

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 June 30, 2022

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

(State or other jurisdiction of incorporation or organization)

84-1652107

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

1811 Aksarben Drive, Omaha, NE 68106

(Address of principal executive offices, including zip code)

(402) 884-8700

(Registrant's telephone number, including area code)

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

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

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 58,092,288 common stock outstanding as of July 28, 2022.

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Commonly Used Defined Terms

Green Plains Inc. and Subsidiaries:

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:

AOCI	Accumulated Other Comprehensive Income
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
LIBOR	London Interbank Offered Rate
SEC	Securities and Exchange Commission
SOFR	Secured Overnight Financing Rate

Industry and Other Defined Terms:

BlackRock	Funds and accounts managed by BlackRock
the CARES Act	Coronavirus Aid, Relief, and Economic Security Act
COVID-19	Coronavirus Disease 2019
CST	Clean Sugar Technology™
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
FFV	Flexible-fuel vehicle
LCFS	Low Carbon Fuel Standard
MmBtu	Million British Thermal Units
Mmg	Million gallons
MSC™	Maximized Stillage Coproducts produced using process technology developed by Fluid Quip Technologies LLC
MTBE	Methyl tertiary-butyl ether
RFS	Renewable Fuels Standard
RIN	Renewable identification number
RVO	Renewable volume obligation
SRE	Small refinery exemption
U.S.	United States
USDA	U.S. Department of Agriculture

PART 1 – FINANCIAL INFORMATION

Item 1. Financial Statements.

GREEN PLAINS INC. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS

(in thousands, except share amounts)

	June 30, 2022	December 31, 2021
	(unaudited)	
ASSETS		
Current assets		
Cash and cash equivalents	\$ 508,151	\$ 426,220
Restricted cash	71,128	134,739
Marketable securities	24,966	124,859
Accounts receivable, net of allowances of \$204 and \$682, respectively	158,363	119,961
Income taxes receivable	1,067	911
Inventories	315,040	267,838
Prepaid expenses and other	20,634	16,483
Derivative financial instruments	60,347	26,738
Total current assets	1,159,696	1,117,749
Property and equipment, net of accumulated depreciation and amortization of \$602,752 and \$567,027, respectively	980,917	893,517
Operating lease right-of-use assets	66,681	64,042
Other assets	88,714	84,447
Total assets	\$ 2,296,008	\$ 2,159,755
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities		
Accounts payable	\$ 127,163	\$ 146,063
Accrued and other liabilities	45,115	56,980
Derivative financial instruments	49,959	43,244
Operating lease current liabilities	17,768	16,814
Short-term notes payable and other borrowings	308,405	173,418
Current maturities of long-term debt	99,164	35,285
Total current liabilities	647,574	471,804
Long-term debt	495,027	514,006
Operating lease long-term liabilities	51,996	49,795
Other liabilities	19,682	22,131
Total liabilities	1,214,279	1,057,736
Commitments and contingencies (Note 13)		
Stockholders' equity		
Common stock, \$0.001 par value; 150,000,000 shares authorized; 62,086,595 and 61,840,434 shares issued, and 53,842,139 and 53,595,978 shares outstanding, respectively	62	62
Additional paid-in capital	1,069,921	1,069,573
Retained deficit	(30,275)	(15,199)
Accumulated other comprehensive loss	(16,909)	(12,310)
Treasury stock, 8,244,456 shares	(91,626)	(91,626)
Total Green Plains stockholders' equity	931,173	950,500
Noncontrolling interests	150,556	151,519
Total stockholders' equity	1,081,729	1,102,019
Total liabilities and stockholders' equity	\$ 2,296,008	\$ 2,159,755

See accompanying notes to the consolidated financial statements.

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

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Revenues				
Product revenues	\$ 1,009,935	\$ 721,786	\$ 1,786,625	\$ 1,273,766
Service revenues	2,459	2,632	7,204	4,292
Total revenues	<u>1,012,394</u>	<u>724,418</u>	<u>1,793,829</u>	<u>1,278,058</u>
Costs and expenses				
Cost of goods sold (excluding depreciation and amortization expenses reflected below)	921,314	639,408	1,693,823	1,148,641
Operations and maintenance expenses	6,159	6,237	11,725	11,991
Selling, general and administrative expenses	30,113	23,383	60,976	46,901
Loss (gain) on sale of assets, net	—	3,825	—	(33,068)
Depreciation and amortization expenses	20,967	20,532	41,366	41,213
Total costs and expenses	<u>978,553</u>	<u>693,385</u>	<u>1,807,890</u>	<u>1,215,678</u>
Operating income (loss)	<u>33,841</u>	<u>31,033</u>	<u>(14,061)</u>	<u>62,380</u>
Other income (expense)				
Interest income	806	441	877	471
Interest expense	(7,800)	(19,058)	(16,606)	(50,737)
Other, net	28,165	(1,250)	28,576	(1,240)
Total other income (expense)	<u>21,171</u>	<u>(19,867)</u>	<u>12,847</u>	<u>(51,506)</u>
Income (loss) before income taxes and income (loss) from equity method investees	55,012	11,166	(1,214)	10,874
Income tax benefit (expense)	(2,895)	4,783	(1,742)	2,921
Income (loss) from equity method investees	603	168	(196)	343
Net income (loss)	<u>52,720</u>	<u>16,117</u>	<u>(3,152)</u>	<u>14,138</u>
Net income attributable to noncontrolling interests	6,322	6,374	11,924	10,940
Net income (loss) attributable to Green Plains	<u>\$ 46,398</u>	<u>\$ 9,743</u>	<u>\$ (15,076)</u>	<u>\$ 3,198</u>
Earnings per share:				
Net income (loss) attributable to Green Plains - basic	<u>\$ 0.87</u>	<u>\$ 0.21</u>	<u>\$ (0.28)</u>	<u>\$ 0.08</u>
Net income (loss) attributable to Green Plains - diluted	<u>\$ 0.73</u>	<u>\$ 0.20</u>	<u>\$ (0.28)</u>	<u>\$ 0.07</u>
Weighted average shares outstanding:				
Basic	<u>53,033</u>	<u>45,425</u>	<u>52,960</u>	<u>41,581</u>
Diluted	<u>66,895</u>	<u>58,171</u>	<u>52,960</u>	<u>42,675</u>

See accompanying notes to the consolidated financial statements.

GREEN PLAINS INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(unaudited and in thousands)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Net income (loss)	\$ 52,720	\$ 16,117	\$ (3,152)	\$ 14,138
Other comprehensive income (loss), net of tax:				
Unrealized gains (losses) on derivatives arising during the period, net of tax benefit (expense) of \$3,579, (\$1,616), \$1,658 and (\$89), respectively	(10,535)	5,131	(5,149)	282
Reclassification of realized losses on derivatives, net of tax benefit of (\$878), (\$1,246), (\$177) and (\$812), respectively	2,515	3,961	550	2,584
Total other comprehensive income (loss), net of tax	(8,020)	9,092	(4,599)	2,866
Comprehensive income (loss)	44,700	25,209	(7,751)	17,004
Comprehensive income attributable to noncontrolling interests	6,322	6,374	11,924	10,940
Comprehensive income (loss) attributable to Green Plains	\$ 38,378	\$ 18,835	\$ (19,675)	\$ 6,064

See accompanying notes to the consolidated financial statements.

GREEN PLAINS INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(unaudited and in thousands)

	Six Months Ended June 30,	
	2022	2021
Cash flows from operating activities:		
Net income (loss)	\$ (3,152)	\$ 14,138
Adjustments to reconcile net income (loss) to net cash used in operating activities:		
Depreciation and amortization	41,366	41,213
Amortization of debt issuance costs and debt discount	2,450	4,879
Gain on sale of assets, net	—	(31,757)
Loss on extinguishment of debt	—	31,636
Deferred income taxes	1,482	(2,900)
Stock-based compensation	4,257	1,967
Loss (income) from equity method investees	196	(343)
Other	1,128	(217)
Changes in operating assets and liabilities before effects of business combinations and dispositions:		
Accounts receivable	(41,162)	(22,022)
Inventories	(47,202)	(15,910)
Derivative financial instruments	(33,020)	(14,331)
Prepaid expenses and other assets	(4,151)	(545)
Accounts payable and accrued liabilities	(25,463)	(39,183)
Current income taxes	(45)	(428)
Other	(3,325)	3,591
Net cash used in operating activities	(106,641)	(30,212)
Cash flows from investing activities:		
Purchases of property and equipment, net	(128,283)	(59,899)
Proceeds from the sale of assets	—	73,846
Proceeds from the sale of marketable securities	99,917	—
Other investing activities	(6,976)	(4,000)
Net cash provided by (used in) investing activities	(35,342)	9,947
Cash flows from financing activities:		
Proceeds from the issuance of long-term debt	45,000	355,000
Payments of principal on long-term debt	(1,204)	(135,858)
Proceeds from short-term borrowings	1,406,520	1,682,698
Payments on short-term borrowings	(1,271,026)	(1,698,731)
Payments on extinguishment of convertible debt	—	(20,861)
Payments of cash distributions	(11,251)	(2,790)
Proceeds from issuance of common stock, net	—	191,134
Payments of loan fees	(2,522)	(8,614)
Payments related to tax withholdings for stock-based compensation	(3,790)	(4,480)
Other financing activities	(1,424)	3,330
Net cash provided by financing activities	160,303	360,828
Net change in cash, cash equivalents and restricted cash	18,320	340,563
Cash, cash equivalents and restricted cash, beginning of period	560,959	274,810
Cash, cash equivalents and restricted cash, end of period	\$ 579,279	\$ 615,373

Continued on the following page

GREEN PLAINS INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(unaudited and in thousands)

Continued from the previous page

	Six Months Ended June 30,	
	2022	2021
Reconciliation of total cash, cash equivalents and restricted cash:		
Cash and cash equivalents	\$ 508,151	\$ 496,932
Restricted cash	71,128	118,441
Total cash, cash equivalents and restricted cash	<u>\$ 579,279</u>	<u>\$ 615,373</u>
Non-cash financing activities:		
Exchange of 4.00% convertible notes due 2024	\$ —	\$ 51,000
Exchange of common stock held in treasury stock for 4.00% convertible notes due 2024	\$ —	\$ 39,661
Supplemental investing activities:		
Assets disposed of in sale	\$ —	\$ 40,361
Less: liabilities relinquished	—	(156)
Net assets disposed	<u>\$ —</u>	<u>\$ 40,205</u>
Supplemental disclosures of cash flow:		
Cash paid for income taxes, net	\$ 305	\$ 576
Cash paid for interest	\$ 14,803	\$ 16,675
Capital expenditures in accounts payable	\$ 6,707	\$ 19,110
Cash premium paid for extinguishment of convertible notes	\$ —	\$ 20,861

See accompanying notes to the consolidated financial statements.

GREEN PLAINS INC. AND SUBSIDIARIES
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. As of June 30, 2022, the company owns a 48.9% limited partner interest and a 2.0% general partner interest in Green Plains Partners LP. Public investors own the remaining 49.1% limited partner interest in the partnership. The company determined that the limited partners in the partnership with equity at risk lack the power, through voting rights or similar rights, to direct the activities that most significantly impact the partnership’s economic performance; therefore, the partnership is considered a variable interest entity. The company, through its ownership of the general partner interest in the partnership, has the power to direct the activities that most significantly affect economic performance and is obligated to absorb losses and has the right to receive benefits that could be significant to the partnership. Therefore, the company is considered the primary beneficiary and consolidates the partnership in the company’s financial statements. The assets of the partnership cannot be used by the company for general corporate purposes. The partnership’s consolidated total assets as of June 30, 2022 and December 31, 2021, excluding intercompany balances, are \$100.1 million and \$100.3 million, respectively, and primarily consist of property and equipment, operating lease right-of-use assets and goodwill. The partnership’s consolidated total liabilities as of June 30, 2022 and December 31, 2021, excluding intercompany balances, are \$113.4 million and \$111.4 million, respectively, which primarily consist of long-term debt as discussed in *Note 8 – Debt* and operating lease liabilities. The liabilities recognized as a result of consolidating the partnership do not represent additional claims on the company’s general assets.

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

The accompanying unaudited 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 notes required by GAAP, 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, 2021, filed with the SEC on February 18, 2022.

The unaudited 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.

Use of Estimates in the Preparation of Consolidated Financial Statements

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

Description of Business

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

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, for payment towards a credit agreement, or for capital expenditures as specified in certain credit facility agreements. Restricted cash also includes cash margins and securities pledged to commodity exchange clearinghouses and at times, funds in escrow related to acquisition and disposition activities. To the degree these segregated balances are cash and cash equivalents, they are considered restricted cash on the consolidated balance sheets.

Marketable Securities

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

Revenue Recognition

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

Sales of ethanol, distillers grains, 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. Energy trading transactions are reported net as a component of revenue. Revenues include net gains or losses from derivatives related to products sold while cost of goods sold includes net gains or losses from derivatives related to commodities purchased. Revenues also include realized gains and losses on related derivative financial instruments and reclassifications of realized gains and losses on cash flow hedges from accumulated other comprehensive income or loss.

Sales of products, including agricultural commodities, are recognized when control of the product is transferred to the customer, which depends on the agreed upon shipment or delivery terms. Revenues related to grain merchandising are presented gross and include shipping and handling, which is also a component of cost of goods sold. Revenues from grain storage are recognized over time as the services are rendered.

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

Shipping and Handling Costs

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

Cost of Goods Sold

Cost of goods sold includes direct labor, materials, shipping and plant overhead costs. Direct labor includes all compensation and related benefits of non-management personnel involved in ethanol production. Grain purchasing and receiving costs, excluding labor costs for grain buyers and scale operators, are also included in cost of goods sold. 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. Plant overhead consists primarily of plant utilities, repairs and maintenance and outbound freight charges. Shipping costs incurred by the company, including railcar costs, are also reflected in cost of goods sold.

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, 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. Forward purchase and sale contracts are valued at market prices when available or other market quotes adjusted for basis differences, primarily in transportation, between the exchange-traded market and local market where the terms of the contract is based. Changes in forward purchase contracts and exchange-traded futures and options contracts are recognized as a component of cost of goods sold.

Operations and Maintenance Expenses

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

Derivative Financial Instruments

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

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

The company evaluates its physical delivery contracts to determine if they qualify for normal purchase or sale exemptions which are expected to be used or sold over a reasonable period in the normal course of business. Contracts that do not meet the normal purchase or sale criteria are recorded at fair value. 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.

2. REVENUE

Revenue by Source

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

	Three Months Ended June 30, 2022				
	Ethanol Production	Agribusiness & Energy Services	Partnership	Eliminations	Total
Revenues:					
Revenues from contracts with customers under ASC 606:					
Ethanol	\$ —	\$ —	\$ —	\$ —	\$ —
Distillers grains	9,401	—	—	—	9,401
Corn oil	—	—	—	—	—
Service revenues	1,547	—	912	—	2,459
Other	5,729	1,661	—	—	7,390
Intersegment revenues	—	234	2,053	(2,287)	—
Total revenues from contracts with customers	16,677	1,895	2,965	(2,287)	19,250
Revenues from contracts accounted for as derivatives under ASC 815 ⁽¹⁾ :					
Ethanol	644,641	138,032	—	—	782,673
Distillers grains	143,435	8,173	—	—	151,608
Corn oil	51,956	1,551	—	—	53,507
Other	4,457	899	—	—	5,356
Intersegment revenues	—	7,009	—	(7,009)	—
Total revenues from contracts accounted for as derivatives	844,489	155,664	—	(7,009)	993,144
Leasing revenues under ASC 842 ⁽²⁾ :	—	—	16,689	(16,689)	—
Total Revenues	\$ 861,166	\$ 157,559	\$ 19,654	\$ (25,985)	\$ 1,012,394

Six Months Ended June 30, 2022

	Ethanol Production	Agribusiness & Energy Services	Partnership	Eliminations	Total
Revenues:					
Revenues from contracts with customers under ASC 606:					
Ethanol	\$ —	\$ —	\$ —	\$ —	\$ —
Distillers grains	16,763	—	—	—	16,763
Corn oil	—	—	—	—	—
Service revenues	5,287	—	1,917	—	7,204
Other	15,350	2,949	—	—	18,299
Intersegment revenues	—	234	3,938	(4,172)	—
Total revenues from contracts with customers	37,400	3,183	5,855	(4,172)	42,266
Revenues from contracts accounted for as derivatives under ASC 815 ⁽¹⁾ :					
Ethanol	1,116,563	233,692	—	—	1,350,255
Distillers grains	241,947	23,299	—	—	265,246
Corn oil	92,845	3,957	—	—	96,802
Other	9,964	29,296	—	—	39,260
Intersegment revenues	—	12,844	—	(12,844)	—
Total revenues from contracts accounted for as derivatives	1,461,319	303,088	—	(12,844)	1,751,563
Leasing revenues under ASC 842 ⁽²⁾ :	—	—	32,899	(32,899)	—
Total Revenues	\$ 1,498,719	\$ 306,271	\$ 38,754	\$ (49,915)	\$ 1,793,829

Three Months Ended June 30, 2021

	Ethanol Production	Agribusiness & Energy Services	Partnership	Eliminations	Total
Revenues:					
Revenues from contracts with customers under ASC 606:					
Ethanol	\$ —	\$ —	\$ —	\$ —	\$ —
Distillers grains	4,425	—	—	—	4,425
Corn oil	—	—	—	—	—
Service revenues	1,462	—	1,159	—	2,621
Other	12,367	2,217	—	—	14,584
Intersegment revenues	—	—	2,172	(2,172)	—
Total revenues from contracts with customers	18,254	2,217	3,331	(2,172)	21,630
Revenues from contracts accounted for as derivatives under ASC 815 ⁽¹⁾ :					
Ethanol	413,592	138,931	—	—	552,523
Distillers grains	95,465	9,015	—	—	104,480
Corn oil	25,349	7,775	—	—	33,124
Grain	—	10,798	—	—	10,798
Other	2,613	(761)	—	—	1,852
Intersegment revenues	—	5,512	—	(5,512)	—
Total revenues from contracts accounted for as derivatives	537,019	171,270	—	(5,512)	702,777
Leasing revenues under ASC 842 ⁽²⁾ :	—	—	16,370	(16,359)	11
Total Revenues	\$ 555,273	\$ 173,487	\$ 19,701	\$ (24,043)	\$ 724,418

Six Months Ended June 30, 2021

	Ethanol Production	Agribusiness & Energy Services	Partnership	Eliminations	Total
Revenues:					
Revenues from contracts with customers under ASC 606:					
Ethanol	\$ —	\$ —	\$ —	\$ —	\$ —
Distillers grains	8,038	—	—	—	8,038
Corn oil	—	—	—	—	—
Service revenues	2,025	—	2,216	—	4,241
Other	16,429	3,043	—	—	19,472
Intersegment revenues	—	—	4,178	(4,178)	—
Total revenues from contracts with customers	26,492	3,043	6,394	(4,178)	31,751
Revenues from contracts accounted for as derivatives under ASC 815 ⁽¹⁾ :					
Ethanol	703,177	214,843	—	—	918,020
Distillers grains	191,159	18,254	—	—	209,413
Corn oil	39,889	12,586	—	—	52,475
Grain	—	22,968	—	—	22,968
Other	18,278	25,102	—	—	43,380
Intersegment revenues	—	10,635	—	(10,635)	—
Total revenues from contracts accounted for as derivatives	952,503	304,388	—	(10,635)	1,246,256
Leasing revenues under ASC 842 ⁽²⁾ :	—	—	33,713	(33,662)	51
Total Revenues	\$ 978,995	\$ 307,431	\$ 40,107	\$ (48,475)	\$ 1,278,058

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

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

Major Customers

Revenues from Customer A represented 14% and 12% of total revenues for the three and six months ended June 30, 2022, respectively, and revenues from Customer B represented 12% and 10% of total revenues for the three and six months ended June 30, 2022, respectively, recorded within the ethanol production segment. No single customer's revenue was over 10% of total revenues for the three and six months ended June 30, 2021.

3. DISPOSITION

Disposition of Ord Ethanol Plant

On March 22, 2021, the company completed the sale of the plant located in Ord, Nebraska and certain related assets, to GreenAmerica Biofuels Ord LLC (the "Ord Transaction") for a sale price of \$64.0 million, plus working capital of \$9.8 million. Correspondingly, the company entered into a separate asset purchase agreement with the Partnership to acquire the storage assets and assign the rail transportation assets to be disposed of in the Ord Transaction for \$27.5 million, which was used to pay down a portion of the partnership's credit facility. The divested assets were reported within the company's ethanol production, agribusiness and energy services and partnership segments. The company recorded a pretax gain on the sale of the Ord plant of \$35.9 million within corporate activities during the six months ended June 30, 2021.

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. Grain purchase and sale contracts in the agribusiness and energy services segment 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 June 30, 2022		
	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Total
Assets:			
Cash and cash equivalents	\$ 508,151	\$ —	\$ 508,151
Restricted cash	71,128	—	71,128
Inventories carried at market	—	58,185	58,185
Derivative financial instruments - assets	—	40,474	40,474
Other assets	110	54	164
Total assets measured at fair value	\$ 579,389	\$ 98,713	\$ 678,102
Liabilities:			
Accounts payable ⁽¹⁾	\$ —	\$ 8,356	\$ 8,356
Accrued and other liabilities ⁽²⁾	—	3,021	3,021
Derivative financial instruments - liabilities	—	49,959	49,959
Other liabilities ⁽²⁾	—	6,553	6,553
Total liabilities measured at fair value	\$ —	\$ 67,889	\$ 67,889

Fair Value Measurements at December 31, 2021

	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Total
Assets:			
Cash and cash equivalents	\$ 426,220	\$ —	\$ 426,220
Restricted cash	134,739	—	134,739
Inventories carried at market	—	72,320	72,320
Derivative financial instruments - assets	—	26,738	26,738
Other assets	111	8	119
Total assets measured at fair value	\$ 561,070	\$ 99,066	\$ 660,136
Liabilities:			
Accounts payable ⁽¹⁾	\$ —	\$ 12,617	\$ 12,617
Accrued and other liabilities ⁽²⁾	—	3,260	3,260
Derivative financial instruments - liabilities	—	26,117	26,117
Other liabilities ⁽²⁾	—	7,788	7,788
Total liabilities measured at fair value	\$ —	\$ 49,782	\$ 49,782

(1) Accounts payable is generally stated at historical amounts with the exception of \$8.4 million and \$12.6 million at June 30, 2022 and December 31, 2021, 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 June 30, 2022 and December 31, 2021, respectively, accrued and other liabilities includes \$3.0 million and \$3.3 million and other liabilities includes \$6.5 million and \$7.6 million of consideration related to potential earn-out payments recorded at fair value.

As of June 30, 2022, the fair value of the company's debt was approximately \$984.4 million compared with a book value of \$902.6 million. At December 31, 2021, the fair value of the company's debt was approximately \$891.1 million compared with a book value of \$722.7 million. The company estimated the fair value of its outstanding debt using Level 2 inputs. The company believes the fair values of its marketable securities approximated book value, which was \$25.0 million and \$124.9 million at June 30, 2022 and December 31, 2021, respectively. The company believes the fair values of its accounts receivable approximated book value, which was \$158.4 million and \$120.0 million at June 30, 2022 and December 31, 2021, respectively.

Although the company currently does not have any recurring Level 3 financial measurements, the fair values of tangible and intangible 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 three operating segments: (1) ethanol production, which includes the production of ethanol, including industrial-grade alcohol, distillers grains, Ultra-High Protein and corn oil, (2) agribusiness and energy services, which includes grain handling and storage, commodity marketing and merchant trading for company-produced and third-party ethanol, distillers grains, corn oil, natural gas and other commodities, and (3) partnership, which includes fuel storage and transportation services.

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

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

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

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Revenues:				
Ethanol production:				
Revenues from external customers	\$ 861,166	\$ 555,273	\$ 1,498,719	\$ 978,995
Intersegment revenues	—	—	—	—
Total segment revenues	861,166	555,273	1,498,719	978,995
Agribusiness and energy services:				
Revenues from external customers	150,316	167,975	293,193	296,796
Intersegment revenues	7,243	5,512	13,078	10,635
Total segment revenues	157,559	173,487	306,271	307,431
Partnership:				
Revenues from external customers	912	1,170	1,917	2,267
Intersegment revenues	18,742	18,531	36,837	37,840
Total segment revenues	19,654	19,701	38,754	40,107
Revenues including intersegment activity	1,038,379	748,461	1,843,744	1,326,533
Intersegment eliminations	(25,985)	(24,043)	(49,915)	(48,475)
	\$ 1,012,394	\$ 724,418	\$ 1,793,829	\$ 1,278,058

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

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Cost of goods sold:				
Ethanol production	\$ 804,821	\$ 493,656	\$ 1,466,381	\$ 909,181
Agribusiness and energy services	143,656	170,181	278,095	286,255
Intersegment eliminations	(27,163)	(24,429)	(50,653)	(46,795)
	\$ 921,314	\$ 639,408	\$ 1,693,823	\$ 1,148,641

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Gross margin:				
Ethanol production	\$ 56,345	\$ 61,617	\$ 32,338	\$ 69,814
Agribusiness and energy services	13,903	3,306	28,176	21,176
Partnership	19,654	19,701	38,754	40,107
Intersegment eliminations	1,178	386	738	(1,680)
	\$ 91,080	\$ 85,010	\$ 100,006	\$ 129,417

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Operating income (loss):				
Ethanol production	\$ 27,506	\$ 33,543	\$ (23,652)	\$ 13,223
Agribusiness and energy services	10,281	(851)	20,689	12,495
Partnership	12,104	11,916	23,913	24,787
Intersegment eliminations	1,178	386	738	(1,680)
Corporate activities ⁽¹⁾	(17,228)	(13,961)	(35,749)	13,555
	<u>\$ 33,841</u>	<u>\$ 31,033</u>	<u>\$ (14,061)</u>	<u>\$ 62,380</u>

(1) Corporate activities for the three and six months ended June 30, 2021 include a \$3.8 million loss on sale of assets and a \$33.1 million gain on sale of assets, respectively.

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Depreciation and amortization:				
Ethanol production	\$ 19,114	\$ 18,483	\$ 37,546	\$ 37,011
Agribusiness and energy services	470	595	934	1,202
Partnership	823	795	1,721	1,682
Corporate activities	560	659	1,165	1,318
	<u>\$ 20,967</u>	<u>\$ 20,532</u>	<u>\$ 41,366</u>	<u>\$ 41,213</u>

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

	June 30, 2022	December 31, 2021
Total assets ⁽¹⁾ :		
Ethanol production	\$ 1,121,570	\$ 1,101,151
Agribusiness and energy services	593,413	487,164
Partnership	100,106	100,349
Corporate assets	488,944	524,206
Intersegment eliminations	(8,025)	(53,115)
	<u>\$ 2,296,008</u>	<u>\$ 2,159,755</u>

(1) Asset balances by segment exclude intercompany balances.

6. INVENTORIES

Inventories are carried at the lower of cost or net realizable value, except fair-value hedged inventories. There was no lower of cost or market inventory adjustment as of June 30, 2022 and December 31, 2021.

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

	June 30, 2022	December 31, 2021
Finished goods	\$ 138,806	\$ 91,448
Commodities held for sale	23,715	72,320
Raw materials	90,068	50,604
Work-in-process	25,177	19,783
Supplies and parts	37,274	33,683
	<u>\$ 315,040</u>	<u>\$ 267,838</u>

7. DERIVATIVE FINANCIAL INSTRUMENTS

At June 30, 2022, the company's consolidated balance sheet reflected unrealized losses of \$16.9 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	
	June 30, 2022	December 31, 2021	June 30, 2022	December 31, 2021
Derivative financial instruments - forwards	\$ 40,474 ⁽¹⁾	\$ 26,738	\$ 49,959	\$ 26,117 ⁽²⁾
Other assets	54	8	—	—
Other liabilities	—	—	71	196
Total	<u>\$ 40,528</u>	<u>\$ 26,746</u>	<u>\$ 50,030</u>	<u>\$ 26,313</u>

(1) At June 30, 2022, derivative financial instruments, as reflected on the balance sheet, includes net unrealized gains on exchange traded futures and options contracts of \$19.9 million, which included \$11.6 million of net unrealized losses on derivative financial instruments designated as cash flow hedging instruments, \$14.8 million of unrealized gains on derivative financial instruments designated as fair value hedging instruments, and the balance representing economic hedges.

(2) At December 31, 2021, derivative financial instruments, as reflected on the balance sheet, includes net unrealized losses on exchange traded futures and options contracts of \$17.1 million, which include \$1.3 million of net unrealized losses on derivative financial instruments designated as cash flow hedging instruments, \$0.5 million of unrealized losses on derivative financial instruments designated as fair value 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 June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Revenues	\$ (1,111)	\$ (23,692)	\$ (1,739)	\$ (38,880)
Cost of goods sold	(2,282)	18,485	1,012	35,484
Net loss recognized in income (loss) before income taxes	<u>\$ (3,393)</u>	<u>\$ (5,207)</u>	<u>\$ (727)</u>	<u>\$ (3,396)</u>

Gain (Loss) Recognized in Other Comprehensive Income on Derivatives	Amount of Gain (Loss) Recognized in Other Comprehensive Income on Derivatives			
	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Commodity contracts	\$ (14,114)	\$ 6,747	\$ (6,807)	\$ 371

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. Inventories are not considered a derivative, rather they are carried at the lower of cost or market. As such, changes in the fair value of inventories are not included in the table below.

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 June 30,		Six Months Ended June 30,	
		2022	2021	2022	2021
Exchange traded futures and options	Revenues	\$ 2,714	\$ (14,622)	\$ (31)	\$ (56,536)
Forwards	Revenues	6,880	3,521	4,267	4,641
Exchange trade futures and options	Costs of goods sold	27,355	(3,996)	(40,208)	7,041
Forwards	Costs of goods sold	(37,458)	6,987	(18,297)	4,513
Net gain (loss) recognized in income (loss) before income taxes		\$ (509)	\$ (8,110)	\$ (54,269)	\$ (40,341)

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

Line Item in the Consolidated Balance Sheet in Which the Hedged Item is Included	June 30, 2022		December 31, 2021	
	Carrying Amount of the Hedged Assets	Cumulative Amount of Fair Value Hedging Adjustment Included in the Carrying Amount of the Hedged Assets	Carrying Amount of the Hedged Assets	Cumulative Amount of Fair Value Hedging Adjustment Included in the Carrying Amount of the Hedged Assets
Inventories	\$ 58,185	\$ 3,118	\$ 72,320	\$ 6,291

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 June 30,			
	2022		2021	
	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	\$ (1,111)	\$ (2,282)	\$ (23,692)	\$ 18,485
Gain (loss) on fair value hedging relationships:				
Commodity contracts:				
Fair-value hedged inventories	—	(8,550)	—	10,406
Exchange traded futures designated as hedging instruments	—	12,533	—	(7,244)
Total amounts of income and expense line items presented in the statement of operations in which the effects of cash flow or fair value hedges are recorded	\$ (1,111)	\$ 1,701	\$ (23,692)	\$ 21,647

	Location and Amount of Gain (Loss) Recognized in Income on Cash Flow and Fair Value Hedging Relationships for the Six Months Ended June 30,			
	2022		2021	
	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	\$ (1,739)	\$ 1,012	\$ (38,880)	\$ 35,484
Gain (loss) on fair value hedging relationships:				
Commodity contracts:				
Fair-value hedged inventories	—	9,836	—	18,373
Exchange traded futures designated as hedging instruments	—	(4,711)	—	(14,352)
Total amounts of income and expense line items presented in the statement of operations in which the effects of cash flow or fair value hedges are recorded	\$ (1,739)	\$ 6,137	\$ (38,880)	\$ 39,505

There were no gains or losses from discontinuing cash flow or fair value hedge treatment during the three and six months ended June 30, 2022 and 2021.

The notional volume of open commodity derivative positions as of June 30, 2022, are as follows (in thousands):

Derivative Instruments	Exchange Traded ⁽¹⁾	Non-Exchange Traded ⁽²⁾		Unit of Measure	Commodity
	Net Long & (Short)	Long	(Short)		
Futures	(40,390)			Bushels	Corn
Futures	6,930 ⁽³⁾			Bushels	Corn
Futures	(4,475) ⁽⁴⁾			Bushels	Corn
Futures	(62,118)			Gallons	Ethanol
Futures	(23,058) ⁽³⁾			Gallons	Ethanol
Futures	3,143			MmBTU	Natural Gas
Futures	7,680 ⁽³⁾			MmBTU	Natural Gas
Futures	(4,555) ⁽⁴⁾			MmBTU	Natural Gas
Forwards		43,502	(18)	Bushels	Corn
Forwards		—	(285,395)	Gallons	Ethanol
Forwards		136	(395)	Tons	Distillers Grains
Forwards		—	(83,308)	Pounds	Corn Oil
Forwards		27,116	(87)	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 \$0.4 million and \$1.2 million for the three and six months ended June 30, 2022, respectively, and net gains of \$24 thousand and \$0.5 million for the three and six months ended June 30, 2021, respectively, on energy trading contracts.

8. DEBT

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

	June 30, 2022	December 31, 2021
Corporate:		
2.25% convertible notes due 2027 ⁽¹⁾	\$ 230,000	\$ 230,000
4.00% convertible notes due 2024 ⁽²⁾	64,000	64,000
4.125% convertible notes due 2022 ⁽³⁾	34,316	34,316
Green Plains SPE LLC:		
\$125.0 million junior secured mezzanine notes due 2026 ⁽⁴⁾	125,000	125,000
Green Plains Wood River and Green Plains Shenandoah:		
\$75.0 million delayed draw loan agreement ⁽⁵⁾	75,000	30,000
Green Plains Partners:		
\$60.0 million term loan ^{(6) (7)}	58,969	60,000
Other	15,313	15,531
Total book value of long-term debt	602,598	558,847
Unamortized debt issuance costs	(8,407)	(9,556)
Less: current maturities of long-term debt	(99,164)	(35,285)
Total long-term debt	\$ 495,027	\$ 514,006

(1) Includes \$5.9 million and \$6.5 million of unamortized debt issuance costs as of June 30, 2022 and December 31, 2021, respectively.

(2) Includes \$1.0 million and \$1.2 million of unamortized debt issuance costs as of June 30, 2022 and December 31, 2021, respectively. Subsequent to June 30, 2022, the 2024 notes were converted into shares of common stock of the Company.

(3) Includes \$31 thousand and 0.1 million of unamortized debt issuance costs as of June 30, 2022 and December 31, 2021, respectively.

(4) Includes \$0.8 million and \$0.9 million of unamortized debt issuance costs as of June 30, 2022 and December 31, 2021, respectively.

(5) Includes \$0.3 million of unamortized debt issuance costs as of both June 30, 2022 and December 31, 2021, respectively.

(6) Includes \$0.5 million of unamortized debt issuance costs as of both June 30, 2022 and December 31, 2021, respectively.

(7) On February 11, 2022, the term loan was modified to allow Green Plains Partners and its affiliates to repurchase outstanding notes. On the same day, the partnership purchased \$1.0 million of the outstanding notes from accounts and funds managed by BlackRock and subsequently retired the notes.

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

	June 30, 2022	December 31, 2021
Green Plains Finance Company, Green Plains Grain and Green Plains Trade:		
\$350.0 million revolver	\$ 280,000	\$ —
Green Plains Commodity Management:		
\$40.0 million hedge line	10,913	16,210
Green Plains Trade:		
\$300.0 million revolver	—	137,208
Green Plains Grain:		
\$100.0 million revolver	—	20,000
\$50.0 million inventory financing	17,492	—
	\$ 308,405	\$ 173,418

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; the event of a cash dividend or distribution; 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.

During June 2019, the company issued an aggregate \$115.0 million of 4.00% convertible senior notes due in 2024, or the 4.00% notes. The 4.00% notes are senior, unsecured obligations of the company, with interest payable on January 1 and July 1 of each year, beginning January 1, 2020, at a rate of 4.00% per annum. The 4.00% notes will be 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 shares of the company's common stock until the close of business on the scheduled trading day immediately preceding the maturity date. The initial conversion rate is 64.1540 shares of common stock per \$1,000 of principal, which is equal to a conversion price of approximately \$15.59 per share. 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 4.00% notes for redemption.

During May 2021, the company entered into a privately negotiated agreement with certain noteholders of the company's 4.00% notes. Under this agreement, 3,568,705 shares of the company's common stock were exchanged for \$51.0 million in aggregate principal amount of the 4.00% notes. Common stock held as treasury shares were exchanged for the 4.00% notes. Pursuant to the guidance within ASC 470, *Debt*, the company recorded a loss of \$9.5 million which was recorded as a charge to interest expense in the consolidated financial statements during the three months ended June 30, 2021, of which \$1.2 million related to unamortized debt issuance costs.

On May 25, 2022, the company gave notice calling for the redemption of its outstanding 4.00% convertible notes, totaling an aggregate principal amount of \$64.0 million. The conversion rate was 66.4178 shares of common stock per \$1,000 of principal.

From July 1, 2022 through July 8, 2022, the remaining \$64.0 million of the 4.00% convertible notes were converted into approximately 4.3 million shares of common stock.

In August 2016, the company issued \$170.0 million of 4.125% convertible senior notes due in 2022, or the 4.125% notes. The 4.125% notes are senior, unsecured obligations of the company, with interest payable on March 1 and September 1 of each year. The company anticipates it will settle the 4.125% notes in a combination of cash and common stock. The notes are convertible at the Holder's option. The initial conversion rate is 35.7143 shares of common stock per \$1,000 of principal, which is equal to a conversion price of approximately \$28.00 per share. The conversion rate will be 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; the event of a cash dividend or distribution; or a tender or exchange offering.

The company may redeem all, but not less than all, of the 4.125% notes at any time on or after September 1, 2020, if the company's common stock equals or exceeds 140% of the applicable conversion price for a specified time period ending on the trading day immediately prior to the date the company delivers notice of the redemption. The redemption price will equal 100% of the principal plus any accrued and unpaid interest. Holders of the 4.125% notes have the option to require the company to repurchase the 4.125% notes in cash at a price equal to 100% of the principal plus accrued and unpaid

interest when there is a fundamental change, such as change in control. If an event of default occurs, it could result in the 4.125% notes being declared due and payable.

In March 2021, concurrent with the issuance of the 2.25% notes, the company used approximately \$156.5 million of the net proceeds of the 2.25% notes to repurchase approximately \$135.7 million aggregate principal amount of the 4.125% notes, in privately negotiated transactions. Pursuant to the guidance within ASC 470, *Debt*, the company recorded a loss upon extinguishment of \$22.1 million. This charge included \$1.2 million of unamortized debt issuance costs related to the principal balance extinguished.

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 greenhouse gas emissions, recordable incident rate reduction, increased 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.

Green Plains Grain has entered into a \$50.0 million 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, which equaled 4.66% as of June 30, 2022. The company had \$17.5 million short-term notes payable related to the inventory financing agreement as of June 30, 2022.

Green Plains Commodity Management has an uncommitted \$40.0 million revolving credit facility which matures April 30, 2023, to finance margins related to its hedging programs. Advances are subject to variable interest rates equal to SOFR plus 1.75%. The company had \$10.9 million short-term notes payable related to this credit facility as of June 30, 2022.

Ethanol Production Segment

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

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 are being used to construct MSCTM protein technology at the Green Plains Obion and Green Plains Mount Vernon facilities. The Junior Notes accrue interest at an annual rate of 11.75%. However, subject to the satisfaction of certain conditions, the

Green Plains SPE LLC may elect to pay an amount in cash equal to interest accruing at a rate of 6.00% per annum plus an amount equal to interest accruing at a rate of 6.75% per annum to be paid in kind. The entire outstanding principal balance, plus any accrued and unpaid interest is due upon maturity. Green Plains SPE LLC is required to comply with certain financial covenants regarding minimum liquidity at Green Plains and a maximum aggregate loan to value. The Junior Notes can be retired or refinanced after 42 months with no prepayment premium. The Junior Notes have an unsecured parent guarantee from the company and have certain limitations on distributions, dividends or loans to the company unless there will not exist any event of default. Funds associated with the Junior Notes are administered by a trustee and are included in the balance of restricted cash as of June 30, 2022.

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

The delayed draw 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 begin 24 months from the closing date. Prepayments are prohibited until September 2024. Financial covenants of the delayed draw loan agreement include a minimum loan to value ratio of 50%, a minimum fixed charge coverage ratio of 1.25x commencing on June 30, 2021, 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 \$95.8 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.

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

Partnership Segment

Green Plains Partners has a term loan to fund working capital, capital expenditures and other general partnership purposes. On July 20, 2021, the prior credit facility was amended to \$60.0 million, extending the maturity to July 20, 2026, and converting the credit facility to a term loan. Under the terms of the amended agreement, BlackRock purchased the outstanding balance of the prior credit facility from the previous lenders. Interest on the amended term loan is based on 3-month LIBOR plus 8.00%, with a 0% LIBOR floor. Interest is payable on the 15th day of each March, June, September and December during the term with the first interest payment being September 15, 2021. The amended 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. On February 11, 2022, the amended term loan was modified to allow Green Plains Partners and its affiliates to repurchase outstanding notes. On the same day, the partnership purchased \$1.0 million of the outstanding notes from accounts and funds managed by BlackRock and subsequently retired the notes.

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, 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 required, as of the end of any fiscal quarter, is no more than 2.50x. The minimum debt service coverage ratio required, as of the end of any fiscal quarter, is 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 amended 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.

Covenant Compliance

The company was in compliance with its debt covenants as of June 30, 2022.

Restricted Net Assets

At June 30, 2022, there were approximately \$109.5 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 1.6 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, restricted and deferred stock unit awards and performance share awards 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 non-vested stock award and deferred stock unit activity for the six months ended June 30, 2022, 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, 2021	793,337	\$ 14.64	
Granted	288,130	30.15	
Forfeited	(5,954)	20.12	
Vested	(275,440)	15.69	
Non-Vested at June 30, 2022	800,073	\$ 19.82	2.2

Performance Shares

On March 14, 2022, February 18, 2021 and March 18, 2020, the board of directors granted performance shares to be awarded in the form of common stock to certain participants of the plan. These performance shares vest based on the level of achievement of certain performance goals, including the incremental value achieved from various metrics including but not limited to the company's high-protein initiatives, annual production levels and return on investment (ROI). 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 2022, 2021 and 2020 awards are 1,210,935 performance shares which represents approximately 251% of the 482,811 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 each performance period.

On February 19, 2019, the board of directors granted performance shares to be awarded in the form of common stock to certain participants of the plan. The performance shares were granted at a target of 100%, but each performance share was reduced or increased depending on results for the performance period for the company's average return on net assets, and the company's total shareholder return relative to that of the company's performance peer group. On February 19,

2022, based on the criteria discussed above, the 149,933 2019 performance shares vested at 75%, which resulted in the issuance of 112,450 shares of common stock.

The non-vested performance share award activity for the six months ended June 30, 2022, is as follows:

	Performance Shares	Weighted- Average Grant- Date Fair Value	Weighted-Average Remaining Vesting Term (in years)
Non-Vested at December 31, 2021	486,155	\$ 13.93	
Granted	146,589	29.47	
Vested	(149,933)	15.31	
Non-Vested at June 30, 2022	482,811	\$ 18.22	2.3

Green Plains Partners

Green Plains Partners has a long-term incentive plan (LTIP) intended to promote the interests of the partnership, its general partner and affiliates by providing unit-based incentive compensation awards to employees, consultants and directors to encourage superior performance. The LTIP reserves 2,500,000 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 measures unit-based compensation related to equity awards in its consolidated financial statements over the requisite service period on a straight-line basis.

There was no change in the number of non-vested unit-based awards for the six months ended June 30, 2022.

Stock-Based and Unit Based Compensation Expense

Compensation costs for stock-based and unit-based payment plans were \$2.4 million and \$4.3 million for the three and six months ended June 30, 2022, respectively, and \$1.1 million and \$2.0 million for the three and six months ended June 30, 2021, respectively. At June 30, 2022, there was \$17.9 million of unrecognized compensation costs from stock-based and unit-based compensation related to non-vested awards. This compensation is expected to be recognized over a weighted-average period of approximately 2.2 years. The potential tax benefit related to stock-based payment is approximately 21.6% 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 computed 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 June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
EPS - basic:				
Net income (loss) attributable to Green Plains	\$ 46,398	\$ 9,743	\$ (15,076)	\$ 3,198
Weighted average shares outstanding - basic	53,033	45,425	52,960	41,581
EPS - basic	\$ 0.87	\$ 0.21	\$ (0.28)	\$ 0.08
EPS - diluted:				
Net income (loss) attributable to Green Plains	\$ 46,398	\$ 9,743	\$ (15,076)	\$ 3,198
Interest and amortization on convertible debt, net of tax effect:				
4.125% convertible notes due 2022	314	—	—	—
4.00% convertible notes due 2024	596	577	—	—
2.25% convertible notes due 2027	1,261	1,216	—	—
Net income (loss) attributable to Green Plains - diluted	\$ 48,569	\$ 11,536	\$ (15,076)	\$ 3,198
Weighted average shares outstanding - basic	53,033	45,425	52,960	41,581
Effect of dilutive convertible debt:				
4.125% convertible notes due 2022	1,226	—	—	—
4.00% convertible notes due 2024	4,106	4,106	—	—
2.25% convertible notes due 2027	7,273	7,273	—	—
Effect of dilutive warrants	757	669	—	345
Effect of dilutive stock-based compensation awards	500	698	—	749
Weighted average shares outstanding - diluted	66,895	58,171	52,960	42,675
EPS - diluted	\$ 0.73	\$ 0.20	\$ (0.28)	\$ 0.07
Anti-dilutive weighted-average convertible debt, warrants and stock-based compensation ⁽¹⁾	—	1,226	13,853	10,233

(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. For the three months ended June 30, 2021, the company excluded the impact of the 4.125% convertible notes due in 2022, and associated interest and amortization, as inclusion would be anti-dilutive. For the six months ended June 30, 2021, the company excluded the impact of the 4.125% convertible notes due in 2022, 4.00% convertible notes due in 2024 and the 2.25% convertible notes due in 2027, and associated interest and amortization, as inclusion would be anti-dilutive.

11. STOCKHOLDERS' EQUITY

Public Offerings of Common Stock

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

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

Warrants

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

The company has reserved 2,550,000 shares of common stock for the exercise of warrants to non-employees, of which 2,275,000 are exercisable, and are treated as equity based awards and recorded as a reduction in additional paid-in capital. The remaining 275,000 warrants, of which 83,333 are exercisable as a result of achieving certain earn-out provisions and 191,667 are contingent upon certain earn-out provisions, are treated as liability based awards, and valued quarterly using the company's stock price. These warrants could potentially dilute basic earnings per share in future periods. The exercise price of the warrants is \$22.00 and expiration dates are December 8, 2025 for 275,000 warrants, February 9, 2026 for 275,000 warrants and April 28, 2026 for 2,000,000 warrants.

Convertible Note Exchange

On May 18, 2021, the company completed a privately negotiated exchange agreement with certain noteholders of the company's 4.00% notes, pursuant to which the noteholders agreed to exchange \$51.0 million in aggregate principal for 3,568,705 shares of the company's common stock at an implied price of \$26.80.

Components of stockholders' equity for the three and six months ended June 30, 2022 and 2021 are as follows (in thousands):

	Common Stock		Additional Paid-in Capital	Retained Earnings (Deficit)	Accum. Other Comp. Income (Loss)	Treasury Stock		Total Green Plains Stockholders' Equity	Non- Controlling Interests	Total Stockholders' Equity
	Shares	Amount				Shares	Amount			
Balance, December 31, 2021	61,840	\$ 62	\$ 1,069,573	\$ (15,199)	\$ (12,310)	8,244	\$ (91,626)	\$ 950,500	\$ 151,519	\$ 1,102,019
Net income (loss)	—	—	—	(61,474)	—	—	—	(61,474)	5,602	(55,872)
Distributions declared	—	—	—	—	—	—	—	—	(5,122)	(5,122)
Other comprehensive income (loss) before reclassification	—	—	—	—	5,386	—	—	5,386	—	5,386
Amounts reclassified from accumulated other comprehensive income (loss)	—	—	—	—	(1,965)	—	—	(1,965)	—	(1,965)
Other comprehensive income (loss), net of tax	—	—	—	—	3,421	—	—	3,421	—	3,421
Investment in subsidiary	—	—	—	—	—	—	—	—	24	24
Stock-based compensation	226	—	(1,922)	—	—	—	—	(1,922)	59	(1,863)
Balance, March 31, 2022	62,066	\$ 62	\$ 1,067,651	\$ (76,673)	\$ (8,889)	8,244	\$ (91,626)	\$ 890,525	\$ 152,082	\$ 1,042,607
Net income	—	—	—	46,398	—	—	—	46,398	6,322	52,720
Distributions declared	—	—	—	—	—	—	—	—	(8,098)	(8,098)
Other comprehensive income (loss) before reclassification	—	—	—	—	(10,535)	—	—	(10,535)	—	(10,535)
Amounts reclassified from accumulated other comprehensive income (loss)	—	—	—	—	2,515	—	—	2,515	—	2,515
Other comprehensive income (loss), net of tax	—	—	—	—	(8,020)	—	—	(8,020)	—	(8,020)
Investment in subsidiary	—	—	—	—	—	—	—	—	190	190
Stock-based compensation	21	—	2,270	—	—	—	—	2,270	60	2,330
Balance, June 30, 2022	62,087	\$ 62	\$ 1,069,921	\$ (30,275)	\$ (16,909)	8,244	\$ (91,626)	\$ 931,173	\$ 150,556	\$ 1,081,729

	Common Stock		Additional Paid-in Capital	Retained Earnings (Deficit)	Accum. Other Comp. Income (Loss)	Treasury Stock		Total Green Plains Stockholders' Equity	Non- Controlling Interests	Total Stockholders' Equity
	Shares	Amount				Shares	Amount			
Balance, December 31, 2020	47,471	\$ 47	\$ 691,393	\$ 50,793	\$ (2,172)	11,813	\$ (131,287)	\$ 608,774	\$ 129,812	\$ 738,586
Net income (loss)	—	—	—	(6,545)	—	—	—	(6,545)	4,566	(1,979)
Distributions declared	—	—	—	—	—	—	—	—	(1,395)	(1,395)
Other comprehensive income (loss) before reclassification	—	—	—	—	(4,849)	—	—	(4,849)	—	(4,849)
Amounts reclassified from accumulated other comprehensive income (loss)	—	—	—	—	(1,377)	—	—	(1,377)	—	(1,377)
Other comprehensive income (loss), net of tax	—	—	—	—	(6,226)	—	—	(6,226)	—	(6,226)
Investment in subsidiaries	—	—	—	—	—	—	—	—	3,330	3,330
Issuance of warrants	—	—	3,431	—	—	—	—	3,431	(3,431)	—
Issuance of common stock for cash at \$23.00 per share, net of fees	8,752	9	191,125	—	—	—	—	191,134	—	191,134
Stock-based compensation	230	—	(3,000)	—	—	—	—	(3,000)	79	(2,921)
Balance, March 31, 2021	56,453	\$ 56	\$ 882,949	\$ 44,248	\$ (8,398)	11,813	\$ (131,287)	\$ 787,568	\$ 132,961	\$ 920,529
Net income (loss)	—	\$ —	\$ —	\$ 9,743	\$ —	\$ —	\$ —	\$ 9,743	\$ 6,374	\$ 16,117
Distributions declared	—	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ (1,395)	\$ (1,395)
Other comprehensive income (loss) before reclassification	—	\$ —	\$ —	\$ —	\$ 5,131	\$ —	\$ —	\$ 5,131	\$ —	\$ 5,131
Amounts reclassified from accumulated other comprehensive income (loss)	—	\$ —	\$ —	\$ —	\$ 3,961	\$ —	\$ —	\$ 3,961	\$ —	\$ 3,961
Other comprehensive income (loss), net of tax	—	\$ —	\$ —	\$ —	\$ 9,092	\$ —	\$ —	\$ 9,092	\$ —	\$ 9,092
Exchange of 4.00% convertible notes due 2024	—	\$ —	\$ 17,679	\$ —	\$ —	(3,569)	\$ 39,661	\$ 57,340	\$ —	\$ 57,340
Acquisition of FQT	—	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ 1,861	\$ 1,861
Warrant liability	—	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ 1,278	\$ 1,278
Stock-based compensation	(20)	\$ 4	\$ 324	\$ —	\$ —	\$ —	\$ —	\$ 328	\$ 80	\$ 408
Balance, June 30, 2021	56,433	\$ 60	\$ 900,952	\$ 53,991	\$ 694	8,244	\$ (91,626)	\$ 864,071	\$ 141,159	\$ 1,005,230

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

	Three Months Ended June 30,		Six Months Ended June 30,		Statements of Operations Classification
	2022	2021	2022	2021	
Gains (losses) on cash flow hedges:					
Commodity derivatives	\$ (1,111)	\$ (23,692)	\$ (1,739)	\$ (38,880)	(1)
Commodity derivatives	(2,282)	18,485	1,012	35,484	(2)
Total losses on cash flow hedges	(3,393)	(5,207)	(727)	(3,396)	(3)
Income tax benefit	878	1,246	177	812	(4)
Amounts reclassified from accumulated other comprehensive loss	\$ (2,515)	\$ (3,961)	\$ (550)	\$ (2,584)	

(1) Revenues

(2) Costs of goods sold

(3) Income (loss) before income taxes and income (loss) from equity method investees

(4) Income tax benefit (expense)

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. As a result, the consolidated financial statements do not reflect income taxes on pre-tax income or loss attributable to the noncontrolling interest in the partnership.

The company recorded income tax expense of \$2.9 million for the three months ended June 30, 2022, compared with income tax benefit of \$4.8 million for the same period in 2021. The increase in the amount of tax expense recorded for the three months ended June 30, 2022 was primarily due to an increase in the valuation allowance recorded against deferred tax assets related to gains (losses) on derivatives included in accumulated other comprehensive income.

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 15.4 years. The land and facility leases include renewal options. The renewal options are included in the lease term only for those sites or locations that are reasonably certain to be renewed. Equipment renewals are not considered reasonably certain to be exercised as they typically renew with significantly different underlying terms.

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

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

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Lease expense				
Operating lease expense	\$ 5,390	\$ 4,908	\$ 10,388	\$ 9,842
Variable lease expense ⁽¹⁾	226	522	405	591
Total lease expense	\$ 5,616	\$ 5,430	\$ 10,793	\$ 10,433

- (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 June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Cash paid for amounts included in the measurement of lease liabilities:				
Operating cash flows from operating leases	\$ 5,029	\$ 4,814	\$ 9,874	\$ 9,646
Right-of-use assets obtained in exchange for lease obligations:				
Operating leases	7,013	4,308	11,723	10,772
Right-of-use assets and lease obligations derecognized due to lease modifications:				
Operating leases	—	—	—	51

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

	June 30, 2022	December 31, 2021
Weighted average remaining lease term	5.3 years	5.5 years
Weighted average discount rate	4.04 %	4.16 %

Aggregate minimum lease payments under the operating lease agreements for the remainder of 2022 and in future years are as follows (in thousands):

Year Ending December 31,	Amount
2022	\$ 10,455
2023	18,907
2024	16,365
2025	11,996
2026	6,098
Thereafter	14,834
Total	78,655
Less: Present value discount	(8,891)
Lease liabilities	\$ 69,764

Lease Revenue

As described in Note 2 – Revenue, the majority of the partnership’s segment revenue is generated through their storage and throughput services and rail transportation services agreements with Green Plains Trade and are accounted for as lease revenue. Leasing revenues do not represent revenues recognized from contracts with customers under ASC 606, and are accounted for under ASC 842, Leases. Lease revenue associated with agreements with Green Plains Trade is eliminated upon consolidation. The remaining lease revenue is not material to the company.

Commodities, Storage and Transportation

As of June 30, 2022, the company had contracted future purchases of grain, natural gas, and distillers grains, valued at approximately \$511.9 million and future commitments for storage and transportation, valued at approximately \$25.6 million.

Government Assistance

During the three months ended June 30, 2022, the company received a relief grant from the USDA related to the Biofuel Producer Program authorized as part of the CARES Act to offset market losses as a result of the COVID-19 pandemic. The total cash grant received of \$27.7 million was recorded as other income and the company has no further reporting or other obligations related to the receipt of this grant.

Legal

The company is currently involved in litigation that has arisen during 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, 2021.

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, 2021, Part II, Item 1A – Risk Factors in this report, or incorporated by reference. Specifically, we may experience fluctuations in future operating results due to a number of economic conditions, including: disruption caused by health epidemics, such as the COVID-19 outbreak; competition in the ethanol industry and other industries in which we operate; commodity market risks, including those that may result from weather conditions; financial market risks; counterparty risks; risks associated with changes to government policy or regulation, including changes to tax laws; risks related to acquisition and disposition activities and achieving anticipated results; risks associated with merchant trading; risks related to our equity method investees and other factors detailed in reports filed with the SEC. Additional risks related to Green Plains Partners LP include compliance with commercial contractual obligations, potential tax consequences related to our investment in the partnership and risks disclosed in the partnership’s SEC filings associated with the operation of the partnership as a separate, publicly traded entity.

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 one of the leading corn processors in the world. We continue the transition from a commodity-processing business to a value-add agricultural technology company focusing on creating diverse, non-cyclical, higher margin products. In addition, we are currently undergoing a number of project initiatives to improve margins. Through our Total Transformation Plan to a value-add agricultural technology company discussed below, we believe we can further increase margin per gallon by producing additional value-added ingredients, such as Ultra-High Protein, while expanding corn oil yields.

In December 2020, we completed the purchase of a majority interest in FQT. The acquisition capitalizes on the core strengths of each company to develop and implement proven, value-added agriculture, food and industrial biotechnology systems and rapidly expand installation and production across Green Plains facilities, as well as offer these technologies to the biofuels industry.

Additionally, we have taken advantage of opportunities to divest certain assets in recent years to reallocate capital toward our current growth initiatives. We are focused on generating stable operating margins through our business segments and risk management strategy. We own and operate assets throughout the ethanol value chain: upstream, with grain handling and storage; through our ethanol production facilities; and downstream, with marketing and distribution services to mitigate commodity price volatility. Our other businesses leverage our supply chain, production platform and expertise.

We formed Green Plains Partners LP, a master limited partnership, to be our primary downstream storage and logistics provider since its assets are the principal method of storing and delivering the ethanol we produce. The partnership completed its initial public offering on July 1, 2015. As of June 30, 2022, we own a 48.9% limited partner interest, a 2.0% general partner interest and all of the partnership's incentive distribution rights. The public owns the remaining 49.1% limited partner interest. The partnership is consolidated in our financial statements.

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

- *Ethanol Production.* Our ethanol production segment includes the production of ethanol, including industrial-grade alcohol, distillers grains, Ultra-High Protein and corn oil at 11 ethanol plants in Illinois, Indiana, Iowa, Minnesota, Nebraska and Tennessee. At capacity, our facilities are capable of processing approximately 330 million bushels of corn per year and producing approximately 1.0 billion gallons of ethanol, 2.5 million tons of distillers grains and Ultra-High Protein and 290 million pounds of industrial grade corn oil, making us one of the largest ethanol producers in North America.
- *Agribusiness and Energy Services.* Our agribusiness and energy services segment includes grain procurement, with approximately 27.0 million bushels of grain storage capacity, and our commodity marketing business, which markets, sells and distributes ethanol, distillers grains, Ultra-High Protein and corn oil produced at our ethanol plants. We also market ethanol for a third-party producer as well as buy and sell ethanol, including industrial-grade alcohol, distillers grains, Ultra-High Protein, corn oil, grain, natural gas and other commodities in various markets.
- *Partnership.* Our master limited partnership provides fuel storage and transportation services by owning, operating, developing and acquiring ethanol and fuel storage tanks, terminals, transportation assets and other related assets and businesses. The partnership's assets include 29 ethanol storage facilities, four fuel terminal facilities and approximately 2,530 leased railcars.

As part of our transformation to a value-add agricultural technology company, we completed our first MSC™ Ultra-High Protein installation at our Shenandoah biorefinery during the first quarter of 2020. Our Wood River plant began operations in October 2021. Three additional locations are slated to begin operating in the third and fourth quarter of 2022, and installation at certain of our remaining biorefineries is expected over the course of the next several years. Through our value-added ingredients initiative, we expect to produce Ultra-High Protein, a feed ingredient with protein concentrations of 50% or greater, increase production of corn oil as well produce other higher value products, such as post-MSD distillers grains.

We have also upgraded our York facility to include USP grade alcohol capabilities. We began pilot scale batch operations at the CST production facility at our York Innovation Center in the second quarter of 2021, which may allow for the production of both food and industrial grade dextrose to target applications in food production, renewable chemicals and synthetic biology. We announced the Shenandoah biorefinery as the first location to deploy FQT CST™ at commercial scale. We also anticipate modifying additional biorefineries to include FQT CST™ production capabilities to meet anticipated future customer demands.

In February and April 2021, as part of our carbon reduction strategy, we have committed our Nebraska, Iowa and Minnesota plants to the Summit Carbon Solutions Midwest Carbon Express project to capture and store carbon dioxide produced through the fermentation process. In total, eight of our biorefineries have entered into long-term carbon offtake agreements, which will lower greenhouse gas emissions through the capturing and storing of carbon dioxide at each of the biorefineries, significantly lowering their carbon intensity. The anticipated completion date for this project is 2024.

Our profitability is highly dependent on commodity prices, particularly for ethanol, industrial alcohol, distillers grains, 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

Convertible Notes Conversion into Common Stock

On May 25, 2022, the company gave notice calling for the redemption of all its outstanding 4.00% Convertible Senior Notes due 2024, totaling an aggregate principal amount of \$64.0 million. The conversion rate was 66.4178 shares of

common stock per \$1,000 of principal.

From July 1, 2022 through July 8, 2022, all \$64.0 million of the 4.00% convertible notes were converted into approximately 4.3 million shares of common stock. All \$64.0 million were retired effective July 8, 2022.

Results of Operations

During the second quarter of 2022, we experienced a stronger ethanol margin environment. We maintained an average utilization rate of approximately 96.9% of capacity, resulting in ethanol production of 231.4 mmg for the second quarter of 2022, compared with 190.9 mmg, or 79.9% of capacity, for the same quarter last year. The increase in the average utilization rate was primarily due to nearing the completion of our plant modernization and upgrade program during the current quarter. Our operating strategy is to transform our company to a value-add agricultural technology company. However, in the current environment, we may continue to exercise operational discretion that results in reductions in production. Additionally, we may operate at less than our capacity resulting in lower production rates due to various construction projects. It is possible that production could be below minimum volume commitments in the future, depending on various factors that drive each biorefineries variable contribution margin, including future driving and gasoline demand for the industry. We are currently producing Ultra-High Protein at two locations and have also deployed FQT MSC™ Ultra-High Protein process technology at three additional locations, which we expect to be operational in the third and fourth quarter of 2022. We are striving to deploy the MSC™ protein technology across our platform to take advantage of the world's growing demand for protein feed ingredients and low-carbon renewable corn oil.

U.S. Ethanol Supply and Demand

According to the EIA, domestic ethanol production averaged 1.01 million barrels per day during the second quarter of 2022, which was 1.1% higher than the 1.0 million barrels per day for the same quarter last year. Refiner and blender input volume was steady 898 thousand barrels per day for the second quarter of 2022, compared with 903 thousand barrels per day for the same quarter last year. Gasoline demand decreased 0.2 million barrels per day, or 2.3% during the second quarter of 2022 compared to the prior year. U.S. domestic ethanol ending stocks increased by approximately 1.2 million barrels compared to the prior year, or 5.4%, to 22.7 million barrels as of June 30, 2022. As of this filing, according to Prime the Pump, there were approximately 2,690 retail stations selling E15 in 31 states, up from 2,555 at the beginning of the year, and approximately 390 suppliers at 113 pipeline terminal locations now offering E15 to wholesale customers.

Global Ethanol Supply and Demand

According to the USDA Foreign Agriculture Service, domestic ethanol exports through May 31, 2022, were approximately 726 mmg, up from the 582 mmg for the same period of 2021. Canada was the largest export destination for U.S. ethanol accounting for 25% of domestic ethanol export volume. India, Brazil, and the Netherlands accounted for 11%, 8%, and 7%, respectively, of U.S. ethanol exports. We currently estimate that net ethanol exports will range from 1.4 to 1.6 billion gallons in 2022, based on historical demand from a variety of countries and certain countries that seek to improve their air quality, reduce GHG emissions through low carbon fuel programs and eliminate MTBE from their own fuel supplies.

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 fuels 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, and make it more difficult to sell fuel blends with higher levels of ethanol. Bills have also been introduced to require higher levels of octane blending, 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 blended into the domestic fuel supply.

Federal mandates and state-level clean fuel programs 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, and reducing the country's dependence on foreign oil. Consumer acceptance of FFVs and higher ethanol blends in non-FFVs may be necessary before ethanol can achieve further growth in U.S. surface transportation fleet market share. In addition, expansion of clean fuel programs in other states and countries, or a national LCFS could increase the demand for ethanol, depending on how it is structured.

The Inflation Reduction Act of 2022, which was introduced on July 27, 2022, is a broad budget reconciliation bill that has many potential impacts on our business which we are still evaluating. As proposed, the legislation would (a) create a new Clean Fuel Production Credit which could impact our fuel ethanol, depending on the level of GHG reduction for each gallon; (b) create a new tax credit for sustainable aviation fuel, that could possibly involve some of our low carbon ethanol through an alcohol to jet pathway, depending on the life cycle analysis model being used; (c) expand the carbon capture and sequestration credit, section 45Q, to \$85 for each ton of carbon sequestered, which could impact our carbon partnership; (d) extend the biodiesel tax credit which could impact our renewable corn oil values, as this co-product serves as a low-carbon feedstock for renewable diesel and biomass based diesel production; (e) fund biofuel refueling infrastructure, which could impact the availability of higher level ethanol blended fuel; and (f) provide for the production and purchase credits for electric vehicles could impact the amount of internal combustion engines on the road longer term, and by extension impact the demand for liquid fuels including ethanol.

The RFS sets a floor for biofuels use in the United States. When the RFS was established in 2010, the required volume of conventional, or corn-based, ethanol to be blended with gasoline was to increase each year until it reached 15 billion gallons in 2015, which left the EPA to address existing limitations in both supply and demand. As of this filing, the EPA has finalized RVOs reducing the conventional ethanol levels for 2020 and 2021 to reflect lower fuel demand during the pandemic, and finalized an RVO at the statutory 15 billion gallons for 2022, with an additional 250 million gallons of supplemental volume to reflect a court-ordered remand of a previously-lowered RVO.

According to the RFS, if mandatory renewable fuel volumes are reduced by at least 20% for two consecutive years, the EPA is required to modify, or reset, statutory volumes through 2022, the year through which the statutorily prescribed volumes run. While conventional ethanol maintained 15 billion gallons, 2019 was the second consecutive year that the total RVO was more than 20% below the statutory volume levels. Thus, the EPA was expected to initiate a reset rulemaking, and modify statutory volumes through 2022, and do so based on the same factors they are to use in setting the RVOs post 2022. These factors include environmental impact, domestic energy security, expected production, infrastructure impact, consumer costs, job creation, price of agricultural commodities, food prices, and rural economic development. However, in late 2019, the EPA announced it would not be moving forward with a reset rulemaking in 2020. The current EPA has indicated they will not propose a reset rulemaking, though they have stated an intention to propose a post-2022 "set" rulemaking by November 16, 2022, and finalize by June 14, 2023, in compliance with a consent decree from the U.S. District Court for D.C.

Under the RFS, RINs and SREs are important tools impacting 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 domestic transportation fuel sales. Obligated parties use RINs to show compliance with the RFS mandated volumes. Ethanol producers assign a RIN 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 affects the price of ethanol in certain markets and can influence purchasing decisions by obligated parties.

As it relates to SREs, a small refinery is defined as one that processes fewer than 75,000 barrels of petroleum per day. Small refineries can petition the EPA for a SRE which, if approved, waives their portion of the annual RVO requirements. The EPA, through consultation with the DOE and the USDA can grant a full or partial waiver, or deny it outright within 90 days of submittal. The EPA granted significantly more of these waivers for the 2016, 2017 and 2018 reporting years than they had in prior years, totaling 790 mmg of waived requirements for the 2016 compliance year, 1.82 billion gallons for 2017 and 1.43 billion gallons for 2018. In doing so, the EPA effectively reduced the RFS mandated volumes for those compliance years by those amounts respectively, and as a result, RIN values declined significantly. In the waning days of the previous administration, the EPA approved three additional SREs, reversing one denial from 2018 and granting two from 2019. A total of 88 SREs were granted under the Trump Administration, erasing a total of 4.3 billion gallons of potential blending demand. The EPA, under the current administration, reversed the three SREs issued in the final weeks of the previous administration, and in conjunction with the RVO rulemaking for 2020, 2021 and 2022, they denied all pending SREs. There are multiple legal challenges to how the EPA has handled SREs and RFS rulemakings.

The One-Pound Waiver, which was extended in May 2019 to allow E15 to be sold year-round to all vehicles model year 2001 and newer, was challenged in an action filed in Federal District Court for the D.C. Circuit. On July 2, 2021, the Circuit Court vacated the EPA's rule so the future of summertime, defined as June 1 to September 15, sales of E15 is uncertain. The Supreme Court declined to hear a challenge to this ruling. On April 12, 2022, the President announced that he has directed the EPA to issue an emergency waiver to allow for the continued sale of E15 during the summer months, and that the temporary waiver should be extended as long as the gasoline supply emergency lasts. As of this filing, E15 is sold year-round at approximately 2,690 stations in 31 states.

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 they would administer another infrastructure grant program. Congress is considering legislation that would provide for an additional \$500 million in USDA grants for biofuel infrastructure from 2022 to 2031.

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 then the 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 June of 2021, USDA announced a \$700.0 million Biofuel Producer Program to distribute these funds to impacted producers of ethanol, biodiesel and other renewable fuels, and they provided the specifics for the application process in December of 2021. Applications were due in February 2022, and the USDA distributed funds to us in the amount of \$27.7 million in May 2022.

Comparability of our Financial Results

As of June 30, 2022, we, together with our subsidiaries, own a 48.9% limited partner interest and a 2.0% general partner interest in the partnership and own all of the partnership's incentive distribution rights, with the remaining 49.1% limited partner interest owned by public common unitholders. We consolidate the financial results of the partnership, and record a noncontrolling interest for the economic interest in the partnership held by the public common unitholders.

There are various events that affect comparability of our operating results from 2022 to 2021, including ethanol production rates and the disposition of our Ord, Nebraska plant in March 2021.

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

Corporate activities include selling, general and administrative expenses, consisting primarily of compensation, professional fees and overhead costs not directly related to a specific operating segment and the loss (gain) on sale of assets. 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.

Segment Results

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

	Three Months Ended June 30,		% Variance	Six Months Ended June 30,		% Variance
	2022	2021		2022	2021	
Revenues:						
Ethanol production:						
Revenues from external customers	\$ 861,166	\$ 555,273	55.1%	\$ 1,498,719	\$ 978,995	53.1%
Intersegment revenues	—	—	*	—	—	*
Total segment revenues	861,166	555,273	55.1	1,498,719	978,995	53.1
Agribusiness and energy services:						
Revenues from external customers	150,316	167,975	(10.5)	293,193	296,796	(1.2)
Intersegment revenues	7,243	5,512	31.4	13,078	10,635	23.0
Total segment revenues	157,559	173,487	(9.2)	306,271	307,431	(0.4)
Partnership:						
Revenues from external customers	912	1,170	(22.1)	1,917	2,267	(15.4)
Intersegment revenues	18,742	18,531	1.1	36,837	37,840	(2.7)
Total segment revenues	19,654	19,701	(0.2)	38,754	40,107	(3.4)
Revenues including intersegment activity	1,038,379	748,461	38.7	1,843,744	1,326,533	39.0
Intersegment eliminations	(25,985)	(24,043)	8.1	(49,915)	(48,475)	3.0
	<u>\$ 1,012,394</u>	<u>\$ 724,418</u>	39.8%	<u>\$ 1,793,829</u>	<u>\$ 1,278,058</u>	40.4%
Cost of goods sold:						
Ethanol production	\$ 804,821	\$ 493,656	63.0%	\$ 1,466,381	\$ 909,181	61.3%
Agribusiness and energy services	143,656	170,181	(15.6)	278,095	286,255	(2.9)
Intersegment eliminations	(27,163)	(24,429)	11.2	(50,653)	(46,795)	8.2
	<u>\$ 921,314</u>	<u>\$ 639,408</u>	44.1%	<u>\$ 1,693,823</u>	<u>\$ 1,148,641</u>	47.5%
Gross margin:						
Ethanol production	\$ 56,345	\$ 61,617	(8.6)%	\$ 32,338	\$ 69,814	(53.7)%
Agribusiness and energy services	13,903	3,306	320.5	28,176	21,176	33.1
Partnership	19,654	19,701	(0.2)	38,754	40,107	(3.4)
Intersegment eliminations	1,178	386	205.2	738	(1,680)	(143.9)
	<u>\$ 91,080</u>	<u>\$ 85,010</u>	7.1%	<u>\$ 100,006</u>	<u>\$ 129,417</u>	(22.7)%

	Three Months Ended June 30,			%	Six Months Ended June 30,			%
	2022	2021	Variance		2022	2021	Variance	
	Operating income (loss):							
Ethanol production	\$ 27,506	\$ 33,543	(18.0)%	\$ (23,652)	\$ 13,223	(278.9)%		
Agribusiness and energy services	10,281	(851)	*	20,689	12,495	65.6		
Partnership	12,104	11,916	1.6	23,913	24,787	(3.5)		
Intersegment eliminations	1,178	386	205.2	738	(1,680)	(143.9)		
Corporate activities ⁽¹⁾	(17,228)	(13,961)	23.4	(35,749)	13,555	(363.7)		
	<u>\$ 33,841</u>	<u>\$ 31,033</u>	<u>9.0%</u>	<u>\$ (14,061)</u>	<u>\$ 62,380</u>	<u>(122.5)%</u>		

(1) Corporate activities for the three and six months ended June 30, 2021, includes a \$3.8 million loss on sale of assets and a \$33.1 million gain on sale of assets, respectively.

	Three Months Ended June 30,			%	Six Months Ended June 30,			%
	2022	2021	Variance		2022	2021	Variance	
	Depreciation and amortization:							
Ethanol production	\$ 19,114	\$ 18,483	3.4 %	\$ 37,546	\$ 37,011	1.4 %		
Agribusiness and energy services	470	595	(21.0)	934	1,202	(22.3)		
Partnership	823	795	3.5	1,721	1,682	2.3		
Corporate activities	560	659	(15.0)	1,165	1,318	(11.6)		
	<u>\$ 20,967</u>	<u>\$ 20,532</u>	<u>2.1 %</u>	<u>\$ 41,366</u>	<u>\$ 41,213</u>	<u>0.4 %</u>		

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

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

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
	Net income (loss)	\$ 52,720	\$ 16,117	\$ (3,152)
Interest expense ⁽¹⁾	7,800	19,058	16,606	50,737
Income tax expense (benefit)	2,895	(4,783)	1,742	(2,921)
Depreciation and amortization ⁽²⁾	20,967	20,532	41,366	41,213
EBITDA	84,382	50,924	56,562	103,167
Other income ⁽³⁾	(27,712)	—	(27,712)	—
Loss (gain) on sale of assets, net	—	3,825	—	(33,068)
Proportional share of EBITDA adjustments to equity method investees	45	50	90	94
Adjusted EBITDA	<u>\$ 56,715</u>	<u>\$ 54,799</u>	<u>\$ 28,940</u>	<u>\$ 70,193</u>

- (1) Interest expense for the three and six months ended June 30, 2021, includes losses on settlement of convertible notes of \$9.5 million and \$31.6 million, respectively.
(2) Excludes amortization of operating lease right-of-use assets and amortization of debt issuance costs.
(3) Other income for the three and six months ended June 30, 2022 includes a grant received from the USDA related to the Biofuel Producer Program of \$27.7 million.

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

	Three Months Ended June 30,			Six Months Ended June 30,		
	2022	2021	% Variance	2022	2021	% Variance
Adjusted EBITDA:						
Ethanol production	\$ 74,680	\$ 52,052	43.5%	\$ 41,954	\$ 50,263	(16.5)%
Agribusiness and energy services	10,750	(254)	*	21,473	13,697	56.8
Partnership	13,123	12,880	1.9	26,005	26,813	(3.0)
Intersegment eliminations	1,657	386	329.3	738	(1,680)	(143.9)
Corporate activities ⁽¹⁾	(15,828)	(14,140)	11.9	(33,608)	14,074	(338.8)
EBITDA	84,382	50,924	65.7	56,562	103,167	(45.2)
Other income ⁽²⁾	(27,712)	—	*	(27,712)	—	*
Loss (gain) on sale of assets, net	—	3,825	*	—	(33,068)	*
Proportional share of EBITDA adjustments to equity method investees	45	50	(10.0)	90	94	(4.3)
	<u>\$ 56,715</u>	<u>\$ 54,799</u>	<u>3.5%</u>	<u>\$ 28,940</u>	<u>\$ 70,193</u>	<u>(58.8)%</u>

- (1) Includes corporate expenses, offset by a loss on sale of assets of \$3.8 million and a \$33.1 million gain on sale of assets for the three and six months ended June 30, 2021, respectively.
(2) Other income for the three and six months ended June 30, 2022 includes a grant received from the USDA related to the Biofuel Producer Program of \$27.7 million.

* Percentage variance not considered meaningful.

Three Months Ended June 30, 2022 Compared with the Three Months Ended June 30, 2021

Consolidated Results

Consolidated revenues increased \$288.0 million for the three months ended June 30, 2022 compared with the same period in 2021 primarily due to higher prices and higher volumes sold on ethanol, distillers grains, and corn oil.

Net income increased \$36.6 million and adjusted EBITDA increased \$1.9 million for the three months ended June 30, 2022, compared with the same period last year primarily due to the \$27.7 million USDA COVID-19 relief grant received, which is excluded from adjusted EBITDA, and also higher margins on agribusiness and energy services offset by slightly lower ethanol crush margins. Interest expense decreased \$11.3 million for the three months ended June 30, 2022, compared with the same period in 2021 primarily due to a loss on settlement of convertible notes of \$9.5 million for the three months ended June 30, 2021. Income tax expense was \$2.9 million for the three months ended June 30, 2022, compared with income tax benefit of \$4.8 million for the same period in 2021 primarily due to an increase of a valuation allowance against deferred tax assets included in AOCI for the three months ended June 30, 2022, compared to a decrease of the valuation allowance recorded against deferred tax assets included in AOCI during the three months ended June 30, 2021.

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

Ethanol Production Segment

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

	Three Months Ended June 30,		% Variance
	2022	2021	
Ethanol sold (thousands of gallons)	231,413	190,913	21.2%
Distillers grains sold (thousands of equivalent dried tons)	593	494	20.0
Corn oil sold (thousands of pounds)	72,232	54,875	31.6
Corn consumed (thousands of bushels)	80,218	65,424	22.6%

Revenues in our ethanol production segment increased \$305.9 million for the three months ended June 30, 2022, compared with the same period in 2021, primarily due to higher prices and higher volumes sold of ethanol, distillers grains and corn oil.

Cost of goods sold for our ethanol production segment increased \$311.2 million for the three months ended June 30, 2022, compared with the same period last year primarily due to higher volumes sold and corn costs. Operating income decreased \$6.0 million for the three months ended June 30, 2022, compared with the same period in 2021 primarily due to decreased margins on ethanol production. Depreciation and amortization expense for the ethanol production segment was \$19.1 million for the three months ended June 30, 2022, compared with \$18.5 million for the same period last year.

Agribusiness and Energy Services Segment

Revenues in our agribusiness and energy services segment decreased \$15.9 million while operating income increased \$11.1 million and EBITDA increased \$11.0 million for the three months ended June 30, 2022, compared with the same period in 2021. The decrease in revenues was primarily due to a decrease in ethanol and corn oil trading volume. Operating income and EBITDA increased primarily as a result of higher trading margins.

Partnership Segment

Revenues generated by our partnership segment decreased \$47 thousand for the three months ended June 30, 2022, compared with the same period for 2021. Storage and throughput services revenue was consistent with the prior year. Railcar transportation services revenue increased \$0.3 million primarily due to an increase in average volumetric capacity provided. Terminal services revenue decreased \$0.2 million due to lower minimum volume commitments. Trucking and other revenue decreased \$0.2 million primarily as a result of lower non-affiliate freight volume. Operating income and EBITDA both increased \$0.2 million for the three months ended June 30, 2022 compared with the same period in 2021.

Intersegment Eliminations

Intersegment eliminations of revenues increased by \$1.9 million for the three months ended June 30, 2022, compared with the same period in 2021 primarily due to increased intersegment marketing and services fees within the agribusiness and energy services segment as a result of higher production volumes.

Corporate Activities

Operating income was impacted by an increase in corporate activities of \$3.3 million for the three months ended June 30, 2022, compared to the same period in 2021, primarily due to increased personnel costs and professional fees during the three months ended June 30, 2022.

Income Taxes

We recorded income tax expense of \$2.9 million for the three months ended June 30, 2022, compared with income tax benefit of \$4.8 million for the same period in 2021. The increase in the amount of tax expense recorded for the three months ended June 30, 2022 was primarily due to an increase in the valuation allowance recorded against deferred tax assets included in AOCI, compared to a decrease of the valuation allowance recorded against deferred tax assets included in AOCI during the three months ended June 30, 2021.

Six Months Ended June 30, 2022 Compared with the Six Months Ended June 30, 2021

Consolidated Results

Consolidated revenues increased \$515.8 million for the six months ended June 30, 2022, compared with the same period in 2021 primarily due to higher prices and higher sales volumes on ethanol, distillers grains and corn oil.

Net loss increased \$17.3 million and adjusted EBITDA decreased \$41.3 million for the six months ended June 30, 2022, compared with the same period last year primarily due to decreased margins on ethanol production. Interest expense decreased \$34.1 million for the six months ended June 30, 2022, compared with the same period in 2021 primarily due to the loss upon extinguishment of convertible notes of \$31.6 million for the six months ended June 30, 2021. Income tax expense was \$1.7 million for the six months ended June 30, 2022, compared with income tax benefit of \$2.9 million for the same period in 2021 primarily due to the increase of a valuation allowance recorded against increases in deferred tax assets included in AOCI for the six months ended June 30, 2022, compared to a decrease of the valuation allowance recorded against decreases in deferred tax assets included in AOCI during the six months ended June 30, 2021.

The following discussion provides greater detail about our year-to-date segment performance.

Ethanol Production Segment

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

	Six Months Ended June 30,		% Variance
	2022	2021	
Ethanol sold (thousands of gallons)	427,761	368,913	16.0%
Distillers grains sold (thousands of equivalent dried tons)	1,109	967	14.7
Corn oil sold (thousands of pounds)	131,527	101,438	29.7
Corn consumed (thousands of bushels)	148,522	127,020	16.9%

Revenues in our ethanol production segment increased \$519.7 million for the six months ended June 30, 2022, compared with the same period in 2021, primarily due to higher prices and higher volumes sold of ethanol, distillers grains and corn oil.

Cost of goods sold for our ethanol production segment increased \$557.2 million for the six months ended June 30, 2022, compared with the same period last year primarily due to higher corn prices and volumes sold. Operating loss increased \$36.9 million and EBITDA decreased \$8.3 million for the six months ended June 30, 2022 compared with the same period in 2021 primarily due to decreased margins on ethanol production. Depreciation and amortization expense for the ethanol production segment was \$37.5 million for the six months ended June 30, 2022, compared with \$37.0 million for the same period last year.

Agribusiness and Energy Services Segment

Revenues in our agribusiness and energy services segment decreased \$1.2 million while operating income increased

\$8.2 million and EBITDA increased \$7.8 million for the six months ended June 30, 2022, compared with the same period in 2021. The decrease in revenues was primarily due to a decrease in ethanol and corn oil trading volume. Operating income and EBITDA increased primarily as a result of higher trading margins.

Partnership Segment

Revenues generated by our partnership segment decreased \$1.4 million for the six months ended June 30, 2022, compared with the same period for 2021. Storage and throughput services revenue decreased \$0.7 million due to a reduction in the contracted minimum volume commitment as a result of the sale of the Ord ethanol plant in the first quarter of 2021. Railcar transportation services revenue decreased \$0.1 million primarily due to slightly lower capacity fees. Terminal services revenue decreased \$0.1 million due to lower minimum volume commitments. Trucking and other revenue decreased \$0.5 million primarily as a result of lower non-affiliate freight volume. Operating income decreased \$0.9 million and EBITDA decreased \$0.8 million for the six months ended June 30, 2022, compared with the same period in 2021.

Intersegment Eliminations

Intersegment eliminations of revenues increased by \$1.4 million for the six months ended June 30, 2022, compared with the same period in 2021 primarily due to increased intersegment marketing and service fees within the agribusiness and energy services segment as a result of higher production volumes.

Corporate Activities

Operating income was impacted by an increase in corporate activities of \$49.3 million for the six months ended June 30, 2022, compared to the same period in 2021, primarily due to the \$33.1 million gain on sale of assets recorded in the same period last year and the \$3.8 million loss on sale of assets in 2021, as well as increased personnel costs and professional fees during the six months ended June 30, 2022.

Income Taxes

We recorded income tax expense of \$1.7 million for the six months ended June 30, 2022, compared with income tax benefit of \$2.9 million for the same period in 2021 primarily due to the increase of a valuation allowance recorded against increases in deferred tax assets included in AOCI for the six months ended June 30, 2022, compared to a decrease of the valuation allowance recorded against decreases in deferred tax assets included in AOCI during the six months ended June 30, 2021.

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, borrowings under bank credit facilities, or the issuance of senior notes or equity. Our ability to access capital markets for debt financing under reasonable terms depends on numerous factors, including our past performance, current financial condition, credit risk profile and market conditions generally. We believe that our ability to obtain financing based on these factors remains sufficient and provides a solid foundation to meet our future liquidity and capital resource requirements.

On June 30, 2022, we had \$508.2 million in cash and equivalents, excluding restricted cash. Additionally, we had \$71.1 million in restricted cash and \$25.0 million in marketable securities at June 30, 2022. We also had \$70.0 million available under our committed revolving credit agreement, subject to restrictions and other lending conditions. Funds at certain subsidiaries are generally required for their ongoing operational needs and restricted from distribution. At June 30, 2022, our subsidiaries had approximately \$109.6 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 \$106.6 million for the six months ended June 30, 2022, compared with net cash used in operating activities of \$30.2 million for the same period in 2021. Operating activities compared to the prior year were primarily affected by a higher net loss as well as increases in inventory of approximately \$31.3 million primarily due to higher trade and ethanol inventory as a result of higher production volumes when compared to the same period of the prior year. Net cash used by investing activities was \$35.3 million for the six months ended June 30, 2022, compared with net cash provided by investing activities of \$9.9 million for the same period in 2021. Investing activities compared to the prior year were primarily affected by the purchases of fixed assets offset by proceeds from the sale of marketable

securities during the first quarter of 2022. Net cash provided by financing activities was \$160.3 million for the six months ended June 30, 2022, compared with net cash provided by financing activities of \$360.8 million for the same period in 2021, primarily due to proceeds from the issuance of common stock and debt offerings during the same period in 2021.

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 paid capital expenditures of approximately \$128.3 million during the six months ended June 30, 2022, primarily for Ultra High-Protein expansion projects at various facilities and for various maintenance projects. Capital spending for the remainder of 2022 is expected to be between \$120.0 million and \$170.0 million for various projects, including the Ultra High-Protein expansion at our Obion, Central City and Mount Vernon locations, 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, 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.

For each calendar quarter commencing with the quarter ended September 30, 2015, the partnership agreement requires the partnership to distribute all available cash, as defined, to its partners, including us, within 45 days after the end of each calendar quarter. Available cash generally means all cash and cash equivalents on hand at the end of that quarter less cash reserves established by the general partner, including those for future capital expenditures, future acquisitions and anticipated future debt service requirements, plus all or any portion of the cash on hand resulting from working capital borrowings made subsequent to the end of that quarter.

Our board of directors authorized a share repurchase program of up to \$200.0 million of our common stock. Under the program, we may repurchase shares in open market transactions, privately negotiated transactions, accelerated share buyback programs, tender offers or by other means. The timing and amount of repurchase transactions are determined by our management based on market conditions, share price, legal requirements and other factors. The program may be suspended, modified or discontinued at any time without prior notice. We did not repurchase any shares during the second quarter of 2022. To date, we have repurchased 7,396,936 of common stock for approximately \$92.8 million under the program.

On May 25, 2022, the Company gave notice calling for the redemption of all its outstanding 4.00% convertible notes, totaling an aggregate principal amount of \$64.0 million. The conversion rate was 66.4178 shares of common stock per \$1,000 of principal. From July 1, 2022 through July 8, 2022, the remaining \$64.0 million of the 4.00% convertible notes were converted into shares of common stock and were retired effective July 8, 2022.

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. We cannot provide assurance that we will be able to secure funding necessary for additional working capital or these projects at reasonable terms, if at all.

Debt

For additional information related to our debt, see *Note 8 – Debt* included as part of the notes to consolidated financial statements and *Note 12 – Debt* included as part of the notes to consolidated financial statements included in our annual report on Form 10-K for the year ended December 31, 2021.

We were in compliance with our debt covenants at June 30, 2022. Based on our forecasts, we believe we will maintain compliance at each of our subsidiaries for the next twelve months or have sufficient liquidity available on a consolidated basis to resolve noncompliance. We cannot provide assurance that actual results will approximate our forecasts or that we will inject the necessary capital into a subsidiary to maintain compliance with its respective covenants. In the event a subsidiary is unable to comply with its debt covenants, the subsidiary's lenders may determine that an event of default has occurred, and following notice, the lenders may terminate the commitment and declare the unpaid balance due and payable.

As outlined in *Note 8 - Debt*, we use LIBOR as a reference rate for our Green Plain Partners term loan and our inventory financing agreement with Macquarie. The administrator of LIBOR ceased the publication of the one week and two month LIBOR settings immediately following the LIBOR publication on December 31, 2021, and the remaining USD LIBOR settings immediately following the LIBOR publication on June 30, 2023. The U.S. Federal Reserve, in conjunction with the Alternative Reference Rate Committee, a steering committee comprised of large U.S. financial institutions, is considering replacing U.S. dollar LIBOR with a new reference rate, the SOFR, calculated using short-term repurchase agreements backed by Treasury securities. The potential effect of any such event on interest expense cannot yet be determined.

Corporate Activities

In March 2021, we issued \$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. 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; the event of a cash dividend or distribution; 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. We may settle the 2.25% notes in cash, common stock or a combination of cash and common stock. At June 30, 2022, the outstanding principal balance on the 2.25% notes was \$230.0 million.

In June 2019, we issued \$115.0 million of 4.00% convertible senior notes due in 2024, or the 4.00% notes. The 4.00% notes are senior, unsecured obligations, with interest payable on January 1 and July 1 of each year, beginning January 1, 2020, at a rate of 4.00% per annum. The initial conversion rate will be 64.1540 shares of our common stock per \$1,000 principal amount of the 4.00% notes, which is equivalent to an initial conversion price of approximately \$15.59 per share of our common stock. The conversion rate will be 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; the event of a cash dividend or distribution; 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 4.00% notes for redemption. We may settle the 4.00% notes in cash, common stock or a combination of cash and common stock.

In May 2021, we entered into a privately negotiated agreement with certain noteholders of the company's 4.00% notes. Under this agreement, 3,568,705 shares of our common stock were exchanged for \$51.0 million in aggregate principal amount of the 4.00% notes. Common stock held as treasury shares were exchanged for the 4.00% notes. At March 31, 2022, the outstanding principal balance on the 4.00% notes was \$64.0 million.

On May 25, 2022, we gave notice calling for the redemption of all our outstanding 4.00% convertible notes, totaling an aggregate principal amount of \$64.0 million. The conversion rate was 66.4178 shares of common stock per \$1,000 of principal.

From July 1, 2022 through July 8, 2022, the remaining \$64.0 million of the 4.00% convertible notes were converted into approximately 4.3 million shares of common stock and were retired effective July 8, 2022.

In August 2016, we issued \$170.0 million of 4.125% convertible senior notes due in 2022, or 4.125% notes, which are senior, unsecured obligations with interest payable on March 1 and September 1 of each year. The notes are convertible at the Holder's option. The initial conversion rate is 35.7143 shares of common stock per \$1,000 of principal which is equal to a conversion price of approximately \$28.00 per share. The conversion rate will be 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; the event of a cash dividend or distribution; or a tender or exchange offering.

In March 2021, concurrent with the issuance of the 2.25% notes, we used approximately \$156.5 million of the net proceeds of the 2.25% notes to repurchase approximately \$135.7 million aggregate principal amount of its 4.125% notes due 2022, in privately negotiated transactions. At June 30, 2022, the outstanding principal balance on the 4.125% notes was \$34.3 million. We anticipate we will settle the 4.125% notes in a combination of cash and common stock.

Agribusiness and Energy Services Segment

Green Plains Financing Company has total 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. 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 June 30, 2022, the outstanding principal balance was \$280.0 million on the facility and the interest rate was 4.69%.

Green Plains Grain has entered into a \$50.0 million 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, which equaled 4.66% as of June 30, 2022. The company had \$17.5 million short-term notes payable related to the inventory financing agreement as of June 30, 2022.

Green Plains Commodity Management has an uncommitted \$40.0 million revolving credit facility which matures April 30, 2023, to finance margins related to its hedging programs. Advances are subject to variable interest rates equal to SOFR plus 1.75%. At June 30, 2022, the outstanding principal balance was \$10.9 million on the facility and the interest rate was 3.25%.

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 with BlackRock for the purchase of all notes issued. At June 30, 2022, the outstanding principal balance was \$125.0 million on the loan and the interest rate was 11.75%.

Green Plains Wood River and Green Plains Shenandoah, wholly-owned subsidiaries of the company, have a \$75.0 million delayed draw loan agreement, which matures on September 1, 2035. At June 30, 2022, the outstanding principal balance was \$75.0 million on the loan and the interest rate was 5.02%.

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

Partnership Segment

On July 20, 2021, the partnership entered into an Amended and Restated Credit Agreement (“Amended Credit Agreement”) with funds and accounts managed by BlackRock and TMI Trust Company as administrative agent creating a \$60.0 million term loan to fund working capital, capital expenditures and other general partnership purposes. The amended term loan matures July 20, 2026. The amended 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.

Under the terms of the Amended Credit Agreement, BlackRock purchased the outstanding balance of the existing notes from the previous lenders. Interest on the term loan is based on 3-month LIBOR plus 8.00%, with a 0% LIBOR floor and is payable on the 15th day of each March, June, September and December, during the term, with the first interest payment being September 15, 2021.

On February 11, 2022, the amended term loan was modified to allow Green Plains Partners and its affiliates to repurchase outstanding notes. On the same day, the partnership purchased \$1.0 million of the outstanding notes from accounts and funds managed by BlackRock and subsequently retired the notes. As of June 30, 2022, the term loan had a balance of \$59.0 million and an interest rate of 9.83%.

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 June 30, 2022 totaled \$78.7 million. As of June 30, 2022, we had contracted future purchases of grain, natural gas, and distillers grains valued at approximately \$511.9 million and future commitments

for storage and transportation valued at approximately \$25.6 million. Refer to *Note 13 – Commitments and Contingencies* included in the notes to consolidated financial statements for more information.

Critical Accounting Policies and Estimates

Key accounting policies, including those relating to revenue recognition, impairment of long-lived assets and goodwill, 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, 2021.

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 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, SOFR or LIBOR. At June 30, 2022, we had \$902.6 million in debt, \$367.4 million of which had variable interest rates. A 10% increase in interest rates would affect our interest cost by approximately \$2.0 million per year.

For additional information related to our debt, see *Note 8 – Debt* included as part of the notes to consolidated financial statements and *Note 12 – Debt* included as part of the notes to consolidated financial statements included in our annual report on Form 10-K for the year ended December 31, 2021.

Commodity Price Risk

Our business is highly sensitive to commodity price risk, particularly for ethanol, corn, distillers grains, corn oil and natural gas. Ethanol prices are sensitive to world crude oil supply and demand, the price of crude oil, gasoline and 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, 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 and six months ended June 30, 2022, revenues included net gains of \$8.5 million and \$2.5 million, respectively, and cost of goods sold included net gains of \$0.2 million and net losses of \$62.2 million, respectively, 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 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 June 30, 2022, 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	958,000	Gallons	\$162,656
Corn	330,000	Bushels	\$152,692
Distillers grains	2,500	Tons ⁽²⁾	\$38,761
Corn oil	290,000	Pounds	\$10,094
Natural gas	27,700	MmBTU	\$3,029

(1) Estimated volumes assume production at full capacity.

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

Agribusiness and Energy Services Segment

In the agribusiness and energy services segment, physical purchase and sale contracts and derivatives are marked to market. Our inventories are carried at the lower of 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 June 30, 2022 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, 2021, 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, 2021. 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. The following risk factors supplement and/or update risk factors previously disclosed and should be considered in conjunction with the other information included in, or incorporated by reference in, this quarterly report on Form 10-Q.

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

Our operating results are highly sensitive to the spread between the corn and natural gas we purchase, and the ethanol, including industrial-grade alcohol, distillers grains, Ultra-High Protein and corn oil we sell. Price and supply are subject to various market forces, such as weather, domestic and global demand, global political or economic issues, including but not limited to the war in Ukraine including sanctions associated therewith, shortages, export prices, crude oil prices, currency valuations and government policies in the United States and around the world, over which we have no control. Price volatility of these commodities may cause our operating results to fluctuate substantially. Increases in corn or natural gas prices or decreases in ethanol, including industrial-grade alcohol, distillers grains, Ultra-High Protein and corn oil prices may make it unprofitable to operate. No assurance can be given that we will purchase corn and natural gas or sell ethanol, including industrial-grade alcohol, distillers grains, Ultra-High Protein and corn oil at or near prices which would provide us with positive margins. Consequently, our results of operations and financial position may be adversely affected by increases in corn or natural gas prices or decreases in ethanol, including industrial-grade alcohol, distillers grains, Ultra-High Protein and corn oil prices.

We continuously monitor the margins at our ethanol plants using a variety of risk management tools and hedging strategies when appropriate. The spread between ethanol and corn prices can fluctuate widely, and has been negative at times. Fluctuations are likely to continue. A sustained narrow spread or reduction in the spread between ethanol and corn prices as a result of increased corn prices or decreased ethanol prices, would adversely affect our results of operations and financial position. Should our combined revenue from ethanol, including industrial-grade alcohol, distillers grains, Ultra-High Protein and corn oil fall below our cost of production, we could decide to slow or suspend production at some or all of our ethanol plants, which also could adversely affect our results of operations and financial position.

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

Our operating results are highly sensitive to commodity prices.

Corn. We are generally unable to pass increased corn costs to our customers since ethanol competes with other fuels. We have seen considerable price volatility in corn prices not experienced in recent years. At certain corn prices, ethanol may be uneconomical to produce. Ethanol plants, livestock industries and other corn-consuming enterprises put significant price pressure on local corn markets. In addition, local corn supplies and prices could be adversely affected by, but not limited to, prices for alternative crops, increasing input costs, changes in government policies, shifts in global markets, supply or demand, global political or economic issues, including but not limited to the war in Ukraine including sanctions associated therewith, or global or regional growing conditions, such as plant disease or adverse weather, including drought, as well as global conflicts.

Ethanol. Our revenues are dependent on market prices for ethanol which can be volatile as a result of a number of factors, including but not limited to: the price and availability of competing fuels; the overall supply and demand for ethanol and corn; the price of gasoline, crude oil and corn; global political or economic issues, including but not limited to

the war in Ukraine including sanctions associated therewith, and government policies.

Ethanol is marketed as a fuel additive that reduces vehicle emissions, an economical source of octanes and, to a lesser extent, a gasoline substitute. Consequently, gasoline supply and demand affect the price of ethanol. Should gasoline prices or demand decrease significantly, our results of operations could be materially impacted.

Ethanol imports also affect domestic supply and demand. Imported ethanol is not subject to an import tariff and, under the RFS, sugarcane ethanol from Brazil is one of the most economical means for obligated parties to meet the advanced biofuel standard.

Industrial-grade alcohol is produced by further distillation processing of 200-proof alcohol. Further distillation removes impurities which allows it to be used as an ingredient for sanitation products. Should industrial-grade alcohol prices or demand decrease significantly, or competition and supply increase, our results of operations could be negatively impacted.

Government mandates affecting ethanol could change and impact the ethanol market.

Under the provisions of the Energy Independence and Security Act of 2007, as amended, Congress expanded the RFS. The RFS mandates the minimum volume of renewable fuels that must be blended into the transportation fuel supply each year which affects the domestic market for ethanol. Each year the EPA is supposed to undertake rulemaking to set the RVO for the following year, though at times months or years pass without a finalized RVO. Further, the EPA has the authority to waive the requirements, in whole or in part, if there is inadequate domestic renewable fuel supply or the requirement severely harms the economy or the environment. After 2022, volumes shall be determined by the EPA in coordination with the Secretaries of Energy and Agriculture, taking into account such factors as impact on environment, energy security, future rates of production, cost to consumers, infrastructure, and other factors such as impact on commodity prices, job creation, rural economic development, or impact on food prices.

According to the RFS, if mandatory renewable fuel volumes are reduced by at least 20% for two consecutive years, the EPA is required to modify, or reset, statutory volumes through 2022; the year through which the statutorily prescribed volumes run. While conventional ethanol maintained 15 billion gallons, 2019 was the second consecutive year that the total RVO was more than 20% below the statutory volumes levels. Thus, the EPA was expected to initiate a reset rulemaking, and modify statutory volumes through 2022, and do so based on the same factors they are to use in setting the RVOs post-2022. However, on December 19, 2019, the EPA announced it would not be moving forward with a reset rulemaking. It is unclear when or if they will propose a reset rulemaking. The EPA has stated an intention to propose a post-2022 'set' rulemaking by November 16, 2022, and finalize by June 14, 2023, in compliance with a consent decree from the U.S. District Court for D.C.

Volumes can also be impacted as small refineries can petition the EPA for an SRE which, if approved, waives their portion of the annual RVO requirements. The EPA, through consultation with the DOE and the USDA, can grant them a full or partial waiver, or deny it outright within 90 days of submittal. A small refinery is defined as one that processes fewer than 75,000 barrels of petroleum per day.

Our operations could be adversely impacted by legislation, administration actions, EPA actions, or lawsuits that may reduce the RFS mandated volumes of conventional ethanol and other biofuels through the annual RVO, the 2022 set rulemaking, the point of obligation for blending, or SREs. A recent Supreme Court ruling held that the small refineries can continue to apply for an extension of their waivers from the RFS, even if they have not been awarded a continuous string of exemptions, though the EPA has proposed denying all SRE applications. A recent D.C. Circuit Court of Appeals ruling held that the EPA overstepped its authority in extending the one pound Reid Vapor Pressure waiver for 10% ethanol blends to 15% ethanol blends in the summer, effectively limiting summertime sales of ethanol blends above 10% to FFVs from June 1 to September 15 each year. Notwithstanding, on April 12, 2022, the President announced that he has directed the EPA to issue an emergency waiver to allow for the continued sale of E15 during the June 1 to September 15 period.

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

Future demand may be influenced by economic incentives to blend based on the relative value of gasoline versus ethanol, taking into consideration the octane value of ethanol, environmental requirements and the value of RFS credits or RINs. A significant increase in supply beyond the RFS mandate could have an adverse impact on ethanol prices. Moreover, any changes to RFS, whether by legislation, EPA action or lawsuit, originating from issues associated with the market price of RINs could negatively impact the demand for ethanol, discretionary blending of ethanol and/or the price of ethanol. Recent actions by the EPA to grant SREs without accounting for the lost gallons, for example, resulted in lower RIN prices. Similarly, proposals from the current EPA to reduce annual RVO levels could also lead to lower RIN prices.

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

The ability or willingness of OPEC and other oil exporting nations to set and maintain production levels and/or the impact of sanctions on Russia related to the war in Ukraine may have a significant impact on oil and natural gas commodity prices.

The Organization of Petroleum Exporting Countries and their allies (collectively, OPEC+), is an intergovernmental organization that seeks to manage the price and supply of oil on the global energy market. Actions taken by OPEC+ members, including those taken alongside other oil exporting nations, have a significant impact on global oil supply and pricing. For example, OPEC+ and certain other oil exporting nations have previously agreed to take measures, including production cuts, to support crude oil prices. In March 2020, members of OPEC+ considered extending and potentially increasing these oil production cuts, however these negotiations were unsuccessful. As a result, Saudi Arabia announced an immediate reduction in export prices and Russia announced that all previously agreed oil production cuts expired on April 1, 2020. These actions led to an immediate and steep decrease in oil prices. Conversely, sanctions imposed on Russia in the last few months have increased prices. There can be no assurance that OPEC+ members and other oil exporting nations will agree to future production cuts or other actions to support and stabilize oil prices, nor can there be any assurance that sanctions or other global conflicts will not further impact oil prices. Uncertainty regarding future sanctions or actions to be taken by OPEC+ members or other oil exporting countries could lead to increased volatility in the price of oil, which could adversely affect our business, future financial condition and results of operations.

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

Employees surrender shares when restricted stock grants are vested to satisfy statutory minimum required payroll tax withholding obligations.

The following table lists the shares that were surrendered during the second quarter of 2022:

Period	Total Number of Shares Withheld for Employee Awards	Average Price Paid per Share
April 1 - April 30	—	\$ —
May 1 - May 31	10,734	31.05
June 1 - June 30	—	—
Total	10,734	\$ 31.05

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. We did not repurchase any shares during the second quarter of 2022. Since inception of the repurchase program, the company has repurchased 7,396,936 shares of common stock for approximately \$92.8 million under the program.

Item 3. Defaults Upon Senior Securities.

None.

Item 4. Mine Safety Disclosures.

Not applicable.

Item 5. Other Information.

None.

Item 6. Exhibits.**Exhibit Index**

Exhibit No.	Description of Exhibit
3.1	Third Articles of Amendment to Second Amended and Restated Articles of Incorporation of Green Plains Inc (incorporated herein by reference to Exhibit 3.1 to the company's Current Report on Form 8-K filed on May 6, 2022).
3.2	First Amendment to Fourth Amended and Restated Bylaws of Green Plains Inc (incorporated herein by reference to Exhibit 3.2 to the company's Current Report on Form 8-K filed on May 6, 2022).
10.1	Amendment No. 1 to Amended and Restated Credit Agreement, dated February 11, 2022, by and among Green Plains Operating Company LLC, as the Borrower, the guarantors identified therein, TMI Trust Company, as Administrative Agent and the other lenders party thereto (incorporated herein by reference to Exhibit 10.26 to the company's Annual Report on Form 10-K for the year ended December 31, 2021).
10.2	Loan and Security Agreement, dated March 25, 2022, by and among Green Plains Inc., as Guarantor, Green Plains Finance Company LLC, Green Plains Grain Company LLC and Green Plains Trade Group LLC as the Borrowers, ING Capital LLC, as Agent and the other financial institutions party thereto. (The exhibits and schedules to the Loan and Security Agreement have been omitted. The Company will furnish such schedules to the SEC upon request). (incorporated herein by reference to Exhibit 10.1 to the company's Current Report on Form 8-K filed on March 28, 2022).
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 June 30, 2022, 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 June 30, 2022, formatted in iXBRL.

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: August 2, 2022

By: /s/ Todd A. Becker

Todd A. Becker

President and Chief Executive Officer

(Principal Executive Officer)

Date: August 2, 2022

By: /s/ G. Patrich Simpkins Jr.

G. Patrich Simpkins Jr.

Chief Financial Officer

(Principal Financial Officer)

**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: August 2, 2022

/s/ Todd A. Becker

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

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

I, G. Patrich Simpkins Jr., 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: August 2, 2022

/s/ G. Patrich Simpkins Jr.

G. Patrich Simpkins Jr.
Chief Financial Officer
(Principal Financial Officer)

**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 June 30, 2022, 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: August 2, 2022

/s/ Todd A. Becker

Todd A. Becker
President and Chief Executive Officer

**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 June 30, 2022, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, G. Patrich Simpkins Jr., 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: August 2, 2022

/s/ G. Patrich Simpkins Jr.

G. Patrich Simpkins Jr.
Chief Financial Officer