company, which is subject to change at the discretion of the Board of Directors. Executive shall be eligible to participate in such LTIP at the sole discretion of the Company. Executive shall receive a one-time grant of restricted stock upon the Effective Date in the amount set forth in the offer letter to Executive which shall vest over a 3-year period, consistent with the Company's standard grant agreement.

4.3 Intentionally Left Blank.

(a) Intentionally Left Blank.

4.4 Additional Benefits. Executive shall be permitted, during the Term, if and to the extent eligible, to participate in any group life, hospitalization or disability insurance plan, health or dental program, pension plan, similar benefit plan or other so-called "fringe benefits" of the Company made available to officers of the Company.

4.5 Vacation. Executive shall be entitled to an aggregate of up to four weeks leave for vacation for each calendar year during the Term at full pay. Executive agrees to give reasonable notice of his vacation scheduling requests, which shall be allowed subject to the Company's reasonable business needs. No more than five (5) days vacation may be carried over from one year to the next year.

4.6 Deductions. The Company shall have the right to deduct from the compensation due to Executive hereunder any and all sums required for social security and withholding taxes and for any other federal, state or local tax or charge which may be hereafter enacted or required by law as a charge on the compensation of Executive.

5. Business Expenses. Executive may incur reasonable, ordinary and necessary business expenses in the course of his performance of his obligations under this Agreement. The Company shall reimburse Executive in accordance with the Company's business expense reimbursement policy.

6. Intentionally Left Blank

7. Termination.

7.1 Termination for Cause. Executive's employment hereunder shall be terminable for Cause (as defined below) upon written notice from the Company to Executive. As used in this Agreement, "***Cause***" shall mean one of the following: (a) a material breach by Executive of the terms of this Agreement, not cured within thirty (30) days from receipt of notice from the CEO of such breach, (b) conviction of or plea of guilty or no contest to, a felony; (c) willful misconduct or gross negligence in connection with the performance of Executive's duties; or (d) willfully engaging in conduct that constitutes fraud, gross negligence or gross misconduct. For purposes of this definition, no act, or failure to act, on Executive's part shall be considered "willful" unless done, or omitted to be done, by Executive in knowing bad faith and without reasonable belief that his action or omission was in, or not opposed to, the best interests of the Company. If the Company terminates Executive's employment for Cause, Executive shall be paid his salary and benefits through the date of termination and, except as otherwise required by applicable law or under any applicable and properly approved compensation plan or arrangement, no other amounts shall be payable.

7.2 Termination without Cause or for Good Reason. The Company may terminate Executive's employment at any time for any reason (or no reason) other than Cause, as determined by the CEO and the Executive may terminate Executive's employment with the Company for Good Reason and resign any and all positions as officer of the Company and any related companies. If the Company terminates Executive's employment without Cause or the Executive terminates his employment for Good Reason:

(a) The Company shall pay within 10 business days after such termination: (1) an amount equal to six (6) months of Executive's full annual base salary on the date of his termination; (2) in the event a change in control of the Company (as defined in the Company's 2019 Equity Incentive Plan) has occurred within 12 months prior to such termination, an amount equal to one year of Executive's full annual base salary on the date of his termination, in lieu of and not in addition to the amount in section subsection (1); and

(b) all options and other equity awards, whether made pursuant to this agreement or otherwise, shall become fully vested and released from any restrictions on transfer upon such termination and PSU awards shall vest at the target level.

Notwithstanding Section 7.2(b), the Company reserves the right in any future special award to override Section 7.2(b) with respect to such special award; provided however, no such override is intended by this provision with respect to annual awards.

As used in this Agreement, "***Good Reason***" shall mean any of the following if the same occurs without Executive's express written consent: (a) a material diminution in Executive's base salary as described in Section 4.1, which for such purposes shall be deemed to exist with a reduction of greater than fifteen percent (15%); (b) a material diminution in Executive's authority, Duties, or responsibilities; (c) a material diminution in the authority, duties, or responsibilities of the person to whom Executive is required to report; (d) a material change in the geographic location (defined as greater than fifty (50) miles from Omaha, NE) at which Executive must perform the services pursuant to Section 1; (e) any material reduction or other material adverse change in Executive's benefits under any applicable and properly approved compensation plan or arrangement without the substitution of comparable benefits; or (e) any other action or inaction that constitutes a material breach by the Company under this Agreement. To terminate for Good Reason, an Executive must incur a termination of employment on or before the second (2^{nd}) anniversary of the initial existence of the condition.

Executive shall be required to provide notice to the Company of the existence of any of the foregoing conditions within 60 days of the initial existence of the condition, upon the notice of which the Company shall have a period of 30 days during which it may remedy the condition.

7.3 Termination by Executive Without Good Reason. If Executive terminates without Good Reason, then Executive will be required to give the Company at least ninety (90) days notice. If Executive terminates without Good Reason then Executive will be paid his salary and benefits through the date of termination and, except as otherwise required by applicable law, no other amounts shall be payable except as provided under any applicable and properly approved compensation plan or arrangement.

7.4 Effect of Termination. In the event Executive's employment is terminated, all obligations of the Company and all obligations of Executive shall cease except that (a) the terms of this Section 7 and of Sections 8 through 23 below shall survive such termination and (b) the Company shall continue to be obligated to fulfill its obligations pursuant to Section 4, 5 and 6 to the extent they have not been satisfied as of the date of such termination. Executive acknowledges that, upon termination of his employment, he is entitled to no other compensation, severance or other benefits other than those specifically set forth in this Agreement, except to the extent provided in any applicable compensation plan or arrangement.

8. Covenant Not to Compete; Nonsolicitation.

8.1 **Acknowledgments.** Executive acknowledges that Company's relationships with its customers, clients, employees, and other business associations are among Company's most important assets and that developing, maintaining, and continuing such relationships is one of Company's highest priorities. Executive further understands Executive will be relied upon to develop and to maintain such relationships on behalf of Company throughout the course of Executive's employment with Company.

8.2 **Non-Solicitation of Employees.** Executive agrees that, during the term of Executive's employment with Company and for a period of two (2) years after termination of Executive's employment with Company (voluntary or involuntary, for Good Reason, any reason or no reason), Executive will not, directly or indirectly, recruit, solicit, or induce, or attempt to induce, any employee(s) of Company, sales representatives, or foreign agents with or through whom Company conducts business (and with whom Executive worked and had personal contact during Executive's employment) to terminate their employment with, or otherwise cease a relationship with, Company.

8.3 **Non-Competition and Non-Solicitation of Customers**. For a period of one (1) year following the termination of Executive's employment with Company (voluntary or involuntary, for Good Reason, any reason or no reason), Executive shall not, seek or accept employment with, call on, solicit the business of, sell to, or service (directly or indirectly, on Executive's own behalf or in association, with or on behalf of any other individual or entity), any of the customers of Company with whom Executive did business and had personal contact during the two (2) years immediately preceding the termination of Executive's employment with Company, except to the extent such activities are unrelated to and not competitive with the business, products or services offered or provided by Company and cannot adversely affect the relationship or volume of business that Company has with its customers.

8.4 **Reasonable Restrictions.** In signing this Agreement, Executive is fully aware of the restrictions that this Agreement places upon Executive's future employment or contractual opportunities with someone other than Company. However, Executive understands and agrees that Executive's employment by Company and Executive's access to Confidential Information (as defined below), trade secrets and goodwill of Company makes such restrictions both necessary and reasonable. Executive acknowledges and agrees that the restrictions hereby imposed constitute reasonable protections of the legitimate business interests of Company and that they will not unduly restrict Executive's opportunity to earn a reasonable living following Executive's termination from employment with Company.

8.5 **Intended Third Party Beneficiaries.** Executive acknowledges and understands that some of the Confidential Information, trade secrets and/or goodwill accessible to Executive in the performance of Executive's duties during Executive's employment with Company may belong to and be provided by Company's parents, subsidiaries, and/or affiliates ("Third Party Beneficiaries"). For purposes of this Agreement, the term "affiliates" means any entity under common control or ownership with Company. Executive expressly acknowledges and agrees that the Third Party Beneficiaries are intended third party beneficiaries of this Agreement as it pertains to Executive's obligations under this Agreement and shall have the right to enforce this Agreement directly against Executive in their own names or jointly with

Company or each other. This Agreement, without more, is not intended to and shall not be construed as granting any Third Party Beneficiary with any ownership interest of any kind in any of Company's Confidential Information.

9. Confidential Information. Executive acknowledges that during his employment or consultancy with the Company he will develop, discover, have access to and/or become acquainted with technical, financial, marketing, personnel and other information relating to the present or contemplated products or the conduct of business of the Company which is of a confidential and proprietary nature ("***Confidential Information***"). Executive agrees that all files, records, documents and the like relating to such Confidential Information, whether prepared by him or otherwise coming into his possession, shall remain the exclusive property of the Company, and Executive hereby agrees to promptly disclose such Confidential Information to the Company upon request and hereby assigns to the Company any rights which he may acquire in any Confidential Information. Executive further agrees not to disclose or use any Confidential Information and to use his best efforts to prevent the disclosure or use of any Confidential Information either during the term of his employment or consultancy or at any time thereafter, except as may be necessary in the ordinary course of performing his duties under this Agreement. Upon termination of Executive's employment or consultancy with the Company for any reason, (a) Executive shall promptly deliver to the Company all materials, documents, data, equipment and other physical property of any nature containing or pertaining to any Confidential Information, and (b) Executive shall not take from the Company's premises any such material or equipment or any reproduction thereof.

10. Inventions.

10.1 Disclosure of Inventions. Executive hereby agrees that if he conceives, learns, makes or first reduces to practice, either alone or jointly with others, any "***Employment Inventions***" (as defined in Section 10.3 below) while he is employed by the Company, either as an employee or as a consultant, he will promptly disclose such Employment Inventions to the CEO or to any other Company officer designated by the Board.

10.2 Ownership, Assignment Assistance and Power of Attorney . All Employment Inventions shall be the sole and exclusive property of the Company, and the Company shall have the right to use and to apply for patents, copyrights or other statutory or common law protection for such Employment Inventions in any country. Executive hereby assigns to the Company any rights which he may acquire in such Employment Inventions. Furthermore, Executive agrees to assist the Company in every proper way at the Company's expense to obtain patents, copyrights and other statutory or common law protections for such Employment Inventions in any country and to enforce such rights from time to time. Specifically, Executive agrees to execute all documents as the Company may desire for use in applying for and in obtaining or enforcing such patents, copyrights and other statutory or common law protections together with any assignments thereof to the Company or to any person designated by the Company. Executive's obligations under this Section 10 shall continue beyond the termination of his employment under this Agreement, but the Company shall compensate Executive at a reasonable rate after any such termination for the time which Executive actually spends at the Company's request in rendering such assistance. In the event the Company is unable for any reason whatsoever to secure Executive's signature (after reasonable attempts to do so) to any lawful document required to apply for or to enforce any patent, copyright or other statutory or common law protections for such Employment Inventions, Executive hereby irrevocably designates and appoints the Company and its duly authorized officers and agents as his agents and attorneys-in-fact to act in his stead to execute such documents and to do such other lawful and necessary acts to further the issuance and prosecution of such patents, copyrights or other statutory or common law protection, such documents or such acts to have the same legal force and effect as if such documents were executed by or such acts were done by Executive.

10.3 Employment Inventions. The definition of "***Employment Invention***" as used herein is as follows: "***Employment Invention***" means any invention or part thereof conceived, developed, reduced to practice, or created by Executive which is: (a) conceived, developed, reduced to practice, or created by Executive: (i) within the scope of his employment; (ii) on the Company's time; or (iii) with the aid, assistance, or use of any of the Company's property, equipment, facilities, supplies, resources, or intellectual property; (b) the result of any work, services, or duties performed by Executive for the Company; (c) related to the industry or trade of the Company; or (d) related to the current or demonstrably anticipated business, research, or development of the Company.

10.4 Exclusion of Prior Inventions. Executive has identified on **Exhibit A** attached hereto a complete list of all inventions which Executive has conceived, learned, made or first reduced to practice, either alone or jointly with others, prior to employment with the Company and which Executive desires to exclude from the operation of this

Agreement. If no inventions are listed on **Exhibit A**, Executive represents that he has made no such inventions at the time of signing this Agreement.

10.5 Inventions of Third Parties. Executive shall not disclose to the Company, use in the course of his employment, or incorporate into the Company's products or processes any confidential or proprietary information or inventions that belong to a third party, unless the Company has received authorization from such third party and Executive has been directed by the CEO to do so.

11. Compliance with Section 409A of the Code. Notwithstanding any provision in this Agreement to the contrary, this Agreement shall be interpreted, construed and conformed in accordance with Section 409A of the Code and regulations and other guidance issued thereunder. If, on the date of Executive's separation from service (as defined in Treasury Regulation §1.409A-1(h)), Executive is a specified employee (as defined in Code Section 409A and Treasury Regulation §1.409A-1(i)), no payment shall be made under this Agreement at any time during the 6-month period following the Employee's separation from service of any amount that results in the "deferral of compensation" within the meaning of Treasury Regulation §1.409A-1(b), after application of the exemptions provided in Treasury Regulation §§1.409A-1(b)(4) and 1.409A-1(b)(9)(iii) and (v), and any amounts otherwise payable during such 6-month period shall be paid in a lump sum on the first payroll payment date following expiration of such 6-month period.

12. No Conflicts. Executive hereby represents that, to the best of his knowledge, his performance of all the terms of this Agreement and his work as an employee or consultant of the Company does not breach any oral or written agreement which he has made prior to his employment with the Company.

13. Equitable Remedies. Executive acknowledges and agrees that the breach or threatened breach by his of certain provisions of this Agreement, including without limitation Sections 8, 9 or 10 above, would cause irreparable harm to the Company for which damages at law would be an inadequate remedy. Accordingly, Executive hereby agrees that in any such instance the Company shall be entitled to seek injunctive or other equitable relief in addition to any other remedy to which it may be entitled.

14. Assignment. This Agreement is for the unique personal services of Executive and is not assignable or delegable in whole or in part by Executive without the consent of the CEO. This Agreement may be assigned or delegated in whole or in part by the Company and, in such case, the terms of this Agreement shall inure to the benefit of, be assumed by, and be binding upon the entity to which this Agreement is assigned.

15. Waiver or Modification. Any waiver, modification or amendment of any provision of this Agreement shall be effective only if in writing in a document that specifically refers to this Agreement and such document is signed by the parties hereto.

16. Entire Agreement. This Agreement constitutes the full and complete understanding and agreement of the parties hereto with respect to the specific subject matter covered herein and therein and supersedes all prior oral or written understandings and agreements with respect to such specific subject matter, except for the offer letter dated September __, 2022 between the Company and Executive which shall control with respect to sections herein specifically referenced.

17. Severability. If any provision of this Agreement is found to be unenforceable by a court of competent jurisdiction, the remaining provisions shall nevertheless remain enforceable in full force and effect, and the court making such determination shall modify, among other things, the scope, duration, or geographic area of such affected provision to preserve the enforceability thereof to the maximum extent then permitted by law.

18. Notices. All notices thereunder shall be in writing addressed to the respective party as set forth below and may be personally served, sent by facsimile transmission, sent by overnight courier service, or sent by United States mail, return receipt requested. Such notices shall be deemed to have been given: (a) if delivered in person, on the date of delivery; (b) if delivered by facsimile transmission, on the date of transmission if transmitted by 5:00 p.m. (local time, Omaha, Nebraska) on a business day or, if not, on the next succeeding business day; provided that a copy of such notice is also sent the same day as the facsimile transmission by any other means permitted herein; (c) if delivered by overnight courier, on the date that delivery is first attempted; or (d) if by United States mail, on the earlier of two (2) business days after depositing in the United States mail, postage prepaid and properly addressed, or the date delivery is first attempted. Notices shall be addressed as set forth as set forth on the signature page hereof, or to such other address as the party to whom such notice is

intended shall have previously designated by written notice to the serving party. Notices shall be deemed effective upon receipt.

19. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Nebraska, without reference to the choice of law provisions thereof.

20. Attorneys' Fees. In the event an action or proceeding is brought by any party under this Agreement to enforce or construe any of its terms, the party that prevails by enforcing this Agreement shall be entitled to recover, in addition to all other amounts and relief, its reasonable costs and attorneys' fees incurred in connection with such action or proceeding.

21. Construction. Whenever the context requires, the singular shall include the plural and the plural shall include the singular, the whole shall include any part thereof, and any gender shall include all other genders. The headings in this Agreement are for convenience only and shall not limit, enlarge, or otherwise affect any of the terms of this Agreement. Unless otherwise indicated, all references in this Agreement to sections refer to the corresponding sections of this Agreement. This Agreement shall be construed as though all parties had drafted it.

22. Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same agreement. Counterparts and signatures transmitted by facsimile shall be valid, effective and enforceable as originals.

23. Indemnification. In the event that Executive is made a party or threatened to be made a party to any action, suit, or proceeding, whether civil, criminal, administrative, or investigative (a "Proceeding"), other than any Proceeding initiated by Executive or the Company related to any contest or dispute between Executive and the Company or any of its affiliates with respect to this Agreement or Executive's employment hereunder, by reason of the fact that Executive is or was a director or officer of the Company, or any affiliate of the Company, or is or was serving at the request of the Company as a director, officer, member, employee, or agent of another corporation or a partnership, joint venture, trust, or other enterprise, Executive shall be indemnified and held harmless by the Company to the fullest extent applicable to any other officer or director of the Company/to the maximum extent permitted under applicable law and the Company's bylaws from and against any liabilities, costs, claims, and expenses, including all costs and expenses incurred in defense of any Proceeding (including attorneys' fees). Costs and expenses incurred by Executive in defense of such Proceeding (including attorneys' fees) shall be paid by the Company in advance of the final disposition of such litigation upon receipt by the Company of: (i) a written request for payment; (ii) appropriate documentation evidencing the incurrence, amount, and nature of the costs and expenses for which payment is being sought; and (iii) an undertaking adequate under applicable law made by or on behalf of Executive to repay the amounts so paid if it shall ultimately be determined that Executive is not entitled to be indemnified by the Company under this Agreement. During the Term of this Agreement and while potential liability exists after the Employment Term, as determined by the Company in its sole reasonable discretion but in no event for a period of not less than six (6) years thereafter, the Company or any successor to the Company shall purchase and maintain, at its own expense, directors' and officers' liability insurance providing coverage to Executive on terms that are no less favorable than the coverage provided to other directors and similarly situated executives of the Company.

IN WITNESS WHEREOF, Executive has signed this Agreement personally and the Company has caused this Agreement to be executed by its duly authorized representative.

GREEN PLAINS INC.

By: /s/ Todd Becker
Name: Todd Becker
Title: Chief Executive Officer

Address:
Green Plains Inc.
1811 Aksarben Dr.
Omaha NE 68106

Executive

/s/ Grant Kadavy
Grant Kadavy, individually

Address:

____
____

EXHIBIT A

EXCLUDED INVENTIONS

Exhibit 10.2

GREEN PLAINS, INC.

EXECUTIVE CHANGE IN CONTROL SEVERANCE PLAN PARTICIPATION LETTER

August 2, 2023

Executive: Grant Kadavy (“Executive”) (via email)

Re: Participation Letter – Green Plains, Inc. Executive Change in Control Severance Plan

Dear Executive:

We are pleased to inform you that you have been designated as eligible to participate in the Green Plains, Inc. Executive Change in Control Severance Plan (as it may be amended from time to time, the “**Plan**”). Your “**Severance Multiple**” for purposes of the Plan is 1.5 times.

Your participation in the Plan is subject to the terms and conditions of the Plan and your execution and delivery of this agreement, which constitutes a Participation Letter. A copy of the Plan is attached hereto as Annex A and is incorporated herein and deemed to be part of this Participation Letter for all purposes. Capitalized terms used but not defined herein shall have the meanings set forth in the Plan.

In signing below, you expressly agree to be bound by, and promise to abide by, the terms of the Plan. You agree that the terms of the Plan are reasonable in all respects. You further acknowledge that receipt of severance benefits pursuant to the Plan is contingent upon your execution of a general release of claims at the time of your Separation from Service and continued compliance with your Post-Termination Obligations.

You further acknowledge and agree that (i) you have fully read, understand and voluntarily enter into this Participation Letter and (ii) you have had a sufficient opportunity to consult with your personal tax, financial planning advisor and attorney about the tax, financial and legal consequences of your participation in the Plan before signing this Participation Letter. Unless otherwise defined herein, capitalized terms used in this Participation Letter shall have the meanings set forth in the Plan. This Participation Letter may be executed in separate counterparts, each of which shall be deemed an original, but all of which taken together shall constitute one and the same instrument.

Please execute this Participation Letter in the space provided below and send a fully executed copy to Jamie Herbert no later than August 7, 2023.

[*Signature Page Follows*]

IN WITNESS WHEREOF, Executive and the Company have executed this agreement effective as of the date set forth below.

GREEN PLAINS, INC.

By:	*/s/ Todd Becker*
Name:	Todd Becker
Title	President & CEO

AGREED AND ACCEPTED

This 7th day of August, 2023 by:

/s/ Grant Kadavy

Grant Kadavy

SIGNATURE PAGE TO

PARTICIPATION LETTER

Exhibit 10.3

GREEN PLAINS INC.

RESTRICTED STOCK AGREEMENT

This Restricted Stock Agreement (the “Agreement”) is made this ___ day of ____, 20__ to ____________________ (the “Grantee”) and evidences the grant by Green Plains Inc., an Iowa corporation (the “Company”) of a Restricted Stock Award (the “Award”) to the Grantee on the date hereof (the “Date of Grant”) pursuant to the Company’s 2019 Equity Incentive Plan, as amended (the “Plan”). By accepting the Award, the Grantee agrees to be bound in accordance with the provisions of this Agreement and the Plan. Capitalized terms used but not defined herein shall have the same meaning as in the Plan.

1. ***Shares Awarded and Restrictions on Shares***. The Grantee is hereby awarded the following number of shares (the “Restricted Shares”) of the Company’s Common Stock (“Common Stock”), $.001 par value, subject to forfeiture and to the restriction on the rights of sale and transfer set forth in this document, the provisions of which are hereby incorporated in this document by reference:

Number of Restricted Shares:

This award is not effective unless accepted by Employee in the E*Trade system. The term “Restricted Shares” shall include all shares of Green Plains Common Stock issued in respect to the Restricted Shares which result from stock splits, stock dividends, division of shares, or other capital structure changes.

2. ***Sale or Transfer Restrictions***. All Restricted Shares shall be held by the Grantee without the rights of sale or transfer, and are subject to forfeiture as provided in paragraph 3, below, until the dates shown on the schedule below, when such restrictions shall lapse. The award shall become fully vested and all restrictions shall lapse according to the schedule shown below:

Number of Shares	**Vesting Date**
000	____, 20__
000	____, 20__
000	____, 20__

3. ***Employment Requirement***. In the event of Grantee’s Termination of Service prior to any date specified in Paragraph 2, above, the Restricted Shares for which restrictions shall not have lapsed will be forfeited by the Grantee and become the property of the Company.

4. ***Sale or Transfer Restrictions***. The Restricted Shares shall be owned by the Grantee without the rights of sale or transfer and subject to forfeiture as provided in Paragraph 3 until the date shown above when such restrictions shall lapse.

5. ***Shares of Record***. The Company will cause the number of awarded shares to be recorded in book entry format in the name of the Grantee on the shareholder records of the Company. No certificate or certificates evidencing the Restricted Shares will be issued in the name of the Grantee until such time as the restrictions shall lapse. By execution of this agreement and the acceptance of the Restricted Shares, Grantee authorizes the Company to cause the cancellation of the Restricted Shares in the event of forfeiture. If requested by Company the Grantee will deliver to the Company a stock power, executed in blank, covering the Restricted Shares. When the prohibited sale and transfer restrictions lapse under Paragraph 2 with respect to the Restricted Shares, provided the Restricted Shares have not been forfeited under Paragraph 3, the Company shall deliver to the Grantee a stock certificate for the number of Restricted Shares reduced by the number of shares of Common Stock having a value equal to the amount required pursuant to Paragraph 7 to be withheld for taxes upon the lapse of restrictions.

6. ***Voting and Other Rights of Restricted Shares***. Upon the book entry in the records of the Registrar representing the Restricted Shares, the Grantee shall have all of the rights of a stockholder of the Company, including the right to receive dividends (excluding stock dividends during the restriction period) and to vote the Restricted Shares until such shares may have been forfeited to the Company as provided in Paragraph 3.

7. ***Taxes***. The Grantee will be solely responsible for any federal, state, local or payroll taxes imposed in connection with the granting of the Restricted Shares or the delivery of the shares pursuant thereto, and the Grantee authorizes the Company or any Subsidiary to pay any withholding for taxes which the Company or any Subsidiary deems necessary or proper in connection therewith. The Company shall convert shares deemed necessary with such value based on the last sale price of the shares reported by NASDAQ on the date the amount of tax to be withheld is to be determined (i.e., when the restrictions lapse pursuant to Paragraph 2). The Company shall pay the dollar value of the withheld shares as withholding to applicable tax authorities.

8. ***Beneficiary***. The Grantee may designate a beneficiary or beneficiaries and may change such designation from time to time within E*Trade. No such designation shall be effective unless received prior to the death of the Grantee. In the absence of such designation or if the beneficiary so designated shall not survive the Grantee, the certificate or certificates shall be delivered to the estate of the Grantee.

9. ***Changes in Circumstances***. It is expressly understood and agreed that the Grantee assumes all risks incident to any change hereafter in the applicable laws or regulations or incident to any change in the market value of the Restricted Shares after the date hereof.

10. ***Committee Authority***. Any questions concerning the interpretation of this Award Agreement or the Plan, and any controversy which arises under this Award Agreement or the Plan shall be settled by the Compensation Committee in its sole discretion. All determinations and decisions of the Compensation Committee shall be final, conclusive, and binding on all persons, and shall be given the maximum deference permitted by law.

11. ***Governing Law***. Where applicable, the provisions of this Award Agreement shall be governed by the contract law of the State of Iowa.

12. ***Clawback***. This Award is subject to the terms of the Company's Clawback Policy as it may be in effect from time to time, as well as any similar provisions of applicable law, any of which could in certain circumstances required repayment or forfeiture of the Award or any shares of Common Stock or other cash or property received with respect to the Award (including any value received from a disposition of the shares acquired upon payment of the Award).

Notwithstanding anything to the contrary herein, vesting of this award shall occur, in the case of circumstances set forth in Appendix A as set forth therein.

To confirm the foregoing, please accept in the E*Trade system no later than ____ __, 20__, the final date for acceptance.

APPENDIX A

VESTING

- Termination with cause prior to the end of the Vesting Period: forfeited
- Resignation prior to end of the Vesting Period: forfeited
- Termination without cause prior to the end of the Vesting Period: pro-rata vesting
- Termination of employment without cause or resignation for Good Reason, within 24 months following and/or in connection with a change of control prior to the end of the Vesting Period: full vesting effective the date of Termination of Service
- Death or disability prior to the end of the Vesting Period: full vesting at date of death or disability
- Retirement at age 55 or later with ten or more years of continuous service: vesting continues subject to adherence with restrictive covenants; grants outstanding less than 12 months at time of retirement pro-rated based on portion of 12 months worked.

Good Reason definition. For those with employment agreements, the definitions and terms therein shall apply. For those without employment agreements, Good Reason shall mean: any of the following if the same occurs without Grantee's express written consent: (a) a material diminution in Grantee's base salary as of the date of the Award, which for such purposes shall be deemed to exist with a reduction of greater than fifteen percent (15%), other than a salary reduction generally applied to all executives as a part of a company- wide effort to enhance the Company's financial condition ; (b) a material diminution in Grantee's authority, duties, and responsibilities; (c) a material change in the geographic location (defined as greater than fifty (50) miles from Omaha, NE) at which Grantee must perform the services; or (d) any material reduction or other adverse change in Grantee's benefits, in the aggregate, under any applicable and properly approved compensation plan or arrangement without the substitution of comparable benefits. To terminate for Good Reason, a Grantee must incur a termination of employment on or before the second (2nd) anniversary of the initial existence of the condition. Grantee shall be required to provide notice to the Company of the existence of any of the foregoing conditions within 60 days of the initial existence of the condition, upon the notice of which the Company shall have a period of 30 days during which it may remedy the condition.

Exhibit 10.4

GREEN PLAINS INC.

PERFORMANCE SHARE UNIT AGREEMENT

This Performance Share Unit Agreement (the “Agreement”) is made this ___ day of ____, 20__ to ______________ (the “Grantee”) and evidences the grant by Green Plains Inc. (the “Company”) of a Performance Share Unit Award (the “Award”) to the Grantee on the date hereof (the “Date of Grant”) pursuant to the Company’s 2019 Equity Incentive Plan (the “Plan”). By accepting the Award, the Grantee agrees to be bound in accordance with the provisions of this Agreement and the Plan. Capitalized terms used but not defined herein shall have the same meaning as in the Plan.

1. ***Units Awarded***. The Grantee is hereby awarded ______ performance share units (“Units”), based on the closing price on ____ __, 20__ of $____. Each Unit represents the right to earn one share of the Company’s Common Stock, $0.001 par value per share (“Stock”), subject to the conditions set forth in this Agreement. The number of Units that the Grantee actually earns for the Performance Period (defined below) will be determined by the level of achievement of the Performance Goals in accordance with Appendix A.

This Award is not effective unless accepted by the Grantee in the E*Trade system.

2. ***Performance Period***. The term “Performance Period” means the period set forth in Appendix A and ending on December 31, 20__.

3. ***Performance Goals***.

(a) The number of Units earned by the Grantee for the Performance Period, if any, will be determined at the end of the Performance Period based on the level of achievement of the Performance Goals. All determinations of whether Performance Goals have been achieved, the number of Units earned by the Grantee, and all other matters, shall be made by the Committee in its sole discretion.

(b) No later than ______, 20__ (the “Vesting Date”), the Committee will review and determine in writing (i) whether, and to what extent, the Performance Goals for the Performance Period have been achieved, and (ii) the number of Units that the Grantee has earned, if any, subject to compliance with the requirements of Paragraph 4. Such determination shall be final, conclusive and binding on the Grantee, and on all other persons, to the maximum extent permitted by law.

4. ***Vesting of Units***. The Units are subject to forfeiture until they vest. The Units will vest and become nonforfeitable upon the Vesting Date, subject to (a) the achievement of the Performance Goals, and (b) the Grantee’s not having had a Termination of Service prior to the Vesting Date. In the event of cessation of employment, Units shall be treated as set forth in Appendix B.

5. ***Change in Control***. If a Change in Control occurs during the Performance Period, and the acquirer terminates or does not assume the Units or substitute comparable share units for the Units, the Units shall vest, without pro-ration, on the effective date of the Change in Control, based on the Committee’s assessment of the Company’s performance relative to the Performance Goals, and shall be paid within ten days following the effective date of the Change in Control. In the event of a Change in Control and the acquirer assumes the Units, the Units shall be treated as set forth in Appendix B.

6. ***Payment of Units***. Payment in respect of the Units earned for the Performance Period shall be made in shares of Stock and shall be issued to the Grantee within 10 days following the Vesting Date. The Company shall deliver to the Grantee a stock certificate for the number of earned and vested Units reduced by the number of shares of Stock having a value equal to the amount determined by the Company to be withheld for all applicable taxes pursuant to Section 21.

7. ***Transferability***. Subject to any exceptions set forth in this Agreement or the Plan, the Units and the rights relating thereto may not be assigned, alienated, pledged, attached, sold, or otherwise transferred or encumbered by the Grantee. Notwithstanding the foregoing, the Grantee may designate a beneficiary or beneficiaries and may change such designation from time to time by filing a written designation thereof with the Secretary of the Company. No such designation shall be effective unless received prior to the death of Grantee. In the absence of such designation or if the beneficiary so designated shall not survive Grantee, the certificate or certificates shall be delivered to the estate of the Grantee.

8. ***Rights as Common Stockholder***. Grantee shall not have voting or any other rights as a stockholder of the Company with respect to the Units. Dividends or dividend equivalents will not be paid with respect to the Units. Upon the issuance of a certificate for shares of Stock, Grantee will obtain full voting and other rights as a stockholder of the Company.

9. ***No Right to Continued Service***. Neither the Plan nor this Agreement shall confer upon the Grantee any right to be retained in any position, as an Employee, consultant or director of the Company. Further, nothing in the Plan or

this Agreement shall be construed to limit the discretion of the Company to terminate the Grantee's employment or other service at any time, with or without Cause.

10. ***Waiver of Breach***. The waiver by either party of a breach of any provision of this Agreement must be in writing and shall not operate or be construed as a waiver of any other or subsequent breach.

11. ***Grantee's Undertaking***. Grantee hereby agrees to take whatever additional actions and execute whatever additional documents the Company may in its reasonable judgment deem necessary or advisable in order to carry out or affect one or more of the obligations or restrictions imposed on Grantee pursuant to the express provisions of this Agreement and the Plan. Grantee further agrees that if he or she is or becomes an insider of the Company for purposes of any applicable securities or other law or the Company's insider trading policy, then the disposal of shares acquired pursuant to this Agreement shall be subject to restrictions under such law or policy.

12. ***Modification of Rights***. The rights of Grantee under this Agreement are subject to modification and termination in certain events as provided herein and/or the Plan.

13. ***Compliance with Law***. The issuance and transfer of shares of Stock in connection with the Units shall be subject to compliance by the Company and the Grantee with all applicable requirements of federal and state securities laws and with all applicable requirements of the NASDAQ exchange. No shares of Stock shall be issued or transferred unless and until any then applicable requirements of state and federal laws and regulatory agencies have been fully complied with to the satisfaction of the Company and its counsel.

14. ***Change in Market Value***. It is expressly understood and agreed that the Grantee assumes all risks incident to any change hereafter in the applicable laws or regulations or incident to any change in the market value of the Stock after the Date of Grant.

15. ***Committee Authority***. Any questions concerning the interpretation of this Agreement or the Plan, and any controversy which arises under this Agreement or the Plan shall be settled by the Committee in its sole discretion. All determinations and decisions of the Committee shall be final, conclusive, and binding on all persons, and shall be given the maximum deference permitted by law.

16. ***Governing Law***. This Agreement shall be governed under the laws of the State of Iowa without regard to the principles of conflicts of laws.

17. ***Successors and Assigns***. The Company may assign any of its rights under this Agreement. This Agreement will be binding upon and inure to the benefit of the successors and assigns of the Company. Subject to the restrictions on transfer set forth herein, this Agreement will be binding upon the Grantee and the Grantee's beneficiaries, executors, administrators and the person(s) to whom the Units may be transferred by will or the laws of descent or distribution.

18. ***Entire Agreement/Severability***. This Agreement and the Plan constitute the entire agreement between the parties with respect to the subject matter hereof and thereof and supersede all prior written or oral negotiations, commitments, representations and agreements with respect thereto. If any particular provision of this Agreement shall be adjudicated by a court of competent jurisdiction to be invalid, prohibited or unenforceable for any reason, such provision, as to such jurisdiction, shall be ineffective, without invalidating the remaining provisions of this Agreement or affecting the validity or enforceability of such provision in any other jurisdiction.

19. ***Discretionary Nature of Plan***. The Plan is discretionary and may be amended, cancelled or terminated by the Company at any time, in its discretion. The grant of the Units in this Agreement does not create any contractual right or other right to receive any Units or other Awards in the future. Future Awards, if any, will be at the sole discretion of the Company. Any amendment, modification, or termination of the Plan shall not constitute a change or impairment of the terms and conditions of the Grantee's employment with the Company.

20. ***Amendment***. The Committee has the right to amend, alter, suspend, discontinue or cancel the Units, prospectively or retroactively; provided, however, that no such amendment shall adversely affect the Grantee's material rights under this Agreement without the Grantee's consent.

21. ***Taxes***. Grantee will be solely responsible for any federal, state, local or payroll taxes imposed in connection with the granting of the Units or the delivery of the shares of Stock pursuant thereto, and Grantee authorizes the Company or any Subsidiary to pay any withholding for taxes which the Company or any Subsidiary deems necessary or proper in connection therewith. The Company shall convert shares deemed necessary with such value based on the last sale price of the shares reported by NASDAQ on the date the amount of tax to be withheld is to be determined (i.e., on the Vesting Date). The Company shall pay the dollar value of the withheld shares as withholding to applicable tax authorities.

22. ***Section 409A***. This Agreement is intended to comply with an exemption to Section 409A of the Code and shall be construed and interpreted in a manner that is consistent with the requirements for avoiding additional taxes or penalties under Section 409A of the Code. Notwithstanding the foregoing, the Company makes no representations that the payments and benefits provided under this Agreement comply with Section 409A of the Code and in no event shall the Company be liable for all or any portion of any taxes, penalties, interest or other expenses that may be incurred by the Grantee on account of non-compliance with Section 409A of the Code.

23. ***Clawback***. This Award is subject to the terms of the Company's Clawback Policy as it may be in effect from time to time, as well as any similar provisions of applicable law, any of which could in certain circumstances required repayment or forfeiture of the Award or any shares of Common Stock or other cash or property received with respect to the Award (including any value received from a disposition of the shares acquired upon payment of the Award).

To confirm the foregoing, please accept in the E*Trade system by no later than ____ __, 20__, the final date for acceptance.

By your acceptance, you and the Company agree that this Award is granted under and governed by the terms and conditions of this Award Agreement.

APPENDIX A

[Determined each year by Compensation Committee]

APPENDIX B

Scenario	PSUs*
Death/Disability	Payout at the end of the Performance Period, based on actual performance at end of Performance Period (not pro-rated)
Retirement at age 55 or later with 10 or more years of continuous service	Vesting continues subject to adherence with restrictive covenants; grants outstanding less than 12 months at time of retirement pro-rated based on portion of 12 months worked. Payout based on actual performance at the end of the Performance Period
Involuntary Termination without Cause; Voluntary Resignation for Good Reason (as applicable)	Pro-rata vesting based on months employed during the Performance Period, based on Committee's assessment of Company performance against the Performance Goals as of the Termination of Service, with payout as soon as practical following the date of Termination of Service
Resignation	Awards are forfeited
Change in Control ("CIC")	Upon the CIC, PSUs convert to a number of time-based RSUs based on performance-to-date including the CIC, based on the Committee's assessment of Company performance against the Performance Goals; converted RSUs vest subject to continued service at the end of original Performance Period, subject to "double-trigger" vesting acceleration. "Double-trigger" vesting acceleration (i.e., vesting accelerates if either (a) successor entity does not assume, convert, continue the awards or (b) if successor does assume, convert, continue the awards and the participant is terminated without Cause (or resigns for Good Reason, if applicable) within 24 months of the CIC)
Any Other Termination	Unvested awards are forfeited

Good Reason definition. For those with employment agreements, the definition therein shall apply. For those without employment agreements, Good Reason shall mean: any of the following if the same occurs without Grantee's express written consent: (a) a material diminution in Grantee's base salary as of the date of the Award, which for such purposes shall be deemed to exist with a reduction of greater than fifteen percent (15%), other than a salary reduction generally applied to all executives as a part of a company-wide effort to enhance the Company's financial condition ; (b) a material diminution in Grantee's authority, duties, or responsibilities; (c) a material change in the geographic location (defined as greater than fifty (50) miles from Omaha, NE) at which Grantee must perform the services; or (e) any material reduction or other adverse change in Grantee's benefits, in the aggregate, under any applicable and properly approved compensation plan or arrangement without the substitution of comparable benefits. To terminate for Good Reason, a Grantee must incur a termination of employment on or before the second (2nd) anniversary of the initial existence of the condition. Grantee shall be required to provide notice to the Company of the existence of any of the foregoing conditions within 60 days of the initial existence of the condition, upon the notice of which the Company shall have a period of 30 days during which it may remedy the condition.

Exhibit 31.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER
PURSUANT TO RULE 13a-14(a) AND SECTION 302 OF THE SARBANES OXLEY ACT OF 2002

I, Todd A. Becker, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Green Plains Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f) for the registrant and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 3, 2024

/s/ Todd A. Becker

Todd A. Becker
President and Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER
PURSUANT TO RULE 13a-14(a) AND SECTION 302 OF THE SARBANES OXLEY ACT OF 2002

I, James E. Stark, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Green Plains Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f) for the registrant and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 3, 2024

/s/ James E. Stark

James E. Stark
Chief Financial Officer
(Principal Financial Officer)

Exhibit 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**

In connection with the Quarterly Report of Green Plains Inc. (the “company”) on Form 10-Q for the fiscal quarter ended March 31, 2024, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Todd A. Becker, President and Chief Executive Officer of the company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

1) The Report fully complies with the requirements of Sections 13(a) or 15(d) of the Securities Exchange Act of 1934; and

2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the company.

Date: May 3, 2024

/s/ Todd A. Becker

Todd A. Becker

President and Chief Executive Officer

Exhibit 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**

In connection with the Quarterly Report of Green Plains Inc. (the “company”) on Form 10-Q for the fiscal quarter ended March 31, 2024, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, James E. Stark, Chief Financial Officer of the company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

1) The Report fully complies with the requirements of Sections 13(a) or 15(d) of the Securities Exchange Act of 1934; and

2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the company.

Date: May 3, 2024

/s/ James E. Stark

James E. Stark

Chief Financial Officer