Green Plains Inc.
Form 10-K
February 14, 2018

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

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

For the fiscal year ended December 31, 2017

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: Common Stock, $.001 par value

Name of exchanges on which registered: Nasdaq Global Market

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

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

Yes No

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

Yes No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted 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 and post such files).

Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. .

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 (Do not check if a smaller reporting company)

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 Act). Yes No

The aggregate market value of the company's voting common stock held by non-affiliates of the registrant as of June 30, 2017 (the last business day of the second quarter), based on the last sale price of the common stock on that date of $20.55, was approximately $802.4 million. For purposes of this calculation, executive officers and directors are deemed to be affiliates of the registrant.

As of February 7, 2018, there were 41,053,898 shares of the registrant's common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive Proxy Statement for the 2018 Annual Meeting of Shareholders are incorporated by reference in Part III herein. The company intends to file such Proxy Statement with the Securities and Exchange Commission no later than 120 days after the end of the period covered by this report on Form 10-K.

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Commonly Used Defined Terms

Green Plains Inc. and Subsidiaries:

Green Plains; the company	Green Plains Inc. and its subsidiaries
BioProcess Algae	BioProcess Algae LLC
Fleischmann’s Vinegar	Fleischmann’s Vinegar Company, Inc.
Green Plains Cattle	Green Plains Cattle Company LLC
Green Plains Grain	Green Plains Grain Company LLC
Green Plains Partners; the partnership	Green Plains Partners LP and its subsidiaries
Green Plains Processing	Green Plains Processing LLC and its subsidiaries
Green Plains Trade	Green Plains Trade Group LLC
SCI Ingredients	SCI Ingredients Holdings, Inc.

Accounting Defined Terms:

the Act	Tax Cuts and Jobs Act of 2017
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
IPO	Initial public offering of Green Plains Partners LP
LIBOR	London Interbank Offered Rate
LTIP	Green Plains Partners LP 2015 Long-Term Incentive Plan
Nasdaq	The Nasdaq Global Market
R&D Credits	Research and development tax credits
SEC	Securities and Exchange Commission
Securities Act	Securities Act of 1933, as amended

Industry Defined Terms:

Bgy	Billion gallons per year
BTU	British Thermal Units
CAFE	Corporate Average Fuel Economy
CARB	California Air Resources Board
CFTC	Commodity Futures Trading Commission
DOT	U.S. Department of Transportation
E15	Gasoline blended with up to 15% ethanol by volume
E85	Gasoline blended with up to 85% ethanol by volume
EIA	U.S. Energy Information Administration
EISA	Energy Independence and Security Act of 2007, as amended
EPA	U.S. Environmental Protection Agency
EU	European Union
FDA	U.S. Food and Drug Administration
FSMA	Food Safety Modernization Act of 2011
ILUC	Indirect land usage charge
LCFS	Low Carbon Fuel Standard
MMBTU	Million British Thermal Units
Mmg	Million gallons
Mmgy	Million gallons per year
MTBE	Methyl tertiary-butyl ether
NAFTA	North American Free Trade Agreement
RFS II	Renewable Fuels Standard II
RIN	Renewable identification number
RVO	Renewable volume obligation
SQF	Global Food and Safety Initiative program
TTB	Alcohol and Tobacco Tax and Trade Bureau
U.S.	United States
USDA	U.S. Department of Agriculture

Cautionary Statement Regarding Forward-Looking Statements

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

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

Factors that could cause actual results to differ from those expressed or implied are discussed in this report under “Risk Factors” or incorporated by reference. Specifically, we may experience fluctuations in future operating results due to a number of economic conditions, including: competition in the ethanol industry and other industries in which we operate; commodity market risks, including those that may result from weather conditions; financial market risks; counterparty risks; risks associated with changes to government policy or regulation, including changes to tax laws; risks related to acquisitions and achieving anticipated results; risks associated with merchant trading, cattle feeding operations, vinegar production 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.

PART I

Item 1. Business.

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

Overview

Green Plains is an Iowa corporation, founded in June 2004 as an ethanol producer. We have grown through acquisitions of operationally efficient ethanol production facilities and adjacent commodity processing businesses. We are focused on generating stable operating margins through our diversified 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, which differentiates us from companies focused only on ethanol production. Our other businesses, including our partnership, cattle feeding operations and vinegar production, 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 IPO on July 1, 2015. We own a 62.5% limited partner interest, a 2.0% general partner interest and all of the partnership’s incentive distribution rights. The public owns the remaining 35.5% limited partner interest. The partnership is consolidated in our financial statements.

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

· Ethanol Production. Our ethanol production segment includes the production of ethanol, distillers grains and corn oil at 17 ethanol plants in Illinois, Indiana, Iowa, Michigan, Minnesota, Nebraska, Tennessee, Texas and Virginia. At capacity, our facilities are capable of processing approximately 518 million bushels of corn per year and

producing approximately 1.5 billion gallons of ethanol, 4.1 million tons of distillers grains and 359 million pounds of industrial grade corn oil, making us the second largest consolidated owner of ethanol plants in North America.

- Agribusiness and Energy Services. Our agribusiness and energy services segment includes grain procurement, with approximately 59.6 million bushels of grain storage capacity, and our commodity marketing business, which markets, sells and distributes ethanol, distillers grains and corn oil produced at our ethanol plants. We also market ethanol for a third-party producer as well as buy and sell ethanol, distillers grains, corn oil, crude oil, grain, natural gas and other commodities in various markets.

- Food and Ingredients. Our food and ingredients segment includes four cattle feeding operations with the capacity to support approximately 258,000 head of cattle and grain storage capacity of approximately 9.6 million bushels, Fleischmann's Vinegar, one of the world's largest producers of food-grade industrial vinegar, and our food-grade corn oil operations.

- 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 39 ethanol storage facilities, eight fuel terminal facilities and approximately 3,500 leased railcars.

Risk Management and Hedging Activities

Our profitability is highly dependent on commodity prices, particularly for ethanol, distillers grains, corn oil, corn, natural gas and cattle. Since market price fluctuations among these commodities are not always correlated, ethanol production or our cattle feeding operations may be unprofitable at times. We use a variety of risk management tools and hedging strategies to monitor real-time operating price risk exposure at each of our operations to obtain favorable margins, when available, or temporarily reduce production levels during periods of compressed margins. Our multiple businesses and revenue streams also help to diversify our operations and improve profitability.

We use forward contracts to sell a portion of our ethanol, distillers grains, corn oil and vinegar production or buy some of the corn, natural gas, cattle, or ethanol we need to partially offset commodity price volatility. We also engage in other hedging transactions involving exchange-traded futures contracts for corn, natural gas, ethanol, cattle and other commodities. The financial impact of these activities depends on the price of the commodities involved and our ability to physically receive or deliver those commodities. We do not speculate on general price movements by taking significant unhedged positions on commodities.

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

Competitive Strengths

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

Disciplined Risk Management. Risk management is our core competency and we use a variety of risk management tools and hedging strategies to maintain a disciplined approach. Our internally developed operating margin management system allows us to monitor commodity price risk exposure at each of our operations and lock in favorable margins or temporarily reduce production levels during periods of compressed margins.

Acquisition and Integration Capabilities. We have a history of acquiring assets that create synergies and diversifying risks. Our balance sheet allows us to be opportunistic in that process. Since inception, we built or acquired 17 ethanol plants and installed corn oil extraction technology at each of our ethanol plants to generate incremental returns. In addition, we purchased or built a grain handling and storage business, cattle feeding operations, a vinegar production business, and terminal and distribution facilities. Successful integration of these operations has enhanced our overall returns.

Operational Excellence. Our facilities are staffed with experienced industry personnel who share operational knowledge and expertise. We focus on making incremental operational improvements to enhance performance using real-time production data and systems to monitor our operations and optimize performance. Our operational expertise provides us a cost advantage over most of our competitors and helps us improve the operating margins of acquired facilities.

Vertical Integration. Our vertically integrated platform reduces commodity and operational risk and increases pricing visibility in key markets. Combined, our ethanol production, agribusiness and energy services, food and ingredients, and partnership segments provide efficiencies, which extend both within and outside the ethanol value chain.

Proven Management Team. Our senior management team averages approximately 25 years of commodity risk management and related industry experience. We have specific expertise across all of our businesses, including plant operations and management, commodity markets and risk management, and ethanol marketing and distribution. Our management team's level of operational and financial expertise is essential to successfully executing our business strategies.

Business Strategy

We believe ethanol could become an increasingly larger portion of the global fuel supply driven by heightened environmental concerns and energy independence goals, supported by government policies and regulations. In the 1990's, federal law required the use of oxygenates in reformulated gasoline to reduce vehicle emissions in cities with unhealthy levels of air pollution. Today, ethanol is the primary oxygenate used by the U.S. refining industry to meet various federal and state air emission standards. The high octane value of ethanol has also made it the primary additive used by refiners to increase octane value, which improves engine performance. Accordingly, ethanol has become a valuable blend component that comprises approximately 10% of the domestic gasoline supply with the potential to grow with higher blends and increased gasoline demand. Ethanol usage is further supported by federal government mandates under RFS, which assigns individual refiners, blenders and importers the volume of renewable fuels they are obligated to use based on their percentage of total fuel sales. Advances in domestic corn yields have helped the U.S. ethanol industry become the lowest-cost producer of ethanol, surpassing Brazil, creating demand for U.S. ethanol worldwide.

In light of the ethanol industry's environment, we are focused on maintaining a low-cost ethanol production platform and driving costs out of the value chain through disintermediation. Owning grain storage at or near our ethanol plants allows us to develop relationships with local producers and originate corn more effectively at a lower average cost. We purchase approximately two-thirds of our corn volume directly from farmers and have 42 production days of

storage capacity at or near our ethanol plants. We use our performance data to develop strategies that can be applied across our platform and embrace technological advances to improve operational efficiencies and yields, such as Selective Milling Technology™ and Enogen® corn enzyme technology, to lower our processing cost per gallon and increase production volumes.

We believe there is untapped value across our businesses and we intend to further develop and strengthen our business by pursuing the following growth strategies:

Grow Organically: We seek to identify expansion projects that maximize our production capabilities and lower existing costs at our production facilities. We also seek to leverage our core competencies in adjacent businesses such as cattle feedlots, high protein animal feed, food ingredients and other commodity processing operations that maximize our operational and risk management expertise.

Acquire Strategic Assets: We intend to invest in downstream distribution services that take advantage of our master limited partnership structure, leverage our core competencies in adjacent markets or generate attractive margins or predictable revenue streams. We are disciplined throughout the business development process to ensure our investments generate favorable returns and are firmly committed to maintaining safe, reliable and environmentally compliant operations.

Recent Developments

The following is a summary of our significant developments during 2017. Additional information about these items can be found elsewhere in this report or in previous reports filed with the SEC.

On March 10, 2017, we acquired the assets of a cattle-feeding operation located approximately 20 miles from our Hereford, Texas ethanol facility. The operation has the capacity to support 30,000 head of cattle and is included in our food and ingredients segment.

On April 28, 2017, Green Plains Cattle amended its senior secured asset-based revolving credit facility to finance the expanded working capital requirements for its cattle feeding operations. The amendment increased the maximum commitment from $100.0 million to $200.0 million until July 31, 2017, when it was increased again to $300.0 million. The maturity date was extended from October 31, 2017 to April 30, 2020.

On May 16, 2017, we completed the acquisition of two cattle-feeding operations from Cargill Cattle Feeders, LLC for $37.2 million, excluding working capital adjustments. The transaction included the feed yards located in Leoti, Kansas and Eckley, Colorado and added combined feedlot capacity of 155,000 head of cattle to our operations. The transaction was financed using cash on hand. As part of the transaction, we entered into a long-term cattle supply agreement with Cargill Meat Solutions Corporation. Under the cattle supply agreement, all cattle placed in the Leoti, Kansas, Eckley, Colorado and Kismet, Kansas feedlots will be sold exclusively to Cargill Meat Solutions under an agreed upon production and pricing arrangement.

During the second quarter of 2017, we entered into several privately negotiated agreements with holders, on behalf of certain beneficial owners, of our 3.25% notes. Under these agreements, 2,783,725 shares of our common stock and approximately $8.5 million in cash plus accrued but unpaid interest on the 3.25% notes, were exchanged for approximately $56.3 million in aggregate principal amount of the 3.25% notes. Following the closing of the agreement, $63.7 million aggregate principal amount of the 3.25% notes remains outstanding. We recorded a charge to interest expense in the consolidated financial statements for the loss on debt extinguishment of approximately $1.3 million during the three months ended June 30, 2017.

On July 28, 2017, we amended our Green Plains Trade senior secured asset-based revolving credit facility, to increase the maximum commitment from $150.0 million to $300.0 million and extend the maturity date to July 28, 2022. The amended credit facility increases advance rates and modifies the eligible inventory definitions to include additional commodities and locations. Advances are subject to variable interest rates equal to a daily LIBOR rate plus 2.25% or the base rate plus 1.25%. The unused portion of the credit facility is also subject to a commitment fee of 0.375% per annum.

On August 29, 2017, the company entered into a $500.0 million term loan agreement which matures on August 29, 2023, to refinance approximately $405.0 million of total debt outstanding issued by Green Plains Processing and Fleischmann’s Vinegar, pay associated fees and expenses and for general corporate purposes. The term loan is guaranteed by the company and substantially all of its subsidiaries, but not Green Plains Partners and certain other entities, and secured by substantially all of the assets of the company, including 17 ethanol production facilities, vinegar production facilities and a second priority lien on the assets secured under the revolving credit facilities at Green Plains Trade, Green Plains Cattle and Green Plains Grain.

On September 11, 2017, John Neppl joined the company as chief financial officer of Green Plains and Green Plains Partners, replacing Jerry Peters, who retired. Mr. Peters continues as a member of the board of directors of Green Plains Holdings LLC, the general partner of Green Plains Partners. Mr. Neppl most recently served as chief financial officer of The Gavilon Group, LLC and brings extensive experience in commodity processing and trading businesses.

On October 27, 2017, the partnership upsized its revolving credit facility by $40.0 million, from $155.0 million to $195.0 million, accessing a portion of the $100.0 million accordion in place on the facility.

On November 16, 2017, Green Plains Cattle entered into an amendment of its senior secured asset-based revolving credit facility with a group of lenders led by Bank of the West and ING Capital LLC. This amendment increased the revolving commitment under the credit facility by $125.0 million, from $300.0 million to $425.0 million, with an additional $75.0 million available accordion feature. Additionally, the amendment increased the swing-line sublimit from $15.0 million to $20.0 million.

During the fourth quarter of 2017, commercial development of the JGP Energy Partners intermodal export and import fuels terminal in Beaumont, Texas was completed, with storage capacity of 550 thousand barrels to support various export and domestic grades of ethanol. On December 4, 2017, the first ethanol shipment departed from the terminal. The company formed the 50/50 joint venture to construct the terminal in June 2016 with Jefferson Ethanol Holdings LLC, a subsidiary of Fortress Transportation and Infrastructure Investors LLC. Per the omnibus agreement between Green Plains and the partnership, Green Plains will offer its interest in the joint venture to the partnership no later than six months after the completion of construction.

During the year, the company repurchased 394,677 shares of common stock for $6.7 million.

Operating Segments

Ethanol Production Segment

Industry Overview. Ethanol, also known as ethyl alcohol or grain alcohol, is a colorless liquid produced by fermenting carbohydrates found in a number of different types of grains, such as corn, wheat and sorghum, and other cellulosic matter found in plants. Most of the ethanol produced in the United States is made from corn because it contains large quantities of carbohydrates that convert into glucose more easily than most other kinds of biomass, which can be handled efficiently and is in greater supply than other grains. According to the USDA, on average, one bushel, or 56 pounds, of corn, produces approximately 2.7 gallons of ethanol, 17.5 pounds of distillers grains and 0.7 pounds of corn oil. Outside of the United States, sugarcane is the primary feedstock used to produce ethanol.

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

Ethanol Plants. We operate 17 dry mill ethanol production plants, located in nine states, that produce ethanol, distillers grains and corn oil:

Plant	Initial Operation or Acquisition Date	Technology	Plant Production Capacity (mmgy)
Atkinson, Nebraska	June 2013	Delta-T	55
Bluffton, Indiana (1)	Sept. 2008	ICM	120
Central City, Nebraska	July 2009	ICM	116
Fairmont, Minnesota	Nov. 2013	Delta-T	119
Hereford, Texas	Nov. 2015	ICM/Lurgi	100
Hopewell, Virginia	Oct. 2015	Katzen	60
Lakota, Iowa	Oct. 2010	ICM/Lurgi	124
Madison, Illinois	Sept. 2016	Vogelbusch	90
Mount Vernon, Indiana	Sept. 2016	Vogelbusch	90
Obion, Tennessee (1)	Nov. 2008	ICM	120
Ord, Nebraska	July 2009	ICM	65
Otter Tail, Minnesota	Mar. 2011	Delta-T	55
Riga, Michigan	Oct. 2010	Delta-T	60
Shenandoah, Iowa (1)	Aug. 2007	ICM	82

Superior, Iowa (1)	July 2008	Delta-T	60
Wood River, Nebraska	Nov. 2013	Delta-T	121
York, Nebraska	Sept. 2016	Vogelbusch	50
Total			1,487

(1) We constructed these four plants; all other ethanol plants were acquired.

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

The majority of our plants are equipped with industry-leading ICM or Delta-T ethanol processing technology. Our years of experience building, acquiring and operating these technologies provides us with a deep understanding of how to effectively and efficiently manage both platforms for maximum performance.

Corn Feedstock and Ethanol Production. Our plants use corn as feedstock in a dry mill ethanol production process. Each of our plants requires approximately 17 million to 43 million bushels of corn annually, depending on its production capacity. The price and availability of corn are subject to significant fluctuations driven by a number of factors that affect commodity prices in general, including crop conditions, weather, governmental programs, freight costs and global demand. Ethanol producers are generally unable to pass increased corn costs to customers since ethanol competes with other fuels.

Our corn supply is obtained primarily from local markets. We use cash and forward purchase contracts with grain producers and elevators to buy corn. We maintain direct relationships with local farmers, grain elevators and cooperatives, which serve as our primary sources of grain feedstock, at 14 of our ethanol plants. Most farmers in close proximity of our plants store corn in their own storage facilities. This allows us to purchase much of the corn we need directly from farmers

throughout the year. At three of our ethanol plants, we contract with a third-party grain originator to supply the corn necessary for ethanol production. These contracts terminate between August 2019 and November 2023. Each of our plants is also situated on rail lines or has other logistical solutions to access corn supplies from other regions of the country should local supplies become insufficient.

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

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

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

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

Corn Oil. Corn oil systems extract non-edible corn oil from the thin stillage evaporation process immediately before the production of distillers grains. Corn oil is produced by processing the syrup and evaporated thin stillage through a decanter-style, or disk-stack, centrifuge. The centrifuges separate the relatively light corn oil from the heavier components of the syrup, eliminating the need for significant retention time. We extract approximately 0.7 pounds of corn oil per bushel of corn used to produce ethanol. Industrial uses for corn oil include feedstock for biodiesel,

livestock feed additives, rubber substitutes, rust preventatives, inks, textiles, soaps and insecticides. The syrup is blended into wet, modified wet or dried distillers grains.

Natural Gas. Depending on production parameters, our ethanol plants use approximately 20,000 to 40,000 BTUs of natural gas per gallon of production. We have service agreements to acquire the natural gas we need and transport the gas through pipelines to our plants.

Electricity. Our plants require between 0.5 and 1.5 kilowatt hours of electricity per gallon of production. Local utilities supply the necessary electricity to all of our ethanol plants.

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

Agribusiness and Energy Services Segment

Our agribusiness and energy services segment includes four grain elevators in four states with combined grain storage capacity of approximately 10.1 million bushels, and grain storage at our ethanol plants of approximately 49.5 million bushels, detailed in the following table:

Facility Location	On-Site Grain Storage Capacity (thousands of bushels)
Grain Elevators	
Archer, Nebraska	1,246
Essex, Iowa	3,841
Hopkins, Missouri	2,713
Kismet, Kansas	2,328
Ethanol Plants	
Atkinson, Nebraska	5,109
Bluffton, Indiana	4,789
Central City, Nebraska	1,400
Fairmont, Minnesota	1,611
Hereford, Texas	4,913
Hopewell, Virginia	1,043
Lakota, Iowa	5,402
Madison, Illinois	1,015
Mount Vernon, Indiana	1,034
Obion, Tennessee	8,168
Ord, Nebraska	2,321
Otter Tail, Minnesota	2,772
Riga, Michigan	2,432
Shenandoah, Iowa	886
Superior, Iowa	2,955
Wood River, Nebraska	3,293
York, Nebraska	347
Total	59,618

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

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

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

Also through Green Plains Trade, we market wet and modified wet distillers grains to local markets and dried distillers grains to local, national and international markets. The bulk of our demand is delivered to geographic regions that do not have significant local corn or distillers grains production.

Our markets can be further segmented by geographic region and livestock industry. Most of our wet and modified wet distillers grains are sold to midwestern feedlot markets. A substantial amount of dried distillers grains are shipped by barge, containers and rail to regional and national markets, as well as international markets. Our dried distillers grains are shipped to feedlots and poultry markets, as well as Texas and West Coast rail markets. Some of our distillers grains are shipped by truck to dairy, beef, and poultry operations in the eastern United States. We also ship by railcar to eastern and southeastern feed mills, poultry and dairy operations, and domestic trade companies. We sell dried distillers grains directly to international markets and indirectly to exporters for shipment. In 2017, we exported approximately 9% of our distillers grains production, with the largest export markets for distillers grains being Vietnam and Thailand. Access to diversified markets allows us to sell product to customers offering the highest net price.

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

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

Our railcar fleet for the agribusiness and energy services segment consists of approximately 920 leased hopper cars to transport distillers grains and approximately 100 leased tank cars to transport corn oil and crude oil. The initial terms of the lease contracts are for periods up to ten years.

Food and Ingredients Segment

Cattle feeding operations. Our cattle feeding operations have the capacity to support approximately 258,000 head of cattle and 9.6 million bushels of grain storage capacity.

Facility Location	Initial Operation or Acquisition Date	On-Site Cattle Capacity (thousands of cattle)	On-Site Grain Storage Capacity (thousands of bushels)
Kismet, Kansas	June 2014	73	2,193
Hereford, Texas	March 2017	30	-
Leoti, Kansas	May 2017	106	4,345
Eckley, Colorado	May 2017	49	3,070

We purchase feeder cattle from producers, order buyers and livestock auctions, the majority of which are from Kansas, Missouri, Oklahoma and Texas. Generally, our feeder cattle are purchased at weights between 650 and 950 pounds. We typically feed the feeder cattle for approximately 160 days prior to selling to large beef processors at prices determined by the market, adjusted for quality. Bulk cattle commodities are traded on commodity exchanges. Inventory values are affected by changes in these markets and the spreads between feeder and live cattle futures. To mitigate risks related to market fluctuations from purchase and sale commitments of cattle and cattle held in inventory, we enter into exchange-traded futures and options contracts that function as economic hedges at times.

Vinegar operations. Fleischmann's Vinegar is a liquid, natural specialty ingredients company serving a range of markets and end-use applications, including food and beverage flavoring ingredients, meat preservatives, antimicrobials, bio-herbicides, and cleaning products across the food, beverage, agricultural, industrial and consumer markets. Vinegar is sold primarily to major food industry participants, including leading branded food companies, private label food manufacturers and companies serving the foodservice channel. Our products appeal to both food and non-food end market applications and are comprised of white distilled vinegar and numerous specialty vinegars, including balsamic, red wine, white wine, cider and other varietals for retail and industrial uses. We have a dedicated research and development team, with extensive experience in food science and agriculture, that can develop innovative products and technology to meet the needs of customers for various specialized end-markets.

Our vinegar operations include seven production facilities, which are located in Alabama, California, Illinois, Maryland, Missouri and New York, and three distribution warehouses, which are located in California, Oregon and Texas. All of our production facilities use food-grade ethanol as the primary production input.

Food-grade corn oil production. Our food-grade corn oil operations focus on shipping corn oil from facilities across the Midwest by rail or barge to terminal facilities located in the southern United States. Once the corn oil arrives at the terminal facility, it is unloaded and consolidated into set volumes and prepared for shipment by vessel. The corn oil is then shipped to independent refiners outside the United States for refining into a refined, bleached, dewaxed and deodorized food-grade product. This finished product is then shipped by vessel or container to our various customers. In addition, we also execute trade volumes of corn oil and soybean oil in both domestic and international markets.

Partnership Segment

Our partnership segment provides fuel storage and transportation services through (i) 39 ethanol storage facilities located at or near our 17 ethanol production plants, (ii) eight fuel terminal facilities located near major rail lines, and (iii) a leased railcar fleet and other transportation assets.

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

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

To meet the challenge of marketing ethanol and distillers grains to diverse market segments, several of our plants are capable of simultaneously handling more than 150 railcars. Some of our locations have large loop tracks with unit train loading capabilities for both ethanol and dried distillers grains and spurs to connect the loop to the mainline or allow the movement and storage of railcars on site.

The partnership's railcar fleet consists of approximately 3,500 leased tank cars for the transportation of ethanol. The initial terms of the lease contracts are for periods up to ten years.

To optimize the partnership's railcar assets, we transport products other than ethanol depending on market opportunities and have used a portion of our railcar fleet to transport crude oil for third parties and to lease railcars to other users.

Terminal and Distribution Services. Ethanol is transported from the partnership's terminals to third-party terminal racks where it is blended with gasoline and transferred to the loading rack for delivery by truck to retail gas stations. The partnership owns and operates fuel holding tanks and terminals, and provide terminal services and logistics solutions to markets that do not have efficient access to renewable fuels. The partnership operates fuel terminals at one owned and seven leased locations in seven states with combined storage capacity of approximately 7.4 mmg and throughput capacity of approximately 822 mmgy. We also have 39 ethanol storage facilities located at or near our 17 ethanol production plants with a combined storage capacity of approximately 38.6 mmg to support current ethanol production capacity of approximately 1.5 bgy.

Facility Location	Storage Capacity (thousands of gallons)
Fuel Terminals	
Birmingham, Alabama - Unit Train Terminal	6,542
Birmingham, Alabama - Other	120
Bossier City, Louisiana	180
Collins, Mississippi	180
Little Rock, Arkansas	30
Louisville, Kentucky	60
Nashville, Tennessee	160
Oklahoma City, Oklahoma	150
Ethanol Plants	
Atkinson, Nebraska (1)	2,074
Bluffton, Indiana	3,000
Central City, Nebraska	2,250
Fairmont, Minnesota	3,124
Hereford, Texas	4,406
Hopewell, Virginia	761
Lakota, Iowa	2,500
Madison, Illinois	2,855
Mount Vernon, Indiana	2,855
Obion, Tennessee	3,000
Ord, Nebraska	1,550
Otter Tail, Minnesota	2,000
Riga, Michigan	1,239
Shenandoah, Iowa	1,524
Superior, Iowa	1,238
Wood River, Nebraska	3,124
York, Nebraska	1,100
Total	46,022

(1) The ethanol storage facilities are located approximately 16 miles from the ethanol plant.

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

Our Competition

Domestic Ethanol Competitors

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

In 2017, the top five producers operated 89 plants and accounted for approximately 44% of the domestic production capacity with production capacities ranging from 800 mmgy to 1,700 mmgy. Approximately half of the 212 plants in the United States are standalone facilities and accounted for approximately 34% of domestic production capacity.

Demand for corn from ethanol plants and other corn consumers exists in all areas and regions in which we operate. According to the Renewable Fuels Association, there were 133 operational plants in the states where we have production facilities, including Illinois, Indiana, Iowa, Michigan, Minnesota, Nebraska, Tennessee, Texas and Virginia, as of January 23, 2018. The largest concentration of operational plants is located in Illinois, Iowa and Nebraska, where 51% of all operational production capacity is located.

Foreign Ethanol Competitors

We also compete globally with production from other countries. Brazil is the second largest ethanol producer in the world after the United States. Brazil produces ethanol made from sugarcane, which may be less expensive to produce than ethanol made from corn depending on feedstock prices. Under RFS II, certain parties are obligated to meet an advanced biofuel standard. In recent years, sugarcane ethanol imported from Brazil has been one of the most economical means for obligated parties to meet this standard. Any significant additional ethanol production capacity

could create excess supply in world markets, resulting in lower ethanol prices throughout the world, including the United States.

Other Competition

Alternative fuels, gasoline oxygenates and ethanol production methods are continually under development. Ethanol production technologies also continue to evolve. We expect changes to occur primarily in the area of cellulosic ethanol, which is made from biomass such as switch grass or fast-growing poplar trees. Since all of our plants are designed as single-feedstock facilities, adapting our plants for a different feedstock or process system would require additional capital investments and retooling which could be cost prohibitive.

In addition, we compete with other cattle feeding operations and vinegar producers in competitive markets. Through our acquisition of Fleischmann's Vinegar in 2016, we now operate one of the world's largest manufacturers and marketers of food-grade industrial vinegar. Additionally, following the acquisitions of the Hereford, Texas; Leoti, Kansas and Eckley, Colorado cattle-feeding operations, we now operate one of the largest cattle-feeding operations in the United States.

Regulatory Matters

Government Ethanol Programs and Policies

In the United States, the federal government mandates the use of renewable fuels under RFS II. The EPA assigns individual refiners, blenders and importers the volume of renewable fuels they are obligated to use based on their percentage of total fuel sales. The EPA has the authority to waive the mandates in whole or in part if there is inadequate domestic renewable fuel supply or the requirement severely harms the economy or environment.

RFS II has been a driving factor in the growth of ethanol usage in the United States. When RFS II was established in October 2010, the required volume of renewable fuel to be blended with gasoline was to increase each year until it reached 15.0 billion gallons in 2015, which left the EPA to address existing limitations in both supply (ethanol production) and demand (usage of ethanol blends in older vehicles). On November 30, 2017, the EPA announced the final 2018 renewable volume obligations for conventional ethanol, which met the 15.0-billion-gallon congressional target.

According to RFS II, 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. While conventional ethanol maintained 15 billion gallons, 2018 is the first year the total proposed RVOs are more than 20% below statutory volumes levels. Thus, the EPA Administrator directed his staff to initiate the required technical analysis to perform any future reset consistent with the reset rules. The reset will be triggered if the 2019 RVOs continue to be more than 20% below the statutory levels, and the EPA will be required to modify statutory volumes through 2022 within one year of the trigger event, based on the same factors used to set the RVOs post-2022.

Obligated parties use RINs to show compliance with RFS-mandated volumes. RINs are attached to renewable fuels by producers and detached when the renewable fuel is blended with transportation fuel or traded in the open market. The market price of detached RINs affects the price of ethanol in certain markets and influences the purchasing decisions by obligated parties. In November 2017, the EPA denied a petition to change the point of obligation under RFS II to the parties that own the gasoline before it is sold.

For further discussion see Item 7 – Management’s Discussion and Analysis of Financial Condition and Results of Operations.

Environmental and Other Regulation

Our ethanol production, agribusiness and energy services, and food and ingredients segment activities are subject to environmental and other regulations. We obtain environmental permits to operate our plants and other facilities.

Ethanol production involves the emission of various airborne pollutants, including particulate, carbon dioxide, oxides of nitrogen, hazardous air pollutants and volatile organic compounds. In 2007, the U.S. Supreme Court classified carbon dioxide as an air pollutant under the Clean Air Act in a case seeking to require the EPA to regulate carbon dioxide in vehicle emissions, which the EPA later addressed in RFS II.

While some of our plants operate as grandfathered at their current authorized capacity under the RFS II mandate, expansion above these capacities will require a 20% reduction in greenhouse gas emissions from a 2005 baseline measurement. This may require us to obtain additional permits, achieve the EPA’s efficient producer status under the pathway petition program for our grandfathered plants, install advanced technology or reduce drying distillers grains.

CARB adopted LCFS requiring a 10% reduction in average carbon intensity of gasoline and diesel transportation fuels from 2010 to 2020. After a series of rulings that temporarily prevented CARB from enforcing these regulations, the State of California Office of Administrative Law approved the LCFS in November 2012, and revised LCFS regulations took effect in January 2013.

We employ maintenance and operations personnel at each of our plants. In addition to the attention we place on the health and safety of our employees, the operations of our facilities are regulated by the Occupational Safety and Health Administration.

For further discussion see Item 7 – Management's Discussion and Analysis of Financial Condition and Results of Operations.

BioProcess Algae Joint Venture

We are the majority owner of the BioProcess Algae joint venture, which was formed in 2008. The joint venture is focused on growing algae in commercially viable quantities using feedstocks that are created as part of our ethanol production process. The joint venture continues to take steps towards commercialization. We are currently focused on human and animal nutrition, using proprietary technology to customize specific products, based on proven benefits, for relevant markets.

Employees

On December 31, 2017, we had 1,427 full-time, part-time, temporary and seasonal employees, including 198 employees at our corporate office in Omaha, Nebraska.

Available Information

Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports are available on our website at www.gpreinc.com shortly after we file or furnish the information with the SEC. You can also find the charters of our audit, compensation and nominating committees, as well as our code of ethics in the corporate governance section of our website. The information found on our website is not part of this or any other report we file with or furnish to the SEC. For more information on our partnership, please visit www.greenplainspartners.com. Alternatively, investors may read and copy any materials we file with the SEC at the SEC's Public Reference Room at 100 F Street, NE, Washington, DC 20549 or visit the SEC website at www.sec.gov to access our reports, proxy and information statements filed with the SEC.

Item 1A. Risk Factors.

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

Risks Related to our Business and Industry

Our profitability is dependent on managing the spread between the price of corn, natural gas, ethanol, distillers grains, corn oil, cattle and vinegar.

Our operating results are highly sensitive to commodity prices, including the spread between the corn, natural gas, cattle and ethanol we purchase, and the ethanol, distillers grains, corn oil and vinegar we sell. Price and supply are subject to various market forces, such as weather, domestic and global demand, shortages, export prices, crude oil prices, currency valuations and government policies in the United States and around the world, over which we have no control. Price volatility of these commodities may cause our operating results to fluctuate substantially. Increases in corn or natural gas prices or decreases in ethanol, distillers grains and corn oil prices may make it unprofitable to operate our ethanol plants. No assurance can be given that we will purchase corn and natural gas or sell ethanol, distillers grains, corn oil and cattle at or near current prices. Consequently, our results of operations and financial position may be adversely affected by increases in corn or natural gas prices or decreases in ethanol, distillers grains, corn oil and cattle prices.

We continuously monitor the profitability of our ethanol plants and cattle feeding operations using a variety of risk management tools and hedging strategies, when appropriate. In recent years, the spread between ethanol and corn prices has fluctuated widely and narrowed significantly. Fluctuations are likely to continue. A sustained narrow spread or further 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, distillers grains 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.

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

Corn. We are generally unable to pass increased corn costs to our customers since ethanol competes with other fuels. 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 prices for alternative crops, increasing input costs, changes in government policies, shifts in global markets or damaging growing conditions, such as plant disease or adverse weather, including drought.

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

Ethanol. Our revenues are dependent on market prices for ethanol which can be volatile as a result of a number of factors, including: the price and availability of competing fuels; the overall supply and demand for ethanol and corn; the price of gasoline, crude oil and corn; 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 harmed.

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

Distillers Grains. Increased U.S. dry mill ethanol production has resulted in increased distillers grains production. Should this trend continue, distillers grains prices could fall unless demand increases or other market sources are found. The price of distillers grains has historically been correlated with the price of corn. Occasionally, the price of distillers grains will lag behind fluctuations in corn or other feedstock prices, lowering our cost recovery percentage. Additionally, exports of distiller grains could be impacted by the enactment of foreign policy.

Distillers grains compete with other protein-based animal feed products. Downward pressure on commodity prices, such as soybeans, will generally cause the price of competing animal feed products to decline, resulting in downward pressure on the price of distillers grains.

Corn Oil. Industrial corn oil is generally marketed as a biodiesel feedstock; therefore, the price of corn oil is affected by demand for biodiesel. In general, corn oil prices follow the prices of heating oil and soybean oil. Decreases in the price of corn oil could have an unfavorable impact on our business.

Cattle. The price and availability of feeder cattle are subject to volatile market conditions. These market conditions are often affected by factors beyond our control, such as weather, overall economic conditions and government regulations. Significant disruptions in feeder cattle supply could impair our ability to produce consistent results. Furthermore, increases in spreads between feeder and live cattle futures or changes in our cost relative to our competitors may adversely affect our results of operations and financial position. In addition, a significant disruption in cattle processing capacity could impair our ability to market cattle at favorable prices which would affect our profitability.

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

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

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

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

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

Under the provisions of the EISA, Congress established a mandate setting the minimum volume of renewable fuels that must be blended with gasoline under the RFS II, which affects the domestic market for ethanol. 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.

Our operations could be adversely impacted by legislation or EPA actions, as set forth below or otherwise, that may reduce the RFS II mandate. 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 II mandate, may affect future demand. A significant increase in supply beyond the RFS II mandate could have an adverse impact on ethanol prices. Moreover, changes to RFS II could negatively impact the price of ethanol or cause imported sugarcane ethanol to become more economical than domestic ethanol.

On July 5, 2017, the EPA proposed maintaining the RVOs for conventional ethanol at 15.0 billion gallons while lowering the volume obligations for advanced alternatives, reducing the overall biofuel target to 19.24 billion gallons for 2018. On September 26, 2017, the EPA issued a Notice of Data Availability for comment, proposing to further reduce the 2018 advanced biofuel volume requirement by 315 mmg, to 3.77 billion gallons, and the total renewable fuel requirement to 18.77 billion gallons, leaving conventional ethanol at 15.0 billion gallons. According to RFS II, 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. While conventional ethanol maintained 15 billion gallons, 2018 is the first year the total proposed RVOs are more than 20% below statutory volumes levels. Thus, the EPA Administrator directed his staff to initiate the required technical analysis to perform any future reset consistent with the reset rules. The reset will be triggered if the 2019 RVOs continue to be more than 20% below the statutory levels, and the EPA will be required to modify statutory volumes through 2022 within one year of the trigger event, based on the same factors used to set the RVOs post-2022.

The U.S. Federal District Court for the D.C. Circuit ruled on July 28, 2017, in favor of the Americans for Clean Energy and its petitioners against the EPA related to its decision to lower the 2016 volume requirements. The Court concluded the EPA erred in how it interpreted the “inadequate domestic supply” waiver provision of RFS II, which authorizes the EPA to consider supply-side factors affecting the volume of renewable fuel available to refiners, blenders, and importers to meet the statutory volume requirements. The waiver provision does not allow the EPA to consider the volume of renewable fuel available to consumers or the demand-side constraints that affect the consumption of renewable fuel by consumers. As a result, the Court vacated the EPA’s decision to reduce the total renewable fuel volume requirements for 2016 through its waiver authority, which the EPA is expected to address. We believe this decision will benefit the industry overall, with the EPA's waiver analysis now limited to supply considerations only, and expect the primary impact will be on the RINs market.

On October 19, 2017, the EPA Administrator reiterated his commitment to the text and spirit of the RFS II. In a letter to seven Senators from the Midwestern states, among other topics, he stated the EPA is actively exploring its authority to issue an RVP waiver and will not be pursuing action on RINs involving ethanol exports. Moreover, on November

22, 2017, the EPA issued a Notice of Denial of Petitions for rulemaking to change the RFS point of obligation which resulted in the EPA confirming the point of obligation will not change.

Valero Energy and refining trade group American Fuel and Petrochemical Manufacturers (AFPM) have challenged the EPA's handling of the U.S. biofuel mandate in separate actions on January 26, 2018. AFPM is asking the D.C. U.S. Court of Appeals to review the EPA's November 2017 decision to reject proposed changes to the structure of the RFS, including moving the point of obligation from refiners and importers of fuel to fuel blenders. Valero filed two petitions with the same court, one seeking review of the annual Renewable Volume Obligation (RVO) rule set by EPA's for 2018 and 2019, which dictates the volumes of renewable fuels to be blended in the coming years, and a second arguing against the EPA's December 2017 assertion that the agency has fulfilled its duty to periodically review the RFS as directed by statute.

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 RFS II mandate. A significant increase in supply beyond the RFS II mandate could have an adverse impact on ethanol prices. Moreover, any changes to RFS II 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.

Flexible-fuel vehicles, which are designed to run on a mixture of fuels such as E85, receive preferential treatment to meet corporate average fuel economy standards in the form of CAFE credits. Flexible-fuel vehicle credits have been decreasing since 2014 and will be completely phased out by 2020. Absent CAFE preferences, auto manufacturers may not be willing to build flexible-fuel vehicles, reducing the growth of E85 markets and resulting in lower ethanol prices.

To the extent federal or state laws or regulations are modified, the demand for ethanol may be reduced, which could negatively and materially affect our ability to operate profitably.

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

Ethanol and other products that we produce are sold into Canada, Mexico and other countries with trade agreements with the United States. The current administration has expressed antipathy towards certain existing international trade agreements, including NAFTA, and made comments suggesting that they support significantly increasing tariffs on goods imported into the United States, which in turn may lead to retaliatory actions on US exports. As of the date of this Form 10-K, it remains unclear what the outcomes may be of NAFTA trade regulations, other international trade agreements and tariffs on various goods imported into the United States. If the United States were to withdraw from or materially modify NAFTA or other international trade agreements to which it is a party, or if tariffs were raised on the foreign-sourced goods that lead to retaliatory actions, it could have material adverse effect on our business, financial condition and results of operations.

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

While many trade groups, academics and government agencies support ethanol as a fuel additive that promotes a cleaner environment, others claim ethanol production consumes considerably more energy, emits more greenhouse gases than other biofuels and depletes water resources. Some studies suggest ethanol produced from corn is less efficient than ethanol produced from switch grass or wheat grain. Others claim corn-based ethanol negatively impacts consumers by causing the prices of dairy, meat and other food derived from corn-consuming livestock to increase. Ethanol critics also contend the industry redirects corn supplies from international food markets to domestic fuel markets.

There are limited markets for ethanol beyond the federal mandates. Further consumer acceptance of E15 and E85 fuels may be necessary before ethanol can achieve significant market share growth. Discretionary and E85 blending are important secondary markets. Discretionary blending is often determined by the price of ethanol relative to gasoline. When discretionary blending is financially unattractive, the demand for ethanol may be reduced.

Demand for ethanol is also affected by overall demand for transportation fuel, which is affected by cost, number of miles traveled and vehicle fuel economy. Consumer demand for gasoline may be impacted by emerging transportation trends, such as electric vehicles or ride sharing. Additionally, factors such as over-supply of product could negatively impact demand for ethanol. Reduced demand for ethanol may depress the value of our products, erode our margins,

and reduce our ability to generate revenue or operate profitably.

Our business is directly affected by the supply and demand for ethanol and other fuels in the markets served by our assets. Miles traveled typically increases during the spring and summer months related to vacation travel, followed closely behind the fall season due to holiday travel. Additionally, reduced demand for ethanol may erode our margins and reduce our ability to generate revenue and operate profitably.

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

We have increased the size and diversity of our operations significantly through mergers and acquisitions and intend to continue exploring potential growth opportunities. Acquisitions involve numerous risks that could harm our business, including:

- difficulties integrating the operations, technologies, products, existing contracts, accounting processes and personnel and realizing anticipated synergies of the combined business;
- risks relating to environmental hazards on purchased sites;
- risks relating to developing the necessary infrastructure for facilities or acquired sites, including access to rail networks;
- difficulties supporting and transitioning customers;
- diversion of financial and management resources from existing operations;
- the purchase price exceeding the value realized;
- risks of entering new markets or areas outside of our core competencies;
- potential loss of key employees, customers and strategic alliances from our existing or acquired business;
- unanticipated problems or underlying liabilities; and

- inability to generate sufficient revenue to offset acquisition and development costs.

The anticipated benefits of these transactions may not be fully realized or take longer to realize than expected.

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

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

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

Risks related to the level of debt we have include:

- requiring a substantial portion of cash to be dedicated for debt service, reducing the availability of cash flow for working capital, capital expenditures, and other general business activities and limiting our ability to invest in new growth opportunities;
- limiting our ability to obtain additional financing for working capital, capital expenditures, acquisitions and other activities;
- limiting our flexibility to plan for or react to changes in the businesses and industries in which we operate;
- increasing our vulnerability to general and industry-specific adverse economic conditions;
- being at a competitive disadvantage against less leveraged competitors;
- being vulnerable to increases in prevailing interest rates;
- subjecting all or substantially all of our assets to liens, which means there may be no assets left for shareholders in the event of a liquidation; and
- limiting our ability to make operational decisions regarding our business, including limiting our ability to pay dividends, make capital improvements, sell or purchase assets or engage in transactions deemed appropriate and in our best interest.

Most of our debt bears interest at variable rates, which creates exposure to interest rate risk. If interest rates increase, our debt service obligations at variable rates would increase even though the amount borrowed remained the same,

decreasing net income.

Our ability to make scheduled payments of principal and interest, to make additional payments required under financial covenants, or to refinance our debt depends on our future performance, which is subject to economic, financial, competitive and other factors beyond our control. Our business may not continue generating cash flow sufficient to service our debt. If we are unable to generate sufficient cash flows, we may be required to sell assets, restructure debt or obtain additional equity capital on terms that are onerous or highly dilutive. Our ability to refinance our debt will depend on capital markets and our financial condition at that time. We may not be able to engage in any of these activities or engage in these activities on desirable terms, which could result in default on our debt obligations.

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

The loan agreements governing our secured debt financing and our convertible senior notes contain a number of restrictive affirmative and negative covenants, which limit our ability to incur additional debt; exceed certain limits; pay dividends or distributions; or merge, consolidate or dispose of substantially all of our assets.

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

sufficient to comply with these covenants or remedy default. We also have an incurrence test that may limit our ability to make certain restricted equity or debt payments, make acquisitions or investments and take on additional debt.

In the past, we have received waivers from our lenders for failure to meet certain financial covenants and amended our loan agreements to change these covenants. In the event we are unable to comply with these covenants in the future, we cannot provide assurance that we will be able to obtain the necessary waivers or amend our loan agreements to prevent default. Under our convertible senior notes, default on any loan in excess of $10.0 million could result in the notes being declared due and payable, which would have a material and adverse effect on our ability to operate.

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

Some ethanol producers have faced financial distress, culminating to bankruptcy filings by several companies over the past seven years. This, combined with capital market volatility, has resulted in reduced available capital for the ethanol industry in general. Increased commodity prices could increase liquidity requirements. Our operating cash flow is dependent on overall commodity market conditions as well as our ability to operate profitably. In addition, we may need to raise additional financing to fund growth. In some market environments, we may have limited access to incremental financing, which could defer or cancel growth projects, reduce business activity or cause us to default on our existing debt agreements if we are unable to meet our payment schedules. These events could have an adverse effect on our operations and financial position.

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

Disruptions in the credit market or a downgrade in our credit rating could limit our access to capital.

We may need additional capital to fund our growth or other business activities in the future. If our credit rating is downgraded, the cost of capital under our existing or future financing arrangements could increase and affect our

ability to trade with various commercial counterparties or cause our counterparties to require additional forms of credit support. If capital markets are disrupted, we may not be able to access capital at all or capital may only be available under less favorable terms.

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

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

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

Part of our business is regulated by environmental laws and regulations governing the labeling, use, storage, discharge and disposal of hazardous materials. Since we handle and use hazardous substances, changes in environmental requirements or an unanticipated significant adverse environmental event could have a negative impact on our business. While we strive to comply with all environmental requirements, we cannot provide assurance that we have been in compliance at all times or will not incur material costs or liabilities in connection with these requirements. Private parties, including current and former employees, could bring personal injury or other claims against us due to the presence of hazardous substances. We are also exposed to residual risk by our land and facilities which may have environmental liabilities from prior use. Changes in

environmental regulations may require us to modify existing plant and processing facilities, which could significantly increase our cost of operations.

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

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

Nearly all of our ethanol production is sold with RINs that are used by our customers to comply with the Renewable Fuel Standard. Should our production not meet the EPA's requirements for RIN generation in the future, we would need to purchase RINs in the open market or sell our ethanol at lower prices to compensate for the absence of RINs. The price of RINs depends on a variety of factors, including the availability of qualifying biofuels and RINs for purchase, production levels of transportation fuel and percentage mix of ethanol with other fuels, and cannot be predicted. Failure to obtain sufficient RINs or reliance on invalid RINs could subject us to fines and penalties imposed by the EPA which could adversely affect our results of operations, cash flows and financial condition.

We trade ethanol acquired from third-parties. Should it be discovered the RINs associated with the ethanol we purchased are invalid, albeit unknowingly, we could be subject to substantial penalties if we are assessed the maximum amount allowed by law. Prior to 2013, the EPA assessed only modest penalties for RIN violations. However, based on EPA penalties assessed on RINS violations in the past few years, in the event of a violation, the EPA could assess penalties, which could have an adverse impact on our profitability.

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

Our plants emit carbon dioxide as a by-product of ethanol production. In February 2010, the EPA released its final regulations on RFS II, grandfathering our plants at their current authorized capacity. While some of our plants have received efficient producer status and no longer rely on grandfathered status, for those still reliant upon it, expansion above these levels will require a 20% reduction in greenhouse gas emissions from the 2005 baseline measurement. Separately, CARB adopted a LCFS that took effect in January 2013, which requires a 10% reduction in the average carbon intensity of gasoline and diesel transportation fuels from 2010 to 2020. An ILUC component is included in the greenhouse gas emission calculation, which may have an adverse impact on the market for corn-based ethanol in

California.

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

Global competition could affect our profitability.

We compete with producers in the United States and abroad. Depending on feedstock, labor and other production costs, producers in other countries, such as Brazil, may be able to produce ethanol cheaper than we can. Under RFS II, certain parties are obligated to meet an advanced biofuel standard. In recent years, sugarcane ethanol imported from Brazil has been one of the most economical means for obligated parties to meet this standard. While transportation costs, infrastructure constraints and demand may temper the impact of ethanol imports, foreign competition remains a risk to our business. Moreover, significant additional foreign ethanol production could create excess supply, which could result in lower ethanol prices throughout the world, including the United States. Any penetration of ethanol imports into the domestic market may have a material adverse effect on our operations, cash flows and financial position.

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

Government actions abroad can have a significant impact on our business. In 2017, we exported 13.5% of our ethanol production and 9% of our distillers grains production. In 2013, the EU imposed a five-year tariff of $83.33 per metric ton on U.S. ethanol to discourage foreign competition. Effective January 1, 2017, China indicated its intention to raise its 5% tariff on U.S. and Brazil fuel ethanol to 30%. Although the ethanol export markets are affected by competition from other ethanol exporters, particularly Brazil, and in spite of the actions by China, we believe exports will remain active in 2018. On September 1, 2017, Brazil's Chamber of Foreign Trade, or CAMEX, issued an official written resolution, imposing a 20% tariff on U.S. ethanol imports in excess of 150 million liters, or 39.6 million gallons per quarter. The ruling is valid for two

years.

In 2013, China began rejecting U.S. dried distillers grains because it contained genetically modified corn not yet approved for import. In early 2015, China lifted this ban and imported 6.3 million metric tons of U.S. distillers grains that year. In January 2016, China's Ministry of Commerce once again initiated an anti-dumping investigation into U.S.-produced dried distillers grains exported to China. In January of 2017, the Ministry of Commerce of China announced it increased anti-dumping duties on U.S. distillers grains, ranging from 42.2% to 53.7%. According to the USDA, in 2017, approximately 29% of distillers grain produced in the United States was exported, down from 31% in 2016.

With more tariffs and reduced exports, the value of our distillers grains may be affected, which could have a negative impact on our profitability. Additionally, tariffs on U.S. ethanol may lead to further industry over-supply and reduce our profitability. Moreover, the America First trade position has caused more countries to toughen their positions on U.S. imports.

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

We operate in a very competitive environment and compete with other domestic ethanol producers in a relatively fragmented industry. The top five producers account for approximately 44% of the domestic production capacity with production capacity ranging from 800 mmgy to 1,700 mmgy. The remaining ethanol producers consist of smaller entities engaged exclusively in ethanol production and large integrated grain companies that produce ethanol in addition to their base grain businesses. We compete for capital, labor, corn and other resources with these companies.

Until recently, oil companies, petrochemical refiners and gasoline retailers were not engaged in ethanol production even though they form the primary distribution network for ethanol blended with gasoline. During the past five years, several oil refiners have acquired ethanol production plants. If these companies increase their ethanol plant ownership or additional companies commence production, the need to purchase ethanol from independent producers like us could diminish and adversely effect on our operations, cash flows and financial position.

Sales of distillers grains depend on its continued market acceptance as livestock feed.

Antibiotics may be used during the fermentation process to control bacterial contamination; therefore, it is possible for antibiotics to be present in small quantities in our distillers grains, which is a co-product of the fermentation process and marketed as an animal feed. Should the FDA introduce regulations limiting the sale of such distillers grains in domestic or international markets, the market value of our distillers grains could be diminished, which would negatively impact our profitability.

Independently, if public perception regarding distillers grains as an acceptable animal feed were to change or if the public became concerned about the impact of distillers grains in the food supply, the market for distillers grains could be negatively impacted, which would adversely affect our profitability.

We extract industrial grade corn oil from the whole stillage process before producing distillers grains. Several universities are trying to determine how corn oil extraction affects nutritional energy values of the resulting distillers grains. If it is determined that corn oil extraction adversely affects the digestible energy content of distillers grains, the value of our distillers grains may be affected, which could have a negative impact on our profitability.

Our agribusiness operations are subject to significant government regulations.

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

Commodities futures trading is subject to extensive regulations.

The futures industry is subject to extensive regulation. Since we use exchange-traded futures contracts as part of our business, we are required to comply with a wide range of requirements imposed by the CFTC, National Futures Association and the exchanges on which we trade. These regulatory bodies are responsible for safeguarding the integrity of the futures

markets and protecting the interests of market participants. As a market participant, we are subject to regulation concerning trade practices, business conduct, reporting, position limits, record retention, the conduct of our officers and employees, and other matters.

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

Owning and operating cattle feeding operations involves numerous external factors that are outside of our control.

Our cattle feeding operations involve numerous risks that could lead to increased costs or decreased demand for beef products, which could have an adverse effect on our results of operations and financial condition, including:

- constantly changing and potentially volatile supply and demand, which affect the cost of livestock and feed ingredients and the sales price of our cattle;
- outbreak of disease in our or other cattle feeding operations or public perception that an outbreak has occurred, which could lead to inadequate supply, reduced consumer confidence in the safety and quality of beef products, adverse publicity, cancellation of orders and import or export restrictions;
- liabilities in excess of our insurance policy limits or related uninsurable risks if outbreaks of disease or other conditions result in significant losses;
- extended periods of bad weather, including the combination of cold temperatures and precipitation, as well as blizzards or tornados;
- diminished access to international markets, including import trade restrictions due to disease or other perceived health or food safety issues, or changes in political or economic conditions;
- reduced red meat consumption due to dietary changes or other issues, leading to depressed cattle prices;
- the closure or extended shutdown of a major cattle packing plant, leading to depressed cattle prices;
- increased water costs due to water use restrictions, including those related to diminishing water table levels;
- operational restrictions resulting from government regulations; and
- risks relating to environmental hazards.

Owning and operating a vinegar production business involves numerous external factors that are outside of our control.

Our Fleischmann’s Vinegar operations involve numerous risks that could lead to increased costs or decreased demand for products, which could have an adverse effect on our results of operations and financial condition, including:

- we use many different products in the production of vinegar, which are subject to price volatility caused by market fluctuations, and potentially volatile supply and demand. Commodity price increases may increase raw material, packaging, energy and operating costs. We may not be able to increase our product prices to fully offset these increased costs, which may result in reduced sales volume, margins and profitability;
- changes in our relationships with significant customers or suppliers could adversely affect us, as the loss of a significant customer or a material reduction in sales to a significant customer could materially and adversely affect our product sales and results of operations;
- our ability to manufacture, transport and sell our products is critical to our success and any disruptions in our supply chain could have an adverse impact on our business and results of operations;
- the food ingredients industry is highly competitive and further consolidation in the industry would likely increase competition;
- our customers have continued to consolidate, resulting in fewer customers upon which we can rely for business. These consolidations have produced large sophisticated customers with increased buying power and negotiating strength, which could have a negative impact on profits;
- consumer preferences evolve over time and the success of our products depends on our ability to identify the tastes of consumers and work with manufacturers to develop products that appeal to those preferences;

- food ingredients used in products for human consumption may be subject to product liability claims and product recalls which could negatively impact our profitability;
- our facilities and products are subject to many laws and regulations administered by various federal, state and local government agencies as well as SQF, a Global Food and Safety Initiative program related to processing, packaging, storage, distribution, supply chains, quality and safety of food products, the health and safety of our employees and the protection of the environment. Failure to comply with applicable laws and regulations could subject us to lawsuits, administrative penalties and civil remedies including fines, injunctions and recalls of our products; and
- A portion of our workforce is unionized and we may face labor disruptions that may interfere with our operations.

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

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

Replacement technologies could make corn-based ethanol or our process technology obsolete.

Ethanol is used primarily as an octane additive and oxygenate blended with gasoline. Critics of ethanol blends argue that it decreases fuel economy, causes corrosion and damages fuel pumps. Prior to federal restrictions and ethanol mandates, methyl tertiary-butyl ether, or MTBE, was the leading oxygenate. Other ether products could enter the market and prove to be environmentally or economically superior to ethanol. Alternative biofuel alcohols, such as methanol and butanol, could evolve and replace ethanol.

Research is currently underway to develop products and processes that have advantages over ethanol, such as: lower vapor pressure, making it easier to add to gasoline; similar energy content as gasoline, reducing any decrease in fuel economy caused by blending with gasoline; ability to blend at higher concentration levels in standard vehicles; and reduced susceptibility to separation when water is present. Products offering a competitive advantage over ethanol could reduce our ability to generate revenue and profits from ethanol production.

New ethanol process technologies could emerge that require less energy per gallon to produce and result in lower production costs. Our process technologies could become obsolete and place us at a competitive disadvantage, which

could have a material adverse effect on our operations, cash flows and financial position.

We may be required to provide remedies for ethanol, distillers grains or corn oil that does not meet the specifications defined in our sales contracts.

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

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

Natural disasters, significant track damage resulting from a train derailment or strikes by our transportation providers could delay shipments of raw materials to our plants or deliveries of ethanol, distillers grains, corn oil, cattle and vinegar to our customers. If we are unable to meet customer demand or contract delivery requirements due to stalled operations caused by business disruptions, we could potentially lose customers.

Adverse weather conditions, such as inadequate or excessive amounts of rain during the growing season, overly wet conditions, an early freeze or snowy weather during harvest could impact the supply of corn that is needed to produce ethanol. Corn stored in an open pile may be damaged by rain or warm weather before the corn is dried, shipped or moved into a storage structure.

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

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

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

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

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

Information security risks have generally increased in recent years as a result of the proliferation of new technologies and the increased sophistication and frequency of cyber-attacks and data security breaches. To manage the risk associated with potential technology security breaches, we have implemented security measures to protect us against cyber-based attacks and disaster recovery plans for our critical systems. However, our information technology systems and network infrastructure may be subject to unauthorized access or attack at any time and there can be no assurances that our infrastructure protection technologies and disaster recovery plans are sufficient to prevent a technology systems breach, systems failure, business interruption or loss of sensitive data. The potential impact of any of these incidents, should they occur, could be material and have an adverse impact to our revenues, operating results, financial condition or damage our reputation.

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

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

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

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

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

We are subject to extensive tax liabilities imposed by multiple jurisdictions, including income taxes, indirect taxes (excise/duty, sales/use, gross receipts, and value-added taxes), payroll taxes, franchise taxes, withholding taxes, and ad valorem taxes. New tax laws and regulations and changes in existing tax laws and regulations are continuously being enacted or proposed that could result in increased expenditures for tax liabilities in the future. Many of these liabilities are subject to periodic audits by the respective taxing authority. Subsequent changes to our tax liabilities as a result of these audits may subject us to interest and penalties.

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

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

There have been substantial changes to the Internal Revenue Code, some of which could have an adverse effect on our shareholders.

The Tax Cuts and Jobs Act was enacted on December 22, 2017 and is effective January 1, 2018 making significant changes to the Internal Revenue Code. The U.S. Department of Treasury has broad authority to issue regulations and interpretative guidance that may significantly impact how we will apply the law and impact our results of operations in the period issued. Among other provisions, the Act reduces the Federal statutory corporate income tax rate from 35% to 21%. Due to the reduction in the federal tax rate to 21%, the Company revalued its deferred liabilities at the new rate at year-end. The company has not yet evaluated the full impact of the Act as it relates 2018 income, however certain components of the Act, such as the limits on deductibility of interest expense, may negatively impact us.

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

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

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

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

Increased federal support of cellulosic ethanol could result in increased competition to corn-based ethanol producers.

Legislation, including the American Recovery and Reinvestment Act of 2009 and EISA, provides numerous funding opportunities supporting cellulosic ethanol production. In addition, RFS II mandates an increasing level of biofuel production that is not derived from corn. Federal policies suggest a long-term political preference for cellulosic processing using feedstocks such as switch grass, silage, wood chips or other forms of biomass. Cellulosic ethanol may be viewed more favorably since the feedstock is not diverted from food production. In addition, cellulosic ethanol may have a smaller carbon footprint because the feedstock does not require energy-intensive fertilizers or industrial production processes. Several cellulosic ethanol plants are currently under development. While these have had limited success to date, as research and development programs persist, there is risk that cellulosic ethanol could displace corn ethanol.

Any changes in federal mandates from corn-based to cellulosic-based ethanol production may reduce our profitability. Our plants are designed as single-feedstock facilities and would require significant additional investments to convert production to cellulosic ethanol. Furthermore, our plants are strategically located in high-yield, low-cost corn production areas. At present, there is limited supply of alternative feedstocks near our facilities. As a result, the adoption of cellulosic ethanol and its use as the preferred form of ethanol could have a significant adverse impact on our business.

We may not have adequate insurance to cover losses from certain events.

Losses related to risks that are not covered by insurance or available under acceptable terms such as war, riots or terrorism could have a material adverse effect on our operations, cash flows and financial position.

Certain of our ethanol production plants, fuel terminals and vinegar operations are located within recognized seismic and flood zones. We modified our facilities to comply with regional structural requirements for those regions of the country and obtained additional insurance coverage specific to earthquake and flood risks for the applicable plants and fuel terminals. We cannot provide assurance that these facilities would remain in operation should a seismic or flood event occur, which would adversely affect our operations.

Risks Related to the Partnership

We depend on the partnership to provide fuel storage and transportation services.

The partnership's operations are subject to all of the risks and hazards inherent in the storage and transportation of fuel, including: damages to storage facilities, railcars and surrounding properties caused by floods, fires, severe weather, explosions, natural disasters or acts of terrorism; mechanical or structural failures at the partnership's facilities or at third-party facilities at which its operations are dependent; curtailments of operations relative to severe weather; and other hazards, resulting in severe damage or destruction of the partnership's assets or temporary or permanent shut-down of the partnership's facilities. If the partnership is unable to serve our storage and transportation needs, our ability to operate our business could be adversely impacted, which could adversely affect our financial condition and results of operations. The inability of the partnership to continue operations, for any reason, could also impact the value of our investment in the partnership and, because the partnership is a consolidated entity, our business, financial condition and results of operations.

The partnership may not have sufficient available cash to pay quarterly distributions on its units.

The amount of cash the partnership can distribute depends on how much cash is generated from operations, which can fluctuate from quarter to quarter based on ethanol and other fuel volumes, handling fees, payments associated with minimum volume commitments, timely payments by subsidiaries and other third parties, and prevailing economic conditions. The amount of cash available for distribution also depends on the partnership's operating and general and administrative expenses, capital expenditures, acquisitions and organic growth projects, debt service requirements, working capital needs, ability to borrow funds and access capital markets, revolving credit facility restrictions, cash reserves and other risks affecting cash levels. Increasing the partnership's borrowings or other debt to finance its growth strategy could increase interest expense, which could impact the amount of cash available for distributions.

There are no limitations in the partnership agreement regarding its ability to issue additional units. Should the partnership issue additional units in connection with an acquisition or expansion, the distributions on the incremental units will increase the risk that the partnership will be unable to maintain or increase distributions on a per unit basis.

Increases in interest rates could adversely impact the partnership's unit price, ability to issue equity or incur debt, and pay cash distributions at intended levels.

The partnership's cash distributions and implied distribution yield affect its unit price. Distributions are often used by investors to compare and rank yield-oriented securities when making investment decisions. A rising interest rate environment could have an adverse impact on the partnership's unit price, ability to issue equity or incur debt or pay cash distributions at intended levels, which could adversely impact the value of our investment in the partnership.

We may be required to pay taxes on our share of the partnership's income that are greater than the cash distributions we receive from the partnership.

The unitholders of the partnership generally include, for purposes of calculating their U.S. federal, state and local income taxes, their share of the partnership's taxable income, whether they have received cash distributions from the partnership. We ultimately may not receive cash distributions from the partnership equal to our share of taxable income or the taxes that are due with respect to that income, which could negatively impact our liquidity.

A majority of the executive officers and directors of the partnership are also officers of our company, which could result in conflicts of interest.

We indirectly own and control the partnership and appoint all of its officers and directors. A majority of the executive officers and directors of the partnership are also officers or directors of our company. Although our directors and officers have a fiduciary responsibility to manage the company in a manner that is beneficial to us, as directors and officers of the partnership, they also have certain duties to the partnership and its unitholders. Conflicts of interest may arise between us and our affiliates, and the partnership and its unitholders, and in resolving these conflicts, the partnership may favor its own interests over the company's interests. In certain circumstances, the partnership may refer conflicts of interest or potential conflicts of interest to its conflicts committee, which must consist entirely of independent directors, for resolution. The conflicts committee must act in the best interests of the public unitholders of the partnership. As a result, the partnership may manage its business in a manner that differs from the best interests of the company or our stockholders, which could adversely affect our profitability.

Cash available for distributions could be reduced and likely cause a substantial reduction in unit value if the partnership became subject to entity-level taxation for federal income tax purposes.

The present federal income tax treatment of publicly traded partnerships or investments in its units could be modified, at any time, by administrative, legislative or judicial changes and interpretations. From time to time, members of Congress propose and consider substantive changes to the existing federal income tax laws that affect publicly traded partnerships. Should any legislative proposal eliminate the qualifying income exception, all publicly traded partnerships would be treated as corporations for federal income tax purposes. The partnership would be required to pay federal income tax on its taxable income at the corporate tax rate and likely state and local income taxes at varying rates as well. Distributions to unitholders would be taxed as corporate distributions. The partnership's cash available for distributions and the value of the units would be substantially reduced.

Risks Related to our Common Stock

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

Some of the many factors that can influence the price of our common stock include:

- our results of operations and the performance of our competitors;
- public's reaction to our press releases, public announcements and filings with the SEC;
- changes in earnings estimates or recommendations by equity research analysts who follow us or other companies in our industry;
- changes in general economic conditions;
- changes in market prices for our products or raw materials and related substitutes;
- sales of common stock by our directors, executive officers and significant shareholders;
- actions by institutional investors trading in our stock;
- disruptions in our operations;
- changes in our management team;
- other developments affecting us, our industry or our competitors; and
- U.S. and international economic, legal and regulatory factors unrelated to our performance.

In recent years the stock market has experienced significant price and volume fluctuations, which are sometimes unrelated to the operating performance of any particular company. These broad market fluctuations could materially reduce the price of our common stock price based on factors that have little or nothing to do with our company or its

performance.

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

Our restated articles of incorporation, restated bylaws and Iowa's law contain anti-takeover provisions that could delay or prevent change in control of us or our management. These provisions discourage proxy contests, making it difficult for our shareholders to elect directors or take other corporate actions without the consent of our board of directors, which include:

- board members have three-year staggered terms;
- board members can only be removed for cause with an affirmative vote of no less than two-thirds of the outstanding shares;
- shareholder action can only be taken at a special or annual meeting, not by written consent except where required by Iowa law;
- shareholders are restricted from making proposals at shareholder meetings; and
- the board of directors can issue authorized or unissued shares of stock.

We are subject to the provisions of the Iowa Business Corporations Act, which prohibits combinations between an Iowa corporation whose stock is publicly traded or held by more than 2,000 shareholders and an interested shareholder for three years unless certain exemption requirements are met.

Provisions in the convertible notes could also make it more difficult or too expensive for a third party to acquire us. If a takeover constitutes a fundamental change, holders of the notes have the right to require us to repurchase their notes in cash. If a takeover constitutes a make-whole fundamental change, we may be required to increase the conversion rate for holders who convert their notes. In either case, the obligation under the notes could increase the acquisition cost and discourage a third party from acquiring us.

These items discourage transactions that could otherwise command a premium over prevailing market prices and may limit the price investors are willing to pay for our stock.

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

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

Item 1B. Unresolved Staff Comments.

None.

Item 2. Properties.

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

A substantial portion of our owned real property is used to secure our loans. See Note 11 – Debt included as part of the notes to consolidated financial statements for information about our loan agreements.

Corporate

We lease approximately 54,000 square feet of office space at 1811 Aksarben Drive in Omaha, Nebraska for our corporate headquarters, which houses our corporate administrative functions and commodity trading operations.

Ethanol Production Segment

We own approximately 2,800 acres of land and lease approximately 78 acres of land at and around our ethanol production facilities. As detailed in our discussion of the ethanol production segment in Item 1 – Business, our ethanol plants have the capacity to produce approximately 1.5 billion gallons of ethanol per year.

Agribusiness and Energy Services Segment

We own approximately 54 acres of land at our four grain elevators. As detailed in our discussion in Item 1 – Business, our agribusiness and energy services segment facilities include four grain elevators with combined grain storage capacity of approximately 10.1 million bushels, and grain storage capacity at our ethanol plants of approximately 49.5 million bushels.

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

Food and Ingredients Segment

We own approximately 6,576 acres of land at our four cattle feeding operations. We also own approximately 67 acres of land and lease approximately three acres of land at our vinegar operation. We also lease office space for our vinegar operation in Cerritos, California and Montreal, Canada. As detailed in our discussion of the food and ingredients segment in Item 1 – Business, our cattle feeding operations have the capacity to support approximately 258,000 head of cattle and 9.6 million bushels of grain storage capacity, and our vinegar operation has seven production facilities and three distribution warehouses.

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Partnership Segment

Our partnership owns approximately five acres of land and leases approximately 19 acres of land at eight locations in seven states, as disclosed in Item 1 – Business, where its fuel terminals are located and owns approximately 59 acres of land and leases approximately two acres of land where its storage facilities are located at our ethanol production facilities.

Item 3. Legal Proceedings.

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

Item 4. Mine Safety Disclosures.

Not applicable.

PART II

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

Our common stock trades under the symbol "GPRE" on Nasdaq. The following table lists the common stock's highest and lowest price and quarterly cash dividends per share for the periods indicated:

Year Ended December 31, 2017	High	Low	Quarterly Cash Dividend Per Share
Three months ended December 31, 2017 (1)	$ 20.90	$ 15.60	$ 0.12
Three months ended September 30, 2017	21.00	16.35	0.12
Three months ended June 30, 2017	26.05	18.98	0.12
Three months ended March 31, 2017	28.15	21.52	0.12

Year Ended December 31, 2016	High	Low	Quarterly Cash Dividend Per Share
Three months ended December 31, 2016	$ 29.85	$ 22.40	$ 0.12
Three months ended September 30, 2016	26.82	19.73	0.12
Three months ended June 30, 2016	20.86	14.46	0.12
Three months ended March 31, 2016	23.26	12.39	0.12

(1) The closing price of our common stock on December 29, 2017 was $16.85.

Holders of Record

We had 2,085 holders of record of our common stock, not including beneficial holders whose shares are held in names other than their own, on February 7, 2018. This figure does not include approximately 37.9 million shares held in depository trusts.

Dividend Policy

In August 2013, our board of directors initiated a quarterly cash dividend, which we have paid every quarter since and anticipate paying in future quarters. On February 7, 2018, our board of directors declared a quarterly cash dividend of $0.12 per share. The dividend is payable on March 15, 2018, to shareholders of record at the close of business on February 23, 2018. Future declarations are subject to board approval and may be adjusted as our cash position, business needs or market conditions change.

Issuer Purchases of Equity Securities

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 fourth quarter of 2017.

Month	Total Number of Shares Withheld	Average Price Paid per Share
October 1 - October 31	4,462	$ 20.59
November 1 - November 30	-	-
December 1 - December 31	17,883	16.85
Total	22,345	$ 17.60

In August 2014, we announced a share repurchase program of up to $100 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.

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The following table lists the shares repurchased under the share repurchase program during the fourth quarter of 2017.

Month	Number of Shares Repurchased	Average Price Paid per Share	Total Number of Shares Repurchased as Part of Repurchase Program	Approximate Dollar Value of Shares that may yet be Repurchased under the Program (in thousands)
October 1 - October 31	-	$ -	850,839	$ 84,260
November 1 - November 30	-	-	850,839	84,260
December 1 - December 31	58,828	16.84	909,667	83,268
Total	58,828	$ 16.84	909,667	$ 83,268

Since inception, the company has repurchased 909,667 shares of common stock for approximately $16.7 million under the program.

Recent Sales of Unregistered Securities

None.

Equity Compensation Plans

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

Performance Graph

The following graph compares our cumulative total return with the S&P SmallCap 600 Index and the Nasdaq Clean Edge Green Energy Index (CELS) for each of the five years ended December 31, 2017. The graph assumes a $100 investment in our common stock and each index at December 31, 2012, and that all dividends were reinvested.

	12/12	12/13	12/14	12/15	12/16	12/17
Green Plains Inc.	$ 100.00	$ 246.18	$ 317.03	$ 298.26	$ 371.61	$ 230.50
S&P SmallCap 600	100.00	141.31	149.45	146.50	185.40	209.94
Nasdaq Clean Edge Green Energy	100.00	196.27	208.69	232.98	222.42	295.91

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

Item 6. Selected Financial Data.

The statement of income data for the years ended December 31, 2017, 2016 and 2015 and the balance sheet data as of December 31, 2017 and 2016 are derived from our audited consolidated financial statements and should be read together with the accompanying notes included elsewhere in this report.

The statement of income data for the years ended December 31, 2014 and 2013 and the balance sheet data as of December 31, 2015, 2014 and 2013 are derived from our audited consolidated financial statements that are not included in this report, which describe a number of matters that materially affect the comparability of the periods presented.

The following selected financial data should be read together with Item 7 – Management's Discussion and Analysis of Financial Condition and Results of Operations of this report. The financial information below is not necessarily indicative of results to be expected for any future period. Future results could differ materially from historical results due to numerous factors, including those discussed in Item 1A – Risk Factors of this report.

	Year Ended December 31,				
	2017	2016	2015	2014	2013
Statement of Income Data:					
(in thousands, except per share information)					
Revenues	$ 3,596,166	$ 3,410,881	$ 2,965,589	$ 3,235,611	$ 3,041,011
Costs and expenses	3,554,420	3,319,193	2,904,512	2,949,337	2,933,160
Operating income	41,746	91,688	61,077	286,274	107,851
Total other expense	84,897	53,337	39,612	35,844	35,570
Net income	81,631	30,491	15,228	159,504	43,391
Net income attributable to Green Plains	61,061	10,663	7,064	159,504	43,391
Earnings per share attributable to Green Plains:					
Basic	$ 1.56	$ 0.28	$ 0.19	$ 4.37	$ 1.44
Diluted	$ 1.47	$ 0.28	$ 0.18	$ 3.96	$ 1.26
Other Data: (Non-GAAP)					
EBITDA (unaudited and in thousands)	$ 154,370	$ 174,428	$ 127,781	$ 352,477	$ 156,492

December 31,

	2017	2016	2015	2014	2013
Balance Sheet Data (in thousands):					
Cash and cash equivalents	$ 266,651	$ 304,211	$ 384,867	$ 425,510	$ 272,027
Current assets	1,206,471	1,000,576	912,577	903,415	633,305
Total assets	2,784,650	2,506,492	1,917,920	1,821,062	1,532,045
Current liabilities	886,261	594,946	438,669	511,540	409,197
Long-term debt	767,396	782,610	432,139	399,440	480,746
Total liabilities	1,725,514	1,527,301	959,011	1,023,613	986,687
Stockholders' equity	1,059,136	979,191	958,909	797,449	545,358

Management uses earnings before interest, income taxes, depreciation and amortization, or EBITDA, to compare the financial performance of our business segments and manage those segments. Management believes EBITDA is a useful measure to compare our performance against other companies. EBITDA should not be considered an alternative to, or more meaningful than, net income or cash flow, which are determined in accordance with GAAP. EBITDA calculations may vary from company to company. Accordingly, our computation of EBITDA may not be comparable with a similarly titled measure of another company.

The following table reconciles net income to EBITDA for the periods indicated (in thousands):

	Year Ended December 31,				
	2017	2016	2015	2014	2013
Net income	$ 81,631	$ 30,491	$ 15,228	$ 159,504	$ 43,391
Interest expense	90,160	51,851	40,366	39,908	33,357
Income tax expense (benefit)	(124,782)	7,860	6,237	90,926	28,890
Depreciation and amortization	107,361	84,226	65,950	62,139	50,854
EBITDA (unaudited)	$ 154,370	$ 174,428	$ 127,781	$ 352,477	$ 156,492

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

General

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

Overview

Green Plains is an Iowa corporation, founded in June 2004 as an ethanol producer. We have grown through acquisitions of operationally efficient ethanol production facilities and adjacent commodity processing businesses, and are focused on generating stable operating margins through our diversified 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, which differentiates us from companies focused only on ethanol production. Our other businesses, including our partnership, cattle feeding operations and vinegar production, leverage our supply chain, production platform and expertise.

Our profitability is highly dependent on commodity prices, particularly for ethanol, distillers grains, corn oil, corn, natural gas and cattle. 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 each of our plants and lock in favorable margins or reduce production when margins are compressed. Our adjacent businesses integrate complementary but more predictable revenue streams that diversify our operations and profitability.

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

Industry Factors Affecting our Results of Operations

U.S. Ethanol Supply and Demand

Daily ethanol production increased 4% on average to 1.03 million barrels per day in 2017 compared with 0.99 million barrels per day in 2016 due to incremental expansion by existing facilities to optimize production. Weekly refiner and blender input volume, which is linked to consumer gasoline demand, increased 1% year-over-year, helped by the growing number of retail stations offering higher ethanol blends. Increased export volumes only partially offset the difference between increased production and consistent blending volumes year-over-year. As a result, domestic ethanol inventory rose by 3.9 million barrels to 22.6 million barrels at December 31, 2017, compared with the same time last year.

Total domestic ethanol production increased approximately 500 million gallons to 15.8 billion gallons in 2017, from 15.3 billion gallons in 2016, according to the EIA. There were 212 ethanol plants with production capacity of 16.1 bgy as of January 23, 2018, compared with 213 ethanol plants with production capacity of 15.8 bgy one year ago, according to the Renewable Fuels Association.

Ethanol consumption is correlated with consumer gasoline demand, which is projected to increase slightly from the ten-year high of 143.2 billion gallons in 2016, to an estimated 143.3 billion gallons in 2017. Ethanol is used by oil refiners, integrated oil companies and gasoline retailers to reduce vehicle emissions and increase octane levels. Ethanol continues to account for approximately 10% of the U.S. gasoline market in 2017, or an estimated 14.3 billion gallons, up from 14.2 billion gallons in 2016. In 2017, ethanol futures traded at an average discount of $0.14 per gallon to gasoline, positioning ethanol as the most affordable source of octane over Gulf Coast 93 and toluene substitutes.

Increased automaker approval, consumer acceptance and availability of higher ethanol blends continue to support domestic demand. Automakers have explicitly approved the use of E15 in nearly 90% of 2018 model year vehicles sold in the United States. In addition, the number of retail stations selling higher ethanol blends tripled in 2017 due to investments in the retail gasoline infrastructure provided by private and public funding.

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Global Ethanol Supply and Demand

The United States and Brazil produce 86% of the world's ethanol supply, according to the USDA Foreign Agriculture Service. Global production increased slightly to 26.7 billion gallons in 2017 from approximately 26.6 billion gallons in 2016 due to increased U.S. production, which made up for reduced volumes from Brazil, according to the EIA. The United States has been the world's largest producer and consumer of ethanol since 2010. In 2017, approximately 8% of the ethanol produced domestically competed globally with other sources of octane and oxygenates and was marketed and sold worldwide. Global production is expected to increase 10% in the next five years.

Demand for cleaner, more sustainable transportation fuel is growing worldwide. Ethanol has become a crucial component of the global fuel supply as an economical oxygenate and source of octanes. According to the Global Renewable Fuels Alliance, 35 countries, including the EU which is regulated by a single policy with specific national targets for each country, have mandates or planned targets in place for blending ethanol and biodiesel with transportation fuels to reduce harmful emissions. As countries establish mandates or raise their required blend percentages, new export opportunities for U.S. producers are likely to emerge.

Overall, the U.S. ethanol industry is producing at levels to meet current domestic and export demand. According to the EIA, U.S. exports were approximately 1.4 billion gallons in 2017, up 31% from 1.0 billion gallons last year. Brazil and Canada remained the two largest export destinations for U.S. ethanol, which accounted for 33% and 24%, respectively, of domestic ethanol export volume. India, the Philippines and South Korea accounted for 13%, 5% and 3%, respectively, of U.S. ethanol exports.

Co-Product Supply and Demand

According to the USDA, the United States produced approximately 50 million tons of distillers grains resulting from ethanol production in 2017, of which approximately 11 million tons were exported. The 3% reduction, year over year in exports was due in part to a suspension by the Minister of Agriculture and Rural Development of Vietnam, which blocked imports of U.S. dried distillers grains from January 2017 to September 2017. Mexico, Turkey, South Korea, China, Thailand and Canada accounted for 61% of total U.S. distillers export volumes, according to the USDA.

World demand for U.S. beef has risen as diets continue to improve worldwide to include increased animal protein. In June of 2017, the U.S. resumed exporting beef to China, following a 13-year ban the Trump Administration lifted as part of a new bilateral agreement between the countries.

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. Federal mandates supporting the use of renewable fuels are a significant driver of ethanol demand in the United States. Ethanol policies are influenced by environmental concerns and an interest in reducing the country's dependence on foreign oil. When RFS II was established in October 2010, the required volume of conventional renewable fuel to be blended with gasoline was to increase each year until it reached 15.0 billion gallons in 2015, which left the EPA to address existing limitations in ethanol production and usage of ethanol blends in older vehicles. The EPA met the congressional target for the first time in November 2016 when it set the renewable volume obligations for conventional ethanol at 15.0 billion gallons for 2017. In November 2017, the EPA announced it would maintain the 15.0 billion gallon mandate for conventional ethanol in 2018.

The EPA has the authority to waive the mandates in whole or in part if there is inadequate domestic renewable fuel supply or the requirement severely harms the economy or environment. According to RFS II, 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. While conventional ethanol maintained 15 billion gallons, 2018 is the first year the total proposed RVOs are more than 20% below statutory volumes levels. Thus, the EPA Administrator directed his staff to initiate the required technical analysis to perform any future reset consistent with the reset rules. The reset will be triggered if the 2019 RVOs continue to be more than 20% below the statutory levels, and the EPA will be required to modify statutory volumes through 2022 within one year of the trigger event, based on the same factors used to set the RVOs post-2022.

The EPA assigns individual refiners, blenders and importers the volume of renewable fuels they are obligated to use based on their percentage of total fuel sales. Obligated parties use RINs to show compliance with RFS-mandated volumes. RINs are attached to renewable fuels by producers and detached when the renewable fuel is blended with transportation fuel or traded in the open market. The market price of detached RINs affects the price of ethanol in certain markets and influences

the purchasing decisions by obligated parties. In November 2017, the EPA denied a petition to change the point of obligation under RFS II to the parties that own the gasoline before it is sold.

Consumer acceptance of flex-fuel vehicles and higher ethanol blends are factors that may be necessary before ethanol can achieve significant growth in U.S. market share. CAFE, which was first enacted by Congress in 1975 to reduce energy consumption by increasing the fuel economy of cars and light trucks, provides a 54% efficiency bonus to flexible-fuel vehicles running on E85, which is sold at more than 3,400 fuel stations in 45 states. According to IHS Automotive, there are nearly 20 million flexible fuel vehicles on U.S. roads today. The number of retail stations selling E15 has tripled during the year to more than 1,300 stations on January 31, 2018, up from 431 stations on December 31, 2016, according to Growth Energy. Another important factor is a waiver in the Clean Air Act, known as the One-Pound Waiver, which allows E10 to be sold between June and September, even though it exceeds the Reid vapor pressure limitation of nine pounds per square inch. The One-Pound Waiver does not apply to E15, even though it has similar physical properties to E10. Industry groups are focused on securing the One-Pound Waiver for E15 through the legislative process.

On January 18, 2017, Valero Energy Corporation filed an action against the EPA regarding certain non-discretionary duties required by the RFS program under the Clean Air Act. Within the filed action, Valero claimed the EPA failed to periodically review the feasibility of RFS compliance and the impact of the requirements on individuals and entities regulated under the program, i.e., the point of obligation, since 2010. The EPA moved to dismiss this suit, which the court granted on November 28, 2017.

On July 28, 2017, the U.S. Federal District Court for the D.C. Circuit ruled in favor of the Americans for Clean Energy and its petitioners against the EPA related to its decision to lower the 2016 volume requirements. The Court concluded the EPA erred in how it interpreted the “inadequate domestic supply” waiver provision of RFS II, which authorizes the EPA to consider supply-side factors affecting the volume of renewable fuel available to refiners, blenders and importers to meet statutory volume requirements. The waiver provision does not allow the EPA to consider the volume of renewable fuel available to consumers or the demand-side constraints that affect the consumption of renewable fuel by consumers. As a result, the Court vacated the EPA’s decision to reduce the total renewable fuel volume requirements for 2016 through its waiver authority, which the EPA is expected to address. We believe this decision to confine the EPA’s waiver analysis to supply considerations benefits the industry overall and expect the primary impact will be on the RINs market.

On October 19, 2017, the EPA Administrator reiterated his commitment to the text and spirit of the RFS II. In a letter to seven senators from the Midwestern states, he stated the EPA is actively exploring its authority to issue an RVP waiver and will not pursue action on RINs involving ethanol exports. Moreover, on November 22, 2017, the EPA issued a Notice of Denial of Petitions for rulemaking to change the RFS point of obligation, confirming the point of obligation will not change.

Valero Energy and refining trade group American Fuel and Petrochemical Manufacturers (AFPM) have challenged the EPA's handling of the U.S. biofuel mandate in separate actions on January 26, 2018. AFPM is asking the D.C. U.S. Court of Appeals to review the EPA's November 2017 decision to reject proposed changes to the structure of the RFS, including moving the point of obligation from refiners and importers of fuel to fuel blenders. Valero filed two petitions with the same court, one seeking review of the annual Renewable Volume Obligation (RVO) rule set by EPA's for 2018 and 2019, which dictates the volumes of renewable fuels to be blended in the coming years, and a second arguing against the EPA's December 2017 assertion that the agency has fulfilled its duty to periodically review the RFS as directed by statute.

Government actions abroad can significantly impact the ethanol industry. In September 2017, China's National Development and Reform Commission, the National Energy Board and 15 other state departments issued a joint plan to expand the use and production of biofuels containing up to 10% ethanol by 2020. China, the number three importer of U.S. ethanol in 2016, imported negligible volumes during the year due to a 30% tariff imposed on U.S. and Brazil fuel ethanol, which took effect in January 2017. There is no assurance the recently issued joint plan will lead to increased imports of U.S. ethanol. Brazil's Chamber of Foreign Trade, or CAMEX, issued an official written resolution, imposing a 20% tariff on U.S. ethanol imports in excess of 150 million liters, or 39.6 million gallons per quarter in September 2017. The ruling is valid for two years. In Mexico, four lawsuits challenging the June 2017 decision by the Energy Regulatory Commission of Mexico (CRE) to approve the use of 10% ethanol blends were dismissed. A fifth lawsuit was allowed to proceed for judicial review, despite precedent set by the Mexico Supreme Court for dismissal. The CRE is expected to defend its position before the judge makes a final decision. Should the judge rule in favor of the plaintiff, the case will go to the Supreme Court. U.S. ethanol exports to Mexico totaled 30 mmg in 2017. In December 2017, the USDA Foreign Agricultural Service announced that Japan is expected to allow the use of corn-based ethanol in 2018.

The Tax Cuts and Jobs Act was enacted on December 22, 2017 and is effective January 1, 2018. Among other provisions, the Act reduces the Federal statutory corporate income tax rate from 35% to 21%. Due to the reduction in the

federal tax rate to 21%, the Company revalued its deferred liabilities at the new rate at year-end. An unintended consequence of the Act under section 199A allows cooperative associations with a potential marketplace advantage versus other agribusiness companies related to how sales from farmers to such entities are treated for purposes of farmers' income. While we believe that Congress intends to correct these provisions, we have established a cooperative entity and are currently evaluating the use of such structure for grain origination for our ethanol plants should Congress not provide a timely fix for this issue.

Environmental and Other Regulation

Our ethanol production, agribusiness and energy services, and food and ingredients segment activities are also subject to environmental and other regulations. We obtain environmental permits to construct and operate our ethanol plants and other facilities. Parts of our business are regulated by environmental laws and regulations governing the labeling, use, storage, discharge and disposal of hazardous materials or conformity with official grade standards. Our business may also be impacted by government policies, such as tariffs, duties, subsidies, import and export restrictions and outright embargos. We employ maintenance and operations personnel at each of our plants. In addition, to the attention we place on the health and safety of our employees, the operations of our facilities are regulated by the Occupational Safety and Health Administration.

In 2007, the U.S. Supreme Court classified carbon dioxide as an air pollutant under the Clean Air Act in a case seeking to require the EPA to regulate carbon dioxide in vehicle emissions, which the EPA later addressed in RFS II. Ethanol production involves the emission of various airborne pollutants, including particulate, carbon dioxide, oxides of nitrogen, hazardous air pollutants and volatile organic compounds. While some of our plants are grandfathered at authorized capacities under the RFS II mandate, expansion may require us to obtain additional permits, achieve the EPA's efficient producer status under the pathway petition program for our grandfathered plants, install advanced technology or reduce drying distillers grains to achieve a 20% reduction in greenhouse gas emissions from the 2005 baseline measurement. In January 2017, the USDA released a report providing evidence that greenhouse gas emissions associated with corn-based ethanol are 43% lower than gasoline. Numerous factors have led to improvements over the past ten years, including conservation practices by farmers, higher corn yields and advances in production technologies, which are expected to continue and have the potential to further reduce greenhouse gas emissions up to 76% compared with gasoline.

The U.S. ethanol industry relies heavily on tank cars to deliver its product to market. On May 1, 2015, the DOT finalized the Enhanced Tank Car Standard and Operational Controls for High-Hazard and Flammable Trains, or DOT specification 117, which established a schedule to retrofit or replace older tank cars that carry crude oil and ethanol, braking standards intended to reduce the severity of accidents and new operational protocols. The deadline for compliance with DOT specification 117 is May 1, 2023. The rule may increase our lease costs for railcars over the long term. Additionally, existing railcars may be out of service for a period of time while upgrades are made,

tightening supply in an industry that is highly dependent on railcars to transport product. We intend to strategically manage our leased railcar fleet to comply with the new regulations and have commenced transition of our fleet to DOT 117 compliant railcars. We anticipate approximately 20% of our railcar fleet will be DOT 117 compliant by the end of 2018.

In September 2015, the FDA issued rules for Current Good Manufacturing Practice, Hazard Analysis and Risk-Based Preventative Controls for food for animals in response to FSMA. The rules require FDA-registered food facilities to address safety concerns for sourcing, manufacturing and shipping food products and food for animals through food safety programs that include conducting hazard analyses, developing risk-based preventative controls and monitoring, and addressing intentional adulteration, recalls, sanitary transportation and supplier verification. We believe we have taken sufficient measures to comply with these regulations.

On January 1, 2017, all medically important antimicrobials intended for use in animal feed that were once available over-the-counter became veterinary feed directive drugs, requiring written orders from a licensed veterinarian to purchase and use in livestock feed under the October 2015 revised Veterinary Feed Directive rule. Our cattle feeding operations obtained all necessary prescriptions from a licensed veterinarian to use certain veterinary feed directive drugs, as appropriate.

Variability of Commodity Prices

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

During periods of commodity price variability or compressed margins, we may reduce or cease operations at certain ethanol plants. Slowing down production increases the ethanol yield per bushel of corn, optimizing cash flow in lower margin environments. In 2017, our ethanol facilities ran at approximately 85.0% of our daily average capacity, largely due to the low margin environment during the first half of the year driven by historically low crude oil prices resulting from record world supply.

Critical Accounting Policies and Estimates

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

Revenue Recognition

We recognize revenue when the following criteria are satisfied: persuasive evidence that an arrangement exists, title of product and risk of loss are transferred to the customer, price is fixed and determinable and collectability is reasonably assured.

Sales of ethanol, distillers grains, corn oil, natural gas and other commodities are recognized when title of product and risk of loss are transferred to an external customer. Revenues related to marketing for third parties are presented on a gross basis when the company takes title of the product and assumes risk of loss. Unearned revenue is recorded for goods in transit when we have received payment but the title has not yet been transferred to the customer. Revenues related to ethanol, distillers grains, corn oil, natural gas and other commodities are presented gross and include shipping and handling, which is also a component of cost of goods sold. Revenues for receiving, storing, transferring and transporting ethanol and other fuels are recognized when the product is delivered to the customer.

We routinely enter into fixed-price, physical-delivery commodity purchase and sale agreements. At times, we settle 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. All other transactions are reported net as either a component of revenue or cost of goods sold, depending on their position as a gain or loss. Revenues also

include realized gains and losses on related derivative financial instruments and reclassifications of realized gains and losses on effective cash flow hedges from accumulated other comprehensive income or loss.

Sales of products, including agricultural commodities, cattle and vinegar, are recognized when title of product and risk of loss are transferred to the customer, which depends on the agreed upon terms. The sales terms provide passage of title when shipment is made or the commodity is delivered. 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 when 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 when there is persuasive evidence that an arrangement exists, title of product and risk of loss are transferred to the customer, price is fixed and determinable and collectability is reasonably assured. Revenues from base storage, terminal or transportation services are recognized once these services are performed, which occurs when the product is delivered to the customer.

Intercompany revenues are eliminated on a consolidated basis for reporting purposes.

Depreciation of Property and Equipment

Property and equipment are stated at cost less accumulated depreciation. Depreciation on our ethanol production and grain storage facilities, railroad tracks, computer equipment and software, office furniture and equipment, vehicles, and other fixed assets is provided using the straight-line method over the estimated useful life of the asset, which currently ranges from 3 to 50 years.

Land improvements are capitalized and depreciated. Expenditures for property betterments and renewals are capitalized. Costs of repairs and maintenance are charged to expense when incurred.

We periodically evaluate whether events and circumstances have occurred that warrant a revision of the estimated useful life of the asset, which is accounted for prospectively.

Carrying Value of Intangible Assets

Our intangible assets consist of trademarks, customer relationships, research and development technology and licenses acquired through acquisitions. These assets were capitalized at their fair value at the date of the acquisition and are being amortized over their estimated useful lives.

Impairment of Long-Lived Assets and Goodwill

Our long-lived assets consist of property and equipment and intangible assets. We review long-lived assets for impairment whenever events or changes in circumstances indicate the carrying amount of the asset may not be recoverable. We measure recoverability by comparing the carrying amount of the asset with the estimated undiscounted future cash flows the asset is expected to generate. If the carrying amount of the asset exceeds its estimated future cash flows, we record an impairment charge for the amount in excess of the fair value. There were no material impairment charges recorded for the periods reported.

Our goodwill is related to certain acquisitions within our ethanol production, food and ingredients and partnership segments. We review goodwill at the segment level for impairment at least annually or more frequently whenever events or changes in circumstances indicate that an impairment may have occurred.

We assess the qualitative factors of goodwill to determine whether it is necessary to perform a two-step goodwill impairment test. Under the first step, we compare the estimated fair value of the reporting unit with its carrying value including goodwill. If the estimated fair value is less than the carrying value, we complete a second step to determine the amount of the goodwill impairment that we should record. In the second step, we allocate the reporting unit’s fair value to all of its assets and liabilities other than goodwill to determine an implied fair value. We compare the result with the carrying amount and record an impairment charge for the difference.

We estimate the amount and timing of projected cash flows that will be generated by an asset over an extended period of time when we review our long-lived assets and goodwill. Circumstances that may indicate impairment include: a

decline in future projected cash flows, a decision to suspend plant operations for an extended period of time, a sustained decline in our market capitalization, a sustained decline in market prices for similar assets or businesses or a significant adverse change in legal or regulatory matters, or business climate. Significant management judgment is required to determine the fair value of our long-lived assets and goodwill and measure impairment, including projected cash flows. Fair value is determined through various valuation techniques, including discounted cash flow models utilizing assumed margins, cost of capital, inflation and other inputs, sales of comparable properties and third-party independent appraisals. Changes in estimated fair value as a result of declining ethanol margins, loss of significant customers or other factors could result in a write-down of the asset.

Derivative Financial Instruments

We use various derivative financial instruments, including exchange-traded futures and exchange-traded and over-the-counter options contracts, to minimize risk and the effect of price changes related to corn, ethanol, cattle, natural gas and crude oil. We monitor and manage this exposure as part of our 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, we are exposed to credit and market risk. Our exposure to credit risk includes the counterparty’s failure to fulfill its performance obligations under the terms of the derivative contract. We minimize our credit risk by entering into transactions with high quality counterparties, limiting the amount of financial exposure it has with each counterparty and monitoring their financial condition. Market risk is the risk that the value of the financial instrument might be adversely affected by a change in commodity prices or interest rates. We manage market risk by incorporating parameters to monitor exposure within our risk management strategy, which limits the types of derivative instruments and strategies we can use and the degree of market risk we can take using derivative instruments.

We evaluate our 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 we elect, hedge accounting treatment.

Certain qualifying derivatives related to ethanol production, agribusiness and energy services and food and ingredients segments are designated as cash flow hedges. We evaluate the derivative instrument to ascertain its effectiveness prior to entering into cash flow hedges. Unrealized gains and losses are reflected in accumulated other comprehensive income until the gain or loss from the underlying hedged transaction is realized. 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 other current liabilities at fair value.

Accounting for Income Taxes

Income taxes are accounted for under the asset and liability method in accordance with GAAP. Deferred tax assets and liabilities are recognized for future tax consequences between existing assets and liabilities and their respective tax basis, and for net operating loss and tax credit carry-forwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to be applied to taxable income in years temporary differences are expected to be recovered or settled. The effect of a tax rate change is recognized in the period that includes the enactment date. The realization of deferred tax assets depends on the generation of future taxable income during the periods in which temporary differences become deductible. Management considers scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies to make this assessment. Management considers the positive and negative evidence to support the need for, or reversal of, a valuation allowance. The weight given to the potential effects of positive and negative evidence is based on the extent it can be objectively verified.

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

Recently Issued Accounting Pronouncements

For information related to recent accounting pronouncements, see Note 2 – Summary of Significant Accounting Policies included as part of the notes to consolidated financial statements in this report.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements other than the operating leases, which are entered into during the ordinary course of business and disclosed in the Contractual Obligations section below.

Components of Revenues and Expenses

Revenues. For our ethanol production segment, our revenues are derived primarily from the sale of ethanol, distillers grains and corn oil. For our agribusiness and energy services segment, sales of ethanol, distillers grains and corn oil that we market for our ethanol plants, and earn a marketing fee, sales of ethanol we market for a third-party and sales of grain and other commodities purchased in the open market represent our primary sources of revenue. Revenues include net gains or losses from derivatives related to the products sold. For our food and ingredients segment, the sale of cattle and vinegar are our primary sources of revenue. For our partnership segment, our revenues consist primarily of fees for receiving, storing, transferring and transporting ethanol and other fuels.

Cost of Goods Sold. For our ethanol production segment, cost of goods sold includes direct labor, materials and plant overhead costs. Direct labor includes compensation and related benefits of non-management personnel involved in ethanol plant operations. Plant overhead consists primarily of plant utilities and outbound freight charges. Corn is the most significant raw material cost followed by natural gas, which is used to power steam generation in the ethanol production process and dry distillers grains. Cost of goods sold also includes net gains or losses from derivatives related to commodities purchased.

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

For our food and ingredients segment, the cattle feeding operations includes costs of cattle, feed and veterinary supplies, direct labor and feedlot overhead, which are accumulated as inventory and included as a component of cost of goods sold

when the cattle are sold. Direct labor includes compensation and related benefits of non-management personnel involved in the feedlot operations. Feedlot overhead costs include feedlot utilities, repairs and maintenance and yard expenses. For the vinegar operation, cost of goods sold includes direct labor, materials and plant overhead costs. Direct labor includes compensation and related benefits of non-management personnel involved in vinegar operations. Overhead consists primarily of plant utilities and outbound freight charges. Food-grade ethanol is the most significant raw material cost.

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

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

Other Income (Expense). Other income (expense) includes interest earned, interest expense, equity earnings in nonconsolidated subsidiaries and other non-operating items.

Results of Operations

Comparability

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

July 2015	Green Plains Partners completed its IPO
October 2015	Hopewell, Virginia ethanol plant was acquired
November 2015	Hereford, Texas ethanol plant was acquired

January 2016	Partnership acquired certain storage and transportation assets of the Hereford and Hopewell ethanol plants
April 2016	Increased ownership of BioProcess Algae and began consolidating within our consolidated financial statements
September 2016	Madison, Illinois, Mount Vernon, Indiana, and York, Nebraska ethanol plants were acquired and the partnership acquired certain storage assets of the these plants
October 2016	Fleischmann's Vinegar was acquired
March 2017	Hereford, Texas cattle feeding operation was acquired
May 2017	Leoti, Kansas and Eckley, Colorado cattle feeding operations were acquired

The year ended December 31, 2015, includes approximately two months of operations at our Hereford ethanol plant. Our Hopewell plant, which was not operational at the time of its acquisition, resumed ethanol production on February 8, 2016. The year ended December 31, 2016, includes approximately nine months of consolidated operations of BioProcess Algae, and approximately three months of operations at the Madison, Mount Vernon, and York ethanol plants and Fleischmann's Vinegar. The year ended December 31, 2017, includes approximately nine months of operations at our Texas cattle feeding business and six months of operations at our Kansas and Colorado cattle feeding businesses.

Segment Results

We report the financial and operating performance for the following four operating segments: (1) ethanol production, which includes the production of ethanol, distillers grains 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, (3) food and ingredients, which includes cattle feeding, vinegar production and food-grade corn oil operations and (4) partnership, which includes fuel storage and transportation services.

Under GAAP, when transferring assets between entities under common control, the entity receiving the net assets initially recognizes the carrying amounts of the assets and liabilities at the date of transfer. The transferee's prior period financial statements are restated for all periods its operations were part of the parent's consolidated financial statements. On July 1, 2015, Green Plains Partners received ethanol storage and railcar assets and liabilities in a transfer between entities under common control. Effective January 1, 2016, the partnership acquired the storage and transportation assets of the Hereford and Hopewell production facilities in a transfer between entities under common control and entered into

amendments to the related commercial agreements with Green Plains Trade. The transferred assets and liabilities are recognized at our historical cost and reflected retroactively in the segment information of the consolidated financial statements presented in this Form 10-K. The partnership's assets were previously included in the ethanol production and agribusiness and energy services segments. Expenses related to the ethanol storage and railcar assets, such as depreciation, amortization and railcar lease expenses, are also reflected retroactively in the following segment information. There are no revenues related to the operation of the ethanol storage and railcar assets in the partnership segment prior to their respective transfers to the partnership, when the related commercial agreements with Green Plains Trade became effective.

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 incudes selling, general and administrative expenses, consisting primarily of compensation, professional fees and overhead costs not directly related to a specific operating segment. When we evaluate segment performance, we review the following operating segment information as well as earnings before interest, income taxes, depreciation and amortization, or EBITDA.

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

	Year Ended December 31,		
	2017	2016	2015
Revenues:			
Ethanol production:			
Revenues from external customers (1)	$ 2,497,360	$ 2,409,102	$ 2,063,172
Intersegment revenues	10,313	-	-
Total segment revenues	2,507,673	2,409,102	2,063,172
Agribusiness and energy services:			

Revenues from external customers (1)	621,223	675,446	674,719
Intersegment revenues	47,538	34,461	24,114
Total segment revenues	668,761	709,907	698,833
Food and ingredients:			
Revenues from external customers (1)	471,398	318,031	219,310
Intersegment revenues	383	150	75
Total segment revenues	471,781	318,181	219,385
Partnership:			
Revenues from external customers	6,185	8,302	8,388
Intersegment revenues	100,808	95,470	42,549
Total segment revenues	106,993	103,772	50,937
Revenues including intersegment activity	3,755,208	3,540,962	3,032,327
Intersegment eliminations	(159,042)	(130,081)	(66,738)
Revenues as reported	$ 3,596,166	$ 3,410,881	$ 2,965,589

(1) Revenues from external customers include realized gains and losses from derivative financial instruments.

	Year Ended December 31,		
	2017	2016	2015
Cost of goods sold:			
Ethanol production	$ 2,434,001	$ 2,280,906	$ 1,939,824
Agribusiness and energy services	614,582	650,538	639,470
Food and ingredients	411,781	294,396	216,661
Partnership	-	-	-
Intersegment eliminations	(158,777)	(129,761)	(66,588)
	$ 3,301,587	$ 3,096,079	$ 2,729,367

	Year Ended December 31,		
	2017	2016	2015
Operating income (loss):			
Ethanol production	$ (45,074)	$ 28,125	$ 43,266
Agribusiness and energy services	30,443	34,039	37,253
Food and ingredients	35,961	16,436	(952)
Partnership	65,709	60,903	12,990
Intersegment eliminations	(61)	(170)	-
Corporate activities	(45,232)	(47,645)	(31,480)
	$ 41,746	$ 91,688	$ 61,077

	Year Ended December 31,		
	2017	2016	2015
EBITDA:			
Ethanol production	$ 40,069	$ 97,113	$ 100,002
Agribusiness and energy services	33,906	34,209	40,655
Food and ingredients	49,803	20,190	218
Partnership	71,041	66,633	18,903
Intersegment eliminations	(61)	(732)	(71)
Corporate activities	(40,388)	(42,985)	(31,926)
	$ 154,370	$ 174,428	$ 127,781

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

	Year Ended December 31,	
	2017	2016
Total assets (1):		
Ethanol production	$ 1,144,459	$ 1,206,155
Agribusiness and energy services	554,981	579,977
Food and ingredients	725,232	406,429
Partnership	74,935	74,999
Corporate assets	295,217	257,652
Intersegment eliminations	(10,174)	(18,720)
	$ 2,784,650	$ 2,506,492

(1) Asset balances by segment exclude intercompany payable and receivable balances.

Year Ended December 31, 2017 Compared with the Year Ended December 31, 2016

Consolidated Results

Consolidated revenues increased $185.3 million in 2017, compared with 2016. Revenues were impacted by the acquisition of the Madison, Mount Vernon and York ethanol plants and Fleischmann’s Vinegar during the third and fourth quarters of 2016, respectively, and cattle feeding operations during the first and second quarters of 2017, plus an increase in ethanol and corn oil volumes sold. This was partially offset by a decrease in grain trading activity volumes and lower average realized prices for ethanol, grain and distillers grains.

Operating income decreased $49.9 million in 2017, compared with 2016 primarily due to a decrease in ethanol margins

as well as a decrease in grain trading volume and price, partially offset by the acquisitions of Fleischmann's Vinegar and the cattle feeding operations. EBITDA decreased $20.1 million in 2017 due to decreased ethanol margins as well as decreased grain trading volume and price, partially offset by the acquisitions of Fleischmann's Vinegar and the cattle feeding operations. Interest expense increased $38.3 million in 2017, compared with 2016 primarily due to higher average debt outstanding and borrowing costs, $12.3 million in expense associated with the termination of previous credit facilities, and a $1.3 million charge related to the extinguishment of a portion of the 3.25% convertible notes. Income tax benefit was $124.8 million in 2017, compared with income tax expense of $7.9 million in 2016 primarily due to the company's recognition of tax benefits related to enactment of the Tax Cuts and Jobs Act and Research and Development credits, or R&D Credits.

The following discussion provides greater detail about our segment performance.

Ethanol Production Segment

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

	Year Ended December 31,	
	2017	2016
Ethanol sold (thousands of gallons)	1,256,361	1,147,630
Distillers grains sold (thousands of equivalent dried tons)	3,314	3,064
Corn oil sold (thousands of pounds)	301,920	273,901
Corn consumed (thousands of bushels)	437,373	401,065

Revenues in the ethanol production segment increased $98.6 million in 2017 compared with 2016 primarily due to higher volumes of ethanol, distillers grains and corn oil produced, primarily due to the acquisition of the Madison, Mount Vernon and York ethanol plants.

Cost of goods sold in the ethanol production segment increased $153.1 million for 2017 compared with 2016 due to higher production volumes associated with the acquisition of the Madison, Mount Vernon and York ethanol plants and increased prices. Operating income for the ethanol production segment decreased $73.2 million for 2017 as a result of the factors identified above, as well as additional general and administrative expenses due to the additional ethanol plants acquired. EBITDA decreased $57.0 million for 2017, compared to 2016 due to decreased margins in ethanol production. Depreciation and amortization expense for the ethanol production segment was $82.0 million for 2017, compared with $68.7 million during 2016.

Agribusiness and Energy Services Segment

Revenues in the agribusiness and energy services segment decreased $41.1 million and operating income decreased $3.6 million in 2017 compared with 2016. The decrease in revenues was primarily due to a decrease in grain trading volumes, partially offset by increased intersegment distillers grain, marketing and corn revenues. The decrease in operating income was the result of lower margins on merchant trading activity, partially offset by increased intersegment marketing and corn origination fees. EBITDA decreased $0.3 million for 2017, compared to 2016 due to decreased trading volume.

Food and Ingredients Segment

Revenues in our food and ingredients segment increased $153.6 million in 2017 compared with 2016. The increase in revenues was primarily due to the acquisitions of Fleischmann’s Vinegar and the cattle feeding operations. The daily average company-owned cattle on feed for the years ended December 31, 2017 and 2016 was approximately 130,000 and 65,000 head, respectively, and the daily average third-party owned cattle on feed for the years ended December 31, 2017 and 2016 was approximately 46,000 and 1,400, respectively.

Operating income for the food and ingredients segment increased $19.5 million in 2017 compared with 2016, primarily due to an increase in cattle volumes due to the acquisition of the cattle feeding operations in the first and second quarters of 2017, as well as Fleischmann’s Vinegar being included for the entire year. EBITDA for the food and ingredients segment increased by $29.6 million in 2017 compared with 2016, primarily due to an increase in cattle margins, as well as the acquisition of Fleischmann’s Vinegar.

Partnership Segment

Revenues generated from the partnership segment increased $3.2 million for the year ended December 31, 2017 as compared to the year ended December 31, 2016. Revenues generated from the partnership's storage and throughput agreement increased $4.6 million primarily due to higher throughput volumes related to ethanol storage assets acquired in September 2016. Other revenue increased $0.6 million primarily due to the expansion of the partnership's truck fleet. These increases were partially offset by revenues generated from the partnership's rail transportation services agreement with Green Plains Trade, which decreased $1.4 million due to lower average rates charged for the railcar volumetric capacity provided, and revenues generated from the partnership's terminal services agreements, which decreased $0.6 million due to lower biodiesel throughput volumes at our terminals.

General and administrative expenses decreased $0.2 million in 2017 compared with 2016 primarily due to a decrease in transaction costs associated with the acquisition of ethanol storage assets in 2016.

Operating income for the partnership segment increased $4.8 million in 2017 compared to 2016 due to the changes in revenues discussed above, as well as a decrease in operations and maintenance expenses of $0.7 million for 2017. EBITDA increased $4.4 million for 2017 compared with 2016 due to the increased storage and throughput revenues, as well as a decrease in operations and maintenance expenses of $0.7 million for 2017 compared with 2016.

Intersegment Eliminations

Intersegment eliminations of revenues increased by $29.0 million for 2017 compared with 2016, due to increased intersegment distillers grain and corn revenues paid to the ethanol production and agribusiness and energy services segments and the increase in storage and throughput fees paid to the partnership segment. Intersegment eliminations of operating income remained relatively unchanged in 2017 compared with 2016.

Corporate Activities

Operating income was impacted by a decrease in operating expenses for corporate activities of $2.4 million for 2017 compared with 2016, primarily due to decreases in selling, general and administrative expenses largely driven by acquisition costs incurred in 2016.

Income Taxes

We recorded income tax benefit of $124.8 million for 2017 compared with income tax expense of $7.9 million in 2016. The change in income taxes was primarily due to the company's recognition of tax benefits related to recently enacted Tax Cuts and Jobs Act and R&D Credits. The effective tax rate (calculated as the ratio of income tax expense to income before income taxes) was approximately 289.2% for 2017 compared with 20.5% for 2016.

A study was conducted to determine whether certain activities the company performs qualify for the R&D Credit allowed by the Internal Revenue Code Section 41. As a result of this study, the company concluded these activities do qualify for the credit and determined it was appropriate to claim the benefit of these credits for all open tax years. The company recognized these credits during the second half of 2017, along with an estimate of the credit for qualified activities year-to-date. The company will continue to evaluate eligibility for R&D Credits on a regular basis.

Year Ended December 31, 2016 Compared with the Year Ended December 31, 2015

Consolidated Results

Consolidated revenues increased by $445.3 million in 2016 compared with 2015. Revenues were impacted by an increase in ethanol volumes sold, along with an increase in volumes of cattle sold, plus the addition of Fleischmann's Vinegar during the fourth quarter. The increase in ethanol revenues was partially offset by a decrease in merchant trading activity volumes and lower average realized prices for grain.

Operating income increased by $30.6 million in 2016 compared with 2015 primarily due to increased cattle margins, partially offset by lower margins in ethanol production and an increase in corporate expenses. Interest expense increased by $11.5 million compared with 2015 due to higher average debt balances outstanding and higher average borrowing costs. Income tax expense increased by $1.6 million to $7.9 million in 2016 compared with 2015 due to higher pre-tax income.

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:

	Year Ended December 31,	
	2016	2015
Ethanol sold (thousands of gallons)	1,147,630	947,557
Distillers grains sold (thousands of equivalent dried tons)	3,064	2,540
Corn oil sold (thousands of pounds)	273,901	244,047
Corn consumed (thousands of bushels)	401,065	332,417

Revenues in the ethanol production segment increased by $345.9 million in 2016 compared with 2015 primarily due to an increase in ethanol and corn oil volumes sold. The average price realized for ethanol was relatively unchanged in 2016 compared with 2015. The increased volumes produced was primarily due to increased production at our existing ethanol plants and the acquisition of the Hereford, Hopewell, Madison, Mount Vernon, and York ethanol plants, which produced approximately 185.3 mmg of ethanol and 26.0 million pounds of corn oil during the year ended December 31, 2016.

Cost of goods sold in the ethanol production segment increased by $341.1 million for 2016 compared with 2015 due to higher production volumes. Operating income for the ethanol production segment decreased by $15.1 million for 2016 compared with the same period in 2015 as a result of the factors identified above, as well as additional general and administrative expenses due to the additional ethanol plants acquired. Depreciation and amortization expense for the ethanol production segment was $68.7 million for the year ended December 31, 2016, compared with $55.6 million during 2015.

Agribusiness and Energy Services Segment

Revenues in the agribusiness and energy services segment increased by $11.1 million and operating income decreased by $3.2 million in 2016 compared with 2015. The increase in revenues was primarily due to an increase in ethanol and distillers grain trading activity, partially offset by a decrease in grain trading activity volumes and lower average realized prices. Operating income decreased primarily as a result of lower margins on merchant trading activity, partially offset by increased intersegment marketing and corn origination fees.

Food and Ingredients Segment

Revenues in our food and ingredients segment increased by $98.8 million in 2016 compared with 2015. The increase in revenues was primarily due to an increase in cattle volumes sold as well as the acquisition of Fleischmann’s Vinegar, partially offset by lower average realized cattle prices.

Operating income for the food and ingredients segment increased by $17.4 million in 2016 compared with 2015, primarily due to an increase in cattle margins, as well as the acquisition of Fleischmann’s Vinegar.

Partnership Segment

Revenues generated from the partnership’s storage and throughput agreement and rail transportation services agreement with Green Plains Trade, executed in connection with the IPO and effective beginning July 1, 2015, were $89.1 million for 2016 compared with $36.9 million for 2015. Increased revenues were attributable to a full year of commercial operations in 2016, as well as higher throughput volumes due to acquired ethanol storage assets and higher railcar volumetric capacity provided by the partnership to transport incremental production volumes. Revenues generated by trucking and terminal services increased $0.7 million in 2016 compared with 2015, primarily due to increased trucking volumes with Green Plains Trade and third parties.

Operating income for the partnership segment increased by approximately $47.9 million due to the increase in revenues above, partially offset by an increase in operations and maintenance expenses of $4.6 million for 2016, compared with the same period for 2015. The increase was primarily due to higher railcar lease expense as a result of an increased railcar fleet, partially offset by rate reductions; higher wages as a result of an increased railcar fleet and plant acquisitions; and higher

general repairs and maintenance expense. General and administrative expenses increased $1.3 million in 2016 compared with 2015, primarily due to administrative costs incurred as a publicly traded entity.

Intersegment Eliminations

Intersegment eliminations of revenues increased by $63.3 million for 2016 compared with 2015, due to the increase in transportation and storage fees paid to the partnership segment by the agribusiness and energy services segment of $52.2 million, as well as increased intersegment marketing and corn origination fees paid to the agribusiness and energy services segment by the ethanol production segment. Intersegment eliminations of operating income remained relatively unchanged in 2016 compared with 2015.

Corporate Activities

Operating income was impacted by an increase in operating expenses for corporate activities of $16.2 million for 2016 compared with 2015, primarily due to an increase in personnel costs, an increase in transaction costs due to the acquisitions of the Abengoa ethanol plants and Fleischmann’s Vinegar and the consolidation of BioProcess Algae in the corporate activities’ segment.

Income Taxes

We recorded income tax expense of $7.9 million for 2016 compared with $6.2 million in 2015. The effective tax rate (calculated as the ratio of income tax expense to income before income taxes) was approximately 20.5% for 2016 compared with 29.1% for 2015. The decrease in the effective tax rate was due primarily to the impact of the noncontrolling interest in the partnership on the consolidated financial results, as well as a change in estimate related to our filing positions in various jurisdictions.

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 issuance of senior notes or equity. Our ability to access capital markets for debt under reasonable terms depends on our financial condition, credit ratings and market conditions. We believe that our ability to obtain financing at reasonable rates and history of consistent cash flow from operating activities provide a solid foundation to meet our future liquidity and capital resource requirements.

On December 31, 2017, we had $266.7 million in cash and equivalents, excluding restricted cash, consisting of $198.3 million available to our parent company and the remainder at our subsidiaries. We also had $391.9 million available under our revolving credit agreements, some of which were subject to restrictions or other lending conditions. Funds held by our subsidiaries are generally required for their ongoing operational needs and restricted from distribution. At December 31, 2017, our subsidiaries had approximately $142.8 million of net assets that were not available to us in the form of dividends, loans or advances due to restrictions contained in their credit facilities. As a result of the August 29, 2017 $500 million term loan agreement and related debt extinguishment at Green Plains Processing and Fleischmann’s Vinegar, we no longer consider certain subsidiaries to have restrictions on cash and asset distributions.

Net cash used in operating activities was $159.8 million in 2017 compared with net cash provided by operating activities of $85.2 million in 2016. Operating activities compared to the prior year were primarily affected by an increase in inventories and decreases in deferred and current income taxes. The changes in deferred and current income taxes were driven by the R&D Credits recognized during the second half of 2017, as well as newly enacted tax reform. Net cash used in investing activities was $128.5 million in 2017, compared to $572.6 million in 2016, due primarily to acquisitions of the cattle feeding operations, as well as capital expenditures at our existing ethanol plants and our vinegar operations and investments in joint ventures. Net cash provided by financing activities was $250.7 million in 2017 primarily due to the net proceeds from the term loan refinancing and additional working capital financing related to the growth in our cattle feeding operations. The decrease in net cash provided by financing activities in 2017 compared to 2016 was primarily due to the issuance of $170 million of 4.125% convertible senior notes in August 2016 and $135 million of debt to partially fund the acquisition of Fleischmann’s Vinegar. In addition, the partnership made net borrowings of $129 million during 2016, primarily to finance the acquisitions of the storage and transportation assets of the Hereford and Hopewell ethanol plants on January 1, 2016, and the Mount Vernon, Madison and York ethanol plants on September 23, 2016.

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

We incurred capital expenditures of $52.3 million in 2017 for projects, including expansion projects of approximately $13.1 million for ethanol production capacity and $13.5 million for vinegar production capacity and various other projects. The current projected estimate for capital spending for 2018 is approximately $80.0 million, which is subject to review prior to the initiation of any project. The budget includes additional expenditures for expansion projects at our operations, investments in joint ventures, as well as expenditures for various other maintenance projects, and is expected to be financed with available borrowings under our credit facilities and cash provided by operating activities.

Our business is highly sensitive to the price of commodities, particularly for corn, ethanol, distillers grains, corn oil, natural gas and cattle. 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. On December 31, 2017, we had $18.2 million in margin deposits for broker margin requirements. 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.

We have paid a quarterly cash dividend since August 2013 and anticipate declaring a cash dividend in future quarters on a regular basis. Future declarations of dividends, however, are subject to board approval and may be adjusted as our liquidity, business needs or market conditions change. On February 7, 2018, our board of directors declared a quarterly cash dividend of $0.12 per share. The dividend is payable on March 15, 2018, to shareholders of record at the close of business on February 23, 2018.

For each calendar quarter commencing with the quarter ended September 30, 2015, the partnership agreement requires us to distribute all available cash, as defined, to our partners 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 our general partner plus all or any portion of the cash on hand resulting from working capital borrowings made subsequent to the end of that quarter. On January 18, 2018, the board of directors of the general partner of the partnership declared a cash distribution of $0.47 per unit on outstanding common and subordinated units. The distribution is payable on February 9, 2018, to unitholders of record at the close of business on February 2, 2018.

In August 2014, we announced a share repurchase program of up to $100 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. During 2017, we purchased a total of 394,677 shares of common stock for approximately $6.7 million. To date, we have repurchased 909,667 shares of common stock for approximately $16.7 million under the program.

On August 25, 2016, the partnership filed a shelf registration statement on Form S-3 with the SEC, declared effective September 2, 2016, registering an indeterminate number of debt and equity securities with a total offering price not to exceed $500,000,250. The partnership also registered 13,513,500 common units, consisting of 4,389,642 common units and 9,123,858 common units that may be issued upon conversion of subordinated units, in each case, currently held by Green Plains.

On June 23, 2017, we filed an automatically effective registration statement on Form S-8 with the SEC, registering 1,110,000 shares of common stock for issuance under the 2009 Equity Incentive Plan.

We believe we have sufficient working capital for our existing operations. A sustained period of unprofitable operations, however, may strain our liquidity making it difficult to maintain compliance with our financing arrangements. We may sell additional equity or borrow capital to improve or preserve our liquidity, expand our business or build additional or acquire existing 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

We were in compliance with our debt covenants at December 31, 2017. Based on our forecasts and the current margin environment, we believe we will maintain compliance at each of our subsidiaries for the next twelve months or have sufficient liquidity available on a consolidated basis to resolve noncompliance. We cannot provide assurance that actual results will approximate our forecasts or that we will inject the necessary capital into a subsidiary to maintain compliance with its respective covenants. In the event a subsidiary is unable to comply with its debt covenants, the subsidiary's lenders may determine that an event of default has occurred, and following notice, the lenders may terminate the commitment and declare the unpaid balance due and payable.

Corporate Activities

On August 29, 2017, the company and substantially all of the company's subsidiaries, but not including Green Plains Partners and certain other entities as guarantors, entered into a $500 million term loan agreement (the "Term Loan Agreement") with BNP Paribas, as administrative agent and collateral agent (the "Term Loan Agent") and certain other financial institutions, which matures on August 29, 2023, and may be prepaid at any time without premium or penalty other than customary breakage costs with respect to Eurodollar-based loans or certain other limited circumstances in which event a 1.0% prepayment premium would be due.

The Term Loan Agreement requires principal payments of $1.25 million on the last day of each quarter, beginning on December 31, 2017, with a final installment payable on August 29, 2023, equal to the unpaid principal and interest balances of the Term Loan Agreement. Beginning in 2018, the credit facility also has a provision requiring the company to make special annual payments of 50% or 75% of its available free cash flow, subject to certain limitations. The term loan bears interest at a floating rate of a base rate plus a margin of 4.50% or LIBOR plus a margin of 5.50%.

The Term Loan Agreement is guaranteed by the Company and the Term Loan Obligors, and secured by substantially all of the assets of the Company and the Term Loan Obligors, including 17 ethanol production facilities with annual capacity of approximately 1.5 billion gallons, as well as the vinegar production facilities. The covenants of the Term Loan Agreement require the Company to maintain a maximum term debt to total term capitalization, each as defined in the Term Loan Agreement, at the end of each fiscal quarter of not more than 55.0% and a minimum interest coverage ratio, as defined, at the end of each fiscal quarter of not less than 1.25 to 1.0.

The Term Loan Agreement provides for customary events of default, which include (subject in certain cases to customary grace and cure periods), among others, the following: nonpayment of principal or interest; breach of covenants or other agreements in the Term Loan Agreement; defaults in failure to pay certain other indebtedness; and certain events of bankruptcy or insolvency. If any event of default occurs, the remaining principal balance and accrued interest on the Term Loan Agreement will become immediately due and payable.

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. Prior to March 1, 2022, the 4.125% notes are not convertible unless certain conditions are satisfied. 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 is subject to adjustment upon the occurrence of certain events, including when the quarterly cash dividend exceeds $0.12 per share. We may settle the 4.125% notes in cash, common stock or a combination of cash and common stock.

In September 2013, we issued $120.0 million of 3.25% convertible senior notes due in 2018, or 3.25% notes, which are senior, unsecured obligations with interest payable on April 1 and October 1 of each year. Prior to April 1, 2018, the 3.25% notes are not convertible unless certain conditions are satisfied. The conversion rate is subject to adjustment upon the occurrence of certain events, including when the quarterly cash dividend exceeds $0.04 per share. The conversion rate was recently adjusted as of December 31, 2017 to 50.2408 shares of common stock per $1,000 of principal, which is equal to a conversion price of approximately $19.90 per share. We may settle the 3.25% notes in cash, common stock or a combination of cash and common stock.

During the second quarter of 2017, we entered into several privately negotiated agreements with holders, on behalf of certain beneficial owners of our 3.25% notes. Under these agreements, 2,783,725 shares of our common stock and approximately $8.5 million in cash plus accrued but unpaid interest on the 3.25% notes, were exchanged for approximately $56.3 million in aggregate principal amount of the 3.25% notes. Common stock held as treasury shares were exchanged for the 3.25% notes. Following the closings of the agreements, $63.7 million aggregate principal amount of the 3.25% notes remain outstanding.

At issuance, we separately accounted for the liability and equity components of the convertible notes by bifurcating the gross proceeds between the indebtedness, or liability component, and the embedded conversion option, or equity component. This bifurcation was done by estimating an effective interest rate on the date of issuance for similar notes. The embedded conversion option was recorded in stockholders' equity. Since we did not exercise the embedded conversion option associated with the notes, pursuant to the guidance within ASC Topic 470, Debt, we recorded a loss upon extinguishment measured by the difference between the fair value and carrying value of the liability portion of the notes. As a result, we recorded a charge to interest expense in the consolidated financial statements of approximately $1.3 million during the three months ended June 30, 2017. This charge also included $0.6 million of unamortized debt issuance costs related to the principal balance extinguished. The remaining settlement consideration transferred was allocated to the reacquisition of the embedded conversion option and recognized as a reduction of additional paid-in capital.

Ethanol Production Segment

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

Agribusiness and Energy Services Segment

Green Plains Grain has a $125.0 million senior secured asset-based revolving credit facility to finance working capital up to the maximum commitment based on eligible collateral. The facility matures in July of 2019. This facility can be increased by up to $75.0 million with agent approval and up to $50.0 million for seasonal borrowings. Total commitments outstanding under the facility cannot exceed $250.0 million. At December 31, 2017, the outstanding principal balance was $75.0 million on the facility and the interest rate was 4.62%.

Green Plains Trade has a $300.0 million senior secured asset-based revolving credit facility to finance working capital up to the maximum commitment based on eligible collateral. The facility matures in July of 2022. This facility can be increased by up to $70.0 million with agent approval. At December 31, 2017, the outstanding principal balance was $180.3 million on the facility and the interest rate was 3.77%.

On July 28, 2017, we amended the credit facility, to increase the maximum commitment from $150.0 million to $300.0 million and extend the maturity date to July 28, 2022. The amended credit facility increases advance rates and

modifies the eligible inventory definitions to include additional commodities and locations. Advances are subject to variable interest rates equal to a daily LIBOR rate plus 2.25% or the base rate plus 1.25%. The unused portion of the credit facility is also subject to a commitment fee of 0.375% per annum.

Food and Ingredients Segment

Green Plains Cattle has a $425.0 million senior secured asset-based revolving credit facility to finance working capital up to the maximum commitment based on eligible collateral. The facility matures in April of 2020. This facility can be increased by up to $75.0 million with agent approval. At December 31, 2017, the outstanding principal balance was $270.9 million on the facility and our interest rate was 4.07%.

On April 28, 2017, we amended the revolving credit facility to fund the additional working capital requirements related to the acquisition of two cattle feeding operations located in Leoti, Kansas and Eckley, Colorado. The amendment increased the maximum commitment from $100.0 million to $200.0 million until July 31, 2017, at which time it increased to $300.0 million. The maturity date was extended from October 31, 2017 to April 30, 2020.

Advances under the revolving credit facility, as amended, are subject to variable interest rates equal to LIBOR plus 2.0% to 3.0% or the base rate plus 1.0% to 2.0%, depending on the preceding three months' excess borrowing availability. The amended credit facility also includes an accordion feature that enables the credit facility to be increased by up to $100.0 million with agent approval. The unused portion of the credit facility is also subject to a commitment fee of 0.20% to 0.30% per annum, depending on the preceding three months' excess borrowing availability. Interest is payable as required, but not less than quarterly in arrears and principal is due upon maturity.

The amended terms impose affirmative and negative covenants, including maintaining working capital of 15% of the commitment amount, tangible net worth of 20% of the commitment amount and a total debt to tangible net worth ratio of 3.50x. Capital expenditures are limited to $10.0 million per year under the credit facility, plus $10.0 million per year if funded by a contribution from the parent, plus unused amounts from the previous year.

On November 16, 2017, we amended the revolving credit facility, to increase the maximum commitment from $300.0 million to $425.0 million, with an additional $75.0 million available to Green Plains Cattle under an accordion feature. Additionally, the amendment increased the swing-line sublimit from $15.0 million to $20.0 million. All other terms and conditions of the credit facility remain the same.

Partnership Segment

Green Plains Partners, through a wholly owned subsidiary, has a $195.0 million revolving credit facility, which matures on July 1, 2020, to fund working capital, acquisitions, distributions, capital expenditures and other general partnership purposes. On October 27, 2017, Green Plains Operating Company accessed a portion of its available $100.0 million accordion feature to increase the revolving credit facility by $40.0 million, from $155.0 million to $195.0 million. At December 31, 2017, the outstanding principal balance of the facility was $126.9 million and our interest rate was 4.07%.

Refer to Note 11 – Debt included as part of the notes to consolidated financial statements for more information about our debt.

Contractual Obligations

Contractual obligations as of December 31, 2017 were as follows (in thousands):

	Payments Due By Period				
Contractual Obligations	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
Long-term and short-term debt obligations (1)	$ 1,413,309	$ 596,395	$ 139,620	$ 182,023	$ 495,271
Interest and fees on debt obligations (2)	281,231	72,190	94,828	82,706	31,507
Operating lease obligations (3)	109,147	30,966	41,584	18,085	18,512
Other	9,071	2,722	1,403	2,398	2,548

Purchase obligations					
Forward grain purchase contracts (4)	132,391	122,217	7,257	2,000	917
Other commodity purchase contracts (5)	170,777	170,777	-	-	-
Other	301	299	2	-	-
Total contractual obligations	$ 2,116,227	$ 995,566	$ 284,694	$ 287,212	$ 548,755

(1) Includes the current portion of long-term debt and excludes the effect of any debt discounts and issuance costs.
(2) Interest amounts are calculated over the terms of the loans using current interest rates, assuming scheduled principle and interest amounts are paid pursuant to the debt agreements. Includes administrative and/or commitment fees on debt obligations.
(3) Operating lease costs are primarily for railcars and office space.
(4) Purchase contracts represent index-priced and fixed-price contracts. Index purchase contracts are valued at current year-end prices.
(5) Includes fixed-price ethanol, dried distillers grains and natural gas purchase contracts.

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

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

Interest Rate Risk

We are exposed to interest rate risk through our loans which bear interest at variable rates. Interest rates on our variable-rate debt are based on the market rate for the lender’s prime rate or LIBOR. A 10% increase in interest rates would affect our interest cost by approximately $6.2 million per year. At December 31, 2017, we had $1.4 billion in debt, $1.2 billion of which had variable interest rates.

Refer to Note 11 – Debt included as part of the notes to consolidated financial statements for more information about our debt.

Commodity Price Risk

Our business is highly sensitive to commodity price risk, particularly for ethanol, distillers grains, corn oil, corn, natural gas and cattle. Corn prices are affected by weather conditions, yield, changes in domestic and global supply and demand, and government programs and policies. 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. 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. Distillers grains prices are impacted by livestock numbers on feed, prices for feed alternatives and supply, which is associated with ethanol plant production. Cattle prices are impacted by availability of feeder cattle, weather conditions, overall economic conditions, government regulations and packer processing disruptions.

To reduce the risk associated with fluctuations in the price of corn, natural gas, ethanol, distillers grains, corn oil and cattle, 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 and the New York Mercantile Exchange. We focus on locking in favorable operating margins, when available, using a model that continually monitors market prices for corn, natural gas and other inputs relative to the price for ethanol and distillers grains at each of our production facilities. We create offsetting positions using a combination of forward fixed-price purchases, sales contracts and derivative financial instruments. As a result, we frequently have gains on derivative financial instruments that are offset by losses on forward fixed-price physical contracts or inventories and vice versa. Our results are impacted by a mismatch of gains or losses associated with the derivative instrument during a reporting period when the physical commodity purchases or sale has not yet occurred. For the year ended December 31, 2017, revenues included net gains of $3.9 million and cost of goods sold included net gains of $23.7 million associated with derivative instruments.

Ethanol Production Segment

In the ethanol production segment, net gains and losses from settled derivative instruments are offset by physical commodity purchases or sales to achieve the intended operating margins. Our results are impacted when there is a mismatch of gains or losses associated with the derivative instrument during a reporting period when the physical commodity purchases or sale has not yet occurred.

Our exposure to market risk, which includes the impact of our risk management activities resulting from our fixed-price purchase and sale contracts and derivatives, is based on the estimated net income effect resulting from a hypothetical 10% change in price for the next 12 months starting on December 31, 2017, are as follows (in thousands):

Commodity	Estimated Total Volume Requirements for the Next 12 Months (1)	Unit of Measure	Net Income Effect of Approximate 10% Change in Price
Ethanol	1,470,000	Gallons	$ 158,378
Corn	518,000	Bushels	$ 143,409
Distillers grains	4,100	Tons (2)	$ 34,617
Corn Oil	359,000	Pounds	$ 7,100
Natural gas	41,700	MMBTU	$ 6,675

(1) Estimated volumes reflect anticipated expansion of production capacity at our ethanol plants and assumes 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, a portion of our inventories, physical purchase and sale contracts and derivatives are marked to market. 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.

Our daily net commodity position consists of inventories related to purchase and sale contracts and exchange-traded contracts. The fair value of our position was approximately $243 thousand for grain at December 31, 2017. Our market risk at that date, based on the estimated net income effect resulting from a hypothetical 10% change in price, was approximately $18 thousand.

Food and Ingredients Segment

In the food and ingredients segment, certain physical purchase and sale contracts and derivatives are marked to market. To reduce commodity price risk caused by market fluctuations for purchase and sale commitments of cattle, 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 purchase and sale contracts for cattle. 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.

Our daily net commodity position consists of inventories related to purchase and sale contracts and exchange-traded contracts. The fair value of our position subject to market risk was approximately $2.8 million for cattle based on market prices at December 31, 2017. Our market risk at that date, based on the estimated net income effect resulting from a hypothetical 10% change in price, was approximately $0.2 million.

Our daily net commodity position consists of inventories related to purchase and sale contracts and exchange-traded contracts. The fair value of our position subject to market risk was approximately $10.0 million for grain and other cattle feed based on market prices at December 31, 2017. Our market risk at that date, based on the estimated net income effect resulting from a hypothetical 10% change in price, was approximately $0.8 million.

Item 8. Financial Statements and Supplementary Data.

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

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

None.

Item 9A. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures designed to ensure information that must be disclosed in the reports we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to management, as appropriate, to allow timely decisions regarding required financial disclosure.

Under the supervision of and participation of our chief executive officer and chief financial officer, management carried out an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures as of December 31, 2017, as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act and concluded that our disclosure controls and procedures were effective.

Management's Annual Report on Internal Control over Financial Reporting

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

Under the supervision and participation of our chief executive officer and chief financial officer, management assessed the design and operating effectiveness of our internal control over financial reporting as of December 31, 2017, based on the Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. We completed the acquisition of a cattle feeding operation near Hereford, Texas on March 10, 2017 and two cattle feeding operations in Leoti, Kansas and Eckley, Colorado on May 16, 2017. Our management excluded from its assessment of the effectiveness of the company's internal control over financial reporting as of December 31, 2017, the acquired businesses' internal control over financial reporting associated with the acquired assets which represent approximately 8% of the company's consolidated total assets and approximately 3% of the company's consolidated total revenues as of and for the year ended December 31, 2017. Based on this assessment, management concluded that our internal control over financial reporting was effective as of December 31, 2017.

Changes in Internal Control over Financial Reporting

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

Report of Independent Registered Public Accounting Firm

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

Opinion on Internal Control Over Financial Reporting

We have audited Green Plains Inc. and subsidiaries' (the "Company") internal control over financial reporting as of December 31, 2017, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2017, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the consolidated balance sheets of the Company as of December 31, 2017 and 2016, the related consolidated statements of income, comprehensive income, stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2017, and the related notes and financial statement schedule listed in the Index in Item 15 (collectively, the consolidated financial statements), and our report dated February 14, 2018 expressed an unqualified opinion on those consolidated financial statements.

The Company completed the acquisition of a cattle feeding operation near Hereford, Texas on March 10, 2017 and two cattle feeding operations in Leoti, Kansas and Eckley, Colorado on May 16, 2017 (the "acquired businesses"), and management excluded from its assessment of the effectiveness of the Company's internal control over financial reporting as of December 31, 2017, the acquired businesses' internal control over financial reporting associated with approximately 8% of the Company's consolidated total assets and approximately 3% of the Company's consolidated total revenues as of and for the year ended December 31, 2017. Our audit of internal control over financial reporting of the company also excluded an evaluation of the internal control over financial reporting of the acquired businesses.

Basis for Opinion

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

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

audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

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

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

/s/ KPMG LLP

Omaha, Nebraska
February 14, 2018

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Item 9B. Other Information.

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

Information in our Proxy Statement for the 2018 Annual Meeting of Stockholders ("Proxy Statement") under "Information about the Board of Directors and Corporate Governance," "Proposal 1 – Election of Directors," "Executive Officers," and "Section 16(a) Beneficial Ownership Reporting Compliance" is incorporated by reference.

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

Item 11. Executive Compensation.

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

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

Information in the Proxy Statement under "Principal Shareholders," "Equity Compensation Plans" and "Executive Compensation" is incorporated by reference.

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

Information in the Proxy Statement under “Information about the Board of Directors and Corporate Governance” and “Certain Relationships and Related Party Transactions” is incorporated by reference.

Item 14. Principal Accounting Fees and Services.

Information in the Proxy Statement under “Independent Public Accountants” is incorporated by reference.

PART IV

Item 15. Exhibits, Financial Statement Schedules.

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

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Report of Independent Registered Public Accounting Firm	F-1
Consolidated Balance Sheets as of December 31, 2017 and 2016	F-2
Consolidated Statements of Income for the years-ended December 31, 2017, 2016 and 2015	F-3
Consolidated Statements of Comprehensive Income for the years-ended December 31, 2017, 2016 and 2015	F-4
Consolidated Statements of Stockholders' Equity for the years-ended December 31, 2017, 2016 and 2015	F-5
Consolidated Statements of Cash Flows for the years-ended December 31, 2017, 2016 and 2015	F-6
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(2) Financial Statement Schedules. The following condensed financial information and notes are filed as part of this annual report on Form 10-K.

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All other schedules have been omitted because they are not applicable or the required information is included in the consolidated financial statements or notes thereto.

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

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Exhibit No.	Description of Exhibit
2.1(a)	Asset Purchase Agreement by and among Ethanol Holding Company, LLC, Green Plains Renewable Energy, Inc., Green Plains Wood River LLC and Green Plains Fairmont LLC dated November 1, 2013 (Incorporated by reference to Exhibit 2.1 of the company's Current Report on Form 8-K filed November 25, 2013)
2.1(b)	Amendment to Asset Purchase Agreement by and among Ethanol Holding Company, LLC, Green Plains Renewable Energy, Inc., Green Plains Wood River LLC and Green Plains Fairmont LLC dated November 22, 2013 (Incorporated by reference to Exhibit 2.2 of the company's Current Report on Form 8-K filed November 25, 2013)
2.2	Membership Interest Purchase Agreement between Murphy Oil USA, Inc. and Green Plains Inc. dated October 28, 2015 (certain exhibits and disclosure schedules to this agreement have been omitted; Green Plains will furnish such exhibits and disclosure schedules to the SEC upon request) (Incorporated by reference to Exhibit 2.1 to the company's Current Report on Form 8-K dated November 12, 2015)
2.3(a)	Asset Purchase Agreement, dated June 12, 2016, by and among Green Plains Inc. and Abengoa Bioenergy of Illinois, LLC and Abengoa Bioenergy of Indiana, LLC (Incorporated by reference to Exhibit 2.1 to the company's Current Report on Form 8-K dated June 13, 2016)
2.3(b)	Amended and Restated Asset Purchase Agreement, dated August 25, 2016, by and among Green Plains Inc. and Abengoa Bioenergy Company, LLC (Incorporated by reference to Exhibit 2.1 to the company's Current Report on Form 8-K dated September 1, 2016)
2.4(a)	Asset Purchase Agreement, dated September 23, 2016, by and among Green Plains Inc., Green Plains Madison LLC, Green Plains Mount Vernon LLC, Green Plains York LLC, Green Plains Holdings LLC, Green Plains Partners LP, Green Plains Operating Company LLC, Green Plains Ethanol Storage LLC and Green Plains Logistics LLC (Incorporated by reference to Exhibit 2.1 to the company's Current Report on Form 8-K dated September 26, 2016)
2.4(b)	Amended and Restated Asset Purchase Agreement, dated August 25, 2016, by and among Green Plains Inc., Abengoa BioEnergy of Illinois, LLC and Abengoa BioEnergy of Indiana, LLC (Incorporated by reference to Exhibit 2.2 to the company's Current Report on Form 8-K dated September 26, 2016)

2.5	Stock Purchase Agreement, dated as of October 3, 2016, by and among Green Plains Inc., Green Plains II LLC, SCI Ingredients Holdings, Inc., Stone Canyon Industries LLC and other selling shareholders (Incorporated by reference to Exhibit 2.1 to the company's Current Report on Form 8-K dated October 3, 2016)
2.6	Asset Purchase Agreement, dated as of April 25, 2017, by and among Green Plains Cattle Company LLC, and Cargill Cattle Feeders, LLC. (Incorporated by reference to Exhibit 2.1 to the company's Current Report on Form 8-K dated April 26, 2017)
3.1(a)	Second Amended and Restated Articles of Incorporation of the Company (Incorporated by reference to Exhibit 3.1 of the company's Current Report on Form 8-K filed October 15, 2008)
3.1(b)	Articles of Amendment to Second Amended and Restated Articles of Incorporation of Green Plains Renewable Energy, Inc. (Incorporated by reference to Exhibit 3.1 of the company's Current Report on Form 8-K filed May 9, 2011)
3.1(c)	Second Articles of Amendment to Second Amended and Restated Articles of Incorporation of Green Plains Renewable Energy, Inc. (Incorporated by reference to Exhibit 3.1 of the company's Current Report on Form 8-K filed May 16, 2014)
3.2	Second Amended and Restated Bylaws of Green Plains Renewable Energy, Inc., dated August 14, 2012 (Incorporated by reference to Exhibit 3.1 of the company's Current Report on Form 8-K filed August 15, 2012)
4.1	Shareholders' Agreement by and among Green Plains Renewable Energy, Inc., each of the investors listed on Schedule A, and each of the existing shareholders and affiliates identified on Schedule B, dated May 7, 2008 (Incorporated by reference to Appendix F of the company's Registration Statement on Form S-4/A filed September 4, 2008)
4.2	Form of Senior Indenture (Incorporated by reference to Exhibit 4.5 of the company's Registration Statement on Form S-3/A filed December 30, 2009)
4.3	Form of Subordinated Indenture (Incorporated by reference to Exhibit 4.6 of the company's Registration Statement on Form S-3/A filed December 30, 2009)
4.4	Indenture relating to the 3.25% Convertible Senior Notes due 2018, dated as of September 20, 2013, between Green Plains Renewable Energy, Inc. and Willington Trust, National Association, including the form of Global Note attached as Exhibit A thereto (Incorporated by reference to Exhibit 4.1 to the company's Current Report on Form 8-K filed September 20, 2013)
4.5	Indenture relating to the 4.125% Convertible Senior Notes due 2022, dated as of August 15, 2016, between Green Plains Inc. and Wilmington Trust, National Association, including the form of Global Note attached as Exhibit A thereto (Incorporated by reference to Exhibit 4.1 to the company's Current Report on Form 8-K filed August 15, 2016)
*10.1	Amended and Restated Employment Agreement dated October 24, 2008, by and between the company and Jerry L. Peters (Incorporated by reference to Exhibit 10.1 of the company's Current Report on Form 8-K dated October 28, 2008)
*10.2	2007 Equity Incentive Plan (Incorporated by reference to Appendix A of the company's Definitive Proxy Statement filed March 27, 2007)
10.3	Form of Indemnification Agreement (Incorporated by reference to Exhibit 10.53 of the company's Registration Statement on Form S-4/A filed August 1, 2008)
*10.4(a)	Employment Agreement with Todd Becker (Incorporated by reference to Exhibit 10.54 of the company's Registration Statement on Form S-4/A filed August 1, 2008)
*10.4(b)	Amendment No. 1 to Employment Agreement with Todd Becker, dated December 18, 2009. (Incorporated by reference to Exhibit 10.7(b) of the company's Annual Report on Form 10-K filed February 24, 2010)

*10.5(a)	2009 Equity Incentive Plan (Incorporated by reference to Exhibit 10.1 of the company's Current Report on Form 8-K dated May 11, 2009)
*10.5(b)	Amendment No. 1 to the 2009 Equity Incentive Plan (Incorporated by reference to Appendix A of the company's Definitive Proxy Statement filed March 25, 2011)
*10.5(c)	Amendment No. 2 to the 2009 Equity Incentive Plan (Incorporated by reference to Appendix A of the company's Definitive Proxy Statement filed March 29, 2013)

*10.5(d)	Amended and Restated 2009 Equity Incentive Plan (Incorporated by reference to Exhibit 99.1 of the company's Registration Statement on Form S-8 filed June 23, 2017)
*10.5(e)	Form of Stock Option Award Agreement for 2009 Equity Incentive Plan (Incorporated by reference to Exhibit 10.19(b) of the company's Annual Report on Form 10-K filed February 24, 2010)
*10.5(f)	Form of Restricted Stock Award Agreement for 2009 Equity Incentive Plan (Incorporated by reference to Exhibit 10.19(c) of the company's Annual Report on Form 10-K/A (Amendment No. 1) filed February 25, 2010)
*10.5(g)	Form of Deferred Stock Unit Award Agreement for 2009 Equity Incentive Plan (Incorporated by reference to Exhibit 10.19(d) of the company's Annual Report on Form 10-K filed February 24, 2010)
10.6(a)	Second Amended and Restated Revolving Credit and Security Agreement dated April 26, 2013 by and among Green Plains Trade Group LLC and PNC Bank, National Association (as Lender and Agent) (Incorporated by reference to Exhibit 10.2 of the company's Quarterly Report on Form 10-Q filed May 2, 2013)
10.6(b)	Third Amended and Restated Revolving Credit and Security Agreement dated November 26, 2014 by and among Green Plains Trade Group LLC, the Lenders and PNC Bank, National Association (as Lender and Agent) (Incorporated by reference to Exhibit 10.1 of the company's Current Report on Form 8-K filed December 2, 2014)
10.6(c)	Fourth Amended and Restated Revolving Credit and Security Agreement dated July 28, 2017, among Green Plains Trade Group LLC, the Lenders and PNC Bank, National Association as Lender and Agent (Incorporated by reference to Exhibit 10.1 to the company's Current Report on Form 8-K dated July 31, 2017)
10.6(d)	First Amendment to Fourth Amended and Restated Revolving Credit and Security Agreement, dated as of August 29, 2017, among Green Plains Trade Group LLC and PNC Bank, National Association, as agent, and the lenders party to the Credit and Security Agreement (Incorporated by reference to Exhibit 10.4(a) to the company's Current Report on Form 8-K dated August 29, 2017)
10.6(e)	Revolving Credit Note dated April 26, 2013 by and among Green Plains Trade Group LLC and Citibank, N.A. (Incorporated by reference to Exhibit 10.2(b) of the company's Quarterly Report on Form 10-Q filed May 2, 2013)
10.6(f)	Revolving Credit Note dated April 26, 2013 by and among Green Plains Trade Group LLC and BMO Harris Bank N.A. (Incorporated by reference to Exhibit 10.2(c) of the company's Quarterly Report on Form 10-Q filed May 2, 2013)
10.6(g)	Revolving Credit Note dated April 26, 2013 by and among Green Plains Trade Group LLC and Alostar Bank of Commerce (Incorporated by reference to Exhibit 10.2(d) of the company's Quarterly Report on Form 10-Q filed May 2, 2013)
10.6(h)	Revolving Credit Note dated April 26, 2013 by and among Green Plains Trade Group LLC and Bank of America (Incorporated by reference to Exhibit 10.2(e) of the company's Quarterly Report on Form 10-Q filed May 2, 2013)
10.6(i)	Second Amended and Restated Credit Note dated April 26, 2013 by and among Green Plains Trade Group LLC and PNC Bank, National Association (Incorporated by reference to Exhibit 10.2(a) of the company's Quarterly Report on Form 10-Q filed May 2, 2013)
10.6(j)	ABL Intercreditor Agreement, dated as of August 29, 2017, among PNC Bank, National Association, as ABL Collateral Agent, and BNP Paribas, as Term Loan Collateral Agent, and acknowledged by Green Plains Trade Group LLC and the other ABL Grantors (Incorporated by reference to Exhibit 10.4(b) to the company's Current Report on Form 8-K dated August 29, 2017)
10.6(k)	

	Guaranty, dated as of August 29, 2017, in favor of PNC Bank, National Association, as agent (Incorporated by reference to Exhibit 10.4(c) to the company's Current Report on Form 8-K dated August 29, 2017)
*10.7	Umbrella Short-Term Incentive Plan (Incorporated by reference to Appendix A of the company's Proxy Statement filed April 3, 2014)
*10.8	Director Compensation effective May 11, 2016 (Incorporated by reference to Exhibit 10.4 of the company's Quarterly Report on Form 10-Q filed August 3, 2016)
*10.9	Director Compensation effective November 14, 2017

*10.10	Employment Agreement dated March 4, 2011 by and between the company and Jeffrey S. Briggs (Incorporated by reference to Exhibit 10.1 of the company's Current Report on Form 8-K filed March 8, 2011)
*10.11	Employment Agreement dated March 4, 2011 by and between the company and Carl S. (Steve) Bleyl (Incorporated by reference to Exhibit 10.2 of the company's Current Report on Form 8-K filed March 8, 2011)
10.12(a)	Credit Agreement dated October 28, 2011 by and among Green Plains Grain Company LLC, Green Plains Grain Company TN LLC, Green Plains Essex Inc., BNP Paribas Securities Corp. as Lead Arranger, Rabo Agrifinance, Inc. as Syndication Agent, ABN AMRO Capital USA LLC as Documentation Agent and BNP Paribas as Administrative Agent (Incorporated by reference to Exhibit 10.1 of the company's Current Report on Form 8-K filed November 3, 2011)
10.12(b)	Security Agreement dated October 28, 2011 by and among Green Plains Grain Company LLC, Green Plains Grain Company TN LLC, Green Plains Essex Inc. and BNP Paribas (Incorporated by reference to Exhibit 10.2 of the company's Current Report on Form 8-K filed November 3, 2011)
10.12(c)	Promissory Note dated October 28, 2011 by and among Green Plains Grain Company LLC, Green Plains Grain Company TN LLC, Green Plains Essex Inc. and Bank of Oklahoma (Incorporated by reference to Exhibit 10.3 of the company's Current Report on Form 8-K filed November 3, 2011)
10.12(d)	Promissory Note dated October 28, 2011 by and among Green Plains Grain Company LLC, Green Plains Grain Company TN LLC, Green Plains Essex Inc. and U.S. Bank National Association (Incorporated by reference to Exhibit 10.4 of the company's Current Report on Form 8-K filed November 3, 2011)
10.12(e)	Promissory Note dated October 28, 2011 by and among Green Plains Grain Company LLC, Green Plains Grain Company TN LLC, Green Plains Essex Inc. and Farm Credit Bank of Texas (Incorporated by reference to Exhibit 10.5 of the company's Current Report on Form 8-K filed November 3, 2011)
10.12(f)	First Amendment to Credit Agreement dated January 6, 2012 by and among Green Plains Grain Company LLC, Green Plains Grain Company TN LLC, Green Plains Essex Inc., BNP Paribas and the Required Lenders (Incorporated by reference to Exhibit 10.26(k) of the company's Annual Report on Form 10-K filed February 17, 2012)
10.12(g)	Second Amendment to Credit Agreement, dated October 26, 2012, by and among Green Plains Grain Company LLC, Green Plains Grain Company TN LLC, Green Plains Essex, Inc., BNP Paribas, as the administrative agent under the Credit Agreement, and the lenders party to the Credit Agreement (Incorporated by reference to Exhibit 10.5 of the company's Quarterly Report on Form 10-Q filed November 1, 2012)
10.12(h)	Third Amendment to Credit Agreement, dated August 27, 2013, by and among Green Plains Grain Company LLC, Green Plains Grain Company TN LLC, Green Plains Essex, Inc., BNP Paribas, as the administrative agent under the Credit Agreement, and the lenders party to the Credit Agreement (Incorporated by reference to Exhibit 10.3 of the company's Quarterly Report on Form 10-Q filed October 31, 2013)
10.12(i)	Fourth Amendment to Credit Agreement, dated August 8, 2014, by and among Green Plains Grain Company LLC (including in its capacity as successor by merger to Green Plains Essex Inc.), Green Plains Grain Company TN LLC, BNP Paribas, as the administrative agent under the Credit Agreement, and the lenders party to the Credit Agreement (Incorporated by reference to Exhibit 10.3 of the company's Quarterly Report on Form 10-Q filed October 30, 2014)
10.12(j)	Fifth Amendment to Credit Agreement, dated June 1, 2015, by and among Green Plains Grain Company LLC (including in its capacity as successor by merger to Green Plains Essex Inc.), Green Plains Grain Company TN LLC, BNP Paribas, as the administrative agent under the Credit Agreement, and the lenders party to the Credit Agreement (Incorporated by reference to Exhibit 10.5 of the company's Quarterly Report

	on Form 10-Q filed August 3, 2016)
10.12(k)	Sixth Amendment to Credit Agreement, dated January 5, 2016, by and among Green Plains Grain Company LLC (including in its capacity as successor by merger to Green Plains Essex Inc.), Green Plains Grain Company TN LLC, BNP Paribas, as the administrative agent under the Credit Agreement, and the lenders party to the Credit Agreement (Incorporated by reference to Exhibit 10.6 of the company's Quarterly Report on Form 10-Q filed August 3, 2016)

10.12(l)	Seventh Amendment to Credit Agreement, dated July 27, 2016, by and among Green Plains Grain Company LLC (including in its capacity as successor by merger to Green Plains Essex Inc.), Green Plains Grain Company TN LLC, BNP Paribas, as the administrative agent under the Credit Agreement, and the lenders party to the Credit Agreement (Incorporated by reference to Exhibit 10.7 of the company's Quarterly Report on Form 10-Q filed August 3, 2016)
10.12(m)	Eighth Amendment to Credit Agreement, dated as of August 29, 2017, among Green Plains Grain Company and BNP Paribas, as Administrative Agent, and the lenders party to the Credit Agreement (Incorporated by reference to Exhibit 10.3(a) to the company's Current Report on Form 8-K dated August 29, 2017)
10.12(n)	ABL Intercreditor Agreement, dated as of August 29, 2017, among BNP Paribas, as ABL Collateral Agent, and BNP Paribas, as Term Loan Collateral Agent, and acknowledged by Green Plains Grain Company LLC and the other ABL Grantors (Incorporated by reference to Exhibit 10.3(b) to the company's Current Report on Form 8-K dated August 29, 2017)
10.12(o)	Guaranty, dated as of August 29, 2017, in favor of BNP Paribas, as administrative agent (Incorporated by reference to Exhibit 10.3(c) to the company's Current Report on Form 8-K dated August 29, 2017)
*10.13	Employment Agreement by and between Green Plains Renewable Energy, Inc. and Patrich Simpkins dated April 1, 2012 (Incorporated by reference to Exhibit 10.2 of the company's Quarterly Report on Form 10-Q filed May 1, 2014)
*10.14	Employment Agreement with John Neppl (Incorporated by reference to Exhibit 10.1 to the company's Current Report on Form 8-K dated September 5, 2017)
10.15(a)	Term Loan Agreement, dated as of June 10, 2014, among Green Plains Processing, LLC, as Borrower, the Lenders Party Hereto, BNP Paribas, as Administrative Agent and as Collateral Agent, and BMO Capital Markets and BNP Paribas Securities Corp., as Joint Lead Arrangers and Joint Book Runners (Incorporated by reference to Exhibit 10.1 to the company's Current Report on Form 8-K dated June 12, 2014)
10.15(b)	Guaranty - Green Plains Inc. (Incorporated by reference to Exhibit 10.2 to the company's Current Report on Form 8-K dated June 12, 2014)
10.15(c)	Guaranty - Green Plains Processing Subsidiaries (Incorporated by reference to Exhibit 10.3 to the company's Current Report on Form 8-K dated June 12, 2014)
10.15(d)	Pledge Agreement (Incorporated by reference to Exhibit 10.4 to the company's Current Report on Form 8-K dated June 12, 2014)
10.15(e)	Security Agreement (Incorporated by reference to Exhibit 10.5 to the company's Current Report on Form 8-K dated June 12, 2014)
10.15(f)	Deed of Trust, Assignment of Leases and Rents, Security Agreement and Fixture Filing Statement by Green Plains Atkinson LLC (Incorporated by reference to Exhibit 10.6 to the company's Current Report on Form 8-K dated June 12, 2014)
10.15(g)	Deed of Trust, Assignment of Leases and Rents, Security Agreement and Fixture Filing Statement by Green Plains Central City LLC (Incorporated by reference to Exhibit 10.7 to the company's Current Report on Form 8-K dated June 12, 2014)
10.15(h)	Deed of Trust, Assignment of Leases and Rents, Security Agreement and Fixture Filing Statement by Green Plains Ord LLC (Incorporated by reference to Exhibit 10.8 to the company's Current Report on Form 8-K dated June 12, 2014)
10.15(i)	Mortgage, Assignment of Leases and Rents, Security Agreement and Fixture Filing Statement by Green Plains Bluffton LLC (Incorporated by reference to Exhibit 10.9 to the company's Current Report on Form 8-K dated June 12, 2014)
10.15(j)	Mortgage, Assignment of Leases and Rents, Security Agreement and Fixture Filing Statement by Green Plains Otter Tail LLC (Incorporated by reference to Exhibit 10.10 to the company's Current Report on Form

	8-K dated June 12, 2014)
10.15(k)	Mortgage, Assignment of Leases and Rents, Security Agreement and Fixture Filing Statement by Green Plains Shenandoah LLC (Incorporated by reference to Exhibit 10.11 to the company's Current Report on Form 8-K dated June 12, 2014)

10.15(l)	First Amendment to Term Loan Agreement, dated as of June 11, 2015, among Green Plains as Borrower, the Lenders Party Hereto, BNP Paribas, as Administrative Agent and as Collateral Agent, and BMO Capital Markets and BNP Paribas Securities Corp., as Joint Lead Arrangers and Joint Book Runners (Incorporated by reference to Exhibit 10.1 to the company's Current Report on Form 8-K dated June 16, 2015)
10.15(m)	Second Amendment to Term Loan Agreement, dated as of June 11, 2015, by and between Green Plains Processing, BNP Paribas, as Administrative Agent and Collateral Agent and as a Lender (Incorporated by reference to Exhibit 10.2 to the company's Current Report on Form 8-K dated June 16, 2015)
10.15(n)	Joinder Agreement (Incorporated by reference to Exhibit 10.3 to the company's Current Report on Form 8-K dated June 16, 2015)
10.15(o)	Incremental Joinder Agreement, dated October 27, 2017, among Green Plains Operating Company LLC and Bank of America, as Administrative (Incorporated by reference to Exhibit 10.8 to the company's Quarterly Report on Form 10-Q dated November 2, 2017)
10.15(p)	Mortgage, Assignment of Leases and Rents, Security Agreement and Fixture Filing Statement by Green Plains Fairmont LLC, as mortgagor, to and for the benefit of BNP Paribas (Incorporated by reference to Exhibit 10.4 to the company's Current Report on Form 8-K dated June 16, 2015)
10.15(q)	Mortgage, Assignment of Leases and Rents, Security Agreement and Fixture Filing Statement by Green Plains Holdings II LLC, as mortgagor, to and for the benefit of BNP Paribas (Incorporated by reference to Exhibit 10.5 to the company's Current Report on Form 8-K dated June 16, 2015)
10.15(r)	Mortgage by and from Green Plains Holdings II LLC, as mortgagor, to and for the benefit of BNP Paribas (Incorporated by reference to Exhibit 10.6 to the company's Current Report on Form 8-K dated June 16, 2015)
10.15(s)	Deed of Trust, Assignment of Leases and Rents, Security Agreement and Fixture Filing by and from Green Plains Obion LLC, as trustor, to the trustee named therein for the benefit of BNP Paribas (Incorporated by reference to Exhibit 10.7 to the company's Current Report on Form 8-K dated June 16, 2015)
10.15(t)	Mortgage, Assignment of Leases and Rents, Security Agreement and Fixture Filing Statement by Green Plains Superior LLC, as mortgagor, to and for the benefit of BNP Paribas (Incorporated by reference to Exhibit 10.8 to the company's Current Report on Form 8-K dated June 16, 2015)
10.15(u)	Deed of Trust, Assignment of Leases and Rents, Security Agreement and Fixture Filing Statement by and from Green Plains Wood River LLC, as trustor, to the trustee named therein for the benefit of BNP Paribas (Incorporated by reference to Exhibit 10.9 to the company's Current Report on Form 8-K dated June 16, 2015)
10.15(v)	Amendment to Mortgage, Assignment of Leases and Rents, Security Agreement and Fixture Filing Statement by Green Plains Otter Tail LLC, as mortgagor, to and for the benefit of BNP Paribas (Incorporated by reference to Exhibit 10.10 to the company's Current Report on Form 8-K dated June 16, 2015)
10.15(w)	Amendment to Mortgage, Assignment of Leases and Rents, Security Agreement and Fixture Filing Statement by Green Plains Bluffton LLC, as mortgagor, to and for the benefit of BNP Paribas (Incorporated by reference to Exhibit 10.11 to the company's Current Report on Form 8-K dated June 16, 2015)
10.15(x)	Amendment to Deed of Trust, Assignment of Leases and Rents, Security Agreement and Fixture Filing Statement by and from Green Plains Atkinson LLC, as trustor, to the trustee named therein for the benefit of BNP Paribas (Incorporated by reference to Exhibit 10.12 to the company's Current Report on Form 8-K dated June 16, 2015)
10.15(y)	Amendment to Deed of Trust, Assignment of Leases and Rents, Security Agreement and Fixture Filing Statement by and from Green Plains Central City LLC, as trustor, to the trustee named therein for the benefit of BNP Paribas (Incorporated by reference to Exhibit 10.13 to the company's Current Report on

Form 8-K dated June 16, 2015)

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10.15(z)	Amendment to Deed of Trust, Assignment of Leases and Rents, Security Agreement and Fixture Filing Statement by and from Green Plains Ord LLC, as trustor, to the trustee named therein for the benefit of BNP Paribas (Incorporated by reference to Exhibit 10.14 to the company's Current Report on Form 8-K dated June 16, 2015)
10.15(aa)	Amendment to Mortgage, Assignment of Leases and Rents, Security Agreement and Fixture Filing Statement by Green Plains Shenandoah LLC, as mortgagor, to and for the benefit of BNP Paribas (Incorporated by reference to Exhibit 10.15 to the company's Current Report on Form 8-K dated June 16, 2015)
10.16(a)	Credit Agreement dated December 3, 2014 among Green Plains Cattle Company, LLC, Bank of the West and ING Capital LLC, as Joint Administrative Agents, and the lenders party to the Credit Agreement (Incorporated by reference to Exhibit 10.1 to the company's Current Report on Form 8-K dated December 5, 2014)
10.16(b)	Security and Pledge Agreement dated December 3, 2014 among Green Plains Cattle Company, LLC, and Bank of the West and ING Capital LLC in their capacity as Joint Administrative Agents (Incorporated by reference to Exhibit 10.2 to the company's Current Report on Form 8-K dated December 5, 2014)
10.16(c)	Second Amendment to the Credit Agreement, dated as of April 28, 2017, by and among Green Plains Cattle Company LLC and Bank of the West and ING Capital LLC. (joint administrative agents for lenders). (Incorporated by reference to Exhibit 10.1 to the company's Current Report on Form 8-K dated May 1, 2017)
10.16(d)	Third Amendment to the Credit Agreement, dated June 29, 2017, among Green Plains Cattle Company LLC, Bank of the West and ING Capital LLC, as Joint Administrative Agents, and the lenders party to the Credit Agreement (Incorporated by reference to Exhibit 10.2 of the company's Quarterly Report on Form 10-Q filed August 3, 2017)
10.16(e)	Fourth Amendment to the Credit Agreement, dated as of August 29, 2017, among Green Plains Cattle Company LLC, Bank of the West and ING Capital LLC, as Joint Administrative Agents, and the lenders party to the Credit Agreement (Incorporated by reference to Exhibit 10.2(a) to the company's Current Report on Form 8-K dated August 29, 2017)
10.16(f)	Fifth Amendment to the Credit Agreement, dated as of November 16, 2017, among Green Plains Cattle Company LLC, Bank of the West and ING Capital LLC, as Joint Administrative Agents, and the lenders party to the Credit Agreement (Incorporated by reference to Exhibit 10.1 to the company's Current Report on Form 8-K dated November 17, 2017)
10.16(g)	ABL Intercreditor Agreement, dated as of August 29, 2017, among Bank of the West and ING Capital LLC, as Joint ABL Collateral Agent, and BNP Paribas, as Term Loan Collateral Agent, and acknowledged by Green Plains Cattle Company LLC and the other ABL Grantors (Incorporated by reference to Exhibit 10.2(b) to the company's Current Report on Form 8-K dated August 29, 2017)
10.16(h)	Guaranty, dated as of August 29, 2017, in favor of Bank of the West and ING Capital LLC, as joint administrative agents (Incorporated by reference to Exhibit 10.2(c) to the company's Current Report on Form 8-K dated August 29, 2017)
10.17	Contribution, Conveyance and Assumption Agreement, dated July 1, 2015, by and among Green Plains Inc., Green Plains Obion LLC, Green Plains Trucking LLC, Green Plains Holdings LLC, Green Plains Partners LP and Green Plains Operating Company LLC (Incorporated by reference to Exhibit 10.1 to the company's Current Report on Form 8-K dated July 6, 2015)
10.18(a)	Omnibus Agreement, dated July 1, 2015, by and among Green Plains Inc., Green Plains Holdings LLC, Green Plains Partners LP and Green Plains Operating Company LLC (Incorporated by reference to Exhibit 10.2 to the company's Current Report on Form 8-K dated July 6, 2015)

10.18(b)	First Amendment to the Omnibus Agreement, dated January 1, 2016, by and among Green Plains Inc., Green Plains Holdings LLC, Green Plains Partners LP and Green Plains Operating Company LLC (Incorporated by reference to Exhibit 10.22(b) to the company's Annual Report on Form 10-K for the year ended December 31, 2015)
10.18(c)	Second Amendment to the Omnibus Agreement, dated September 23, 2016, by and among Green Plains Inc., Green Plains Partners LP, Green Plains Holdings LLC and Green Plains Operating Company LLC (Incorporated by reference to Exhibit 10.1 to the company's Current Report on Form 8-K dated September 26, 2016)

10.19(a)	Operational Services and Secondment Agreement, dated July 1, 2015, by and between Green Plains Inc. and Green Plains Holdings LLC (Incorporated by reference to Exhibit 10.3 to the company's Current Report on Form 8-K dated July 6, 2015)
10.19(b)	Amendment No. 1 to the Operational Services and Secondment Agreement, dated January 1, 2016, by and between Green Plains Inc. and Green Plains Holdings LLC (Incorporated by reference to Exhibit 10.23(b) to the company's Annual Report on Form 10-K for the year ended December 31, 2015)
10.19(c)	Amendment No. 2 to Operational Services and Secondment Agreement, dated September 23, 2016, between Green Plains Inc. and Green Plains Holdings LLC (Incorporated by reference to Exhibit 10.2 to the company's Current Report on Form 8-K dated September 26, 2016)
10.20(a)	Rail Transportation Services Agreement, dated July 1, 2015, by and between Green Plains Logistics LLC and Green Plains Trade Group LLC (Incorporated by reference to Exhibit 10.4 to the company's Current Report on Form 8-K dated July 6, 2015)
10.20(b)	Amendment No. 1 to Rail Transportation Services Agreement, dated September 1, 2015, by and between Green Plains Logistics LLC and Green Plains Trade Group LLC (Incorporated by reference to Exhibit 10.1 of the company's Quarterly Report on Form 10-Q filed August 3, 2016)
10.20(c)	Correction to Rail Transportation Services Agreement, dated May 12, 2016, by and between Green Plains Logistics LLC and Green Plains Trade Group LLC (Incorporated by reference to Exhibit 10.3 of the company's Quarterly Report on Form 10-Q filed August 3, 2016)
10.20(d)	Amendment No. 2 to Rail Transportation Services Agreement, dated November 30, 2016 (Incorporated by reference to Exhibit 10.1 to the company's Current Report on Form 8-K dated December 1, 2016)
10.21(a)	Ethanol Storage and Throughput Agreement, dated July 1, 2015, by and between Green Plains Ethanol Storage LLC and Green Plains Trade Group LLC (Incorporated by reference to Exhibit 10.5 to the company's Current Report on Form 8-K dated July 6, 2015)
10.21(b)	Amendment No. 1 to the Ethanol Storage and Throughput Agreement, dated January 1, 2016, by and between Green Plains Ethanol Storage LLC and Green Plains Trade Group LLC (Incorporated by reference to Exhibit 10.25(b) to the company's Annual Report on Form 10-K for the year ended December 31, 2015)
10.21(c)	Clarifying Amendment to Ethanol Storage and Throughput Agreement, dated January 4, 2016, by and between Green Plains Ethanol Storage LLC and Green Plains Trade Group LLC (Incorporated by reference to Exhibit 10.2 of the company's Quarterly Report on Form 10-Q filed August 3, 2016)
10.21(d)	Amendment No. 2 to Ethanol Storage and Throughput Agreement, dated September 23, 2016, by and between Green Plains Ethanol Storage LLC and Green Plains Trade Group LLC (Incorporated by reference to Exhibit 10.3 to the company's Current Report on Form 8-K dated September 26, 2016)
10.22	Credit Agreement, dated July 1, 2015, by and among Green Plains Operating Company LLC, as the Borrower, the subsidiaries of the Borrower identified therein, Bank of America, N.A., and the other lenders party thereto (Incorporated by reference to Exhibit 10.6 to the company's Current Report on Form 8-K dated July 6, 2015)
10.23	Asset Purchase Agreement, dated January 1, 2016, by and among Green Plains Inc., Green Plains Hereford LLC, Green Plains Hopewell LLC, Green Plains Holdings LLC, Green Plains Partners LP, Green Plains Operating Company LLC, Green Plains Ethanol Storage LLC and Green Plains Logistics LLC (Incorporated by reference to Exhibit 10.27 to the company's Annual Report on Form 10-K for the year ended December 31, 2015)
10.24(a)	Credit Agreement, dated as of October 3, 2016, by and among Green Plains II LLC, Green Plains I LLC (as borrower and guarantor) and Maranon Capital, L.P. (as agent for lenders). (Incorporated by reference to Exhibit 10.1(a) to the company's Current Report on Form 8-K dated October 3, 2016)
10.24(b)	

Term Notes, dated as of October 3, 2016, by and among Green Plains II LLC (as borrower), Northwestern Mutual Life Insurance Company, Axa Equitable Life Insurance Company, Metropolitan Life Insurance Company and MetLife Insurance Company USA (as lenders) and Maranon Capital, L.P. (as agent for lenders). (Incorporated by reference to Exhibit 10.1(b) to the company's Current Report on Form 8-K dated October 3, 2016)

10.24(c)	Revolving Notes, dated as of October 3, 2016, by and among Green Plains II LLC (as borrower), Northwestern Mutual Life Insurance Company, Metropolitan Life Insurance Company (as lenders) and Maranon Capital, L.P. (as agent for lenders). (Incorporated by reference to Exhibit 10.1(c) to the company's Current Report on Form 8-K dated October 3, 2016)
10.24(d)	Borrower Joinder to Credit Agreement and Notes, dated as of October 3, 2016, by and among SCI Ingredients Holdings, Inc., FVC Intermediate Holdings, Inc., Fleischmann's Vinegar Company, Inc., FVC Houston, Inc. (as new borrowers) and Maranon Capital, L.P. (as agent for lenders). (Incorporated by reference to Exhibit 10.1(d) to the company's Current Report on Form 8-K dated October 3, 2016)
10.24(e)	Security Agreement, dated as of October 3, 2016, by and among Green Plains II LLC, Green Plains I LLC (as borrowers and guarantor) and Maranon Capital, L.P. (as agent for lenders). (Incorporated by reference to Exhibit 10.1(e) to the company's Current Report on Form 8-K dated October 3, 2016)
10.24(f)	Joinder Agreement to Security Agreement, dated as of October 3, 2016, by and among SCI Ingredients Holdings, Inc., FVC Intermediate Holdings, Inc., Fleischmann's Vinegar Company, Inc., FVC Houston, Inc. and Maranon Capital, L.P. (as agent for lenders). (Incorporated by reference to Exhibit 10.1(f) to the company's Current Report on Form 8-K dated October 3, 2016)
10.24(g)	Pledge Agreement, dated as of October 3, 2016, by and among Green Plains II LLC, Green Plains I LLC (as pledgors) and Maranon Capital, L.P. (as agent for lenders). (Incorporated by reference to Exhibit 10.1(g) to the company's Current Report on Form 8-K dated October 3, 2016)
10.24(h)	Pledge Supplement, dated as of October 3, 2016, by and among Green Plains II LLC and each Pledgor and Maranon Capital, L.P. (as agent for lenders). (Incorporated by reference to Exhibit 10.1(h) to the company's Current Report on Form 8-K dated October 3, 2016)
10.24(i)	Joinder to Pledge Agreement, dated as of October 3, 2016, by and among SCI Ingredients Holdings, Inc., FVC Intermediate Holdings, Inc., Fleischmann's Vinegar Company, Inc., FVC Houston, Inc. (as new pledgers) and Maranon Capital, L.P. (as agent for lenders). (Incorporated by reference to Exhibit 10.1(i) to the company's Current Report on Form 8-K dated October 3, 2016)
10.24(j)	Mortgage, Security Agreement, Assignment of Leases and Rents and Fixture Filing Statement by Fleischmann's Vinegar Company, Inc., as mortgagor, to and for the benefit of Maranon Capital, L.P. (State of Alabama) (Incorporated by reference to Exhibit 10.22(j) to the company's Annual Report on Form 10-K for the year ended December 31, 2016)
10.24(k)	Deed of Trust, Security Agreement, Assignment of Leases and Rents and Fixture Filing by Fleischmann's Vinegar Company, Inc., as mortgagor, to and for the benefit of Maranon Capital, L.P. (State of California) (Incorporated by reference to Exhibit 10.22(k) to the company's Annual Report on Form 10-K for the year ended December 31, 2016)
10.24(l)	Mortgage, Security Agreement, Assignment of Leases and Rents and Fixture Filing Statement by Fleischmann's Vinegar Company, Inc., as mortgagor, to and for the benefit of Maranon Capital, L.P. (State of Illinois) (Incorporated by reference to Exhibit 10.22(l) to the company's Annual Report on Form 10-K for the year ended December 31, 2016)
10.24(m)	Deed of Trust, Security Agreement, Assignment of Leases and Rents and Fixture Filing by Fleischmann's Vinegar Company, Inc., as mortgagor, to and for the benefit of Maranon Capital, L.P. (State of Maryland) (Incorporated by reference to Exhibit 10.22(m) to the company's Annual Report on Form 10-K for the year ended December 31, 2016)
10.24(n)	Deed of Trust, Security Agreement, Assignment of Leases and Rents and Fixture Filing by Fleischmann's Vinegar Company, Inc., as mortgagor, to and for the benefit of Maranon Capital, L.P. (State of Missouri) (Incorporated by reference to Exhibit 10.22(n) to the company's Annual Report on Form 10-K for the year ended December 31, 2016)

10.24(o)	Mortgage, Security Agreement, Assignment of Leases and Rents and Fixture Filing Statement by Fleischmann's Vinegar Company, Inc., as mortgagor, to and for the benefit of Maranon Capital, L.P. (State of New York) (Incorporated by reference to Exhibit 10.22(o) to the company's Annual Report on Form 10-K for the year ended December 31, 2016)
10.25(a)	Term Loan Agreement, dated as of August 29, 2017, among Green Plains Inc., BNP Paribas, as administrative agent and collateral agent and BNP Paribas Securities Corp., BMO Capital Markets Corp. and Merrill Lynch, Pierce, Fenner & Smith Incorporated, as joint lead arrangers and joint book runners (Incorporated by reference to Exhibit 10.1(a) to the company's Current Report on Form 8-K dated August 29, 2017)

10.25(b)	First Amendment to Term Loan Agreement, dated October 16, 2017, among Green Plains, Inc. and BNP Paribas, as administrative agent and collateral agent (Incorporated by reference to Exhibit 10.7 to the company's Quarterly Report on Form 10-Q dated November 2, 2017)
10.25(c)	Guaranty, dated as of August 29, 2017, in favor of BNP Paribas, as collateral agent and administrative agent, and the other lenders party to the Term Loan Agreement (Incorporated by reference to Exhibit 10.1(b) to the company's Current Report on Form 8-K dated August 29, 2017)
10.25(d)	Pledge Agreement, dated as of August 29, 2017, among Green Plains Inc., its subsidiaries and BNP Paribas, as collateral agent (Incorporated by reference to Exhibit 10.1(c) to the company's Current Report on Form 8-K dated August 29, 2017)
10.25(e)	Security Agreement, dated as of August 29, 2017, among Green Plains Inc., its subsidiaries and BNP Paribas, as collateral agent (Incorporated by reference to Exhibit 10.1(d) to the company's Current Report on Form 8-K dated August 29, 2017)
10.25(f)	Term Loan Intercreditor and Collateral Agency Agreement, dated as of August 29, 2017, among BNP Paribas, as Term Loan Collateral Agent, BNP Paribas, as Pari Passu Collateral Agent, Bank of the West and ING Capital LLC, as ABL-Cattle Agent, BNP Paribas, as ABL-Grain Agent, PNC Bank, National Association, as ABL-Trade Agent, and acknowledged by Green Plains Inc. and new grantors (Incorporated by reference to Exhibit 10.1(e) to the company's Current Report on Form 8-K dated August 29, 2017)
21.1	Schedule of Subsidiaries
23.1	Consent of KPMG LLP
31.1	Certification of Chief Executive Officer pursuant to Rule 13a-14(a) and Section 302 of the Sarbanes-Oxley Act of 2002
31.2	Certification of Chief Financial Officer pursuant to Rule 13a-14(a) and Section 302 of the Sarbanes-Oxley Act of 2002
32.1	Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.2	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101	The following information from Green Plains Inc.'s Annual Report on Form 10-K for the annual period ended December 31, 2017, formatted in Extensible Business Reporting Language (XBRL): (i) the Consolidated Balance Sheets, (ii) the Consolidated Statements of Income, (iii) the Consolidated Statements of Comprehensive Income (iv) the Consolidated Statements of Stockholders' Equity (v) the Consolidated Statements of Cash Flows and (vi) the Notes to Consolidated Financial Statements and Financial Statement Schedule.

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* Represents management compensatory contracts

Item 16. Form 10-K Summary.

None.

SIGNATURES

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

GREEN PLAINS INC.

(Registrant)

Date: February 14, 2018 By: /s/ Todd A. Becker

Todd A. Becker

President and Chief Executive Officer

(Principal Executive Officer)

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

Signature	Title	Date
/s/ Todd A. Becker Todd A. Becker	President and Chief Executive Officer (Principal Executive Officer) and Director	February 14, 2018
/s/ John W. Neppl John W. Neppl	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	February 14, 2018

/s/ Wayne B. Hoovestol Wayne B. Hoovestol	Chairman of the Board	February 14, 2018
/s/ Jim Anderson Jim Anderson	Director	February 14, 2018
/s/ James F. Crowley James F. Crowley	Director	February 14, 2018
/s/ S. Eugene Edwards S. Eugene Edwards	Director	February 14, 2018
/s/ Gordon F. Glade Gordon F. Glade	Director	February 14, 2018
/s/ Ejnar A. Knudsen III Ejnar A. Knudsen III	Director	February 14, 2018
/s/ Thomas L. Manuel Thomas L. Manuel	Director	February 14, 2018
/s/ Brian D. Peterson Brian D. Peterson	Director	February 14, 2018
/s/ Alain Treuer Alain Treuer	Director	February 14, 2018

Report of Independent Registered Public Accounting Firm

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

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Green Plains Inc. and subsidiaries (the "Company") as of December 31, 2017 and 2016, the related consolidated statements of income, comprehensive income, stockholders' equity, and cash flows for each of the years in the three year period ended December 31, 2017, and the related notes and financial statement schedule listed in the Index in Item 15 (collectively, the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and 2016, and the results of its operations and its cash flows for each of the years in the three year period ended December 31, 2017, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the Company's internal control over financial reporting as of December 31, 2017, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated February 14, 2018 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Basis for Opinion

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

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

/s/ KPMG LLP

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

Omaha, Nebraska
February 14, 2018

GREEN PLAINS INC. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS

(in thousands, except share amounts)

	December 31, 2017	2016
ASSETS		
Current assets		
Cash and cash equivalents	$ 266,651	$ 304,211
Restricted cash	13,810	51,979
Accounts receivable, net of allowances of $217 and $266, respectively	151,122	147,495
Income taxes receivable	6,413	10,379
Inventories	711,878	422,181
Prepaid expenses and other	17,808	17,095
Derivative financial instruments	38,789	47,236
Total current assets	1,206,471	1,000,576
Property and equipment, net	1,176,707	1,178,706
Goodwill	182,879	183,696
Other assets	218,593	143,514
Total assets	$ 2,784,650	$ 2,506,492
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities		
Accounts payable	$ 205,479	$ 192,275
Accrued and other liabilities	63,886	67,473
Derivative financial instruments	12,884	8,916
Income taxes payable	9,909	-
Short-term notes payable and other borrowings	526,180	291,223
Current maturities of long-term debt	67,923	35,059

Total current liabilities	886,261	594,946
Long-term debt	767,396	782,610
Deferred income taxes	56,801	140,262
Other liabilities	15,056	9,483
Total liabilities	1,725,514	1,527,301
Commitments and contingencies (Note 16)		
Stockholders' equity		
Common stock, $0.001 par value; 75,000,000 shares authorized; 46,410,405 and 46,079,108 shares issued, and 41,084,463 and 38,364,118 shares outstanding, respectively	46	46
Additional paid-in capital	685,019	659,200
Retained earnings	325,411	283,214
Accumulated other comprehensive loss	(13,110)	(4,137)
Treasury stock, 5,325,942 and 7,714,990 shares, respectively	(55,184)	(75,816)
Total Green Plains stockholders' equity	942,182	862,507
Noncontrolling interests	116,954	116,684
Total stockholders' equity	1,059,136	979,191
Total liabilities and stockholders' equity	$ 2,784,650	$ 2,506,492

See accompanying notes to the consolidated financial statements.

GREEN PLAINS INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF INCOME

(in thousands, except per share amounts)

	Year Ended December 31,		
	2017	2016	2015
Revenues			
Product revenues	$ 3,589,981	$ 3,402,579	$ 2,957,201
Service revenues	6,185	8,302	8,388
Total revenues	3,596,166	3,410,881	2,965,589
Costs and expenses			
Cost of goods sold (excluding depreciation and amortization expenses reflected below)	3,301,587	3,096,079	2,729,367
Operations and maintenance expenses	33,448	34,211	29,601
Selling, general and administrative expenses	112,024	104,677	79,594
Depreciation and amortization expenses	107,361	84,226	65,950
Total costs and expenses	3,554,420	3,319,193	2,904,512
Operating income	41,746	91,688	61,077
Other income (expense)			
Interest income	1,597	1,541	1,211
Interest expense	(90,160)	(51,851)	(40,366)
Other, net	3,666	(3,027)	(457)
Total other expense	(84,897)	(53,337)	(39,612)
Income (loss) before income taxes	(43,151)	38,351	21,465
Income tax (expense) benefit	124,782	(7,860)	(6,237)
Net income	81,631	30,491	15,228
Net income attributable to noncontrolling interests	20,570	19,828	8,164
Net income attributable to Green Plains	$ 61,061	$ 10,663	$ 7,064
Earnings per share:			
Net income attributable to Green Plains - basic	$ 1.56	$ 0.28	$ 0.19
Net income attributable to Green Plains - diluted	$ 1.47	$ 0.28	$ 0.18

Weighted average shares outstanding:			
Basic	39,247	38,318	37,947
Diluted	50,240	38,573	39,028

See accompanying notes to the consolidated financial statements.

GREEN PLAINS INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(in thousands)

	Year Ended December 31,		
	2017	2016	2015
Net income	$ 81,631	$ 30,491	$ 15,228
Other comprehensive income (loss), net of tax:			
Unrealized gains (losses) on derivatives arising during period, net of tax (expense) benefit of $2,967, $10,494, and $(4,413), respectively	(5,048)	(18,744)	7,169
Reclassification of realized (gains) losses on derivatives, net of tax expense (benefit) of $2,306, $(8,830), and $1,855, respectively	(3,925)	15,772	(3,014)
Total other comprehensive income (loss), net of tax	(8,973)	(2,972)	4,155
Comprehensive income	72,658	27,519	19,383
Comprehensive income attributable to noncontrolling interests	20,570	19,828	8,164
Comprehensive income attributable to Green Plains	$ 52,088	$ 7,691	$ 11,219

See accompanying notes to the consolidated financial statements.

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GREEN PLAINS INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

(in thousands)

	Common Stock Shares	Common Stock Amount	Additional Paid-in Capital	Retained Earnings	Accum. Other Comp. Income (Loss)	Treasury Stock Shares	Treasury Stock Amount	Total Green Plains Stockholders' Equity	Non-Control. Interests	Total Stockholders' Equity
Balance, December 31, 2014	44,809	$ 45	$ 569,431	$ 299,101	$ (5,320)	7,200	$ (65,808)	$ 797,449	$ -	$ 797,449
Net income	-	-	-	7,064	-	-	-	7,064	8,164	15,228
Cash dividends and distributions declared	-	-	-	(15,191)	-	-	-	(15,191)	(4,604)	(19,795)
Other comp. income before reclassification	-	-	-	-	7,169	-	-	-	-	-
Amounts reclassified from accum. other comp. income	-	-	-	-	(3,014)	-	-	-	-	-
Other comp. income, net of tax	-	-	-	-	4,155	-	-	4,155	-	4,155
Repurchase of common stock	-	-	-	-	-	192	(4,003)	(4,003)	-	(4,003)
Net proceeds from issuance of common units - Green Plains Partners LP	-	-	-	-	-	-	-	-	157,452	157,452
Stock-based compensation	432	-	7,590	-	-	-	-	7,590	67	7,657

Stock options exercised	41	-	766	-	-	-	-	766	-	766
Balance, December 31, 2015	45,282	45	577,787	290,974	(1,165)	7,392	(69,811)	797,830	161,079	958,909
Net income	-	-	-	10,663	-	-	-	10,663	19,828	30,491
Cash dividends and distributions declared	-	-	-	(18,423)	-	-	-	(18,423)	(18,855)	(37,278)
Other comp. loss before reclassification	-	-	-	-	(18,744)	-	-	-	-	-
Amounts reclassified from accum. other comp. loss	-	-	-	-	15,772	-	-	-	-	-
Other comp. loss, net of tax	-	-	-	-	(2,972)	-	-	(2,972)	-	(2,972)
Transfer of assets to Green Plains Partners LP	-	-	47,390	-	-	-	-	47,390	(47,390)	-
Consolidation of BioProcess Algae	-	-	-	-	-	-	-	-	2,807	2,807
Investment in BioProcess Algae	-	-	928	-	-	-	-	928	(928)	-
Repurchase of common stock	-	-	-	-	-	323	(6,005)	(6,005)	-	(6,005)
Issuance of 4.125% convertible notes due 2022, net of tax	-	-	24,492	-	-	-	-	24,492	-	24,492
Stock-based compensation	647	1	6,846	-	-	-	-	6,847	143	6,990
Stock options exercised	150	-	1,757	-	-	-	-	1,757	-	1,757
Balance, December 31, 2016	46,079	46	659,200	283,214	(4,137)	7,715	(75,816)	862,507	116,684	979,191
Net income	-	-	-	61,061	-	-	-	61,061	20,570	81,631
Cash dividends and distributions declared	-	-	-	(18,864)	-	-	-	(18,864)	(20,519)	(39,383)
Other comp. loss before	-	-	-	-	(5,048)	-	-	-	-	-

reclassification										
Amounts reclassified from accum. other comp. loss	-	-	-	-	(3,925)	-	-	-	-	-
Other comp. loss, net of tax	-	-	-	-	(8,973)	-	-	(8,973)	-	(8,973)
Repurchase of common stock	-	-	-	-	-	395	(6,724)	(6,724)	-	(6,724)
Exchange of 3.25% convertible notes due 2018	-	-	18,326	-	-	(2,784)	27,356	45,682	-	45,682
Stock-based compensation	326	-	7,443	-	-	-	-	7,443	219	7,662
Stock options exercised	5	-	50	-	-	-	-	50	-	50
Balance, December 31, 2017	46,410	$ 46	$ 685,019	$ 325,411	$ (13,110)	5,326	$ (55,184)	$ 942,182	$ 116,954	$ 1,059,136

See accompanying notes to the consolidated financial statements.

GREEN PLAINS INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS

(in thousands)

	Year Ended December 31,		
	2017	2016	2015
Cash flows from operating activities:			
Net income	$ 81,631	$ 30,491	$ 15,228
Adjustments to reconcile net income to net cash provided by (used in) operating activities:			
Depreciation and amortization	107,361	84,226	65,950
Amortization of debt issuance costs and debt discount	14,758	11,488	7,853
Loss on exchange of 3.25% convertible notes due 2018	1,291	-	-
Write-off of deferred financing fees related to extinguishment of debt	9,460	-	-
Gain on disposal of assets	(3,250)	-	-
Deferred income taxes	(81,077)	4,910	(27,513)
Other noncurrent assets and liabilities	(7,869)	-	-
Stock-based compensation	12,161	9,491	8,752
Undistributed equity in loss of affiliates	274	3,055	1,519
Changes in operating assets and liabilities before effects of business combinations:			
Accounts receivable	3,624	(36,888)	41,923
Inventories	(268,219)	(42,012)	(78,410)
Derivative financial instruments	(1,820)	(20,581)	15,148
Prepaid expenses and other assets	(794)	(4,092)	7,851
Accounts payable and accrued liabilities	6,500	49,077	(33,212)
Current income taxes	(40,866)	(1,887)	(9,586)
Change in restricted cash	3,641	-	-

Other	3,374	(2,085)	(1,633)
Net cash provided by (used in) operating activities	(159,820)	85,193	13,870
Cash flows from investing activities:			
Purchases of property and equipment, net	(46,467)	(58,113)	(63,350)
Acquisition of businesses, net of cash acquired	(61,727)	(508,143)	(116,796)
Investments in unconsolidated subsidiaries	(20,286)	(6,342)	(3,055)
Net cash used in investing activities	(128,480)	(572,598)	(183,201)

Continued on the following page

GREEN PLAINS INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS

(in thousands)

Continued from the previous page

	Year Ended December 31,		
	2017	2016	2015
Cash flows from financing activities:			
Proceeds from the issuance of long-term debt	$ 570,600	$ 524,000	$ 178,400
Payments of principal on long-term debt	(510,209)	(106,803)	(195,810)
Proceeds from short-term borrowings	4,385,446	4,130,946	3,237,477
Payments on short-term borrowings	(4,150,994)	(4,066,968)	(3,219,566)
Cash payment for exchange of 3.25% convertible notes due 2018	(8,523)	-	-
Proceeds from issuance of Green Plains Partners common units, net	-	-	157,452
Payments for repurchase of common stock	(6,724)	(6,005)	(4,003)
Payments of cash dividends and distributions	(39,383)	(37,278)	(19,795)
Payment penalty on early extinguishment of debt	(2,881)	-	-
Change in restricted cash	34,528	(18,641)	2,725
Payments of loan fees	(16,671)	(12,053)	(5,314)
Payments related to tax withholdings for stock-based compensation	(4,499)	(2,206)	(3,644)
Proceeds from exercises of stock options	50	1,757	766
Net cash provided by financing activities	250,740	406,749	128,688
Net change in cash and cash equivalents	(37,560)	(80,656)	(40,643)
Cash and cash equivalents, beginning of period	304,211	384,867	425,510
Cash and cash equivalents, end of period	$ 266,651	$ 304,211	$ 384,867
Non-cash financing activity:			
Exchange of 3.25% convertible notes due 2018 for shares of common stock	$ 47,743	$ -	$ -
Exchange of common stock held in treasury stock for 3.25% convertible notes due 2018	$ 27,356	$ -	$ -

Supplemental disclosures of cash flow:			
Cash paid (refunded) for income taxes	$ (3,768)	$ 4,692	$ 43,833
Cash paid for interest	$ 54,213	$ 38,245	$ 32,753
Supplemental investing and financing activities:			
Assets acquired in acquisitions and mergers, net of cash	$ 63,670	$ 568,383	$ 120,910
Less: liabilities assumed	(1,943)	(57,433)	(4,114)
Less: allocation of noncontrolling interest in consolidation of BioProcess Algae	-	(2,807)	-
Net assets acquired	$ 61,727	$ 508,143	$ 116,796

See accompanying notes to the consolidated financial statements.

GREEN PLAINS INC. AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. BASIS OF PRESENTATION and DESCRIPTION OF BUSINESS

References to the Company

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

Consolidated Financial Statements

The consolidated financial statements include the company’s accounts and all significant intercompany balances and transactions are eliminated. Unconsolidated entities are included in the financial statements on an equity basis. The company owns a 62.5% limited partner interest and a 2.0% general partner interest in Green Plains Partners LP. Public investors own the remaining 35.5% 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 partnership’s economic performance; therefore, the partnership is considered a VIE. 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 the obligation to absorb losses or the right to receive benefits that could be potentially significant to the partnership; therefore, the company is considered the primary beneficiary and consolidates the partnership. The assets of the partnership cannot be used by the company for general corporate purposes. The partnership’s consolidated total assets as of December 31, 2017 and 2016 are $74.9 million and $75.0 million, respectively, and primarily consist of property and equipment and goodwill. The partnership’s consolidated total liabilities as of December 31, 2017 and 2016 are $153.0 million and $156.0 million, respectively, which primarily consist of long-term debt as discussed in Note 11 – Debt. The liabilities recognized as a result of consolidating the partnership do not represent additional claims on our general assets. The partnership is consolidated in the company’s financial statements. Effective April 1, 2016, the company increased its ownership of BioProcess Algae, a joint venture formed in 2008, to 82.8% and consolidated BioProcess Algae in its consolidated financial statements beginning on that date.

Reclassifications

Certain prior year amounts have been reclassified to conform to the current year presentation. These reclassifications did not affect total revenues, costs and expenses, net income or stockholders' equity.

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 and 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 that 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, depreciation of property and equipment, carrying value of intangible assets, 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.

Description of Business

The company operates within four business segments: (1) ethanol production, which includes the production of ethanol, distillers grains 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, (3) food and ingredients, which includes cattle feeding, vinegar production and food-grade corn oil operations and (4) partnership, which includes fuel storage and transportation services.

Ethanol Production Segment

Green Plains is North America's second largest consolidated owner of ethanol plants. The company operates 17 ethanol plants in nine states through separate wholly owned operating subsidiaries. The company's ethanol plants use a dry mill

process to produce ethanol and co-products such as wet, modified wet or dried distillers grains, as well as corn oil. The corn oil systems are designed to extract non-edible corn oil from the whole stillage immediately prior to production of distillers grains. At capacity, the company expects to process approximately 518 million bushels of corn and produce approximately 1.5 billion gallons of ethanol, 4.1 million tons of distillers grains and 359 million pounds of industrial grade corn oil annually.

Agribusiness and Energy Services Segment

The company owns and operates grain handling and storage assets through its agribusiness and energy services segment, which has grain storage capacity of approximately 59.6 million bushels, with 49.5 million bushels of storage capacity at the company's ethanol plants and 10.1 million bushels of total storage capacity at its four grain elevators. The company's agribusiness operations provide synergies with the ethanol production segment as it supplies a portion of the feedstock needed to produce ethanol. The company has an in-house marketing business that is responsible for the sale, marketing and distribution of all ethanol, distillers grains and corn oil produced at its ethanol plants. The company also purchases and sells ethanol, distillers grains, corn oil, grain, natural gas and other commodities and participates in other merchant trading activities in various markets.

Food and Ingredients Segment

The company owns four cattle feeding operations with the capacity to support approximately 258,000 head of cattle and grain storage capacity of approximately 9.6 million bushels. The company also owns a vinegar operation, which is one of the world's largest producers of food-grade industrial vinegar and includes seven production facilities and three distribution warehouses.

Partnership Segment

The company's partnership segment provides fuel storage and transportation services by owning, operating, developing and acquiring ethanol and fuel storage tanks, terminals, transportation assets and other related assets and businesses. As of December 31, 2017, the partnership owns (i) 39 ethanol storage facilities located at or near the company's 17 ethanol production plants, which have the ability to efficiently and effectively store and load railcars and tanker trucks with all of the ethanol produced at the company's ethanol production plants, (ii) eight fuel terminal facilities, located near major rail lines, which enable the partnership to receive, store and deliver fuels from and to markets that seek access to renewable fuels, and (iii) transportation assets, including a leased railcar fleet of approximately 3,500

railcars which is utilized to transport ethanol from the company's ethanol production plants to refineries throughout the United States and international export terminals.

2. SUMMARY OF SIGNIFICANT accounting POLICIES

Cash and Cash Equivalents and Restricted Cash

Cash and cash equivalents includes bank deposits, as well as, short-term, highly liquid investments with original maturities of three months or less. The company also has restricted cash, which can only be used for the funding of letters of credit or for payment towards a revolving credit agreement.

Revenue Recognition

The company recognizes revenue when the following criteria are satisfied: persuasive evidence that an arrangement exists, title of product and risk of loss are transferred to the customer, price is fixed and determinable and collectability is reasonably assured.

Sales of ethanol, distillers grains, corn oil, natural gas and other commodities by the company's marketing business are recognized when title of product and risk of loss are transferred to an external customer. Revenues related to marketing for third parties are presented on a gross basis when the company takes title of the product and assumes risk of loss. Unearned revenue is recorded for goods in transit when title 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.

Sales of products, including agricultural commodities, cattle and vinegar, are recognized when title of product and risk of loss are transferred to the customer, which depends on the agreed upon terms. The sales terms provide passage of title when shipment is made or the commodity is delivered. 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 when services are rendered.

The company routinely enters into fixed-price, physical-delivery 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. All other transactions are reported net as either a component of revenue or cost of goods sold, depending on their position as a gain or loss. 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.

A substantial portion of the partnership revenues are derived from fixed-fee commercial agreements for storage, terminal or transportation services. The partnership recognizes revenue when there is persuasive evidence that an arrangement exists, title of product and risk of loss are transferred to the customer, price is fixed and determinable and collectability is reasonably assured.

Cost of Goods Sold

Cost of goods sold includes direct labor, materials, shipping costs and plant overhead costs. Direct labor includes all compensation and related benefits of non-management personnel involved in ethanol plant, vinegar production and cattle feeding operations. 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, process chemicals, cattle and veterinary supplies. 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 and feedlot utilities, repairs and maintenance, yard expenses 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 to minimize the effect of price changes on grain and cattle inventories and forward purchase and sales contracts. Exchange-traded futures and options contracts are valued at quoted market prices and settled predominantly in cash. The company is exposed to loss when counterparties default on forward purchase and sale contracts. Grain inventories held for sale and forward purchase and sale contracts are valued at market prices when available or other market quotes adjusted for 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 includes 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 minimize risk and the effect of price changes related to various commodities including but not limited to, corn, ethanol, cattle, natural gas and crude oil. 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, hedge accounting treatment.

Certain qualifying derivatives related to ethanol production, agribusiness and energy services and food and ingredients segments 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. 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 other current liabilities at fair value.

Concentrations of Credit Risk

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

The company has master netting arrangements with various counterparties. On the consolidated balance sheets, the associated net amount for each counterparty is reflected as either an accounts receivable or accounts payable. If the amount for each counterparty were reflected on a gross basis, the company's accounts receivable and accounts payable would increase by $23.4 million and $24.6 million at December 31, 2017 and 2016, respectively.

Inventories

Corn held for ethanol production, ethanol, corn oil and distillers grains inventories are recorded at lower of average cost or market.

Other grain inventories include readily marketable grain, forward contracts to buy and sell grain, and exchange traded futures and option contracts, which are all stated at market value. All grain inventories held for sale are marked to

market. Changes are reflected in cost of goods sold. The forward contracts require performance in future periods. Contracts to purchase grain generally relate to current or future crop years for delivery periods quoted by regulated commodity exchanges. Contracts for the sale of grain to processors or other consumers generally do not extend beyond one year. The terms of the purchase and sale agreements for grain are consistent with industry standards.

Raw materials and finished goods inventories are valued at the lower of average cost or market. In addition to ethanol and related co-products in process, work-in-process inventory includes the cost of acquired cattle and related feed and veterinary supplies, as well as direct labor and feedlot overhead costs, all of which are valued at lower of average cost or market.

Property and Equipment

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

	Years
Plant, buildings and improvements	10-40
Production equipment	15-50
Other machinery and equipment	5-7
Land improvements	20
Railroad track and equipment	20
Computer hardware and software	3-5
Office furniture and equipment	5-7

Property and equipment is capitalized at cost. Land improvements and other property improvements are capitalized and depreciated. Costs of repairs and maintenance are charged to expense when incurred. The company periodically evaluates whether events and circumstances have occurred that warrant a revision of the estimated useful life of its fixed assets.

Intangible Assets

Intangible assets consist of trademarks, customer relationships, research and development technology and licenses acquired through acquisitions. These assets were capitalized at their fair value at the date of the acquisition and are being amortized over their estimated useful lives, with the exception of the vinegar trade name, which has an indefinite life.

Impairment of Long-Lived Assets

The company's long-lived assets consist of property and equipment and intangible assets. The company reviews its long-lived assets for impairment whenever events or changes in circumstances indicate the carrying amount of the asset may not be recoverable. Recoverability is measured by comparing the carrying amount of the asset to the estimated undiscounted future cash flows the asset is expected to generate. Impairment is recorded when the asset's carrying amount exceeds its estimated future cash flows. Significant management judgment is required to determine the fair value of long-lived assets, which includes discounted cash flows projections. There were no material impairment charges recorded for the periods reported.

Goodwill

Goodwill is an asset representing the future economic benefits arising from other assets acquired in a business combination that are not individually identified and separately recognized. The determination of goodwill takes into consideration the fair value of net tangible and intangible assets. The company's goodwill currently consists of amounts related to the acquisition of five ethanol plants, its fuel terminal and distribution business and Fleischmann's Vinegar.

Goodwill is reviewed for impairment at the reporting unit level at least annually, as of October 1, or more frequently when events or changes in circumstances indicate that impairment may have occurred. The qualitative factors of goodwill are assessed to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount as a basis for determining whether it is necessary to perform the two-step goodwill impairment test. Under the first step, the fair value of the reporting unit is compared with its carrying value (including goodwill). If the fair value of the reporting unit is less than its carrying value, an indication of goodwill impairment exists for the reporting unit and the entity must perform step two of the impairment test. Under the second step, an impairment charge is recognized for any excess of the carrying amount of the reporting unit's goodwill over the implied fair value

of that goodwill. The implied fair value of goodwill is determined by allocating the fair value of the reporting unit in a manner similar to a purchase price allocation and the residual fair value after this allocation is the implied fair value of the reporting unit goodwill. Fair value of the reporting unit is determined using a discounted cash flow analysis. If the fair value of the reporting unit exceeds its carrying value, no further analysis is necessary. No impairment charges were recorded for the periods reported. For additional information, please refer to Note 9 - Goodwill.

Financing Costs

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

Selling, General and Administrative Expenses

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

Stock-Based Compensation

The company recognizes compensation cost using a fair value based method whereby compensation cost is measured at the grant date based on the value of the award and is recognized over the service period, which is usually the vesting period. The company uses the Black-Scholes pricing model to calculate the fair value of options and warrants issued to both employees and non-employees. Stock issued for compensation is valued using the market price of the stock on the date of the related agreement.

Income Taxes

The provision for income taxes is computed using the asset and liability method, under which deferred tax assets and

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

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

Recent Accounting Pronouncements

Effective January 1, 2017, the company adopted the amended guidance in ASC Topic 330, Inventory: Simplifying the Measurement of Inventory, which requires inventory to be measured at the lower of cost or net realizable value. Net realizable value is the estimated selling prices during the ordinary course of business, less reasonably predictable costs of completion, disposal and transportation. The amended guidance was applied prospectively.

Effective January 1, 2017, the company adopted the amended guidance in ASC Topic 718, Compensation – Stock Compensation: Improvements to Employee Share-Based Payment Accounting, which requires all income tax effects related to awards to be recognized in the income statement when the awards vest or settle. The amended guidance also allows an employer to repurchase more of an employee’s shares for tax withholding purposes without triggering liability accounting and make a policy election to account for forfeitures as they occur. The amended guidance requiring recognition of excess tax benefits and tax deficiencies in the income statement was applied prospectively. The amended guidance related to the timing of when excess tax benefits are recognized, did not have an impact on the consolidated financial statements. The amended guidance related to the presentation of employee taxes paid on the statement of cash flows was applied retrospectively. This change resulted in a $2.2 million and $3.6 million increase in cash flows from operating activities and a decrease in cash flows from financing activities for the twelve months ended December 31, 2016 and 2015, respectively. The company has elected to account for forfeitures as they occur. This change did not have a material impact on the financial statements.

During the fourth quarter of 2017, the company early adopted the amended guidance in ASC Topic 815, Derivatives and Hedging: Targeted Improvements to Accounting for Hedging Activities, which is designed to improve the

alignment of risk management activities and financial reporting for hedging relationships through changes to both the designation and measurement guidance for qualifying hedging relationships and the presentation of hedging results. The provisions of ASC Topic 815 expand and refine hedge accounting for both nonfinancial and financial risk components and align the recognition and presentation of the effects of the hedging instrument and the hedged item in the financial statements. The amended guidance was applied prospectively and did not have a material impact on the financial statements.

Effective January 1, 2018, the company will adopt the amended guidance in ASC Topic 230, Statement of Cash Flows: Restricted Cash, which requires amounts generally described as restricted cash and restricted cash equivalents to be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. The amended guidance will be applied retrospectively. Upon adoption, the company will include restricted cash and restricted cash equivalents with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts on the statement of cash flows.

Effective January 1, 2018, the company will adopt the amended guidance in ASC Topic 606, Revenue from Contracts with Customers. ASC Topic 606 is designed to create improved revenue recognition and disclosure comparability in financial statements. The provisions of ASC Topic 606 include a five-step process by which an entity will determine revenue recognition, depicting the transfer of goods or services to customers in amounts which reflect the payment an entity expects to be entitled to in exchange for goods or services. The new guidance requires the company to apply the following steps: (1) identify the contract with the customer; (2) identify the performance obligations in the contract; (3) determine the transaction price; (4) allocate the transaction price to the performance obligations in the contract; and (5) recognize revenue when, or as, the company satisfies the performance obligation. In addition, ASC Topic 606 requires certain disclosures about contracts with customers and provides comprehensive guidance for transactions such as service revenue, contract modifications and multiple-element arrangements. The new standard is effective for fiscal years and interim periods within those years, beginning after December 15, 2017, and allows for early adoption.

The company completed a comparison of the current revenue recognition policies to the ASC Topic 606 requirements for each of the company’s major revenue categories. Results indicate that the amended guidance will not materially change

the amount or timing of revenues recognized by the company and the majority of the company's contracts will continue to be recognized at a point in time and that the number of performance obligations and the accounting for variable consideration are not expected to be significantly different from current practice. In addition, a portion of the company's sales contracts are considered derivatives under ASC Topic 815, Derivatives and Hedging, and are therefore excluded from the scope of Topic 606. ASC Topic 606 also requires disclosure of significant changes in contract asset and contract liability balances between periods and the amount of the transaction price allocated to performance obligations that are unsatisfied or partially unsatisfied as of the end of the reporting period, when applicable. ASC Topic 606 may be adopted retrospectively to each prior reporting period presented or as a cumulative-effect adjustment as of the date of adoption. The company will adopt the amended guidance using the modified retrospective transition method.

Effective January 1, 2018, the company will adopt the amended guidance in ASC Topic 740, Income Taxes: Intra-Entity Transfers of Assets other than Inventory, which requires the recognition of current and deferred income tax consequences of an intra-entity transfer of an asset other than inventory when the transfer occurs. The amended guidance will be applied on a modified retrospective basis, with a cumulative-effect adjustment to retained earnings as of the beginning of the year of adoption. The company does not expect adoption of the guidance to have a material impact to the financial statements.

Effective January 1, 2018, the company will adopt the amended guidance in ASC Topic 805, Business Combinations: Clarifying the Definition of a Business, which clarifies the definition of a business with the objective of adding guidance to assist companies and other reporting organizations with evaluating whether transactions should be accounted for as acquisitions or disposals of assets or businesses. The amended guidance will be applied prospectively.

Effective January 1, 2018, the company will early adopt the amended guidance in ASC Topic 350, Intangibles – Goodwill and Other: Simplifying the Test for Goodwill Impairment, which simplifies the measurement of goodwill by eliminating Step 2 from the goodwill impairment test. The annual goodwill impairment test will be performed by comparing the fair value of a reporting unit with its carrying amount. An impairment charge equal to the amount by which the carrying amount exceeds the reporting unit’s fair value, not to exceed the total amount of goodwill allocated to that reporting unit, would be recognized. The amended guidance will be applied prospectively.

Effective January 1, 2019, the company will adopt the amended guidance in ASC Topic 842, Leases, which aims to make leasing activities more transparent and comparable, requiring substantially all leases to be recognized by lessees on the balance sheet as a right-of-use asset and corresponding lease liability, including leases currently accounted for as operating leases. The new standard is effective for fiscal years beginning after December 15, 2018 and interim periods within those years, and allows for early adoption. The company has established an implementation team to evaluate the impact of the new standard. The new standard will significantly increase right-of-use assets and lease

liabilities on the company's consolidated balance sheet, primarily due to operating leases that are currently not recognized on the balance sheet. The company anticipates adopting the amended guidance using the modified retrospective transition method.

3. GREEN PLAINS PARTNERS LP

Initial Public Offering of Subsidiary

On July 1, 2015, Green Plains Partners LP closed its initial public offering, or the IPO. In conjunction with the IPO, the company contributed its downstream ethanol transportation and storage assets to the partnership. A total of 11,500,000 common units, representing limited partner interests including 1,500,000 common units pursuant to the underwriters' overallotment option, were sold to the public for $15.00 per common unit. The partnership received net proceeds of approximately $157.5 million, after deducting underwriting discounts, structuring fees and offering expenses. The partnership used the proceeds to make a distribution to the company of $155.3 million and to pay approximately $0.9 million in origination fees under its new $100.0 million revolving credit facility. The remaining $1.3 million was retained for general partnership purposes. The company now owns a 62.5% limited partner interest, consisting of 4,389,642 common units and 15,889,642 subordinated units, and a 2.0% general partner interest in the partnership. The public owns the remaining 35.5% limited partner interest in the partnership. As such, the partnership is consolidated in the company's financial statements.

During the subordination period, which is described in the partnership agreement for Green Plains Partners, holders of the subordinated units are not entitled to receive distributions until the common units have received the minimum quarterly distribution plus any arrearages of the minimum quarterly distribution from prior quarters. If the partnership does not pay distributions on the subordinated units, the subordinated units will not accrue arrearages for those unpaid distributions. Each subordinated unit will convert into one common unit at the end of the subordination period.

The partnership is a fee-based master limited partnership formed by Green Plains to provide fuel storage and transportation services by owning, operating, developing and acquiring ethanol and fuel storage tanks, terminals,

transportation assets and other related assets and businesses. The partnership's assets currently include (i) 39 ethanol storage facilities, located at or near the company's 17 ethanol production plants, which have the ability to efficiently and effectively store and load railcars and tanker trucks with all of the ethanol produced at the company's ethanol production plants, (ii) eight fuel terminal facilities, located near major rail lines, which enable the partnership to receive, store and deliver fuels from and to markets that seek access to renewable fuels, and (iii) transportation assets, including a leased railcar fleet of approximately 3,500 railcars, which are contracted to transport ethanol from the company's ethanol production plants to refineries throughout the United States and international export terminals. The partnership is the company's primary downstream logistics provider to support its approximately 1.5 bgy ethanol marketing and distribution business since the partnership's assets are the principal method of storing and delivering the ethanol the company produces.

A substantial portion of the partnership's revenues are derived from long-term, fee-based commercial agreements with Green Plains Trade, a subsidiary of the company. In connection with the IPO, the partnership (1) entered into (i) a ten-year fee-based storage and throughput agreement; (ii) an amended ten-year fee-based rail transportation services agreement; and (iii) a one-year fee-based trucking transportation agreement, and (2) assumed (i) an approximately 2.5-year terminal services agreement for the partnership's Birmingham, Alabama-unit train terminal; and (ii) various other terminal services agreements for its other fuel terminal facilities, each with Green Plains Trade. The partnership's storage and throughput agreement, and certain terminal services agreements, including the terminal services agreement for the Birmingham facility, are supported by minimum volume commitments. The partnership's rail transportation services agreement is supported by minimum take-or-pay capacity commitments. The company also has agreements which establish fees for general and administrative, and operational and maintenance services it provides. These transactions are eliminated when the company consolidates its financial results.

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

4. ACQUISITIONS

Acquisition of Cattle Feeding Operations

On May 16, 2017, the company acquired two cattle-feeding operations from Cargill Cattle Feeders, LLC for $57.7 million, including certain working capital adjustments. The transaction included the feed yards located in Leoti,

Kansas and Eckley, Colorado, which added combined feedlot capacity of 155,000 head of cattle to the company's operations. The transaction was financed using cash on hand. There were no material acquisition costs recorded for the acquisition.

As part of the transaction, the company also entered into a long-term cattle supply agreement with Cargill Meat Solutions Corporation. Under the cattle supply agreement, all cattle placed in the Leoti, Eckley and the company's existing Kismet, Kansas feedlots will be sold exclusively to Cargill Meat Solutions under an agreed upon pricing arrangement.

The purchase price allocation is based on the preliminary results of an external valuation. The purchase price and purchase price allocation are preliminary until contractual post-closing working capital adjustments and valuations are finalized.

The following is a summary of the preliminary purchase price of assets acquired and liabilities assumed (in thousands):

Amounts of Identifiable Assets Acquired and Liabilities Assumed	
Inventory	$ 20,576
Prepaid expenses and other	52
Property and equipment, net	37,205
Current liabilities	(180)
Total identifiable net assets	$ 57,653

Acquisition of Fleischmann's Vinegar

F-15

On October 3, 2016, the company acquired all of the issued and outstanding stock of SCI Ingredients, the holding company of Fleischmann's Vinegar Company, Inc., for $258.3 million in cash. Fleischmann's Vinegar is one of the world's largest producers of food-grade industrial vinegar. The company recorded $2.3 million of acquisition costs for Fleischmann's Vinegar to selling, general and administrative expenses during the year ended December 31, 2016.

The following is a summary of the assets acquired and liabilities assumed (in thousands):

Amounts of Identifiable Assets Acquired and Liabilities Assumed	
Cash	$ 4,148
Inventory	9,308
Accounts receivable, net	13,919
Prepaid expenses and other	1,054
Property and equipment	49,175
Intangible assets	90,500
Current liabilities	(9,689)
Income taxes payable	(216)
Deferred tax liabilities	(41,882)
Total identifiable net assets	116,317
Goodwill	142,002

Purchase price	$ 258,319

The amounts above reflect the final purchase price allocation. As of September 30, 2017, based on the final valuations, assets acquired and liabilities assumed were adjusted from the prior quarter to reflect an increase in the fair value of property and equipment of $6.2 million, a decrease in accumulated depreciation of $0.5 million, a decrease in the fair value of intangible assets of $4.0 million, a decrease in accumulated amortization of $0.3 million, a decrease in the fair value of goodwill of $0.8 million, a decrease of $0.1 million in income taxes payable and an increase in deferred tax liabilities of $1.5 million.

As of December 31, 2017, based on the final valuations, the company's customer relationship intangible asset recognized in connection with the Fleischmann's acquisition is $73.3 million, net of $6.7 million of accumulated amortization, and has a remaining 14 year weighted-average amortization period. As of December 31, 2017, the company also has an indefinite-lived trade name intangible asset of $10.5 million. The company recognized $5.3 million of amortization expense associated with the amortizing customer relationship intangible asset during the year ended December 31, 2017 and estimated amortization expense for the next five years is $5.3 million per annum. The excess of the purchase price over the intangibles fair values was allocated to goodwill, none of which is expected to be deductible for tax purposes. The goodwill is primarily attributable to the synergies expected to arise after the acquisition.

Acquisition of Abengoa Ethanol Plants

On September 23, 2016, the company acquired three ethanol plants located in Madison, Illinois, Mount Vernon, Indiana, and York, Nebraska from subsidiaries of Abengoa S.A. for approximately $234.9 million for the ethanol plant assets, and $19.1 million for working capital acquired and liabilities assumed, subject to certain post-closing adjustments. These ethanol facilities have a combined annual production capacity of 230 mmgy. The company recorded $1.3 million of acquisition costs for the Abengoa ethanol plants to selling, general and administrative expenses during the year ended December 31, 2016.

The following is a summary of assets acquired and liabilities assumed (in thousands):

Amounts of Identifiable Assets Acquired and Liabilities Assumed	
Inventory	$ 16,904
Accounts receivable, net	1,826
Prepaid expenses and other	2,224
Property and equipment	234,947
Other assets	3,885
Current maturities of long-term debt	(406)
Current liabilities	(2,580)
Long-term debt	(2,763)
Total identifiable net assets	$ 254,037

Concurrently with the company’s acquisition of the Abengoa ethanol plants, on September 23, 2016, the partnership acquired the storage assets of the Abengoa ethanol plants from the company for $90.0 million in a transfer between entities under common control and entered into amendments to the related commercial agreements with Green Plains Trade.

The operating results of the Abengoa ethanol plant have been included in the company's consolidated financial statements since September 23, 2016. The operating results of Fleischmann's Vinegar have been included in the company's consolidated financial statements since October 4, 2016. Pro forma revenue and net loss, had the acquisitions occurred on January 1, 2016, would have been $3.8 billion and $9.1 million, respectively, for the year ended December 31, 2016. Diluted loss per share would have been $0.24 for the year ended December 31, 2016. This information is based on historical results of operations, and, in the company's opinion, is not necessarily indicative of the results that would have been achieved had the company operated the ethanol plant acquired since such date.

Acquisition of Hereford Ethanol Plant

On November 12, 2015, the company acquired an ethanol production facility in Hereford, Texas, with an annual production capacity of approximately 100 mmgy for approximately $78.8 million for the ethanol plant assets, as well as working capital acquired or assumed of approximately $19.4 million

The following is a summary assets acquired and liabilities assumed (in thousands):

Amounts of Identifiable Assets Acquired and Liabilities Assumed	
Inventory	$ 20,487
Derivative financial instruments	2,625
Property and equipment	78,786
Current liabilities	(2,542)
Other liabilities	(1,128)
Total identifiable net assets	$ 98,228

Effective January 1, 2016, the partnership acquired the storage and transportation assets of the Hereford and Hopewell production facilities in a transfer between entities under common control for approximately $62.3 million and entered into amendments to the related commercial agreements with Green Plains Trade.

The operating results of the Hereford ethanol plant have been included in the company's consolidated financial statements since November 12, 2015. Pro forma revenue and net income, had the acquisition occurred on January 1, 2015, would have been $3.1 billion and $10.8 million, respectively, for the year ended December 31, 2015. Diluted earnings per share would have been $0.28 for the year ended December 31, 2015. This information is based on historical results of operations, and, in the company's opinion, is not necessarily indicative of the results that would have been achieved had the company operated the ethanol plant acquired since such date.

5. 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 inventories held for sale in the agribusiness segment are valued at nearby futures values, plus or minus nearby basis.

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 and, therefore, are not included in the 2017 table.

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

	Fair Value Measurements at December 31, 2017		
	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Total
Assets:			
Cash and cash equivalents	$ 266,651	$ -	$ 266,651
Restricted cash	13,810	-	13,810
Inventories carried at market	-	26,834	26,834
Unrealized gains on derivatives	-	12,045	12,045
Other assets	115	-	115
Total assets measured at fair value	$ 280,576	$ 38,879	$ 319,455
Liabilities:			
Accounts payable (1)	$ -	$ 37,401	$ 37,401
Unrealized losses on derivatives	-	12,884	12,884
Other liabilities	-	92	92
Total liabilities measured at fair value	$ -	$ 50,377	$ 50,377

	Fair Value Measurements at December 31, 2016			
	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Reclassification for Balance Sheet Presentation	Total
Assets:				
Cash and cash equivalents	$ 304,211	$ -	$ -	$ 304,211
Restricted cash	51,979	-	-	51,979
Margin deposits	50,601	-	(50,601)	-
Inventories carried at market	-	77,043	-	77,043
Unrealized gains on derivatives	8,272	14,818	24,146	47,236
Other assets	116	-	-	116
Total assets measured at fair value	$ 415,179	$ 91,861	$ (26,455)	$ 480,585
Liabilities:				
Accounts payable (1)	$ -	$ 35,288	$ -	$ 35,288
Unrealized losses on derivatives	26,455	8,916	(26,455)	8,916
Other liabilities	-	81	-	81
Total liabilities measured at fair value	$ 26,455	$ 44,285	$ (26,455)	$ 44,285

(1) Accounts payable is generally stated at historical amounts with the exception of $37.4 million and $35.3 million at December 31, 2017 and 2016, 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.

The company believes the fair value of its debt approximated book value, which was approximately $1.4 billion at December 31, 2017, and $1.1 billion at December 31, 2016. The company estimated the fair value of its outstanding debt using Level 2 inputs. The company believes the fair values of its accounts receivable approximated book value, which was $151.1 million and $147.5 million, respectively, at December 31, 2017 and 2016.

Although the company currently does not have any recurring Level 3 financial measurements, the fair values of tangible assets and goodwill acquired and the equity component of convertible debt 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.

6. SEGMENT INFORMATION

The company reports the financial and operating performance for the following four operating segments: (1) ethanol production, which includes the production of ethanol, distillers grains 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 and other commodities, (3) food and ingredients, which includes cattle feeding, vinegar production and food-grade corn oil operations and (4) partnership, which includes fuel storage and transportation services.

Under GAAP, when transferring assets between entities under common control, the entity receiving the net assets initially recognizes the carrying amounts of the assets and liabilities at the date of transfer. The transferee's prior period financial statements are restated for all periods its operations were part of the parent's consolidated financial statements. On July 1, 2015, Green Plains Partners received ethanol storage and railcar assets and liabilities in a transfer between entities under common control. Effective January 1, 2016, the partnership acquired the storage and transportation assets of the Hereford and Hopewell production facilities in a transfer between entities under common control and entered into amendments to the related commercial agreements with Green Plains Trade. The transferred assets and liabilities are recognized at the company's historical cost and reflected retroactively in the segment information of the consolidated financial statements presented in this Form 10-K. The partnership's assets were previously included in the ethanol production and agribusiness and energy services segments. Expenses related to the ethanol storage and railcar assets, such as depreciation, amortization and railcar lease expenses, are also reflected retroactively in the following segment information. There were no revenues related to the operation of the ethanol storage and railcar assets in the partnership segment prior to their respective transfers to the partnership, when the related commercial agreements with Green Plains Trade became effective.

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 and corn oil for the ethanol production segment. The partnership segment provides fuel storage and transportation services for the 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 the company's consolidated results since the revenues and corresponding costs are eliminated.

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

	Year Ended December 31,		
	2017	2016	2015
Revenues:			
Ethanol production:			
Revenues from external customers (1)	$ 2,497,360	$ 2,409,102	$ 2,063,172
Intersegment revenues	10,313	-	-
Total segment revenues	2,507,673	2,409,102	2,063,172
Agribusiness and energy services:			
Revenues from external customers (1)	621,223	675,446	674,719
Intersegment revenues	47,538	34,461	24,114
Total segment revenues	668,761	709,907	698,833
Food and ingredients:			
Revenues from external customers (1)	471,398	318,031	219,310
Intersegment revenues	383	150	75
Total segment revenues	471,781	318,181	219,385
Partnership:			
Revenues from external customers	6,185	8,302	8,388
Intersegment revenues	100,808	95,470	42,549
Total segment revenues	106,993	103,772	50,937
Revenues including intersegment activity	3,755,208	3,540,962	3,032,327
Intersegment eliminations	(159,042)	(130,081)	(66,738)

Revenues as reported	$ 3,596,166	$ 3,410,881	$ 2,965,589

(1) Revenues from external customers include realized gains and losses from derivative financial instruments.

	Year Ended December 31,		
	2017	2016	2015
Cost of goods sold:			
Ethanol production	$ 2,434,001	$ 2,280,906	$ 1,939,824
Agribusiness and energy services	614,582	650,538	639,470
Food and ingredients	411,781	294,396	216,661
Partnership	-	-	-
Intersegment eliminations	(158,777)	(129,761)	(66,588)
	$ 3,301,587	$ 3,096,079	$ 2,729,367

	Year Ended December 31,		
	2017	2016	2015
Operating income (loss):			
Ethanol production	$ (45,074)	$ 28,125	$ 43,266
Agribusiness and energy services	30,443	34,039	37,253
Food and ingredients	35,961	16,436	(952)
Partnership	65,709	60,903	12,990
Intersegment eliminations	(61)	(170)	-
Corporate activities	(45,232)	(47,645)	(31,480)
	$ 41,746	$ 91,688	$ 61,077

	Year Ended December 31,		
	2017	2016	2015
EBITDA:			
Ethanol production	$ 40,069	$ 97,113	$ 100,002
Agribusiness and energy services	33,906	34,209	40,655
Food and ingredients	49,803	20,190	218
Partnership	71,041	66,633	18,903
Intersegment eliminations	(61)	(732)	(71)
Corporate activities	(40,388)	(42,985)	(31,926)
	$ 154,370	$ 174,428	$ 127,781

	Year Ended December 31,		
	2017	2016	2015
Income (loss) before income taxes:			
Ethanol production	$ (63,569)	$ 5,862	$ 21,582
Agribusiness and energy services	21,460	24,368	33,952
Food and ingredients	13,512	10,950	(3,585)
Partnership	60,527	58,441	12,695
Intersegment eliminations	(61)	(170)	-
Corporate activities	(75,020)	(61,100)	(43,179)
	$ (43,151)	$ 38,351	$ 21,465

	Year Ended December 31,		
	2017	2016	2015
Depreciation and amortization:			
Ethanol production	$ 81,987	$ 68,746	$ 55,604
Agribusiness and energy services	3,462	2,536	1,542
Food and ingredients	13,103	3,705	1,004
Partnership	5,111	5,647	5,828
Corporate activities	3,698	3,592	1,972
	$ 107,361	$ 84,226	$ 65,950

	Year Ended December 31,		
	2017	2016	2015
Capital expenditures:			
Ethanol production	$ 28,996	$ 39,555	$ 48,881
Agribusiness and energy services	397	2,340	12,552
Food and ingredients	17,772	2,479	1,049
Partnership	2,024	400	1,496
Corporate activities	3,115	11,638	1,589
	$ 52,304	$ 56,412	$ 65,567

The following table reconciles net income to EBITDA (in thousands):

	Year Ended December 31,		
	2017	2016	2015
Net income:	$ 81,631	$ 30,491	$ 15,228
Interest expense	90,160	51,851	40,366
Income tax expense (benefit)	(124,782)	7,860	6,237
Depreciation and amortization	107,361	84,226	65,950
EBITDA	$ 154,370	$ 174,428	$ 127,781

The following table sets forth revenues by product line (in thousands):

	Year Ended December 31,		
	2017	2016	2015
Revenues:			
Ethanol	$ 2,409,073	$ 2,258,575	$ 1,868,043
Distillers grains	430,699	488,297	474,699
Corn oil	160,447	152,075	101,126
Grain	81,193	174,525	240,466
Food and ingredients	444,625	279,039	219,046
Service revenues	6,185	8,302	8,388
Other	63,944	50,068	53,821
	$ 3,596,166	$ 3,410,881	$ 2,965,589

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

	Year Ended December 31,	
	2017	2016
Total assets (1):		
Ethanol production	$ 1,144,459	$ 1,206,155
Agribusiness and energy services	554,981	579,977
Food and ingredients	725,232	406,429
Partnership	74,935	74,999
Corporate assets	295,217	257,652
Intersegment eliminations	(10,174)	(18,720)
	$ 2,784,650	$ 2,506,492

(1) Asset balances by segment exclude intercompany payable and receivable balances.

7. INVENTORIES

Inventories are carried at lower of cost or market, except for grain held for sale, which are reported at net realizable value.

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

	December 31,	
	2017	2016
Finished goods	$ 146,269	$ 99,009
Commodities held for sale	65,693	65,926
Raw materials	144,520	135,516
Work-in-process	320,664	91,093
Supplies and parts	34,732	30,637
	$ 711,878	$ 422,181

8. PROPERTY AND EQUIPMENT

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

	December 31,	
	2017	2016
Plant equipment	$ 1,232,724	$ 1,167,914
Buildings and improvements	212,426	205,806
Land and improvements	136,274	126,088
Railroad track and equipment	42,149	42,234
Construction-in-progress	17,019	13,745
Computer hardware and software	19,653	15,000
Office furniture and equipment	3,854	3,503
Leasehold improvements and other	27,193	22,409
Total property and equipment	1,691,292	1,596,699
Less: accumulated depreciation and amortization	(514,585)	(417,993)
Property and equipment, net	$ 1,176,707	$ 1,178,706

9. GOODWILL

The company currently has three reporting units, to which goodwill is assigned. For the year ended December 31, 2016, we qualitatively assessed whether it was more likely than not that the respective fair value of each reporting unit was less than its carrying amount, including goodwill. Based on that assessment, we determined that this condition did not exist. As such, performing the first step of the two-step impairment test was unnecessary.

For the year ended December 31, 2017, the company determined a step one analysis was appropriate due to the passage of time since the last quantitative analysis was performed. A cash flow and valuation analysis was performed to estimate the fair value of each reporting unit. Significant assumptions inherent in the valuation methodologies for goodwill are employed and include, but are not limited to, prospective financial information, growth rates, discount rates, inflationary factors, and cost of capital. Based on this quantitative test, we determined that the fair value of each reporting unit exceeded its carrying amount and, therefore, step two of the two-step goodwill impairment test was unnecessary. The annual goodwill impairment reviews for the years ended December 31, 2017 and 2016, concluded that goodwill was not impaired in either of these years.

Changes in the carrying amount of goodwill attributable to each business segment during the years ended December 31, 2017 and 2016 were as follows (in thousands):

	Ethanol Production	Food and Ingredients	Partnership	Total
Balance, December 31, 2015	$ 30,279	$ -	$ 10,598	$ 40,877
Acquisition of Fleischmann's Vinegar	-	142,819	-	142,819
Balance, December 31, 2016	30,279	142,819	10,598	183,696
Adjustment to preliminary Fleischmann's Vinegar Valuation	-	(817)	-	(817)
Balance, December 31, 2017	$ 30,279	$ 142,002	$ 10,598	$ 182,879

As of December 31, 2017, based on the final valuations in connection with the Fleischmann’s acquisition, the fair value of goodwill was reduced by $0.8 million.

10. DERIVATIVE FINANCIAL INSTRUMENTS

At December 31, 2017, the company’s consolidated balance sheet reflected unrealized losses of $13.1 million, net of tax, in accumulated other comprehensive loss. The company expects these losses will be reclassified as operating income over the next 12 months as a result of hedged transactions that are forecasted to occur. The amount realized in operating income will differ as commodity prices change.

Fair Values of Derivative Instruments

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

	Asset Derivatives' Fair Value at December 31,		Liability Derivatives' Fair Value at December 31,	
	2017	2016	2017	2016
Derivative financial instruments (1)	$ 12,045 (2)	$ 14,818 (3)	$ 12,884	27,099
Other liabilities	-	-	92	81
Total	$ 12,045	$ 14,818	$ 12,976	$ 27,180

(1) At December 31, 2017, derivative financial instruments, as reflected on the balance sheet, includes margin deposits of $18.2 million and net unrealized gains on exchange traded futures and options contracts of $8.5 million. At December 31, 2016, derivative financial instruments includes margin deposits of $50.6 million and net unrealized losses on exchange traded futures and options contracts of $18.2 million.

(1) Balance at December 31, 2017, includes $0.3 million of net unrealized gains on derivative financial instruments designated as cash flow hedging instruments.

(2) Balance at December 31, 2016, includes $17.0 million of net unrealized losses on derivative financial instruments designated as cash flow hedging instruments.

Refer to Note 5 - Fair Value Disclosures, which contains fair value information related to derivative financial instruments.

Effect of Derivative Instruments on Consolidated Statements of Income and Consolidated Statements of Stockholders’ Equity and 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 or (Loss) Reclassified from Accumulated Other Comprehensive Income into Income	Amount of Gain or (Loss) Reclassified from Accumulated Other Comprehensive Income into Income Year Ended December 31,		
	2017	2016	2015
Revenues	$ 18,167	$ (8,094)	$ 8,420
Cost of goods sold	(11,936)	(16,508)	(3,551)
Net increase (decrease) recognized in earnings before tax	$ 6,231	$ (24,602)	$ 4,869

Gain or (Loss) Recognized in Other Comprehensive Income on Derivatives	Amount of Gain or (Loss) Recognized in Other Comprehensive Income on Derivatives Year Ended December 31,		
	2017	2016	2015
Commodity Contracts	$ (8,015)	$ (29,238)	$ 11,582

Derivatives Not Designated as Hedging Instruments	Location of Gain or (Loss Recognized in Income on Derivatives	Amount of Gain or (Loss) Recognized in Income on Derivatives Year Ended December 31,		
		2017	2016	2015
Commodity Contracts	Revenues	$ (12,583)	$ 6,071	$ (12,995)

Commodity Contracts	Costs of goods sold	27,078	11	10,492
		$ 14,495	$ 6,082	$ (2,503)

The Effect of Cash Flow and Fair Value Hedge Accounting on the Statement of Financial Performance
For the Years Ended December 31,

	Location and Amount of Gain or (Loss) Recognized in Income on Cash Flow and Fair Value Hedging Relationships					
	2017		2016		2015	
	Revenue	Cost of Goods Sold	Revenue	Cost of Goods Sold	Revenue	Cost of Goods Sold
Gain or (loss) on cash flow hedging relationships:						
Commodity contracts:						
Amount of gain or loss reclassified from accumulated other comprehensive income into income	$ 18,167	$ (11,936)	$ (8,094)	$ (16,508)	$ 8,420	$ (3,551)
Gain or (loss) on fair value hedging relationships:						
Commodity contracts:						
Hedged item	1,451	(6,229)	1,388	21,430	-	(7,819)
Derivatives designated as hedging instruments	(1,734)	8,530	(1,388)	(16,219)	-	12,045
Total amounts of income and expense line items presented in the statement of financial performance in which the effects of cash flow or fair value hedges are recorded	$ 17,884	$ (9,635)	$ (8,094)	$ (11,297)	$ 8,420	$ 675

There were no gains or losses from discontinuing cash flow hedge treatment during the years ended December 31, 2017, 2016 and 2015.

The open commodity derivative positions as of December 31, 2017, are as follows (in thousands):

December 31, 2017						
	Exchange Traded		Non-Exchange Traded			
Derivative Instruments	Net Long & (Short) (1)		Long (2)	(Short) (2)	Unit of Measure	Commodity
Futures	(43,340)				Bushels	Corn, Soybeans and Wheat
Futures	5,880	(3)			Bushels	Corn
Futures	10,826				Gallons	Ethanol
Futures	(130,494)	(3)			Gallons	Ethanol
Futures	(14,620)				mmBTU	Natural Gas
Futures	100				Pounds	Livestock
Futures	(300,480)	(3)			Pounds	Livestock
Futures	(44)				Barrels	Crude Oil
Futures	3,108	(3)			Gallons	Natural Gasoline
Options	1,841				Gallons	Ethanol
Options	(35)				mmBTU	Natural Gas
Options	15,088				Pounds	Livestock
Options	19				Barrels	Crude Oil
Forwards			15,784	(460)	Bushels	Corn and Soybeans
Forwards			61,635	(353,129)	Gallons	Ethanol
Forwards			217	(306)	Tons	Distillers Grains
Forwards			10,196	(86,729)	Pounds	Corn Oil
Forwards			12,919	(1,861)	mmBTU	Natural Gas

(1) Exchange traded futures and options are presented on a net long and (short) position basis. Options are presented on a delta-adjusted basis.
(2) Non-exchange traded forwards are presented on a gross long and (short) position basis including both fixed-price and basis contracts.
(3) Futures used for cash flow hedges.

Energy trading contracts that do not involve physical delivery are presented net in revenues on the consolidated statements of income. Included in revenues are net gains of $35.4 million, $11.6 million, and $9.6 million for the years ended December 31, 2017, 2016, and 2015 respectively, on energy trading contracts.

11. DEBT

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

	December 31,	
	2017	2016
Corporate:		
$500.0 million term loan	$ 498,750	$ -
$120.0 million convertible notes due 2018	61,442	110,328
$170.0 million convertible notes due 2022	136,739	131,300
Green Plains Partners:		
$195.0 million revolving credit facility	126,900	129,000
Green Plains Processing:		
$345.0 million term loan	-	301,095
Fleischmann's Vinegar:		
$130.0 million term loan	-	129,675
$15.0 million revolving credit facility	-	4,000
Other	27,744	29,167
Total face value of long-term debt	851,575	834,565
Unamortized debt issuance costs	(16,256)	(16,896)
Less: current portion of long-term debt	(67,923)	(35,059)
Total long-term debt	$ 767,396	$ 782,610

Scheduled long-term debt repayments, including full accretion of the $120.0 million convertible notes due 2018 and of the $170.0 million convertible notes due 2022 at maturity but excluding the effects of any debt discounts and debt issuance costs, are as follows (in thousands):

Year Ending December 31,	Amount
2018	$ 70,214
2019	6,582
2020	133,038
2021	6,007
2022	176,016
Thereafter	495,271

Total	$ 887,128

Short-term notes payable and other borrowings at December 31, 2017 include working capital revolvers at Green Plains Cattle, Green Plains Grain and Green Plains Trade with outstanding balances of $270.9 million, $75.0 million, and $180.3 million, respectively. Short-term notes payable and other borrowings at December 31, 2016 include working capital revolvers at Green Plains Cattle, Green Plains Grain and Green Plains Trade with outstanding balances of $63.5 million, $102.0 million and $125.7 million, respectively.

Corporate Activities

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 may settle the 4.125% notes in cash, common stock or a combination of cash and common stock.

Prior to March 1, 2022, the 4.125% notes are not convertible unless certain conditions are satisfied. The conversion rate is subject to adjustment upon the occurrence of certain events, including when the quarterly cash dividend exceeds $0.12 per share and upon redemption of the 4.125% notes. 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 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 September 2013, the company issued $120.0 million of 3.25% convertible senior notes due 2018, or the 3.25% notes. The 3.25% notes are senior, unsecured obligations of the company, with interest payable on April 1 and October 1 of each year. The Company may settle the 3.25% notes in cash, common stock or a combination of cash and common stock.

Prior to April 1, 2018, the 3.25% notes are not convertible unless certain conditions are satisfied. The conversion rate is subject to adjustment when the quarterly cash dividend exceeds $0.04 per share. The conversion rate was recently adjusted to 50.2408 shares of common stock per $1,000 of principal, which is equal to a conversion price of approximately $19.90 per share. The company may be obligated to increase the conversion rate in certain events, including redemption of the 3.25% notes.

The company may redeem all of the 3.25% notes at any time on or after October 1, 2016, 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 3.25% notes have the option to require the company to repurchase the 3.25% 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 3.25% notes being declared due and payable.

During the second quarter of 2017, the company entered into several privately negotiated agreements with holders, on behalf of certain beneficial owners of the company’s 3.25% notes. Under these agreements, 2,783,725 shares of the company’s common stock and approximately $8.5 million in cash plus accrued but unpaid interest on the 3.25% notes, were exchanged for approximately $56.3 million in aggregate principal amount of the 3.25% notes. Common stock held as treasury shares were exchanged for the 3.25% notes. Following the closings of the agreements, $63.7 million aggregate principal amount of the 3.25% notes remain outstanding.

At issuance, the company separately accounted for the liability and equity components of the convertible notes by bifurcating the gross proceeds between the indebtedness, or liability component, and the embedded conversion option, or equity component. This bifurcation was done by estimating an effective interest rate on the date of issuance for

similar notes. The embedded conversion option was recorded in stockholders' equity. Since the company did not exercise the embedded conversion option associated with the notes, pursuant to the guidance within ASC Topic 470, Debt, the company recorded a loss upon extinguishment measured by the difference between the fair value and carrying value of the liability portion of the notes. As a result, the company recorded a charge to interest expense in the consolidated financial statements of approximately $1.3 million during the three months ended June 30, 2017. This charge included $0.6 million of unamortized debt issuance costs related to the principal balance extinguished. The remaining settlement consideration transferred was allocated to the reacquisition of the embedded conversion option and recognized as a reduction of additional paid-in capital.

On August 29, 2017, the company entered into a $500.0 million term loan agreement, which matures on August 29, 2023, to refinance approximately $405.0 million of total debt outstanding issued by Green Plains Processing and Fleischmann's Vinegar, pay associated fees and expenses and for general corporate purposes. The term loan is guaranteed by the company and substantially all of its subsidiaries, but not Green Plains Partners and certain other entities, and secured by substantially all of the assets of the company, including 17 ethanol production facilities, vinegar production facilities and a second priority lien on the assets secured under the revolving credit facilities at Green Plains Trade, Green Plains Cattle and Green Plains Grain.

The credit agreement contains certain customary representations and warranties, affirmative covenants, negative covenants, financial covenants and events of default. The negative covenants include restrictions on the ability to incur additional indebtedness, acquire and sell assets, create liens, make investments, make distributions and enter into transactions with affiliates. At the end of each fiscal quarter, the covenants of the credit agreement require the company to maintain a maximum term debt to total term capitalization of not more than 55% and a minimum interest coverage ratio of not less than 1.25x, as defined in the credit agreement. Beginning in 2018, the credit facility also has a provision requiring the company to make special annual payments of 50% or 75% of its available free cash flow, subject to certain limitations. Voluntary term loan prepayments are subject to prepayment fees of 1.0% if prepaid before the eighteen month anniversary of the credit

agreement. Beginning in the fourth quarter of 2017, scheduled principal payments are $1.25 million until maturity. The term loan bears interest at a floating rate of a base rate plus a margin of 4.50% or LIBOR plus a margin of 5.50%.

Ethanol Production Segment

Green Plains Processing had a $345.0 million senior secured credit facility, which was guaranteed by the company and certain subsidiaries of Green Plains Processing and secured by the stock and substantially all of the assets of Green Plains Processing. The interest rate was LIBOR, subject to a 1.00% floor, plus 5.50% and was scheduled to mature on June 30, 2020. The terms of the credit facility required the borrower to maintain a maximum total leverage ratio of 4.00x at the end of each quarter, decreasing to 3.25x over the life of the credit facility, and a minimum fixed charge coverage ratio of 1.25x. This senior secured credit facility was extinguished in full on August 29, 2017 with the proceeds from the new $500.0 million secured term loan facility. In connection with the extinguishment of the senior secured credit facility, the company wrote off deferred financing fees of $5.9 million which were recorded as interest expense in the consolidated statement of operations during the three months ended September 30, 2017.

Agribusiness and Energy Services Segment

Green Plains Grain has a $125.0 million senior secured asset-based revolving credit facility, to finance working capital up to the maximum commitment based on eligible collateral equal to the sum of percentages of eligible cash, receivables and inventories, less miscellaneous adjustments. The credit facility matures on July 26, 2019. Advances are subject to an interest rate equal to LIBOR plus 3.00% or the lenders' base rate plus 2.00%. The credit facility also includes an accordion feature that enables the facility to be increased by up to $75.0 million with agent approval. The credit facility can also be increased by up to $50.0 million for seasonal borrowings. Total commitments outstanding cannot exceed $250.0 million.

Lenders receive a first priority lien on certain cash, inventory, accounts receivable and other assets owned by Green Plains Grain as security on the credit facility. The terms impose affirmative and negative covenants, including maintaining minimum working capital of $20.0 million and tangible net worth of $26.3 million for 2017. Capital expenditures are limited to $8.0 million per year under the credit facility, plus equity contributions from the company and unused amounts of up to $8.0 million from the previous year. In addition, the credit facility requires the company to maintain a minimum fixed charge coverage ratio of 1.25 to 1.00 and a maximum annual leverage ratio of 6.00 to 1.00 at the end of each quarter. The fixed charge coverage ratio and long-term capitalization ratio apply only if Green Plains Grain has long-term indebtedness on the date of calculation. As of December 31, 2017, Green Plains Grain had no long-term indebtedness. The credit facility also contains restrictions on distributions related to capital stock, with exceptions for distributions up to 50% of net profit before tax, subject to certain conditions.

Green Plains Trade has a senior secured asset-based revolving credit facility, which was amended on July 28, 2017, to increase the maximum commitment from $150 million to $300 million and extend the maturity date to July 28, 2022. The revolving credit facility finances working capital for marketing and distribution activities based on eligible collateral equal to the sum of percentages of eligible receivables and inventories, less miscellaneous adjustments. The amended $300 million maximum commitment consists of a $285 million credit facility and a $15 million first-in-last-out (FILO) credit facility. The amended credit facility also includes an accordion feature that enables the credit facility to be increased by up to $70.0 million with agent approval. Advances are subject to variable interest rates equal to daily LIBOR plus 2.25% on the credit facility and daily LIBOR plus 3.25% on the FILO credit facility. The total unused portion of the $300 million revolving credit facility is also subject to a commitment fee of 0.375% per annum.

The terms impose affirmative and negative covenants, including maintaining a fixed charge coverage ratio of 1.15x. Capital expenditures are limited to $1.5 million per year under the credit facility. The credit facility also restricts distributions related to capital stock, with an exception for distributions up to 50% of net income if, on a pro forma basis, (a) availability has been greater than $10.0 million for the last 30 days and (b) the borrower would be in compliance with the fixed charge coverage ratio on the distribution date.

At December 31, 2017, Green Plains Trade had $0.5 million presented as restricted cash on the consolidated balance sheet, the use of which was restricted for repayment towards the outstanding loan balance.

Food and Ingredients Segment

Green Plains Cattle has a $425.0 million senior secured asset-based revolving credit facility, which matures on April 30, 2020, to finance working capital for the cattle feeding operations up to the maximum commitment based on eligible collateral equal to the sum of percentages of eligible receivables, inventories and other current assets, less miscellaneous adjustments. Advances, as amended, are subject to variable interest rates equal to LIBOR plus 2.00% to 3.00%, or the base rate plus

1.00% to 2.00%, depending upon the preceding three months' excess borrowing availability. The amended credit facility also includes an accordion feature that enables the credit facility to be increased by up to $75.0 million with agent approval. The unused portion of the credit facility is also subject to a commitment fee of 0.20% to 0.30% per annum, depending on the preceding three months' excess borrowing availability.

Lenders receive a first priority lien on certain cash, inventory, accounts receivable, property and equipment and other assets owned by Green Plains Cattle as security on the credit facility. The amended terms impose affirmative and negative covenants, including maintaining working capital of 15% of the commitment amount, tangible net worth of 20% of the commitment amount, plus 50% of net profit from the previous year, and a total debt to tangible net worth ratio of 3.50x. Capital expenditures are limited to $10.0 million per year under the credit facility, plus $10.0 million per year if funded by a contribution from parent, plus any unused amounts from the previous year.

On April 28, 2017, we amended the revolving credit facility to fund the additional working capital requirements related to the acquisition of two cattle feeding operations. The amendment increased the maximum commitment from $100.0 million to $200.0 million until July 31, 2017, when it increased to $300.0 million. The maturity date was extended from October 31, 2017 to April 30, 2020.

On November 16, 2017, we amended the revolving credit facility, to increase the maximum commitment from $300.0 million to $425.0 million, with an additional $75.0 million available to Green Plains Cattle under an accordion feature. Additionally, the amendment increased the swing-line sublimit from $15.0 million to $20.0 million. All other terms and conditions of the credit facility remain the same.

Fleischmann's Vinegar had a $130.0 million senior secured term loan and a $15.0 million senior secured revolving credit facility, which were used to finance the purchase of Fleischmann's Vinegar and to fund working capital for its vinegar manufacturing operations, and were scheduled to mature on October 3, 2022. Beginning January 1, 2017, the term loan was subject to mandatory prepayments based on the preceding fiscal year's excess cash flow. Term loan prepayments were generally subject to prepayment fees of 1.0% to 2.0% if prepaid before the second anniversary of the credit agreement. The term loan and loans under the revolving credit facility each bore interest at a floating rate based on the consolidated total net leverage ratio, adjusted quarterly beginning September 30, 2017, to either a base rate plus an applicable margin of 5.0% to 6.0% or to LIBOR plus an applicable margin of 6.0% to 7.0%. The unused portion of the revolving credit facility was also subject to a commitment fee of 0.5% per annum.

This senior secured credit term loan and senior secured revolving credit facility were extinguished in full on August 29, 2017 with the proceeds from the new $500.0 million secured term loan facility. In connection with the extinguishment of the senior secured credit facility, the company wrote off deferred financing fees of $3.5 million and

paid a prepayment penalty of $2.9 million. These expenses were recorded as interest expense in the consolidated statement of operations during the three months ended September 30, 2017.

Partnership Segment

Green Plains Partners, through a wholly owned subsidiary, has a $195.0 million revolving credit facility, as amended, which matures on July 1, 2020, to fund working capital, acquisitions, distributions, capital expenditures and other general partnership purposes. Advances under the credit facility are subject to a floating interest rate based on the preceding fiscal quarter's consolidated leverage ratio at a base rate plus 1.25% to 2.00% or LIBOR plus 2.25% to 3.00%. The credit facility may be increased up to $60.0 million without the consent of the lenders. The unused portion of the credit facility is also subject to a commitment fee of 0.35% to 0.50%, depending on the preceding fiscal quarter's consolidated leverage ratio.

The partnership's obligations under the credit facility are secured by a first priority lien on (i) the capital stock 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 agreements with Green Plains Trade, and (iii) all proceeds and products of the equity interests of the partnership's present and future subsidiaries and its personal property. The terms impose affirmative and negative covenants including restricting 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 credit facility also requires the partnership to maintain a maximum consolidated net leverage ratio of no more than 3.50x, and a minimum consolidated interest coverage ratio of no less than 2.75x, each of which is calculated on a pro forma basis with respect to acquisitions and divestitures occurring during the applicable period.

On October 27, 2017, the partnership upsized its revolving credit facility by $40.0 million, from $155.0 million to $195.0 million, by accessing a portion of the $100.0 million incremental commitment in place on the facility.

In June 2013, the company issued promissory notes payable of $10.0 million and a note receivable of $8.1 million to execute a New Markets Tax Credit transaction related to the Birmingham, Alabama terminal. Beginning in March 2020, the promissory notes and note receivable each require quarterly principal and interest payments of approximately $0.2 million. The company retains the right to call $8.1 million of the promissory notes in 2020. The promissory notes payable and note receivable will be fully amortized upon maturity in September 2031. Income tax credits were generated for the lender, which the company has guaranteed over their statutory life of seven years in the event the credits are recaptured or reduced. At the time of the transaction, the income tax credits were valued at $5.0 million. The company has not established a liability in connection with the guarantee because it believes the likelihood of recapture or reduction is remote.

Covenant Compliance

The company was in compliance with its debt covenants as of December 31, 2017.

Capitalized Interest

The company had $0.1 million, $0.8 million, and $1.1 million in capitalized interest during the years ended December 31, 2017, 2016 and 2015, respectively.

Restricted Net Assets

At December 31, 2017, there were approximately $142.8 million of net assets at the company’s subsidiaries that could not be transferred to the parent company in the form of dividends, loans or advances due to restrictions contained in the credit facilities of these subsidiaries.

12. STOCK-BASED COMPENSATION

The company has an equity incentive plan that reserves 4,110,000 shares of common stock for issuance to its directors and employees. 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, and restricted and deferred stock unit awards, to be granted to eligible employees, non-employee directors and consultants. The company measures stock-based compensation at fair value on the grant date, adjusted 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. Substantially all of the existing stock-based compensation has been equity awards.

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

- Options – Stock options may be granted that can be exercised immediately in installments or at a fixed future date. Certain options are exercisable regardless of employment status while others expire following termination. Options issued to date may be exercised immediately or at future vesting dates, and expire five to eight years after the grant date. Compensation expense for stock options that vest over time is recognized on a straight-line basis over the requisite service period.

- Stock Awards – Stock awards may be granted to directors and employees that vest immediately or over a period of time as determined by the compensation committee. Stock awards granted to date vested immediately and over a period of time, and included sale restrictions. Compensation expense is recognized on the grant date if fully vested or over the requisite vesting period.

- Deferred Stock Units – Deferred stock units may be granted to directors and employees that vest immediately or over a period of time as determined by the compensation committee. Deferred stock units granted to date vest over a period of time with underlying shares of common stock that are issuable after the vesting date. Compensation expense is recognized on the grant date if fully vested, or over the requisite vesting period.

The fair value of the stock options is estimated on the date of the grant using the Black Scholes option pricing model, a pricing model acceptable under GAAP. The expected life of the options is the period of time the options are expected to be outstanding. The company did not grant any stock option awards during the years ended December 31, 2017, 2016 and 2015.

The activity related to the exercisable stock options for the year ended December 31, 2017, is as follows:

	Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in thousands)
Outstanding at December 31, 2016	148,750	$ 12.36	2.8	$ 2,305
Granted	-	-	-	-
Exercised	(5,000)	10.00	-	78
Forfeited	-	-	-	-
Expired	-	-	-	-
Outstanding at December 31, 2017	143,750	$ 12.44	1.8	$ 635
Exercisable at December 31, 2017 (1)	143,750	$ 12.44	1.8	$ 635

(1) Includes in-the-money options totaling 133,750 shares at a weighted-average exercise price of $12.10.

Option awards allow employees to exercise options through cash payment for the shares of common stock or simultaneous broker-assisted transactions in which the employee authorizes the exercise and immediate sale of the option in the open market. The company uses newly issued shares of common stock to satisfy its stock-based payment obligations.

The non-vested stock award and deferred stock unit activity for the year ended December 31, 2017, are as follows:

	Non-Vested Shares and Deferred Stock Units	Weighted-Average Grant-Date Fair Value	Weighted-Average Remaining Vesting Term (in years)
Nonvested at December 31, 2016	1,139,560	$ 17.65	
Granted	569,290	23.98	
Forfeited	(43,254)	19.18	
Vested	(596,649)	18.64	
Nonvested at December 31, 2017	1,068,947	$ 20.41	1.8

Green Plains Partners

Green Plains Partners has adopted the LTIP, an incentive plan intended to promote the interests of the partnership, its general partner and affiliates by providing incentive compensation based on units to employees, consultants and directors to encourage superior performance. The incentive plan reserves 2,500,000 common units for issuance in the form of options, restricted units, phantom units, distributable equivalent rights, substitute awards, unit appreciation rights, unit awards, profits 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.

The non-vested stock award and deferred stock unit activity for the year ended December 31, 2017, are 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, 2016	15,009	$ 15.99	
Granted	15,827	18.96	
Forfeited	(4,278)	18.70	
Vested	(15,009)	15.99	
Nonvested at December 31, 2017	11,549	$ 19.06	0.5

Compensation costs for stock-based and unit-based payment plans during the years ended December 31, 2017, 2016 and 2015, were approximately $12.2 million, $9.5 million and $8.8 million, respectively. At December 31, 2017, there were $13.0 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 1.8 years. The potential tax benefit related to stock-based payment is approximately 24.3% of these expenses.

13. 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.

During 2016, diluted EPS was computed using the treasury stock method for the convertible debt instruments, by dividing net income by the weighted average number of common shares outstanding during the period, adjusted for the dilutive effect of the convertible debt instruments and any other outstanding dilutive securities. During the first quarter of 2017, the company changed its method for calculating dilutive EPS related to its convertible debt instruments from the treasury stock method to the if-converted method, as the company changed its financial strategy with respect to cash settlement of these instruments. As such, the company computed diluted EPS for 2017 by dividing net income on an if-converted basis, adjusted to add back net interest expense related to the convertible debt instruments, by the weighted average number of common shares outstanding during the period, adjusted to include the shares that would be issued if the convertible debt instruments were converted to common shares and the effect of any outstanding dilutive securities.

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

	Year Ended December 31,		
	2017	2016	2015
Basic EPS:			
Net income attributable to Green Plains	$ 61,061	$ 10,663	$ 7,064
Weighted average shares outstanding - basic	39,247	38,318	37,947
EPS - basic	$ 1.56	$ 0.28	$ 0.19
Diluted EPS:			
Net income attributable to Green Plains	$ 61,061	$ 10,663	$ 7,064
Interest and amortization on convertible debt, net of tax effect:			
3.25% notes	4,433	-	-
4.125% notes	8,159	-	-
Net income attributable to Green Plains - diluted	$ 73,653	$ 10,663	$ 7,064

Weighted average shares outstanding - basic	39,247	38,318	37,947
Effect of dilutive convertible debt:			
3.25% notes	4,209	155	939
4.125% notes	6,071	-	-
Effect of dilutive stock-based compensation awards	713	100	142
Weighted average shares outstanding - diluted	50,240	38,573	39,028
EPS - diluted	$ 1.47	$ 0.28	$ 0.18

14. STOCKHOLDERS' EQUITY

Treasury Stock

The company holds 5.3 million shares of its common stock at a cost of $55.2 million. Treasury stock is recorded at cost and reduces stockholders' equity in the consolidated balance sheets. When shares are reissued, the company will use the weighted average cost method for determining the cost basis. The difference between the cost and the issuance price is added or deducted from additional paid-in capital.

Share Repurchase Program

In August 2014, the company announced a share repurchase program of up to $100 million of its common stock. Under the program, the company may repurchase shares in open market transactions, privately negotiated transactions, accelerated share buyback programs, tender offers or by other means. The timing and amount of repurchase transactions are determined by its management based on market conditions, share price, legal requirements and other factors. The program may be suspended, modified or discontinued at any time without prior notice. The company repurchased 394,677 shares of common

stock for approximately $6.7 million during 2017. Since inception, the company has repurchased 909,667 shares of common stock for approximately $16.7 million under the program.

Dividends

The company has paid a quarterly cash dividend since August 2013 and anticipates declaring a cash dividend in future quarters on a regular basis. Future declarations of dividends, however, are subject to board approval and may be adjusted as the company's liquidity, business needs or market conditions change. On February 7, 2018, the company's board of directors declared a quarterly cash dividend of $0.12 per share. The dividend is payable on March 15, 2018, to shareholders of record at the close of business on February 23, 2018.

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 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 of the partnership plus all or any portion of the cash on hand resulting from working capital borrowings made subsequent to the end of that quarter. On January 18, 2018, the board of directors of the general partner of the partnership declared a cash distribution of $0.47 per unit on outstanding common and subordinated units. The distribution is payable on February 9, 2018, to unitholders of record at the close of business on February 2, 2018.

Accumulated Other Comprehensive Income

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

	Year Ended December 31,			Statements of Income
	2017	2016	2015	Classification
Gains (losses) on cash flow hedges:				
Commodity derivatives	$ 18,167	$ (8,094)	$ 8,420	Revenues
Commodity derivatives	(11,936)	(16,508)	(3,551)	Cost of goods sold

Total	6,231	(24,602)	4,869	Income (loss) before income taxes
Income tax expense (benefit)	2,306	(8,830)	1,855	Income tax expense (benefit)
Amounts reclassified from accumulated other comprehensive income (loss)	$ 3,925	$ (15,772)	$ 3,014	

At December 31, 2017 and 2016, the company's consolidated balance sheets reflected unrealized losses of $13.1 million and $4.1 million, net of tax, in accumulated other comprehensive loss, respectively.

15. INCOME TAXES

Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the carrying amounts of existing assets and liabilities and their respective tax bases, and net operating loss and tax credit carry-forwards. Deferred tax assets and liabilities are measured using enacted rates expected to be applicable to taxable income in the years those temporary differences are recovered or settled. The effect on deferred tax assets and liabilities from a change in tax rates is recognized in income during the period that includes the enactment date. The Tax Cuts and Jobs Act was enacted on December 22, 2017 and is effective January 1, 2018. The Act reduced the federal tax rate to 21%. The company revalued its deferred liabilities at the new rate, resulting in a tax benefit of $52.8 million recorded during the fourth quarter of 2017. Due to the significance of the legislation, the SEC issued Staff Accounting Bulletin 118 (SAB 118), which provides for a measurement period to complete the accounting for certain elements of the tax reform. The company is still analyzing certain other provisions of the legislation and its impact to income taxes in the future, including interest expense deduction limitation to 30% of adjusted taxable income, use of AMT credit carryforwards, limitation of net operating loss carryforwards to 80% of taxable income, immediate expensing of capital assets acquired after September 27, 2017, and deducibility of officer compensation. Any subsequent adjustments will be recorded as tax expense during the period in which the analysis is complete.

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

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

	Year Ended December 31,		
	2017	2016	2015
Current	$ (43,705)	$ 2,950	$ 33,750
Deferred	(81,077)	4,910	(27,513)
Total	$ (124,782)	$ 7,860	$ 6,237

The variation in tax expense was due primarily to the company's recognition of tax benefits related to research and development credits, or R&D Credits, and revaluing deferred balances to reflect the reduced tax rate per the Tax Cuts and Jobs Act. A study was conducted to determine whether certain activities the company performs qualify for the R&D Credit allowed by the Internal Revenue Code Section 41. As a result of this study, the company concluded these activities do qualify for the credit and determined it was appropriate to claim the benefit of these credits for all open tax years.

During the year ended December 31, 2017, the company recognized a net income tax benefit of $48.1 million for federal and state R&D Credits relating to tax years 2013 to 2016 as well as an estimated year-to-date tax benefit for federal and state R&D Credits for the 2017 tax year. Of this amount, a net benefit of $16.4 million is expected for previously filed tax returns, recorded as a $28.8 million non-current asset and a $12.4 million tax liability. The remaining $31.7 million is expected to offset future income tax and is recorded as a deferred tax asset. In addition, $9.2 million, net, in refundable credits not dependent upon taxable income was recorded as a reduction of cost of goods sold in the current year.

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

Year Ended December 31,		
2017	2016	2015

Tax expense at federal statutory rate of 35%	$ (15,103)	$ 13,423	$ 7,513
State income tax expense, net of federal benefit	(915)	323	1,397
Nondeductible compensation	222	185	-
Noncontrolling interests	(7,199)	(6,940)	(2,857)
Unrecognized tax benefits	25,720	-	-
R&D Credits	(74,033)	-	-
Tax Cuts and Jobs Act impact	(54,485)	-	-
Other	1,011	869	184
Income tax expense	$ (124,782)	$ 7,860	$ 6,237

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

	December 31,	
	2017	2016
Deferred tax assets:		
Net operating loss carryforwards - Federal	$ 12,767	$ 2,112
Net operating loss carryforwards - State	5,291	1,290
Tax credit carryforwards - Federal	30,783	-
Tax credit carryforwards - State	5,342	3,701
Derivative financial instruments	2,592	1,218
Investment in partnerships	55,956	91,951
Inventory valuation	1,941	1,042
Stock-based compensation	2,468	3,535
Accrued expenses	5,541	10,722
Capital leases	2,426	3,764
Other	969	1,959
Total deferred tax assets	126,076	121,294
Deferred tax liabilities:		
Convertible debt	(8,350)	(17,593)
Fixed assets	(149,746)	(205,189)
Organizational and start-up costs	(20,947)	(36,464)
Total deferred tax liabilities	(179,043)	(259,246)
Valuation allowance	(3,834)	(2,310)
Deferred income taxes	$ (56,801)	$ (140,262)

The company maintains a valuation allowance for its net deferred tax assets due to uncertainty that it will realize these assets in the future. The deferred tax valuation allowance of $3.8 million as of December 31, 2017, relates to Iowa and Indiana tax credits that are not expected to be realized prior to expiration. Management considers whether it is more likely than not that some or all of the deferred tax assets will be realized, which is dependent on the generation of future taxable income and other tax attributes during the periods those temporary differences become deductible. Scheduled reversals of deferred tax liabilities, projected future taxable income, and tax planning strategies are considered to make this assessment.

The company’s federal and state returns for the tax years ended December 31, 2014, and later are still subject to audit. A reconciliation of unrecognized tax benefits is as follows (in thousands):

Unrecognized Tax Benefits	
Balance at January 1, 2017	$ 194
Additions for prior year tax positions	5
Additions for current year tax positions	25,777
Balance at December 31, 2017	$ 25,976

Recognition of these tax benefits would favorably impact the company's effective tax rate. Unrecognized tax benefits of $26.0 million include $24.5 million recorded as a reduction of the deferred asset associated with the federal tax credit carryforwards. Interest and penalties associated with uncertain tax positions are accrued as part of income taxes payable.

16. COMMITMENTS AND CONTINGENCIES

Operating Leases

The company leases certain facilities, equipment and parcels of land under agreements that expire at various dates. For accounting purposes, rent expense is based on a straight-line amortization of the total payments required over the lease. The company incurred lease expenses of $45.8 million, $38.0 million and $33.2 million during the years ended December 31, 2017, 2016 and 2015, respectively.

Aggregate minimum lease payments under these agreements for future fiscal years are as follows (in thousands):

Year Ending December 31,	Amount
2018	$ 30,966
2019	23,549
2020	18,035
2021	10,097
2022	7,988
Thereafter	18,512
Total	$ 109,147

Commodities

As of December 31, 2017, the company had contracted future purchases of grain, corn oil, natural gas, crude oil, ethanol, distillers grains and cattle, valued at approximately $303.5 million.

Legal

In November 2013, the company acquired two ethanol plants located in Fairmont, Minnesota and Wood River, Nebraska. There is ongoing litigation related to the consideration for this acquisition. On August 19, 2016, the Delaware Superior Court granted Green Plains' motion for summary judgment in part and held that the seller's attempt to disclaim liability for certain shortfall amounts through the use of a disclaimer provision was ineffective. Based on the court order, the company determined that previously accrued contingent liabilities of approximately $6.3 million no longer represented probable losses. These accruals were reversed as a reduction of cost of goods sold during the year ended December 31, 2016, because the adjustment relates to a reduction in the cost of inventory purchased in the acquisitions. Per the court's direction, the company and the seller have retained an independent accounting firm to determine if a shortfall exists and the precise shortfall due to Green Plains. The accounting firm's determination of the existence and amount of the shortfall will be submitted to the court for guidance in entering its order. The company believes the remaining amount due to Green Plains is approximately $5.5 million; however, the seller has the right to dispute the details of the calculation and appeal the underlying Superior Court order. Accordingly, the total amount Green Plains may receive is yet to be determined. The remaining amount due to the company represents a gain contingency which will not be recorded until all contingencies are resolved.

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

17. EMPLOYEE BENEFIT PLANS

The company offers eligible employees a comprehensive employee benefits plan that includes health, dental, vision, life and accidental death, short-term disability and long-term disability insurance, and flexible spending accounts. The company also offers a 401(k) plan enabling eligible employees to save for retirement on a tax-deferred basis up to the limits allowed under the Internal Revenue Code and matches up to 4% of eligible employee contributions. Employee and employer contributions are 100% vested immediately. Employer contributions to the 401(k) plan for the years ended December 31, 2017, 2016 and 2015 were $2.1 million, $1.6 million and $1.4 million, respectively.

The company contributes to a defined benefit pension plan. Since January of 2009, the benefits under the plan were frozen; however, the company remains obligated to ensure the plan is funded according to its requirements. As of December 31, 2017, the plan's assets were $5.8 million and liabilities were $6.4 million. At December 31, 2017 and 2016, net liabilities of $0.6 million and $1.1 million were included in other liabilities on the consolidated balance sheets, respectively.

18. RELATED PARTY TRANSACTIONS

Commercial Contracts

Three subsidiaries of the company have executed separate financing agreements for equipment with Amur Equipment Finance. Gordon Glade, a member of the company's board of directors, is a shareholder of Amur Equipment Finance. In March 2014, a subsidiary of the company entered into $1.4 million of new equipment financing agreements with Amur Equipment Finance. Balances of $0.6 million and $0.8 million related to these financing arrangements were included in debt

at December 31, 2017 and 2016, respectively. Payments, including principal and interest, totaled $0.3 million for each of the years ended December 31, 2017, 2016 and 2015. The weighted average interest rate for the financing agreements with Amur Equipment Finance was 6.8%.

Aircraft Leases

Effective January 1, 2015, the company entered into two agreements with an entity controlled by Wayne Hoovestol for the lease of two aircrafts. Mr. Hoovestol is chairman of the company's board of directors. The company agreed to pay $9,766 per month for the combined use of up to 125 hours per year of the aircrafts. Flight time in excess of 125 hours per year will incur additional hourly charges. During the years ended December 31, 2017, 2016 and 2015, payments related to these leases totaled $182 thousand, $190 thousand and $270 thousand, respectively. The company had $2 thousand in outstanding payables related to these agreements at December 31, 2017, and no outstanding payable related to these agreements at December 31, 2016.

19. QUARTERLY FINANCIAL DATA (Unaudited)

The following table includes unaudited financial data for each of the quarters within the years ended December 31, 2017 and 2016 (in thousands, except per share amounts), which is derived from the company's consolidated financial statements. In management's opinion, the financial data reflects all of the adjustments necessary for a fair presentation of the quarters presented. The operating results for any quarter are not necessarily indicative of results for any future period.

	Three Months Ended			
	December 31, 2017	September 30, 2017	June 30, 2017	March 31, 2017
Revenues	$ 920,984	$ 901,235	$ 886,263	$ 887,684
Costs and expenses	913,560	880,519	890,049	870,292
Operating income (loss)	7,424	20,716	(3,786)	17,392

Other expense	(18,954)	(30,062)	(17,759)	(18,122)
Income tax benefit (1)	63,877	48,775	9,749	2,381
Net income (loss) attributable to Green Plains	46,630	34,394	(16,366)	(3,597)
Basic earnings (loss) per share attributable to Green Plains	1.16	0.83	(0.41)	(0.09)
Diluted earnings (loss) per share attributable to Green Plains	0.99	0.74	(0.41)	(0.09)

	Three Months Ended			
	December 31,	September 30,	June 30,	March 31,
	2016	2016	2016	2016
Revenues	$ 932,098	$ 841,852	$ 887,727	$ 749,204
Costs and expenses	876,028	810,997	860,318	771,850
Operating income	56,070	30,855	27,409	(22,646)
Other expense	(19,433)	(12,888)	(8,953)	(12,063)
Income tax (expense) benefit	(12,199)	(5,083)	(5,471)	14,893
Net income (loss) attributable to Green Plains	18,682	7,928	8,191	(24,138)
Basic earnings (loss) per share attributable to Green Plains	0.49	0.21	0.21	(0.63)
Diluted earnings (loss) per share attributable to Green Plains	0.47	0.20	0.21	(0.63)

(1) The third and fourth quarters of 2017 reflect adjustments for R&D Credits and the reduced tax rate due to the Tax Cuts and Jobs Act.

Schedule I – Condensed Financial Information of the Registrant (Parent Company Only)

GREEN PLAINS INC.

CONDENSED FINANCIAL INFORMATION OF THE REGISTRANT

STATEMENTS OF BALANCE SHEET – PARENT COMPANY ONLY

(in thousands)

	December 31,	
	2017	2016
ASSETS		
Current assets		
Cash and cash equivalents	$ 147,928	$ 188,953
Restricted cash	13,306	16,947
Accounts receivable	7,962	285
Income tax receivable	6,413	10,379
Prepaid expenses and other	1,593	1,199
Due from subsidiaries	58,290	48,785
Total current assets	235,492	266,548
Property and equipment, net	13,869	12,900
Investment in consolidated subsidiaries	1,467,244	912,943
Deferred income taxes	69,998	87,310
Other assets	55,330	9,642
Total assets	$ 1,841,933	$ 1,289,343
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities		
Accounts payable	$ 3,421	$ 6,916
Due to subsidiaries	178,982	160,486
Accrued liabilities	22,682	20,488
Income tax payable	9,909	-
Current maturities of long-term debt	66,442	-
Total current liabilities	281,436	187,890
Long-term debt	614,358	236,056
Other liabilities	3,957	2,890
Total liabilities	899,751	426,836
Stockholders' equity		
Common stock	46	46
Additional paid-in capital	685,019	659,200
Retained earnings	325,411	283,214
Accumulated other comprehensive loss	(13,110)	(4,137)
Treasury stock	(55,184)	(75,816)
Total stockholders' equity	942,182	862,507
Total liabilities and stockholders' equity	$ 1,841,933	$ 1,289,343

See accompanying notes to the condensed financial statements.

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GREEN PLAINS INC.

CONDENSED FINANCIAL INFORMATION OF THE REGISTRANT

STATEMENTS OF INCOME – PARENT COMPANY ONLY

(in thousands)

	Year Ended December 31,		
	2017	2016	2015
Selling, general and administrative expenses	$ 977	$ 3,174	$ -
Operating (loss)	(977)	(3,174)	-
Other income (expense)			
Interest income	1,390	1,193	838
Interest expense	(30,934)	(14,511)	(9,280)
Other, net	(244)	(8,072)	(3,366)
Total other expense	(29,788)	(21,390)	(11,808)
Loss before income taxes	(30,765)	(24,564)	(11,808)
Income tax (expense) benefit	(22,796)	12,381	4,106
Loss before equity in earnings of subsidiaries	(53,561)	(12,183)	(7,702)
Equity in earnings of consolidated subsidiaries	114,622	22,846	14,766
Net income	$ 61,061	$ 10,663	$ 7,064

See accompanying notes to the condensed financial statements.

GREEN PLAINS INC.

CONDENSED FINANCIAL INFORMATION OF THE REGISTRANT

STATEMENTS OF COMPREHENSIVE INCOME – PARENT COMPANY ONLY

(in thousands)

	Year Ended December 31,		
	2017	2016	2015
Net income	$ 61,061	$ 10,663	$ 7,064
Other comprehensive income (loss), net of tax:			
Unrealized gains (losses) on derivatives arising during period, net of tax (expense) benefit of $2,967, $10,494, and $(4,413), respectively	(5,048)	(18,744)	7,169
Reclassification of realized (gains) losses on derivatives, net of tax expense (benefit) of $2,306, $(8,830), and $1,855, respectively	(3,925)	15,772	(3,014)
Total other comprehensive income (loss), net of tax	(8,973)	(2,972)	4,155
Comprehensive income	$ 52,088	$ 7,691	$ 11,219

GREEN PLAINS INC.

CONDENSED FINANCIAL INFORMATION OF THE REGISTRANT

STATEMENTS OF CASH FLOWS – PARENT COMPANY ONLY

(in thousands)

	Year Ended December 31,		
	2017	2016	2015
Cash flows from operating activities:	$ (27,619)	$ 74,378	$ 23,488
Net cash provided (used) by operating activities	(27,619)	74,378	23,488
Cash flows from investing activities:			
Purchases of property and equipment	(2,905)	(11,556)	(1,191)
Acquisition of businesses	(61,727)	(512,356)	(116,796)
Transfer of assets to Green Plains Partners LP	-	152,312	-
Investment in consolidated subsidiaries, net	26,133	77,615	143,151
Issuance of notes receivable from subsidiaries, net of payments received	-	3,000	(3,000)
Investments in unconsolidated subsidiaries	(18,039)	(7,206)	(2,975)
Net cash provided (used) by investing activities	(56,538)	(298,191)	19,189
Cash flows from financing activities:			
Proceeds from the issuance of long-term debt	500,000	170,000	-
Payments of principal on long-term debt	(405,335)	-	-
Payments for repurchase of common stock	(6,724)	(6,005)	(4,003)
Payment of cash dividends	(18,864)	(18,423)	(15,191)
Payment of loan fees	(12,978)	(5,651)	-
Cash payment for exchange of 3.25% convertible notes due 2018	(8,523)	-	-
Payments related to tax withholdings for stock-based compensation	(4,494)	(2,206)	(3,644)
Proceeds from the exercise of stock options	50	1,757	766
Net cash provided (used) by financing activities	43,132	139,472	(22,072)

Net change in cash and equivalents	(41,025)	(84,341)	20,605
Cash and cash equivalents, beginning of period	188,953	273,294	252,689
Cash and cash equivalents, end of period	$ 147,928	$ 188,953	$ 273,294

See accompanying notes to the condensed financial statements.

GREEN PLAINS INC.

CONDENSED FINANCIAL INFORMATION OF THE REGISTRANT

NOTES TO CONDENSED FINANCIAL STATEMENTS – PARENT COMPANY ONLY

1. BASIS OF PRESENTATION

References to “parent company” refer to Green Plains Inc., a holding company that conducts substantially all of its business operations through its subsidiaries. The parent company is restricted from obtaining funds from certain subsidiaries through dividends, loans or advances. See Note 11 – Debt in the notes to the consolidated financial statements for additional information. Accordingly, these condensed financial statements are presented on a “parent-only” basis, in which the parent company’s investments in its consolidated subsidiaries are presented under the equity method of accounting. These financial statements should be read in conjunction with Green Plains Inc.’s audited consolidated financial statements included in this report.

Reclassifications

Certain prior year amounts were reclassified to conform to the current year presentation. These reclassifications did not affect total revenues, costs and expenses, net income or stockholders’ equity.

2. COMMITMENTS AND CONTINGENCIES

Operating Leases

The parent company leases certain facilities under agreements that expire at various dates. For accounting purposes, rent expense is based on a straight-line amortization of the total payments required over the lease term. The parent

company incurred lease expenses of $2.0 million, $1.1 million and $1.1 million during the years ended December 31, 2017, 2016 and 2015, respectively. Aggregate minimum lease payments under these agreements for future fiscal years are as follows (in thousands):

Year Ending December 31,	Amount
2018	$ 2,069
2019	1,897
2020	1,372
2021	1,332
2022	1,388
Thereafter	13,295
Total	$ 21,353

Parent Guarantees

The various operating subsidiaries of the parent company enter into contracts as a routine part of their business activities, which are guaranteed by the parent company in certain instances. Examples of these contracts include financing and lease arrangements, commodity purchase and sale agreements, and agreements with vendors. As of December 31, 2017, the parent company had $309.3 million in guarantees of subsidiary contracts and indebtedness.

3. DEBT

Parent company debt as of December 31, 2017, consists of a $500.0 million term loan agreement which matures in 2023, 3.25% convertible senior notes due 2018 and 4.125% convertible senior notes due 2022. Scheduled long-term debt repayments, including full accretion at their maturity but excluding the effects of the debt discounts, are as follows (in thousands):

Year Ending December 31,	Amount
2018	$ 68,734
2019	5,000
2020	5,000
2021	5,000
2022	175,000
Thereafter	473,750
Total	$ 732,484

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